SHARK NEWS

Newsletter
of the IUCN SSC Shark
Specialist Group
#11 | January 2025

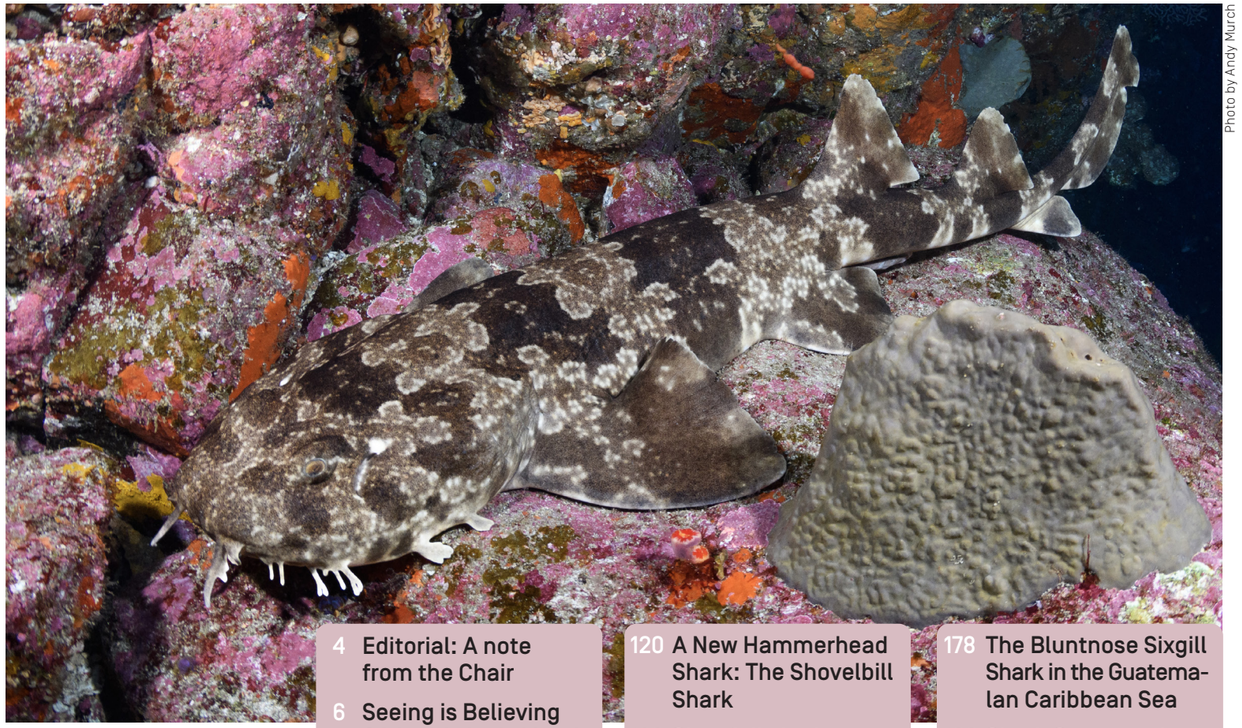
IUCN SSC
Shark Specialist Group

Our Vision

A world where sharks, rays, and chimaeras are valued and managed sustainably

Our Mission

To secure the conservation, management and, where necessary, the recovery of the world's sharks, rays, and chimaeras by mobilizing technical and scientific expertise to provide the knowledge that enables action



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Front Cover: Australian Swellshark *Cephaloscyllium laticeps* in Tasmania, Australia | Back Cover: Japanese Bullhead Shark *Heterodontus japonicus* in Japan

Photos by Andy Murch
www.sharksandrays.com

Editorial

A note from the Chair Rima Jabado

Artwork by Keith Wilmer

Dear readers,

The old adage that “a picture is worth a thousand words” really holds true in this issue of Shark News. You can truly immerse yourself in the stunning photographs that Andy Murch has captured on his quest to document every species of sharks, rays, and chimaeras across the globe. These incredible images remind us not only of the breathtaking beauty of these animals but also of why we must ensure their preservation for future generations. I hope that one day I will have the chance to witness even half of these species in the wild—preferably underwater, rather than at a landing site. However, these photographs also serve as a powerful reminder of the impact humans can have when interacting with these species in their natural habitats. Our final factsheet in our series on human impacts focuses on tourism—whether it be viewing, diving, or snorkeling—and highlights the importance of codes of conduct to ensure both our safety and the safety of the sharks and rays we observe. Beyond tourism, human activities continue to affect sharks in surprising ways. For example, catsharks are now laying eggs on plastic waste like ropes and lines—showcasing how we have altered their environment in ways we may not have anticipated. As always, we are still learning about these fascinating creatures, and this issue also provides an overview of some of the coolest discoveries from the past year. We also shine a spotlight on the Central America and Caribbean region. From the discovery of a new species of hammerhead shark in Belize, to the ongoing efforts in Guatemala where surveys are expanding to remote coastal communities, we are gaining invaluable insights into the shark populations in these areas. These findings, along with education programs in India that aim to inspire young people living near the ocean to protect sharks and rays, are critical for long-term conservation. Throughout this issue, you’ll find a recurring theme: the value of landing and market surveys to understand the status of sharks and how they are impacted by fisheries. Surveys in Malaysia showcase how important data on species distribution can also be gathered. Importantly, recovery efforts are now also underway for many shark species. One example is the recently published Oceanic Whitetip Shark recovery plan, which outlines clear actions to help this species rebound. It’s inspiring to see such concrete steps being taken to protect and restore shark populations. Were are also making remarkable progress with the Important Shark and Ray Areas (ISRA) initiative. We have completed six ISRA regions, representing more than half of our ocean. Currently, the ISRA team and I are in Montevideo, Uruguay, collaborating with a dedicated group of experts to finalize delineations for the South American Atlantic and Inland Waters regions. Putting sharks on the map is not only a scientific effort but a journey of discovery, and I encourage you all to explore the ISRA eAtlas (www.sharkrayareas.org) to learn more about the remarkable behaviors of these species. Soon, you’ll be able to contribute to the monitoring of ISRAs and other important areas for sharks and rays through citizen science initiatives like the PADI AWARE Foundation’s Global Shark and Ray Census. This initiative, which encourages people to log their animal encounters using a simple app, will help track sites of importance and improve our knowledge of species’ behaviors and distributions. The final months of 2024 were packed with milestones, including the release of the Global Status of Sharks, Rays, and Chimaeras report. After two years of coordinating contributions from over 350 people, we’re proud to have published a comprehensive snapshot of the status of sharks, rays, and chimaeras across the globe. It’s a massive undertaking that will continue to inform policy and scientific efforts moving forward. As always, I would like to extend my heartfelt thanks to Michael and Peter Scholl for their unwavering support in making this newsletter a reality, despite their incredibly busy schedules. And thank you all for your continued commitment to the protection of sharks, rays, and chimaeras. Your passion, dedication, and efforts make all the difference in the ongoing work to ensure the survival of these incredible species.

↪ Rima

Photo by Andy Murch | www.sharksandrays.com

Australian Swellshark
Cephaloscyllium laticeps
in Tasmania, Australia

Seeing is believing

Q&A

Wildlife photographer Andy Murch is on a mission to snap every shark and ray species accessible in the wild, helping to illuminate a fascinating, misunderstood, and diminishing world.

Written by Chelsea Stein

Japanese Butterfly Ray
Gymnura japonica

Q&A

In this Q&A, explore how Andy captures sharks and rays in their element, see the impact of photography for conservation and research, and more

Photo by Andy Murch | www.sharksandrays.com

Broadnose Sevengill Shark
[*Notorynchus cepedianus*]
in South Africa

Earth's oceans are a vast, fascinating world. For many, the wonder of the ocean sparks a yearning to discover and understand the countless creatures who live underwater. Take Andy Murch, who started diving in the 1990s. Over the last 25 years, he has built a successful career as an award-winning wildlife photographer, specializing in showcasing sharks, rays, and other marine megafauna.

"I have always felt a compulsion to record what I see," he said. "[When I started diving,] I would sketch the highlights of my dives in my logbook. Unable to keep up with the sheer diversity of marine life I encountered, I bought a digital camera and a cheap housing. Within minutes of submerging with a camera in my hands, I was utterly addicted."

Andy's career has been fueled by his unwavering passion for seeing different shark and ray species. From chasing Yellow Stingray (*Urobatis jamaicensis*) and Spotted Eagle Ray (*Aetobatus narinari*) in the Grand Cayman to photographing a Clouded Angelshark (*Squatina nebulosa*) after a dozen trips to Japan, he says finding elusive species has always been a thrill. Topping it off, Andy has had an impact on research and conservation communities, establishing a foundation for shark and ray imagery online—before Google ever existed.

"Once I had built a small portfolio of shark and ray images, I became obsessed with finding more, but twenty years ago the internet was in its infancy," he explained. "So, I built my own website (elasmodiver.com) to share intel about where to find elusive species. It became quite popular and was occasionally even cited in research papers."

Today, the website has transformed into sharksandrays.com, offering information and images on more than 260 shark, ray, and chimaera species photographed by Andy. Topping it off, Andy launched Big Fish Expeditions, a world-class ecotourism company in 2010, and Predators in Peril, a free image-sharing initiative for conservation groups and non-profit organizations in 2006. Each endeavor, in its own way, helps to broaden awareness about the misunderstood and diminishing world of sharks and rays.
"Through Big Fish Expeditions, I lead trips all over the world to dive with sharks and photograph a wide variety of other big animals. I have a great respect for sharks and their environment, and I believe and hope that my passion for elasmobranchs rubs off on my clients when they travel with me. The income generated by Big Fish Expeditions funds my field trips to photograph new sharks and rays. With Predators in Peril," he continued, "I freely share my images with any conservation groups that have need of them. Over the years, hundreds of organizations have utilized my images to illustrate their campaigns."

Andy continues to venture on his mission to photograph every shark and ray accessible in the wild and is doing so at an astonishing pace. He says he is capturing around 30 new species each year, hoping to complete the task in five years, with an end goal of producing an exhaustive field guide. For Andy, seeing is believing; he hopes his photographs help people get to know the world's diverse sharks and rays and appreciate their vital role.

What inspired your interest/love for sharks, rays, and chimaeras (hereafter 'sharks')?

Andy: I was smitten by rays long before I saw my first shark. In the early 2000s I worked as a submersible pilot on Grand Cayman, where I spent most of my spare time chasing Yellow Stingrays and Spotted Eagle Rays. Their intricate markings and ability to magically glide over the substrate, captivated me.

What does it take to photograph sharks? What goes into getting your up close, "in the element," action shots?

Andy: Like it or not, the best way to get close up images of most shy shark species is by using bait, but that does not necessarily mean throwing blood-drenched carcasses into the water. More often than not, it means tying a couple of small sardines to a rock and waiting patiently for hours, or even days, while an incredibly shy shark or ray plucks up the courage to approach the 'scary primate' with the big glass eyeball.

With less than 100 dive-accessible sharks and rays left to photograph, the relatively rare, remaining species on my list are getting tougher to locate. Each field trip usually starts with weeks of research and internet conversations with local divers and researchers (sometimes via Google translate) to nail down the right location and best season to begin the search. Even then, the rarity of many species means I sometimes come back empty handed.

When you photograph a shark for the first time, what feeling does it evoke? What impact does that have on you personally?

Andy: Shark and ray stocks are continuing to dwindle, so the pressure is on to reach the end of my project. Most of the species I am still chasing are pretty rare to start with, so I feel a huge sense of accomplishment and relief when I finally get shots of a new one. Underwater, I do a little internal victory dance in my head,immediately followed by the thought: 'Ok, what's the next one on the list?"

What is your favorite place to travel for wildlife photography and why?

Andy: My two favorite places to dive with sharks are South Africa and Japan.

Not only does South Africa have an incredible diversity of accessible sharks and rays from beautiful catsharks (Scyliorhinidae) to the lumbering Broadnose Sevengill Shark (*Notorynchus cepedianus*), but South Africa has some of the most spectacularly colorful temperate seascapes in the world; great backdrops for my shark images.

Japan may seem like an odd choice for shark photography, but the Japanese Archipelago has a surprisingly abundant and diverse selection of shallow water sharks and rays. I have been running shark diving safaris in Honshu for many years, during which we usually encounter a dozen or more species including hundreds of Banded Houndshark (*Triakis scyllium*), endemic wobbegongs (Orectolobidae), angelsharks (Squatinidae), horn sharks (Heterodontidae), catsharks (Scyliorhinidae), butterfly rays (Gymnuridae), guitarfishes (Rhinobatidae), fanrays (Platyrhinidae), stingrays (Myliobatoidei), eagle rays (Myliobatidae), and a variety of pelagic shark and ray species.
Every time I go, I always sneak in a week at a new location to look for new species. [On my] last trip I managed to photograph my first Graceful Catshark (*Proscyllium habereri*).

What are your favorite sharks to photograph and why?

Andy: Unquestionably, catsharks! I have never been an adrenalin junky drawn to the big dangerous species. Tiny catsharks with their disproportionately large eyes and beautiful markings have long been my favorite photo subjects. I also like the fact that many are bold enough to go about their business of hunting on the reef while I watch them from a respectful distance, even without the use of bait to keep them around.

Among the rays, I am especially drawn to electric rays, in general, and to the freshwater stingrays of South America, for their striking patterns.

What has been the most difficult shark to photograph? Or the most difficult scenario you were in while photographing?

Andy: I try to stay out of hostile environments (both political and environmental) but sometimes things do not go to plan, and at other times, the plan was just a bad idea to start with.

A few years ago, while chasing Greenland Shark (*Somniosus microcephalus*) in 2°C water in the Saint Laurence Estuary in eastern Canada, I had a regulator free flow which left me with an empty tank at 30 m deep. I was diving solo and had seven minutes of decompression [remaining] on my computer, so surfacing was not an option. I knew there was a dive group somewhere around the bay, so I held my breath for two minutes while kicking in their general direction and managed to locate them in the gloom just as I was ready to pass out.

More recently, I found myself solo snorkeling off the coast of Western Australia at night in Tiger Shark (*Galeocerdo cuvier*) territory while kicking against strong currents in pursuit of a tiny electric ray (Torpediniformes). I was about 200 m from shore on a deserted coastline and had to navigate with my wrist compass.

It is at times like these that you begin to question your life choices.

What is one thing you've learned about sharks that you did not know before photographing them?

Andy: I have learned so much in the last three decades. I guess the first lesson I learned was how shy sharks are compared to the sensationalist view of them in the media. Having said that, when I am working with larger species, I never take them for granted and I am careful not to anthropomorphize them or fall under the delusion that they are anything other than wild, opportunistic predators. Sharks need our respect and protection, not hugs.

What role do you think photography plays in shark conservation?

Andy: We all have a role to play. The heavy lifting is clearly done by the many hard-working scientists and advocacy groups that influence policy and push through critical legislation, but it is important to show both the public and decision makers what we are at risk of losing if we put profits or politics before protection.

How do you think your work has helped sharks?

Andy: It is hard to measure, but I would like to think my photography is helping in its way. As well as providing an image resource for conservation initiatives. I have been told by a handful of prominent researchers and photographers that my work helped inspire their early career paths, and that is the best encouragement I could ask for to continue with my project.

I am also aware that many lesser-known regional shark and ray species may never be protected, which means that my images of those species are essentially a 'last chance to see' record of what we are likely to lose in the future.

What do you hope your efforts to photograph every shark species will do to benefit the shark world?

Andy: I very much hope that my images continue to be useful and relevant for many years to come and that they inspire and educate the general public into wanting to keep sharks around, rather than wondering if maybe we're better off without them.

With an enthusiastic eye toward the future, Andy offered the ollowing to the IUCN Species Survival Commission Shark Specialist Group:

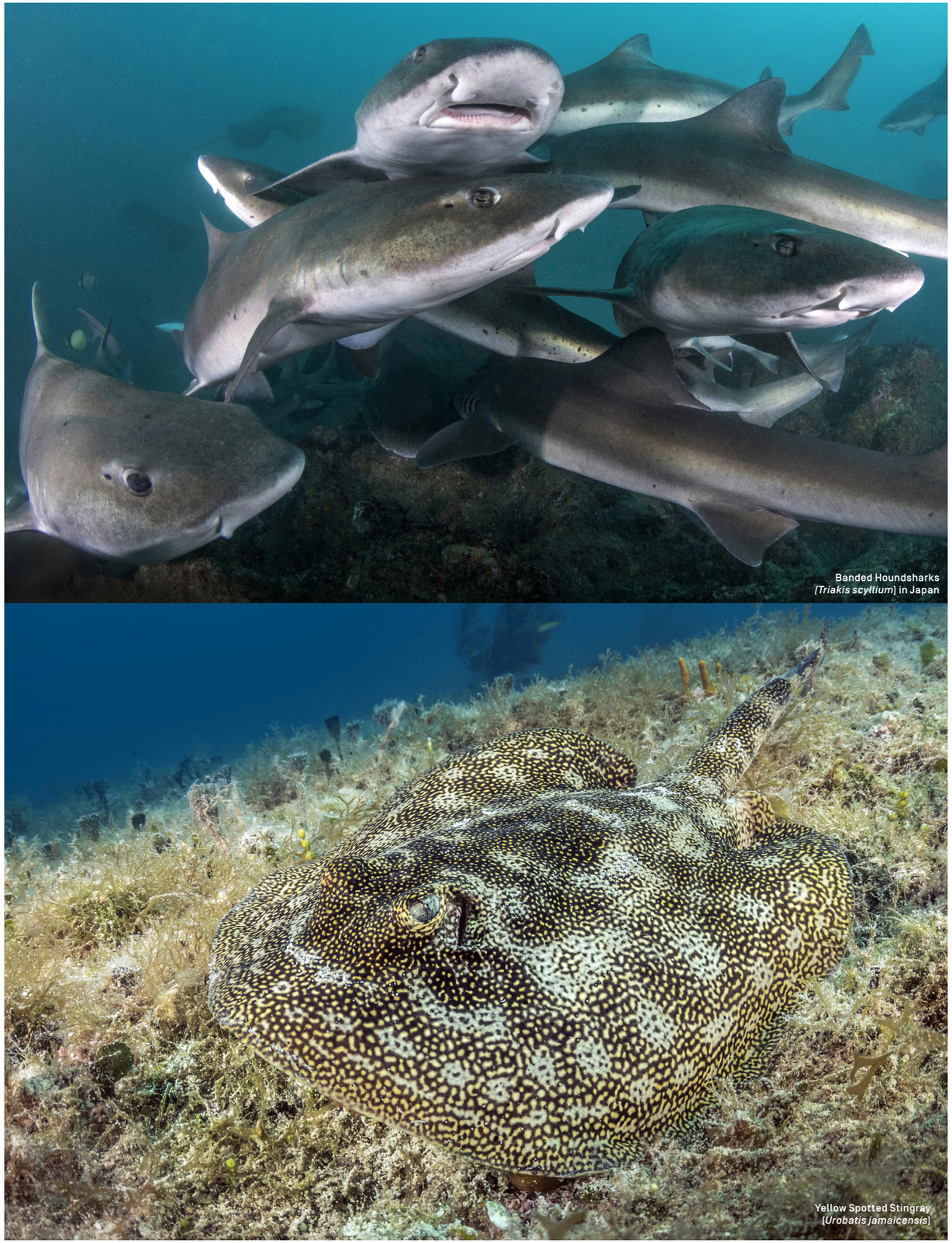
"I am always looking for ways to photograph a broader range of species, for example by accompanying field researchers working on deep water sharks, where catch and release photography would be an asset to the project," he said. "If you have access to deep sea species in the field and could use a motivated photographer, please drop me a line!"

Andy Murch can be reached via email at:
sharkandrayinfo@gmail.com

Q&A

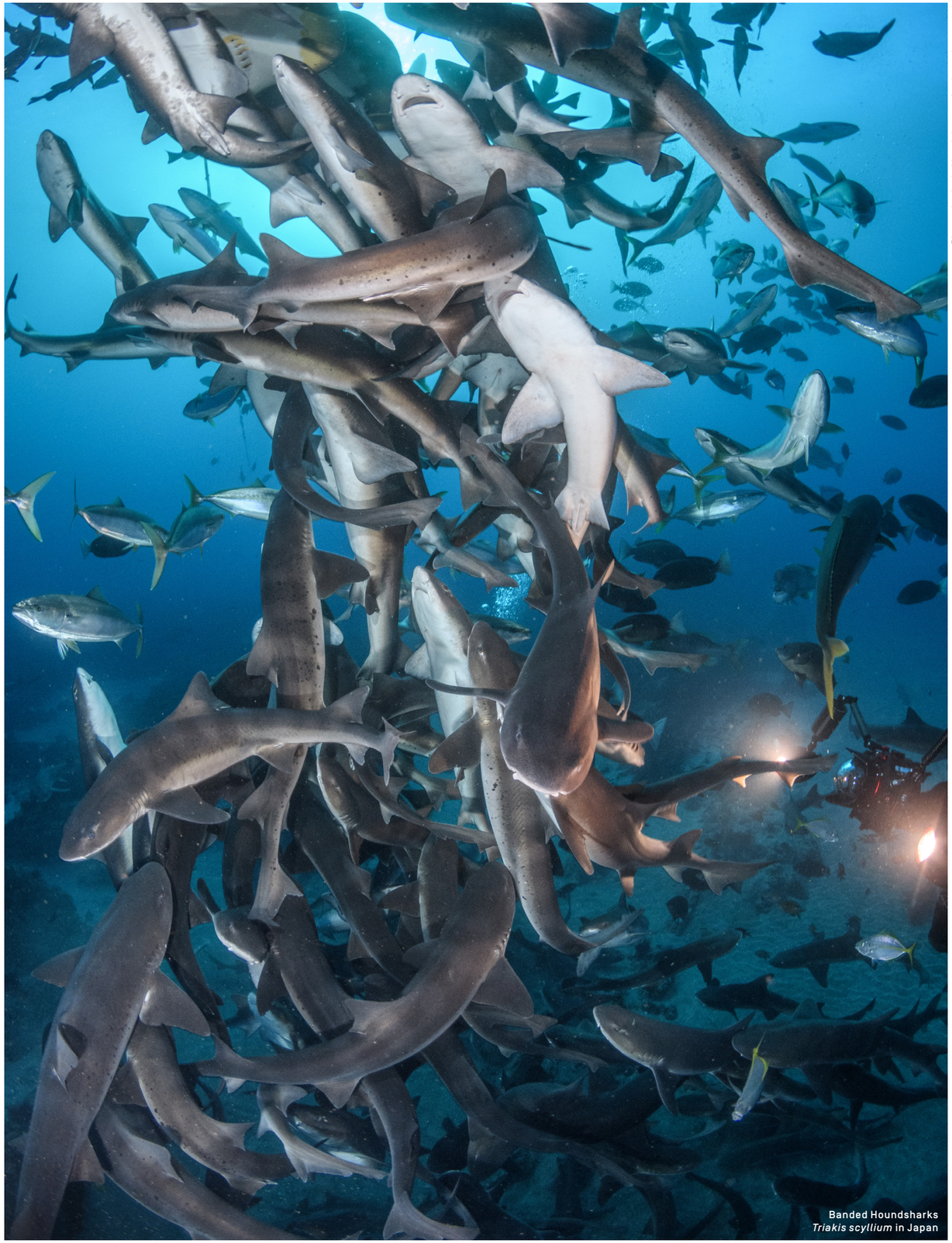
Photo by Luis Perez

Andy & Blonde Skate
(*Raja brachyura*)



Banded Houndsharks
[Triakis scyllium] in Japan

Yellow Spotted Stingray
[Urobatis jamaicensis]



Photos by Andy Murch | www.sharksandrays.com

Banded Houndsharks
Triakis scyllium in Japan

Photo by Andy Murch | www.sharksandrays.com

Shortfin Mako Shark
Isurus oxyrinchus

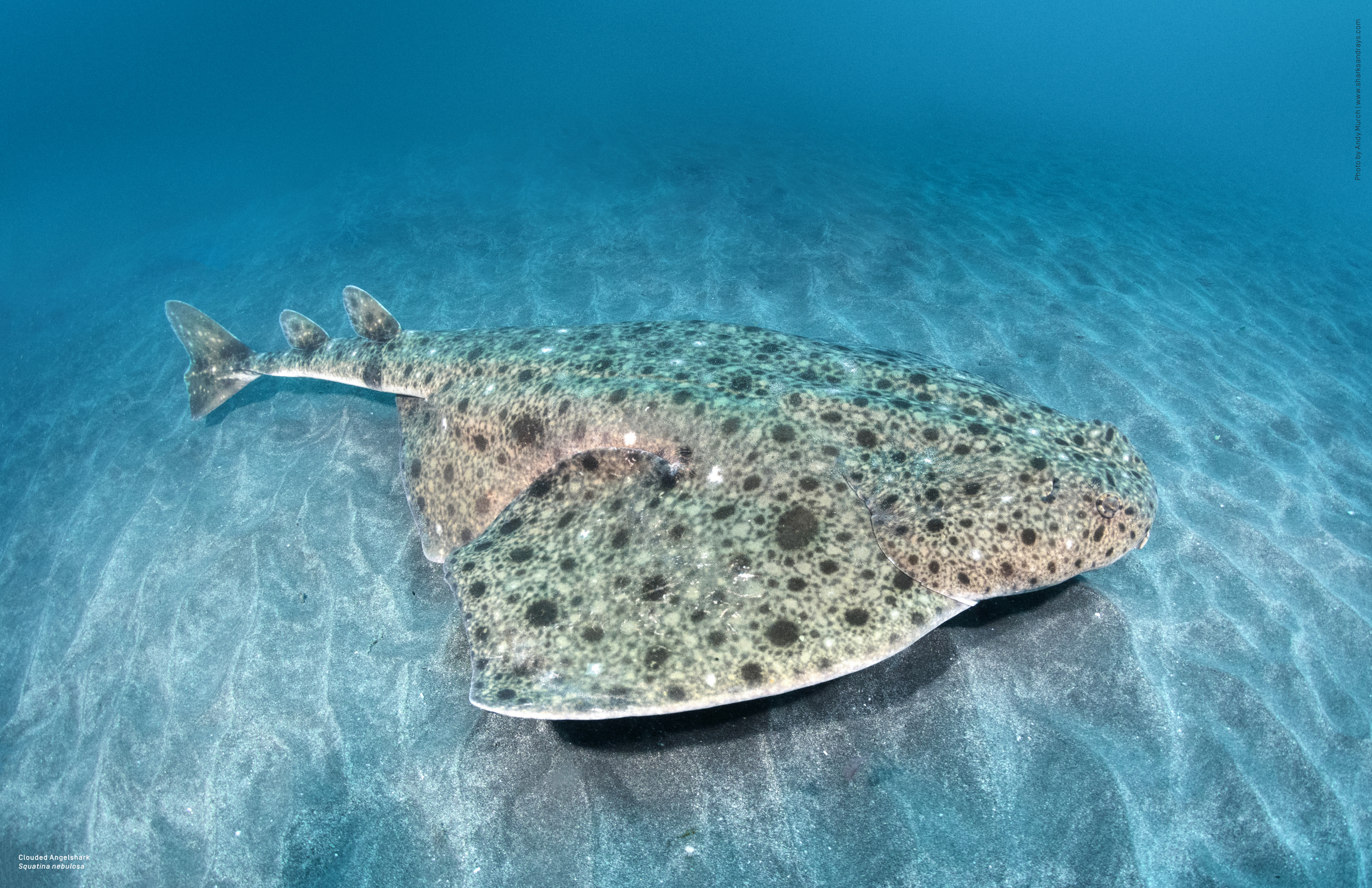


Photo by Andy Murch | www.sharksandrays.com

Clouded Angelshark
Squatina nebulosa

Great hammerhead
Sphyrna mokarran

Photo by Andy Murch | www.sharksandrays.com

Smallthorn Sandskate
Psammobatis rudis

Dark Shyshark
Haploblepharus pictus

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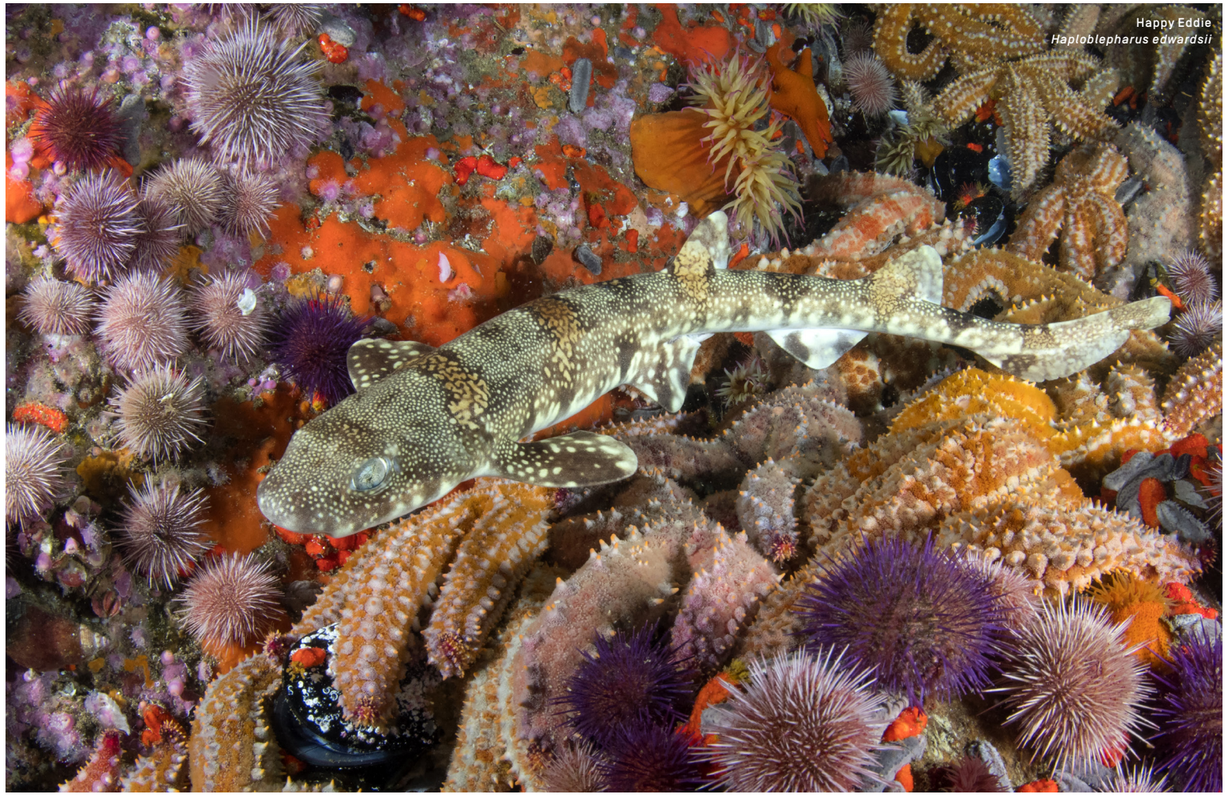


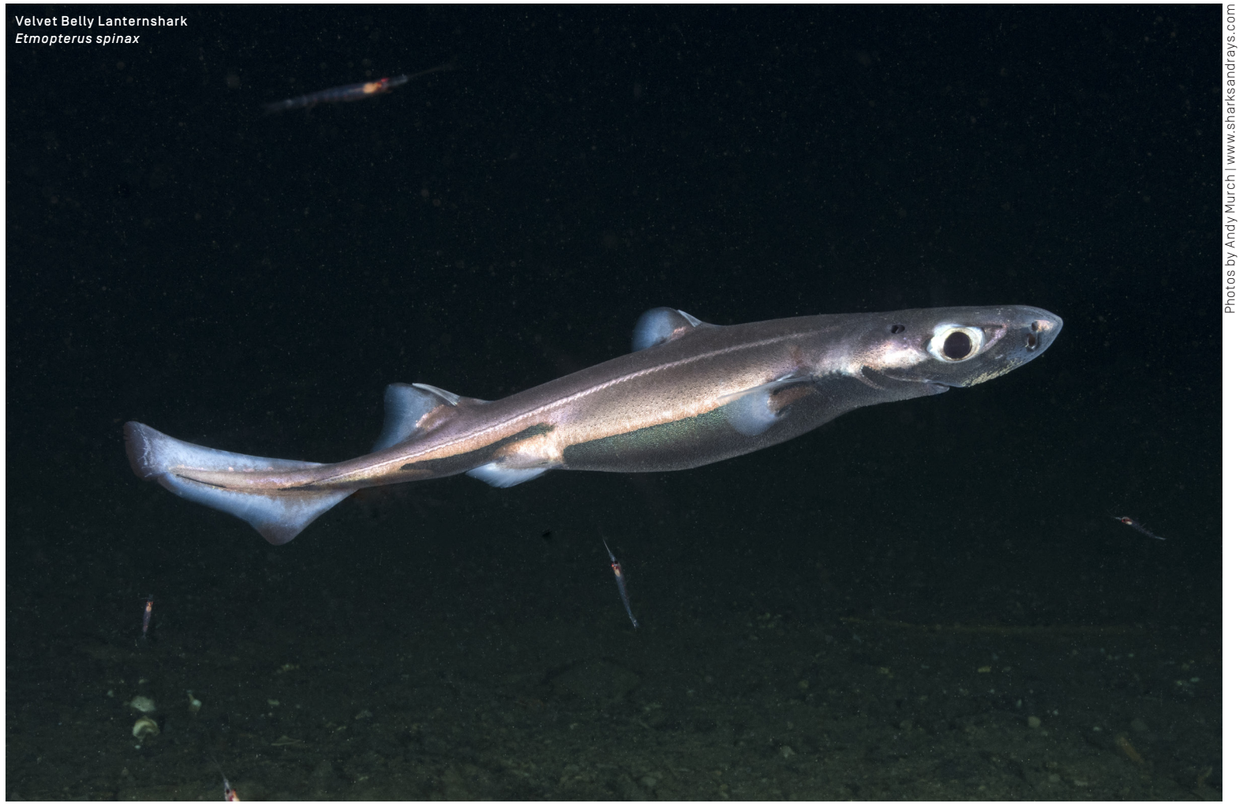
Happy Eddie
Haploblepharus edwardsii

Photo by Andy Murch | www.sharksandrays.com

Smalltooth Sawfish
Pristis pectinata

Undescribed *Torpedo* ray
from West Africa

Velvet Belly Lanternshark
Etmopterus spinax



Photos by Andy Murch | www.sharksandrays.com

Japanese Bullhead Shark
Heterodontus japonicus

Sharks* and the North-East Atlantic Fisheries Commission (NEAFC)

*The term 'shark' refers to all species of sharks, rays, and chimaeras

Written by
Alexandra Z.A. Morata
IUCN SSC Shark Specialist Group | Programme Officer

What is the NEAFC?

The North-East Atlantic Fisheries Commission (NEAFC) is the regional fisheries management organisation (RFMO) operating throughout the northeast Atlantic. NEAFC Convention Area consists of the areas within those parts of the Atlantic and Arctic Oceans and their dependent seas which lie north of 36° north latitude and between 42° west longitude and 51° east longitude, but excluding:

- The Baltic Sea and the Belts lying to the south and east of lines drawn from Hasenore Head to Gniben Point, from Korshage to Spodsbierg and from Gilbierg Head to the Kullen; and
- The Mediterranean Sea and its dependent seas as far as the point of intersection of the parallel of 36° latitude and the meridian of 5°36' west longitude

The Convention Area also includes the part of the Atlantic Ocean north of 59° north latitude and between 44° west longitude and 42° west longitude. Within the Convention Area is the Regulatory Area, which comprises of the areas beyond Contracting Parties' jurisdiction.

The NEAFC Convention (also known as the Convention on Future Multilateral Cooperation in North-East Atlantic Fisheries) was first established in 1959 as the North-East Atlantic Fisheries Convention, where it was later revised and adopted in 1980, before entering into force in 1982. The aim of the NEAFC Convention is to ensure the long-term conservation and optimum utilisation of the fishery resources in its Convention Area, providing sustainable economic, environmental, and social benefits.

Structure of NEAFC

The governing body of the NEAFC is known as the Commission which is comprised of Contracting Parties and the Secretary. This Commission also includes committees and working groups.

The **Secretary** is the management body of the Commission responsible for overseeing communication, organising NEAFC's annual meetings, etc.

Contracting Parties are States that have signed and ratified the NEAFC Convention, which currently includes Denmark (in respect of the Faroe Islands and Greenland), the European Union (EU), Iceland, Norway, the Russian Federation, and the United Kingdom. Contracting Parties are obliged to comply with NEAFC's recommendations and have the ability to propose and object to new recommendations during NEAFC's annual meetings.

Non-Contracting Parties are States that have not signed and ratified under the NEAFC Convention, but do operate fishing activities within the Convention Area. These States may apply to be a co-operating non-Contracting Party to be able to attend NEAFC's annual meeting. As of December 2024, co-operating non-Contracting Parties includes the Bahamas, Canada, and Panama.

COMMITTEES

The **Permanent Committee on Monitoring and Compliance (PECMAC)** comprises of representatives from all the Contracting Parties. The primary responsibility of this committee is to advise the Commission on issues relating to fishing controls and the enforcement of the NEAFC Scheme of Control and Enforcement. The **Permanent Committee on Management and Science (PECMAS)** communicates with representatives from the International Council for the Exploration of the Sea (ICES), which provides science-based advice to NEAFC. It advises the Commission on measures related to area management (areas closed to fisheries). The **Finance and Administration Committee (FAC)** oversees financially advising the Commission related to their annual budget, staffing, and administrative matters.

WORKING GROUPS

Working Groups are formed from representatives of the Contracting Parties to manage specific issues and areas by providing advice to the Commission. They are formed at the request of the Commission and continue to work in that area for as long as the Commission feels it is useful.

The **Joint Advisory Group on Data Management (JAGDM)** is an independent group set jointly NEAFC and the North West Atlantic Fisheries Organisation (NAFO) to harmonise data collection between the two organisations and offer technical advice to Contracting Parties and other RFMOs if requested. The **Working Group on Statistics (WGStats)** provides updated statistics on fishing activities within the Convention Area to the Commission, while considering harmonising with other relevant RFMOs. The **Working Group on the Future of NEAFC (WGFN)** is responsible for evaluating possible difficulties and international developments of concern to NEAFC's operations, considering updates from the United Nations (UN), Food and Agriculture Organization of the UN (FAO), RFMOs, etc.

Which shark species are covered by NEAFC?

Currently, 19 (and one genus) shark, three ray, and nine chimaera species that are specifically covered by NEAFC's conservation and/or management measures.

Since being listed some species have had their taxonomy updated–hereafter all species names reflect the most updated name as listed on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

Conservation and Management Measures

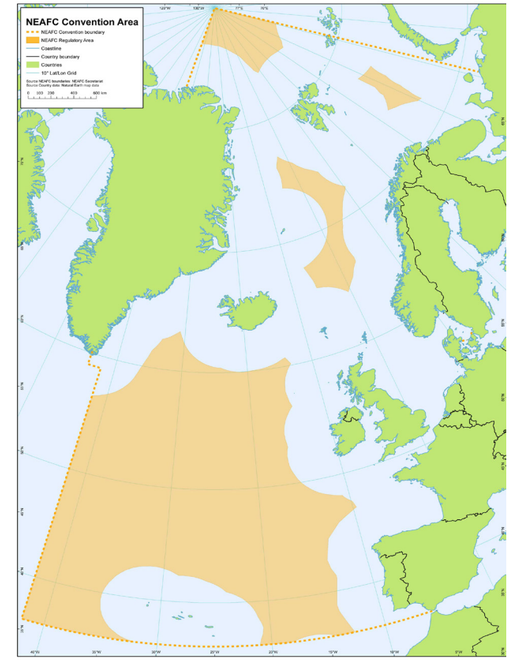
Recommendations are legally binding regulations addressed to Contracting Parties that come into force after 50 days from sending notification to Parties. However, if an objection is made within 40-days, all Parties are notified of this and andadditional 40-day extension is provided to lodge objections. Parties that objected to a recommendation are not legally binding to them, and if objected by more than three Parties the recommendation is not legally binding on any Party.

NORTH-EAST ATLANTIC FISHERIES COMMISSION
Managing Fisheries in the North-East Atlantic

Alongside the conservation measures, Contracting Parties are also obliged to follow the NEAFC Scheme of Control and Enforcement, with sets of regulations covering management in NEAFC, reporting guidelines, fisheries, etc. Specifically, Annex V of the NEAFC Scheme contains the list of species that are to be included in monthly reports, including sharks, rays, and chimaeras. The full list is available here.

The first shark-specific recommendation was in 2004: Rec 05 2004: Management measures for deep-sea species in the NEAFC Regulatory Area in 2004. Since then, several measures have been adopted. There are currently 11 active recommendations that specifically cover sharks. A summary of the information contained in each active resolution is provided. Recommendations are structured as Rec xx yyyy, where "yy" refers to the year it was implemented and "xx" the order it was listed that year.

All recommendations are available online here.



Source: NEAFC

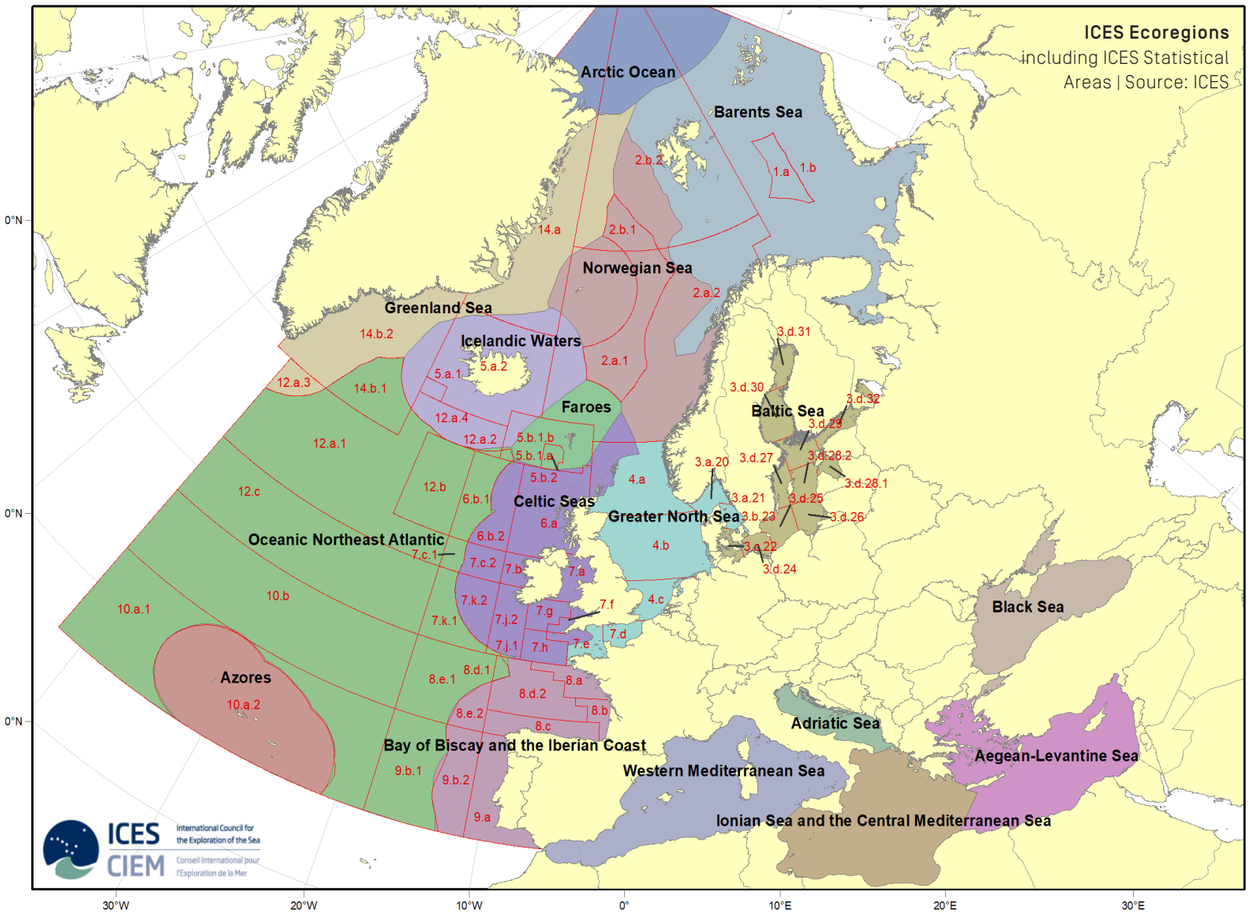


Table: List of sharks included in NEAFC's conservation and management measures

Scientific Name	Common Name
Shark	
CARCHARHINIFORMES	
Pentanchidae	
Apristurus laurussonii	Iceland Catshark
Galeus melastomus	Blackmouth Catshark
Galeus murinus	Mouse Catshark
HEXANCHIFORMES	
Chlamydoselachidae	
Galeus melastomus	Blackmouth Catshark
Chlamydoselachus anguineus	Frilled Shark
Hexanchidae	
Hexanchus griseus	Bluntnose Sixgill Shark
LAMNIFORMES	
Cetorhinidae	
Cetorhinus maximus	Basking Shark
SQUALIFORMES	
Centrophoridae	
Centrophorus granulosus	Gulper Shark
Centrophorus squamosus	Leafscale Gulper Shark
Deania calceus	Birdbeak Dogfish
Dalatiidae	
Dalatias licha	Kitefin Shark
Etmopteridae	
Centroscyllium fabricii	Black Dogfish
Etmopterus spp.	Lantern sharks
Etmopterus princeps	Great Lanternshark
Oxynotidae	
Oxynotus paradoxus	Sailfin Roughshark
Somniosidae	
Centroscymnus coelolepis	Portuguese Dogfish
Centroselachus crepidater	Longnose Velvet Dogfish
Scymnodon ringens	Knifetooth Dogfish
Somniosus microcephalus	Greenland Shark
Squalidae	
Squalus acanthias	Spiny Dogfish
RAYS	
RAJIFORMES	
Rajidae	
Amblyraja hyperborea	Arctic Skate
Dipturus nidarosiensis	Norwegian Skate
Rajella fyllae	Round Skate
CHIMAERAS	
CHIMAERIFORMES	
Chimaeridae	
Chimaera monstrosa	Rabbitfish
Chimaera opalescens	Opal Chimaera
Hydrolagus affinis	Small-eyed Rabbitfish
Hydrolagus lusitanicus	Portuguese Chimaera
Hydrolagus mirabilis	Large-eyed Rabbitfish
Hydrolagus pallidus	Pale Chimaera
Rhinochimaeridae	
Harriotta haeckeli	Smallspine Spookfish
Harriotta raleighana	Narrownose Chimaera
Rhinochimaera atlantica	Atlantic Longnose Chimaera

Table: List of all active recommendations (at the time of writing) applicable to sharks, rays, and chimaeras with the date they came into force

Rec	Title	in force	Status
Rec 02 2011	The North-East Atlantic Fisheries Commission at its Annual Meeting in November 2012 Adopted, In Accordance with Articles 9.1 and 9.2 of the Convention, A Recommendation Amending Recommendation 2:2011 Providing for the Collection of Statistical Information Relating to Fisheries Beyond and Under the Fisheries Jurisdiction of Contracting Parties	05/02/2011	Active
Rec 10 2015	Recommendation on Conservation of Sharks Caught in Association with Fisheries Managed by the North-East Atlantic Fisheries Commission	06/02/2015	Active
Rec 07 2018	Recommendation on Deep-Sea Fisheries within the NEAFC Regulatory Area	08/02/2018	Active
Rec 05 2023	Recommendation on Conservation and Management Measures for Spurdog (*Squalus acanthias*) in ICES Subareas 1–10, 12 and 14 for 2023 and 2024	11/02/2023–31/12/2024	Active
Rec 09 2023	Recommendation to add additional deep-sea chimaera species to the NEAFC Scheme of Control and Enforcement	11/02/2023	Active
Rec 07 2024	Recommendation on Conservation and Management Measures for Basking Shark (*Cetorhinus maximus*) in the NEAFC Regulatory Area from 2024 to 2027	09/02/2024–31/12/2024	Active
Rec 08 2024	Recommendation on Conservation and Management Measure for Deep Sea Chimaeras in the NEAFC Regulatory Area from 2024 to 2027	09/02/2024–31/12/2024	Active
Rec 09 2024	Recommendation on Conservation and Management Measures for Deep Sea Sharks in the NEAFC Regulatory Area from 2024 to 2027	09/02/2024–31/12/2024	Active
Rec 10 2024	Recommendation on Conservation and Management Measures for Deep Sea Rays (*Rajiformes*) in the NEAFC Regulatory Area from 2024 to 2027	09/02/2024–31/12/2024	Active
Rec 11 2024	Recommendation on Conservation and Management Measures for Porbeagle (*Lamna nasus*) in the NEAFC Regulatory Area in 2024	09/02/2024–31/12/2024	Active
Rec 24 2024	Recommendation on amending Recommendation 2:2011, to add additional deep-sea chimaera species to Annex I– Stock Units in Recommendation 2:2011 Monthly Statistics (as amended by Recommendations 17:2021: 23:2020: 13:2016, 17:2015, 14:2013), and to amend the scientific name and FAO code for Iceland Catshark	09/02/2024–31/12/2024	Active

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Rec 02 2011: The North-East Atlantic Fisheries Commission at its Annual Meeting in November 2012 Adopted, In Accordance with Articles 9.1 and 9.2 of the Convention, A Recommendation Amending Recommendation 2:2011 Providing for the Collection of Statistical Information Relating to Fisheries Beyond and Under the Fisheries Jurisdiction of Contracting Parties

This recommendation mandates that all Contracting Parties are to report all catches (target and incidental) of species listed in Annex I (Regulated Resources) and/or Annex V (FAO List of Species for Fishery Statistics (ASFIS)) to the Secretary within 30 calendar days from landing or transhipping them. All reports are to follow the guidelines within Annexes II (Notification of fishing vessels) and III (Vessel documents).

Species specified in Rec 02 2011 (including amendments from Rec 24 2024, 17 2021, 23 2020, 13 2016, 17 2015, and 14 2013)

Iceland Catshark (*Apristurus laurussonii*)	Gulper Shark (*Centrophorus granulosus*)
Leafscale Gulper Shark (*Centrophorus squamosus*)	Black Dogfish (Centroscyllium fabricii)
Portuguese Dogfish (*Centroscymnus coelolepis*)	Longnose Velvet Dogfish (*Centroselachus crepidater*)
Rabbitfish (Chimaera monstrosa)	Frilled Shark (Chlamydoselachus anguineus)
Kitefin Shark (*Dalatias licha*)	Birdbeak Dogfish (*Deania calceus*)
Lantern sharks (*Etmopterus* spp.)	Great Lanternshark (Etmopterus princeps)
Velvet Belly Lanternshark (*Etmopterus spinax*)	Blackmouth Catshark (*Galeus melastomus*)
Mouse Catshark (Galeus murinus)	Large-eyed Rabbitfish (*Hydrolagus mirabilis*)
Sailfin Roughshark (*Oxynotus paradoxus*)	Round Skate (*Rajella fyllae*)
Arctic Skate (*Amblyraja hyperborea*)	Norwegian Skate (*Dipturus nidarosiensis*)
Knifetooth Dogfish (*Scymnodon ringens*)	Greenland Shark (*Somniosus microcephalus*)
Opal Chimaera (*Chimaera opalescens*)	Small-eyed Rabbitfish (*Hydrolagus affinis*)
Portuguese Chimaera (*Hydrolagus lusitanicus*)	Pale Chimaera (*Hydrolagus pallidus*)
Smallspine Spookfish (*Harriotta haeckeli*)	Narrownose Chimaera (*Harriotta raleighana*)
Porbeagle (*Lamna nasus*)	Spiny Dogfish (*Squalus acanthias*)
Basking Shark (*Cetorhinus maximus*)	Bluntnose Sixgill Shark (*Hexanchus griseus*)

Rec 10 2015: Recommendation on Conservation of Sharks Caught in Association with Fisheries Managed by the North-East Atlantic Fisheries Commission

Contracting Parties are obliged to report shark catches (including estimates of discards (dead and alive) and size frequencies) following NEAFC's data reporting procedures,as well as collect biological and ecological data. All sharks caught (excluding those that are specified in other conservation measures to be released) are to be landed whole, excepting head, guts, and skins, thus finning is banned (may be partially sliced for storage purposes, but are to remain attached to the body. Parties are encouraged to release sharks, live and unharmed, to the extent possible if incidentally caught and not being used for food and/or subsistence.

This recommendation also urges Contracting Parties to develop and use more selective fishing gear to reduce incidental catches.

Rec 07 2018: Recommendation on Deep-Sea Fisheries within the NEAFC Regulatory Area

Limits deep-sea fisheries' activities to flagged vessels authorised by Contracting Parties within the Regulatory Area, and encourages Parties to adopt a precautionary approach if expanding fishing activities, including deep-sea sharks, rays, and chimaeras.

Based on reports from deep-sea fishing, PECMAS is responsible for suggesting proposals where needed to ensure stock-specific conservation and management measures.

Rec 05 2023: Recommendation on Conservation and Management Measures for Spurdog (*Squalus acanthias*) in ICES Subareas 1–10, 12 and 14 for 2023 and 2024

Sets a catch limit of 17,353 metric tonnes (mt) in 2023 and 17,855 mt in 2024 for Spurdog in ICES Subareas 1 (Barents Sea), 2 (Norwegian Sea), 3 (Baltic Sea), 4 (Greater North Sea), 5 (Icelandic Waters), 6 and 7 (Celtic Seas), 8 (Bay of Biscay), 9 (Iberian Coast), 10 (Azores), 12 (Oceanic Northeast Atlantic), and 14 (Greenland Sea).

In line with Rec 07 2018, Contracting Parties are encouraged to adopt a precautionary approach when targeting Spurdog with flagged vessels. All catches are to be reported for PECMAS to evaluate at the end of 2023 and 2024.

Rec 09 2023: Recommendation to add additional deep-sea chimaera species to the NEAFC Scheme of Control and Enforcement

Updates Annex I B (Regulated Resources: deep-sea species) of the NEAFC Scheme of Control and Enforcement too include deep-sea chimaeras.

Species specified in Rec 09 2023

Opal Chimaera (*Chimaera opalescens*)	Small-eyed Rabbitfish (*Hydrolagus affinis*)
Portuguese Chimaera (*Hydrolagus lusitanicus*)	Pale Chimaera (*Hydrolagus pallidus*)
Smallspine Spookfish (*Harriotta haeckeli*)	Narrownose Chimaera (*Harriotta raleighana*)

Rec 07 2024: Recommendation on Conservation and Management Measures for Basking Shark (*Cetorhinus maximus*) in the NEAFC Regulatory Area from 2024 to 2027

Prohibits Contracting Parties' flagged vessels from targeting Basking Shark in the Regulatory Area, and if caught incidentally, are to be released unharmed to the extent possible. Parties are to also report all fisheries data, including the number, size, and weight of any incidental catches.

Rec 08 2024: Recommendation on Conservation and Management Measure for Deep Sea Chimaeras in the NEAFC Regulatory Area from 2024 to 2027

Prohibits Contracting Parties' flagged vessels from targeting 'deep sea chimaeras' in the Regulatory Area. All Parties are mandated to provide all fisheries and biological data available on these species to ICES to support stock assessments.

Species specified in Rec 08 2024

Rabbitfish *(Chimaera monstrosa)*	Opal Chimaera *(Chimaera opalescens)*
Smallspine Spookfish *(Harriotta haeckeli)*	Narrownose Chimaera *(Harriotta raleighana)*
Small-eyed Rabbitfish *(Hydrolagus affinis)*	Portuguese Chimaera *(Hydrolagus lusitanicus)*
Large-eyed Rabbitfish *(Hydrolagus mirabilis)*	Pale Chimaera *(Hydrolagus pallidus)*
Atlantic Longnose Chimaera *(Rhinochimaera atlantica)*	

Rec 09 2024: Recommendation on Conservation and Management Measures for Deep Sea Sharks in the NEAFC Regulatory Area from 2024 to 2027

Prohibits Contracting Parties' flagged vessels from targeting 'deep sea sharks' in the Regulatory Area. All Parties are mandated to provide all fisheries and biological data available on these species to ICES to support stock assessments.

Species specified in Rec 09 2024

Gulper Shark (*Centrophorus granulosus*)	Leafscale Gulper Shark (*Centrophorus squamosus*)
Black Dogfish (*Centroscyllium fabricii*)	Portuguese Dogfish (*Centroscymnus coelolepis*)
Longnose Velvet Dogfish *(Centroselachus crepidater)*	Kitefin Shark *(Dalatias licha)*
Great Lanternshark *(Etmopterus princeps)*	Iceland Catshark *(Apristurus laurussonii)*
Frilled Shark *(Chlamydoselachus anguineus)*	Birdbeak Dogfish *(Deania calceus)*
Blackmouth Catshark *(Galeus melastomus)*	Mouse Catshark *(Galeus murinus)*
Bluntnose Sixgill Shark *(Hexanchus griseus)*	Velvet Belly Lanternshark *(Etmopterus spinax)*
Sailfin Roughshark *(Oxynotus paradoxus)*	Knifetooth Dogfish *(Scymnodon ringens)*
Greenland Shark (*Somniosus microcephalus*)	

Rec 10 2024: Recommendation on Conservation and Management Measures for Deep Sea Rays (Rajiformes) in the NEAFC Regulatory Area from 2024 to 2027

Prohibits Contracting Parties' flagged vessels from targeting 'deep sea rays' in the Regulatory Area. All Parties are mandated to provide all fisheries and biological data available on these species to ICES to support stock assessments.

Species specified in Rec 10 2024

Round Skate (*Rajella fyllae*)	Arctic Skate (*Amblyraja hyperborea*)
Norwegian Skate (*Dipturus nidarosiensis*)	

Rec 11 2024: Recommendation on Conservation and Management Measures for Porbeagle (Lamna nasus) in the NEAFC Regulatory Area in 2024

Prohibits Contracting Parties' flagged vessels from targeting Porbeagle in the Regulatory Area, and if caught incidentally, are to be released unharmed to the extent possible. Parties are to also report all fisheries data, including the number, size, and weight of any incidental catches.

Rec 24 2024: Recommendation on amending Recommendation 2:2011, to add additional deep-sea Chimaera species to Annex I – Stock Units in Recommendation 2:2011 Monthly Statistics (as amended by Recommendations 17:2021: 23:2020: 13:2016, 17:2015, 14:2013), and to amend the scientific name and FAO code for Iceland Catshark

Updates Rec 02 2011 to include additional deep-sea chimaeras, as well as update the reporting code for Iceland Catshark in the monthly statistics.

Species specified in Rec 24 2024

Iceland Catshark (*Apristurus laurussonii*)	Opal Chimaera (*Chimaera opalescens*)
Smallspine Spookfish (*Harriotta haeckeli*)	Narrownose Chimaera *(Harriotta raleighana)*
Small-eyed Rabbitfish (*Hydrolagus affinis*)	Portuguese Chimaera *(Hydrolagus lusitanicus)*
Pale Chimaera (*Hydrolagus pallidus*)	Atlantic Longnose Chimaera (*Rhinochimaera atlantica*)

Gulf Torpedo
(*Torpedo sinuspersici*)

kerrysink | iNaturalist.org (CC BY-NC)

Written by
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Shark Spotlight

Taxonomy

The order Torpediniformes includes 63 valid species from 15 genera and five families: Platyrhinidae (Fanrays; n=5), Narkidae (Sleeper rays; n=9), Narcinidae (Numbfishes; n=30), Hypnidae (Coffin rays; n=1), and Torpedinidae (Torpedo rays; n=18). This number of species is based on the IUCN SSC Shark Specialist Group database of valid species.

Torpedo sinuspersici Olfers, 1831, commonly known as the Gulf Torpedo belongs to the family Torpedinidae and is one of ten species in the *Torpedo* genus.

Morphology

Gulf Torpedo is brown to blackish-brown color with a distinct, pale, spotted (usually appears fused) pattern on its dorsal side (with younger species occasionally having white spots initially), and mostly creamy-white on their ventral side. The Gulf Torpedo is medium to large in size, reaching an average total length (TL) of 80 cm, and anecdotal information suggests that the species can reach up to 130 cm TL. This species is round in shape, from the disc to the pectoral fins, and even the apex of their dorsal fins.

The Gulf Torpedo is morphologically similar to the Panther Torpedo (*Torpedo panthera*), but the latter can be distinguished by its relatively less reticulate pattern on the dorsal side.

Additionally, the Red Sea Torpedo (*T. suessii*) was previously considered a junior synonym of the Gulf Torpedo. The Gulf Torpedo may possibly be a species-complex between several, similar-looking, and localized, endemic species, such as the Red Sea Torpedo and Aden Torpedo (*Torpedo adenensis*).

Distribution and Range

Gulf Torpedo is presently known in benthic areas from coral reefs to sandy and rocky bottoms, at 0–150 m depth. This species is distributed along the coastlines of the Western Indian Ocean, including the Arabian/Persian Gulf and Red Sea. Its presence has been confirmed as far north as Egypt, Iran, and Iraq to as south as South Africa. However, reports of specimens collected in the Andaman Sea and along the Syrian coast suggest that their range might be wider. This possibly reinforces the notion of there being a species-complex, considering that there are other Torpedo species with overlapping ranges such as the Panther Torpedo, Red Sea Torpedo, and Aden Torpedo in the Arabian/Persian Gulf area and Blackspotted Torpedo (*T. fuscomaculata*) in the southwestern Indian Ocean.

Conservation measures and IUCN Red List status

Despite their abundance across their distribution, the Gulf Torpedo has been assessed as Data Deficient (DD) on the IUCN Red List of Threatened Species because of the limited information on its ecology, the potential species-complex, and the limited knowledge on the impact of fishing on populations.

Fishing is a major threat to sharks and rays in the Western Indian Ocean, and torpedo rays are especially susceptible to trawl and coastal fisheries due to their benthic nature and presence in coastal waters. The Gulf Torpedo is known to be caught by trawlers in Pakistan, and intertidal stake nets in Iran. However, as there is no known markets for these species, they are likely discarded at-sea and not landed.

Currently, due to its DD status, there are no management measures or species-specific protections for this species.

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Gulf Torpedo
Torpedo sinuspersici

Jean-Paul Cassez Collignon | iNaturalist.org [CC BY-NC]

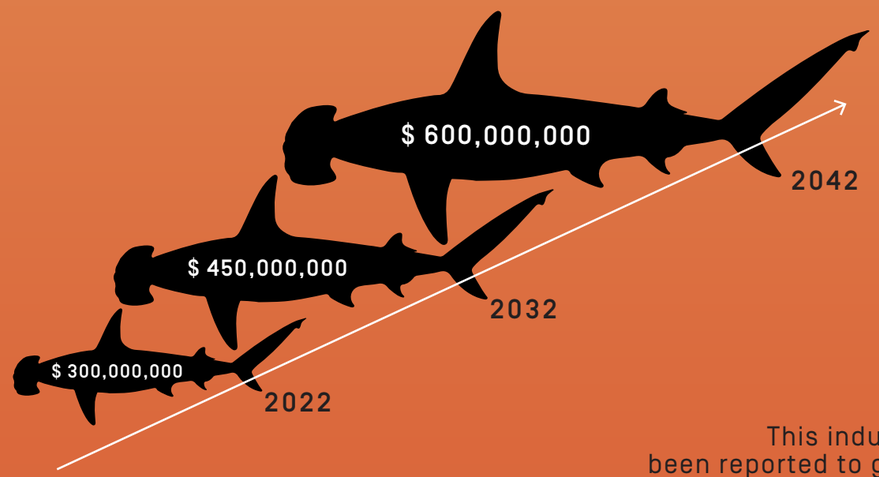
THE IMPACTS OF TOURISM ON SHARKS AND RAYS

Dr. Simon J Pierce
Ryan Charles

1,000,000

Over one million people join tours annually to dive or snorkel with sharks and rays in their natural habitat.

Shark tourism occurs in more than 40 countries, focused on around 50 shark and ray species.



This industry has been reported to generate over USD$ 300,000,000 per year and is expected to double in the next 20 years

SHARK TOURISM IS DEFINED HERE AS VIEWING, DIVING, OR SNORKELLING WITH SHARKS AND RAYS IN THEIR NATURAL HABITAT

Shark and ray encounters are one of the fastest-growing sectors in the wildlife tourism industry. Over one million people join tours annually to dive or snorkel with sharks and rays in their natural habitat. Shark tourism occurs in more than 40 countries, focused on around 50 shark and ray species, including many of those listed on the Convention on the Conservation of Migratory Species of Wild Animals (CMS). This industry has been reported to generate over USD$ 300,000,000 per year and is expected to double in the next 20 years.

Many migratory sharks and rays are increasingly rare, due to overfishing and other human pressures, and are naturally cautious around the unfamiliar setting of divers and boats. To ensure reliable viewing, operators will feed or otherwise attract sharks and rays to the boat or dive site, or alternatively may take the tourists to swim or dive with these animals at feeding areas, cleaning stations, or other places that these animals visit regularly.

Shark tourism is a relatively new industry, with a low barrier to entry in many countries, and can quickly outpace management capacity. While the terms ‘shark diving ecotourism’ and ‘shark tourism’ are often used interchangeably, the word ‘ecotourism’ implies that activities are ecologically sustainable, directly contribute to species and habitat conservation, and provide tangible benefit to the local community. Whether shark tourism can truly be considered ecotourism varies between sites and species; some sites meet this definition, but others do not.

When conducted responsibly, shark tourism can provide a range of benefits, from economic development to increased legal protections for threatened species and their habitats. However, the rapid expansion of this industry can also lead to disruption of shark and ray behaviours, increased injuries to the focal species, and degraded habitat. In this fact sheet, we explore the potential for negative impacts from shark tourism, particularly on CMS-listed species and those listed on the Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOU), and how they can be mitigated or avoided.

ATTRACTING AND FEEDING SHARKS

Most sharks and rays are seldom seen in the wild. To encourage them to stay visible to divers, it is common for operators to use bait or other attractants to attract and aggregate these species. Tactics can range from hand-feeding Whale Sharks (*Rhincodon typus*) to using dive torches to excite zooplankton, which are then preyed upon by Reef Manta Rays (*Mobula alfredi*), or even playing heavy metal music through underwater speakers to attract White Sharks (*Carcharodon carcharias*). Two well-studied examples of shark tourism are cage diving with White Sharks, likely the most regulated subset of the industry, and feeding Whale Sharks, which has minimal management in place.

White Sharks are large apex predators and, as such, they can be potentially dangerous to people. To create a safe tourism experience, a protective cage is deployed to allow divers or snorkellers to observe the sharks from underwater. White Shark cage diving began in the 1970s in South Australia and has subsequently been developed in the USA, South Africa, Mexico, and New Zealand. Tourism focuses on areas where the sharks are naturally found in relatively high densities, often near seal colonies which are important prey for White Sharks. To bring the sharks close enough for underwater viewing, operators typically use some combination of scent (generally small pieces of fish) and baits, seal-shaped decoys, or sound-based attractants, depending on local regulations and operator preferences.

Shortfin Mako (*Isurus oxyrinchus*) with snorkeller in Baja California Sur, Mexico
Hannes Klostermann | Ocean Image Bank

Earlier in the industry's development, some operators would drag baits over the cage to encourage the sharks to closely approach the tourists. This led to minor injuries to the sharks if they inadvertently struck the cage or, worse, became entangled in grating or lines. Managers and operators have consistently tightened legal and informal regulations to avoid such practices over time.

There has always been a high level of public and management interest on the effects of tourism activities on White Shark behaviour and biology. This is partly due to their threatened status, as a globally Vulnerable species according to the IUCN Red List of Threatened Species, but largely because vocal concerns have been raised about the potential for sharks to associate watergoers with food in other situations. To minimize the possibility of habituation, operators are not allowed to feed the sharks; instead, baits are removed from the water as sharks approach. White Sharks are accomplished ambush hunters, and sharks do sometimes manage to consume the baits, so the amount of bait that can be used in a day or trip is also regulated to incentivize operator attentiveness.

Tagging studies have demonstrated that White Sharks do increase their activity level while around tourism vessels, expending additional energy. But, as there is little or no food reward, more resident sharks appear to become increasingly disinterested and less inclined to approach tourist boats over time. However, such behaviours are variable, with other individuals continuing to approach boats. Biochemical studies have found no overall change in diet or decline in body condition in the White Sharks sampled from tourism vessels. There may be some effect on the sharks' social dynamics, with larger sharks showing dominance behaviours and possibly increased aggression in the face of perceived competition from other White Sharks, but clear patterns have not been documented.

Cessation of tourism activities at the Neptune Islands in South Australia, as part of the health response to the COVID-19 pandemic, led to a 51-day break in White Shark tourism activities, the longest gap in 12 years. Long-term passive tracking of tagged White Sharks through this period allowed for an opportunistic analysis of changes to shark residency and movements. The absence of tourism vessels had no effect on White Shark activity or residency, indicating that the presence or absence of tourism makes little difference to the sharks. Snorkelling and diving with the filter-feeding Whale Shark species has become a highly popular tourism experience in the few locations they predictably aggregate. While Whale Sharks are often thought of as strict planktivores, they will also target small fishes, and fishers at a few sites in Indonesia and the Philippines began feeding Whale Sharks that were attracted to their fishing activities. This has developed into a major industry over the past decade, with the best-known and most accessible site at Oslob, on the island of Cebu in the Philippines.

Oslob has become one of the most popular tourist destinations in the country, attracting hundreds of thousands of people each year to view the sharks and creating significant economic benefits for the community.

Cage diving with Great White Sharks (*Carcharodon carcharias*) off Guadalupe Island, Mexico | Simone Caprodossi

The Whale Sharks are hand-fed in a small viewing area close to shore that is demarcated with buoys. Operators paddle most tourists out to the sharks in small outrigger canoes, where the sharks are individually fed from other canoes. Tourists can either view the sharks from the boat, snorkel, or dive with them.

While Oslob is a natural seasonal migratory corridor for Whale Sharks, a small number of sharks have become highly habituated to being fed, appearing daily over months to years. Studies on 208 individual sharks over three years of monitoring found a diversity of residence patterns, with 21 seasonally resident and nine year-round resident sharks, suggesting some degree of dependency in the latter group. As sharks become more resident, they become highly tolerant of boats, which increases their risk of propeller injuries; lacerations were present on 28% of the sharks, with overall scarring rates much higher than at other Whale Shark tourism destinations. Sharks accumulated injuries and abrasion damage (due to regularly bumping boats while feeding) during residency periods. As the feeding activities take place in warm shallow water, the sharks often dive into deeper water off the site to cool down after feeding ceases for the day. Tagging studies estimate a 7% higher metabolic rate for sharks that frequent the area due to the time spent in warm water and constant suction-feeding the sharks employ. The long-term effects of higher injury rates and daily energy use remain unknown at this point.

Aside from the clear designation of the interaction zone, there is little regulation of tourism activities at the site. While in-water encounter guidelines exist, enforcement is low, with 93% of tourists breaching the directives by approaching within 2 m of the sharks, often touching them. Tourist surveys found that 96% of them felt crowded by boats in the viewing area, while a carrying capacity study concluded that Oslob is “overcapacity”, in terms of swimmers, and “greatly overcapacity” in the number of boats present.

The risk posed by shark tourism activities will largely be dictated by the ecology of the species in question. Many migratory sharks and rays are wide-ranging; using bait as an attractant for Blue Sharks [*Prionace glauca*] or Shortfin Makos [*Isurus oxyrinchus*], which often swim hundreds of kilometres a week, is unlikely to result in habituation or dependency. Some long-running shark-feeding sites, such as the well-researched seasonal aggregation of Bull Sharks [*Carcharhinus leucas*] at Shark Reef in Fiji, have demonstrably had negligible long-term effects on shark behaviour and diet. Less mobile species can show more evidence of impact. Southern Stingrays [*Hypanus americanus*] have been fed at Grand Cayman in the Caribbean since the 1930s by fishery discards, and almost continuously for tourism purposes over the past thirty years. Here, some individual stingrays are highly resident, with 37 animals attending the feeding site for at least a decade. Large stingrays, particularly adult females, dominate smaller females and males in the competition for food, leading to increased conflict and injuries in this aggregation, as well as higher parasite loads and stress markers. Biochemical studies have demonstrated that the squid used as food makes up a large proportion of the diet of the most resident individuals, which remain close to the feeding site over extended periods, and switch from primarily nocturnal to being most active in the daytime.

Whale Shark [*Rhincodon typus*] tourism at Oslob, Philippines | Simon Pierce

Tiger Shark (*Galeocerdo cuvier*) and divers
Jett Britnell | Ocean Image Bank

However, the stingray population at the site has continually increased in recent years, coinciding with the legal protection of Southern Stingrays in the Cayman Islands. Resident stingrays have high long-term survival rates, so the overall negative impacts of this tourism appear to be minor.

Newer sites, with minimal legal or self-regulation in place, can be prone to 'overfeeding', which has a higher chance of creating dependency, associated negative health outcomes, and behavioural changes in the animals. The same is true for discards from fishing activities, which introduce large quantities of shark food into specific sites on a regular basis. While such activities are unlikely to negatively affect the overall conservation status of the focal species, it is important to safeguard the welfare of local shark and ray populations. Where food is being provided, it should be high-quality, part of the animal's natural diet, and distributed at a minimal level.

It is important to safeguard the welfare of local shark and ray populations. Where food is being provided, it should be...

- high quality
- part of the animal's natural diet
- distributed at a minimal level

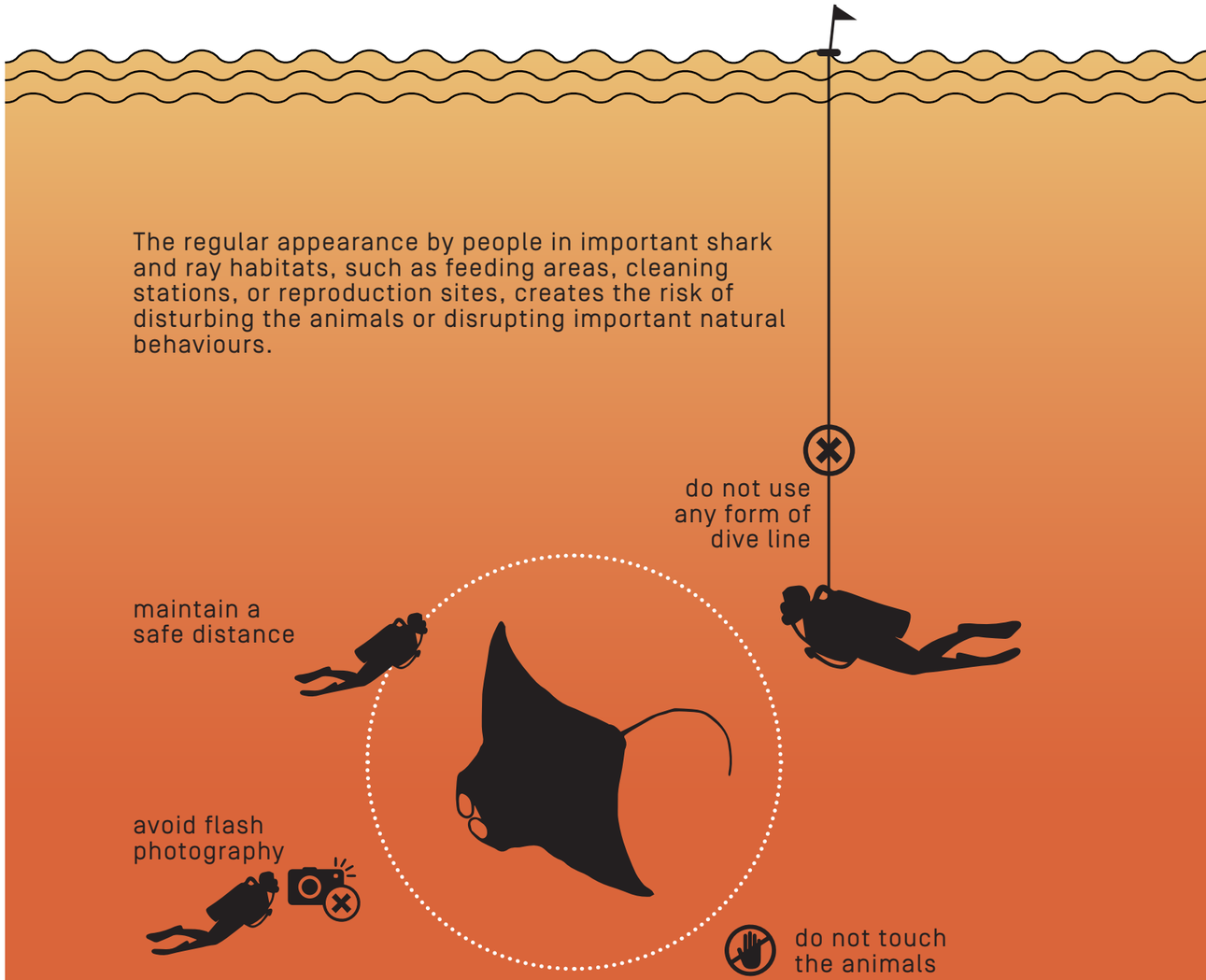
PRESSURE ON KEY HABITATS

Most shark and ray tourism is based on visiting sites where these animals can be reliably seen in the absence of attractants. This tourism can vary from shore-based snorkelling to multi-day expedition-style dive trips to see pelagic sharks at remote volcanic islands and seamounts. In general, these activities are regarded as low impact on sharks and rays, but the regular appearance by people in important shark and ray habitats, such as feeding areas, cleaning stations, or reproduction sites, creates the risk of disturbing the animals or disrupting important natural behaviours. Where there is a near-constant human presence, there is a threat of chronic stress and disruption. Proactive management is needed to avoid negative effects.

Monad Shoal, a large seamount off the island of Malapascua in the Philippines, is one of the only sites where Pelagic Thresher Sharks [*Alopias pelagicus*] are routinely seen by divers. Monad Shoal acts as a health and hygiene stop for the sharks, where small wrasse inhabit 'stations' on certain reef structures. Sharks accumulate external parasites over time, which can cause chronic disease, developmental problems, and respiratory issues if they attach to the gills. Normal wear and tear from the sharks' active predatory lives also result in minor injuries and dead skin, which can lead to infection. The wrasse eat parasites and dead tissue, providing a useful service to the sharks – while gaining an easy meal themselves. The sharks visit the stations regularly, with at least some sharks present almost every day, creating a popular attraction for shark tourists.

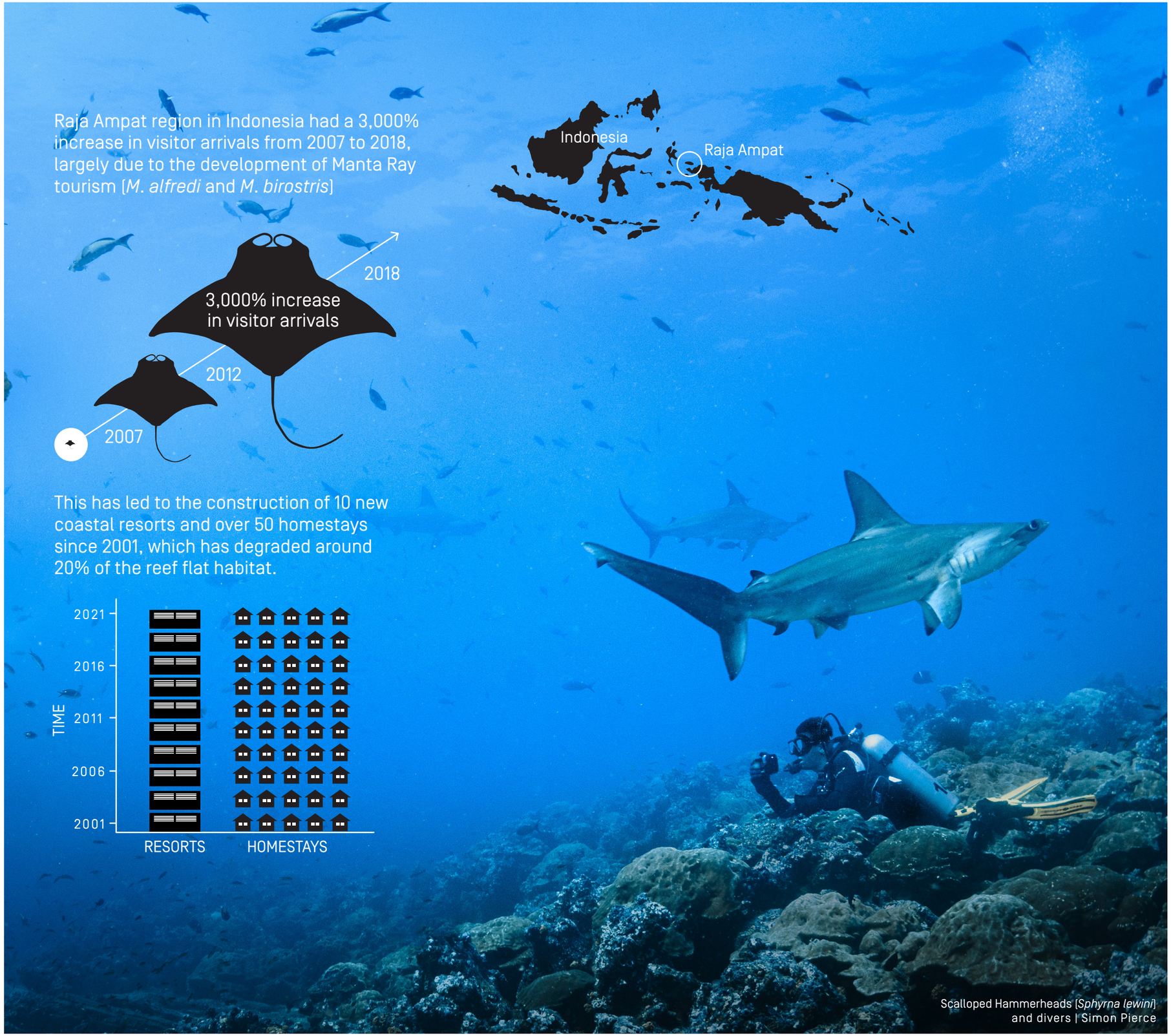
The cleaning stations themselves are not immediately obvious, as they are simply patches of reef inhabited by small wrasses. This makes them susceptible to physical damage from inexperienced divers, by accidentally breaking off coral or resting on the stations. Close approaches by divers also disturb the sharks, which circle slowly around the stations to allow the wrasse to stay with them. The first cleaning stations to be found, at ~15 m depth on the top of Monad Shoal, were physically damaged by divers and the cleaner fish abandoned the sites. Deeper cleaning stations on the edge of the Shoal have now had heavy blocks put in place around them, with ropes linking the blocks to fence off the cleaning areas while also providing a convenient handhold for divers to use while viewing the sharks. Now, divers can watch the sharks clean from an appropriate distance, while the Thresher Sharks and cleaner fish maintain unhindered access to the site. A similar solution has been developed for a cleaning station for Reef Manta Rays [Mobula alfredi] at a popular dive site, 'Manta Sandy', in Raja Ampat in Indonesia. Here, a line of rocks has been placed parallel to the cleaning station to ensure that divers have a clear demarcation of an appropriate distance to the Manta Rays.

Darwin and Wolf islands, in the far north of the Galapagos archipelago in the Eastern Pacific, share a large migratory population of Scalloped Hammerhead Sharks [*Sphyrna lewini*] and other species such as Galapagos Sharks [*Carcharhinus galapagensis*].



During the day, Scalloped Hammerheads school on the upstream side of both these small volcanic islands, where they rest in the water flow, attend cleaning stations, and socialize, before embarking on night-time foraging missions. Scalloped Hammerheads are a shy species that will seldom approach divers, presumably due to the breathing noise and streams of bubbles. To minimize disturbance on this Critically Endangered species, small groups of tourist divers are carefully briefed prior to dives, and actively led underwater by trained guides. Divers are brought to suitable viewing areas, depending on the location of the shark schools, whereupon the divers take up static positions amongst the large boulders. This avoids disturbance to the sharks, as the guides ensure the dive groups do not approach the open-water cleaning areas at these sites. The divers in turn get to unobtrusively observe the natural behaviours of the sharks.

Habitat modification as a result of shark tourism can be a threat to some species. The Raja Ampat region in Indonesia had a 3,000% increase in visitor arrivals from 2007 to 2018, largely due to the development of Manta Ray tourism (*M. alfredi* and *M. birostris*). This has led to the construction of 10 new coastal resorts and over 50 homestays since 2001, which has degraded around 20% of the reef flat habitat of The Raja Ampat Epaulette Shark (*Hemiscyllium freycineti*), which is endemic to the region. Resort construction, and associated increase in swimmers and snorkellers, can also disrupt and degrade the shallow-water nursery and foraging areas in reef lagoons used by species including the Blacktip Reef Shark (*C. melanopterus*) in the Maldives and Giant Guitarfish (*Glaucostegus typus*) on the Great Barrier Reef in Australia, respectively listed as Vulnerable and Critically Endangered on the IUCN Red List.



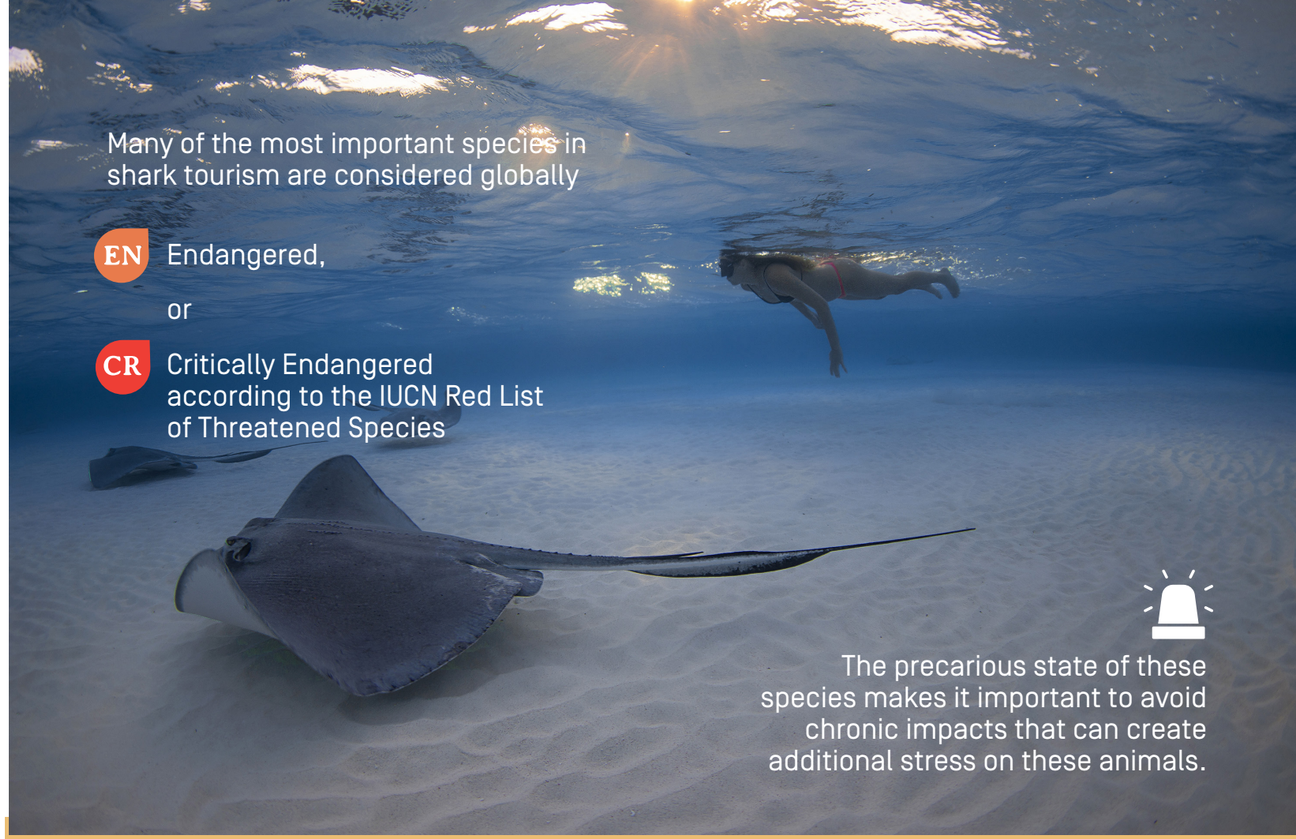
Scalloped Hammerheads (*Sphyrna lewini*) and divers | Simon Pierce

LOOKING FORWARD

There have been few ‘before’ and ‘after’ studies on shark tourism, and the recent development of many sites means there are few longer-term data available on community responses and successful management strategies. Assessing the likely impacts of these operations means dealing with high levels of scientific uncertainty across species, sites, and different operational situations. A high level of engagement with experienced operators will be useful, to understand practical issues and develop effective codes of conduct, along with regular reassessment as more information becomes available.

Many of the most important species in shark tourism are considered globally Endangered, and even Critically Endangered according to the IUCN Red List. None have been driven to this point by tourism. Shark tourism has had minimal impact on shark populations compared to overfishing, habitat loss, pollution, and climate change, which all pose significant threats. However, the precarious state of these species makes it important to avoid chronic impacts that can create additional stress on these animals. Increased interactions with boats, divers, and snorkelers will affect sharks and rays. The extent of these impacts, and whether they affect the welfare of the focal species, is dependent on management at the site, whether voluntarily applied or imposed by regulation.

Some of the world's iconic shark preservation areas, such as Raja Ampat in Indonesia, the Galapagos Islands, and Tubbataha Reefs in the Philippines, are largely funded by shark tourism. These activities can have demonstrable benefits, both in changing public perceptions for the better and incentivizing conservation initiatives. Unmanaged tourism, however, can quickly devolve into an additional burden on the focal species and their habitats. Going forward, if people are to benefit economically from threatened species, we need to ensure that the sharks and rays are benefiting too.



Right | Snorkelling with Southern Stingrays (*Hypanus americanus*) Cayman Islands, Caribbean
Jason Washington | Ocean Image Bank

FURTHER READING

Sustaining marine wildlife tourism through linking limits of acceptable change and zoning in the wildlife tourism model.
Bentz J, Lopes F, Calado H, Dearden P (2016) Marine Policy 68: 100–07.

Emerging challenges to shark-diving tourism.
Gallagher AJ, Huveneers CP (2018) Marine Policy 96: 9-12.

Biological effects, conservation potential, and research priorities of shark diving tourism. Gallagher AJ, Vianna GM, Papastamatiou YP, Macdonald C, Guttridge TL, Hammerschlag N (2015) Biological Conservation 184: 365–79.

A global review of elasmobranch tourism activities, management and risk.
Healy TJ, Hill NJ, Barnett A, Chin A (2020) Marine Policy 118: 103964.

Amazing Shark and Ray Science Discoveries from 2024

By David Shiffman
SSG Communications Officer

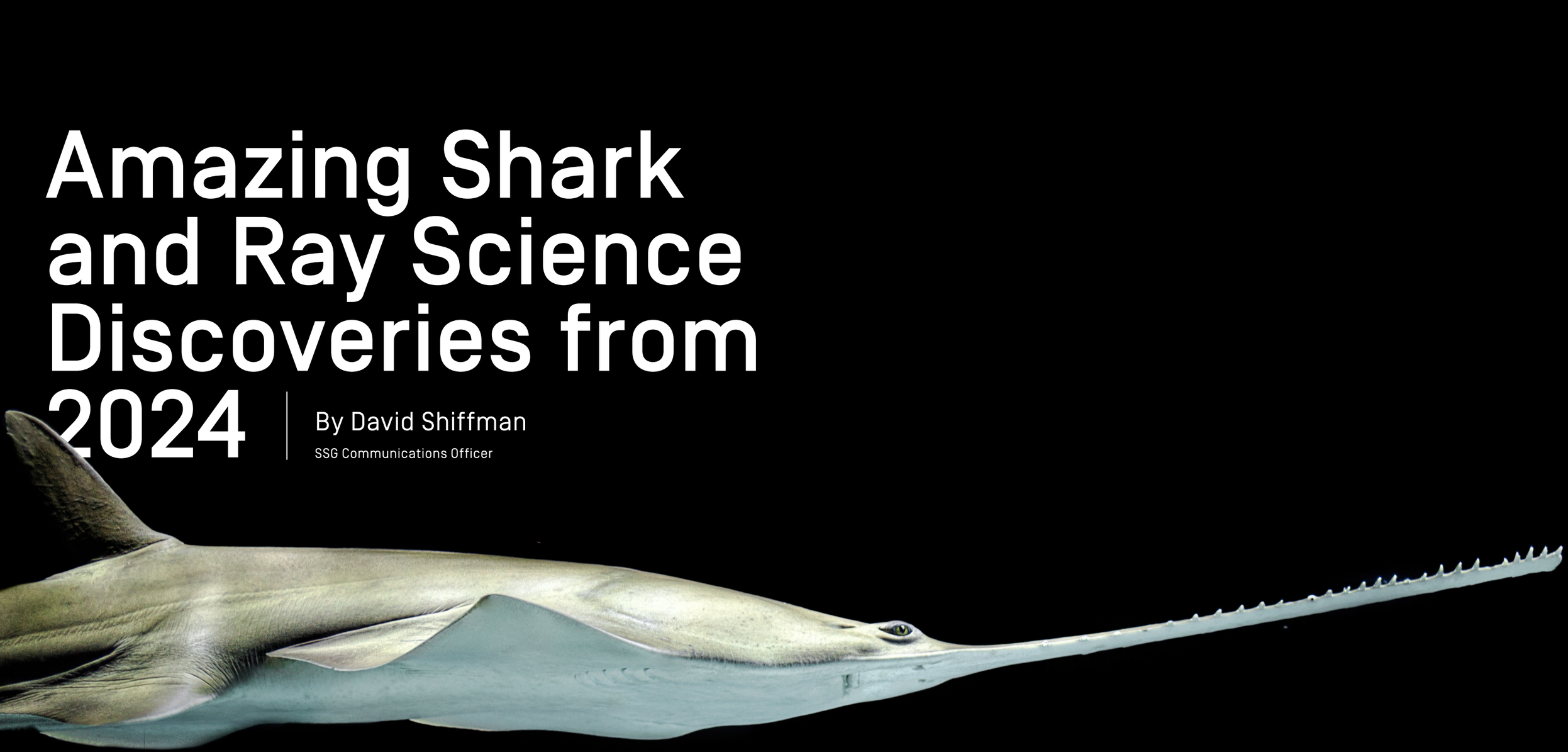


Photo by Shaun Wilkinson | Adobe Stock

Green Sawfish (*Pristis zijsron*)

There is always more to learn about sharks, rays, and chimaeras and scientists worldwide are working hard to add to growing bodies of knowledge! In this article, we'd like to highlight some of the amazing and important scientific discoveries from 2024

Seeing a large school of hammerhead sharks is a SCUBA diver's dream. Once a common behavior, massive declines in hammerhead shark populations means that it only happens in a handful of locations. This year, thanks to successful conservation efforts, a hammerhead school was observed in the Cayman Islands for the first time since the 1970s.

Gore, M., Kohler, J., Ormond, R., Gallagher, A., Fernandes, T., Austin, T., ... Pattengill-Semmens, C. (2024). Renewed occurrence of schooling scalloped hammerhead (*Sphyrna lewini*) and of great hammerhead (*S. mokarran*) sharks in the Cayman Islands. Frontiers in Marine Science, 11, 1347285. doi.org/10.3389 fmars.2024.1347285

In sadder news, all species of sawfish (family Pristidae) are now assessed as Critically Endangered on the IUCN Red List of Threatened Species. However, the same analysis showed signs of recovery and hope, signs that conservation is working, and that it's not too late to save these incredible shark-like rays.

Harry, A.V., Carlson, J.K., Espinoza, M., Grant, M.I., Haque, A.B., Jabado, R.W., ... Rigby, C.L. (2024). All sawfish now Critically Endangered but sustained conservation efforts can lead to recovery. Oryx, 58(2), 146–146. doi.org/10.1017/ S0030605323001692

While this threat doesn't get as much attention as the shark fin trade, deepwater sharks, especially gulper sharks (family Centrophoridae) are increasingly targeted for their liver oil (used in pharmaceutical products) and their meat. An important new analysis sounded the alarm.

Finucci, B., Pacoureau, N., Rigby, C.L., Matsushiba, J.H., Faure-Beaulieu, N., Sherman, C.S., ... Dulvy, N.K. (2024). Fishing for oil and meat drives irreversible defaunation of deepwater sharks and rays. Science, 383(6687), 1135–1141. doi.org/10.1126/science.ade9121

The Megamouth Shark (*Megachasma pelagios*) is a fascinating, but extremely difficult to study, species. This year, scientists published the results of the first ever telemetry tags placed on Megamouth Sharks, beginning to understand these amazing animals!

Clerkin, P.J., Arostegui, M.C., Chiang, W.C., Lin, S.J., Miller, C.D., & Braun, C.D. (2024). First telemetry insights into the movements and vertical habitat use of megamouth shark (*Megachasma pelagios*) in the northwest Pacific. Deep Sea Research Part I: Oceanographic Research Papers, 212, 104385. doi.org/10.1016/j.dsr.2024.104385

A new analysis examined how changing levels of oxygen in seawater will affects sharks and rays. The good news is that many species can withstand a small change, but those coping strategies will not help with a dramatic loss of oxygen.

Waller, M.J., Humphries, N.E., Womersley, F.C., Loveridge, A., Jeffries, A.L., Watanabe, Y., ... Sims, D.W. (2024). The vulnerability of sharks, skates, and rays to ocean deoxygenation: Physiological mechanisms, behavioral responses, and ecological impacts. Journal of Fish Biology, 105(2), 482–511. doi.org/10.1111/jfb.15830

Sharks famously have many different types of reproduction, including laying eggs and live birth. A new analysis found that live birth evolved at least seven separate times, and is more common in larger species.

Mull, C.G., Pennell, M.W., Yopak, K.E., & Dulvy, N. K. (2024). Maternal investment evolves with larger body size and higher diversification rate in sharks and rays. Current Biology, 4(12), 2773–2781. doi. org/10.1016/j.cub.2024.05.019

Scientists discovered many new species of sharks, rays, and chimeras, including this "ghost shark" from New Zealand.

Finucci, B., Didier, D., Ebert, D.A., Green, M.E., & Kemper, J.M. (2024). *Harriotta avia* sp. nov. – a new rhinochimaerid (Chimaeriformes: Rhinochimaeridae) described from the Southwest Pacific. Environmental Biology of Fishes, 107, 841–865. doi.org/10.1007/s10641-024-01577-4

A community of SCUBA divers assisted scientists in documenting the population of Sand Tiger Shark (*Carcharias taurus*, also known as Raggedtooth or Grey Nurse sharks) off the coast of North Carolina. Photo identification from SCUBA divers' photos has identified at last 1,837 different sharks, of which at least 101 were seen more than once!

Price, C.S., McClanahan, A.L., Burge, E.J., Houppermans, T., & Holmberg, J. (2024). Community science informs movement and reproductive ecology of sand tigers *Carcharias taurus* off North Carolina, United States of America. Frontiers in Marine Science, 11, 1362703. doi.org/10.3389/fmars.2024.1362703

What made a group of all-female Great Hammerheads (*Sphyrna mokarran*) gather under a full moon in French Polynesia? This previously unknown behavior documented by Tatiana Boube and colleagues launched a thousand social media memes, and even some fan artwork of a hammerhead coven.

Price, C.S., McClanahan, A.L., Burge, E.J., Houppermans, T., & Holmberg, J. (2024). Community science informs movement and reproductive ecology of sand tigers *Carcharias taurus* off North Carolina, United States of America. Frontiers in Marine Science, 11, 1362703. doi.org/10.3389/fmars.2024.1362703

We can learn a lot about modern-day biodiversity by examining paleontological records. An analysis of 9,000 shark teeth from 537 species from the last 66 million years found that the current slate of shark species in today's oceans have lost almost half of the functional diversity that ancient seas had.

Cooper, J.A., & Pimiento, C. (2024). The rise and fall of shark functional diversity over the last 66 million years. Global Ecology and Biogeography, 33, e13881. doi.org/10.1111/geb.13881

Forget bears- cocaine has now been detected in sharks off the coast of Brazil!

de Farias Araujo, G., de Oliveira, L.V.A., Hoff, R.B., Wosnick, N., Vianna, M., Verruck, S., ... Saggioro, E.M. (2024). "Cocaine Shark": First report on cocaine and benzoylecgonine detection in sharks. Science of The Total Environment, 948, 174798. doi.org/10.1016/j. scitotenv.2024.174798

What was your favorite scientific discovery this year? Let us know on social media!

Photo by Ocean Image Bank | Masayuki Agawa

School of Scalloped Hammerhead (*Sphyrna lewini*)

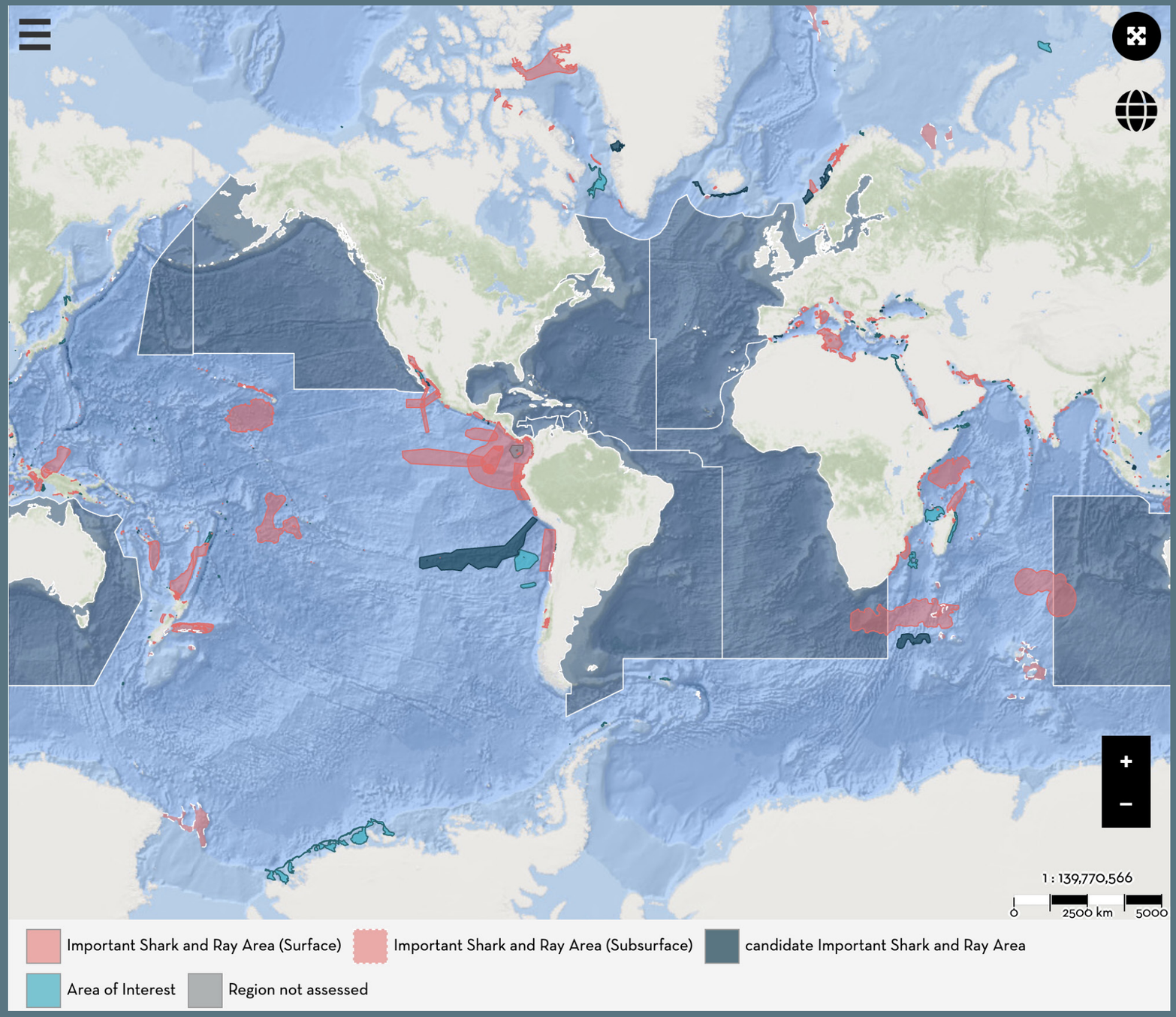
Photo by swamphiker | iNaturalist.org [CC BY-NC]

Smalltooth Sawfish
[*Pristis pectinata*]

Photo by andrilsionchak | Adobe Stock

Sandtiger Sharks [*Carcharias taurus*]
at the entrance to the underwater cave

THE IMPORTANT SHARK AND RAY AREAS OF ASIA, POLAR WATERS, AND NEW ZEALAND AND PACIFIC ISLANDS



Written by
Ryan Charles

Research Assistant | Important Shark and Ray Areas (ISRAs) | IUCN SSC Shark Specialist Group (SSG)

The the Important Shark and Ray Areas (ISRA) initiative has now completed six regions of the world! In 2024, the ISRA Team and contributors from around the world put sharks on the map in three regions of the globe: Asia, Polar Waters, and New Zealand and Pacific Islands. This marks just over two years of impact from the ISRA initiative, since launching in 2022, in collaboration with over 900 international experts.

The Asia, Polar Waters, and New Zealand and Pacific Islands regions were the fourth, fifth, and sixth of thirteen regions to be investigated, respectively. The ISRA team hosted these regional expert workshops for Asia in Bali, Indonesia in January 2024; for Polar Waters in Tirana, Albania in May 2024; and for New Zealand and Pacific Islands in Nadi, Fiji in August 2024. The best available science (such as local ecological knowledge and peer-reviewed scientific articles) was collated at each workshop, which facilitated conversations between the contributors. This was crucial in developing representative proposals of areas that may meet the ISRA Criteria – including the definition of accurate spatial boundaries.

For the Asia region, 208 experts contributed to the process either in-person and online. The result of this international effort was the delineation of 122 ISRAs. Four areas remained as candidate ISRA (cISRA) which will benefit from ongoing research that may help define their importance in the future. Also, 45 Areas of Interest (AoI) were mapped to highlight potential areas for potential future investigation. These areas varied greatly in size (0.14–396,247.23 km^2), including shallow lagoons (e.g., 0–5 m deep), deepwater areas (e.g., 0–1,928 m deep), and subsurface areas (e.g., 300–800 m deep). ISRAs were mapped for every ISRA Criteria. This means that some delineated areas were mapped for those species most threatened with extinction (e.g., Narrow Sawfish, *Anoxypristis cuspidata*) as well as some range-restricted species (e.g., Indian Swellshark, *Cephaloscyllium silasi*). Regular and predictable observations were used to demonstrate the importance of areas for reproductive purposes, feeding, resting, movement, and undefined aggregations. Other areas had special attributes, such as having a high diversity of sharks or having distinct features. For example, Giant Freshwater Whipray (*Urogymnus polylepis*) are distinctively large in size in the Mekong Deep Pools ISRA in northern Cambodia.

The investigation into the Polar Waters region covered the Arctic and Southern Oceans. For Polar Waters, 36 experts contributed to identify 34 ISRAs. In the Arctic, 26 ISRAs were delineated in four of the seven jurisdictions. In the Southern Ocean, eight ISRAs were delineated in five jurisdictions. Four areas remained cISRAs with three in the Arctic, and one in the Southern Ocean. Eleven AoIs were also mapped to highlight locations which could be critical habitat for sharks, rays, or chimaeras. ISRAs here also varied greatly in size (70.42–100,877.61 km^2) and included bays (e.g., 0–37 m deep), deepwater areas (e.g., 500–2,059 m deep), as well as subsurface areas (e.g., 900–1,600 m deep). ISRAs included species threatened with extinction (e.g., Rabbitfish, *Chimaera monstrosa*) and some range-restricted species (e.g., Murray's Skate, *Bathyraja murrayi*). Regular and predictable observations were also used to demonstrate the importance of areas for reproductive purposes, feeding, movement, and undefined aggregations (e.g., Greenland Shark, *Somniosus microcephalus*). Many of the ISRAs delineated in this region were subsurface (so the critical shark habitat does not reach the water surface) with sufficient information available to represent many deepwater species. For example, Eastern Kerguelen Slopes ISRA is delineated from 500–2,059 metres for the range-restricted Kerguelen Skate *Bathyraja irrasa* and reproductive purposes of Traveller Lanternshark *Etmopterus viator*.

The most recent update from the ISRA initiative is from the New Zealand and Pacific Islands region. In total, 138 experts identified 179 ISRAs, two cISRAs, and 50 AoIs. These areas ranged in size between

0.098– 1,016,520.39 km^2, and included shallow lagoons (e.g., 0–3 m deep), deepwater areas (e.g., 0–1,888 m deep), and subsurface areas (e.g., 600–2,000 m deep). Within this region, some delineated areas were mapped for those most threatened with extinction (e.g., Largetooth Sawfish, *Pristis pristis*) as well as some range-restricted species (e.g., Kuhl's Maskray, *Neotrygon kuhlii*). A lot of the data used to identify ISRAs was from citizen scientists undertaking recreational dives in the region. Other unpublished sources of information, such as local ecological knowledge, were used to identify ISRAs. For example, the Gulf of Papua Mangrove Delta ISRA is an important area for undefined aggregations of Critically Endangered Dwarf Sawfish *Pristis clavata*, Largetooth Sawfish *Pristis pristis*, Winghead Shark, *Eusphyra blochii*, as well as range-restricted Northern River Shark *Glyphis garricki* and Speartooth Shark *Glyphis glyphis*. This area has high regional importance as it is the largest cluster of contemporary Largetooth Sawfish records in Papua New Guinea.

Information gathered from these three regions is now available on the ISRA e-Atlas. All mapped areas can be filtered to display ones specific to your interest. For example, you can choose areas which were delineated in a particular jurisdiction or ISRA region, as well as filter for areas that meet a particular criterion, or delineated for specific Qualifying Species. You can also differentiate and filter sub-surface ISRAs, and large movement ISRAs. Every ISRA has a unique factsheet which details the species, ISRA Criteria met, and geographic information. Compendiums for each of these regions have also been published which collate all factsheets for each respective region. These are free to download from the ISRA website (sharkrayareas.org). This makes the information available to every-one including scientists, policy makers, and the general public.

At the time of writing, the ISRA team have worked with international experts to map 590 ISRAs, 22 cISRAs, and 137 AoIs in six regions of the world. The ISRA team are currently collaborating with lo-cal experts in the South American Atlantic and South American Inland Waters regions – the seventh and eighth ISRA regions to be investigated. The proposals are being drafted ahead of the upcoming workshop in January 2025 before they can be put on the map!

We anticipate in 2025 we will be able to complete other regions including the European Atlantic.

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3. IUCN SSC Shark Specialist Group. 2024. Important Shark and Ray Areas Regional Expert Workshop Report: New Zealand and Pacific Islands. December 2024. Dubai: IUCN SSC Shark Specialist Group
4. IUCN SSC Shark Specialist Group. 2024. Merauke ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.
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6. IUCN SSC Shark Specialist Group. 2024. Northwest Waigeo ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.
7. IUCN SSC Shark Specialist Group. 2024. South Sandwich Islands ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group
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ISRA

IMPORTANT SHARK AND RAY AREAS

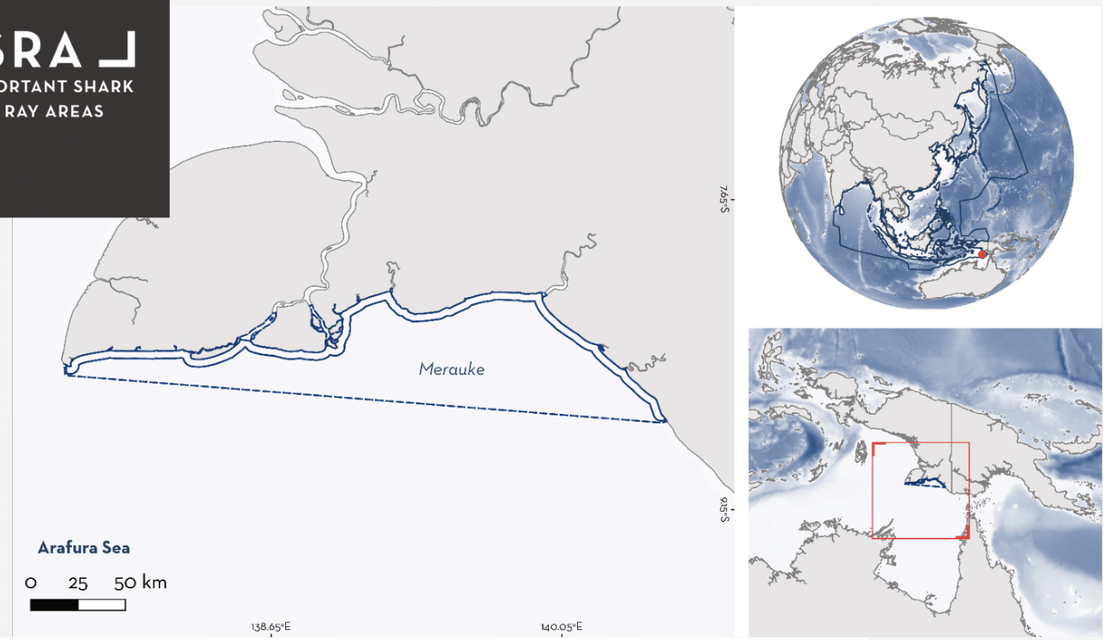
ASIA

A REGIONAL COMPENDIUM OF IMPORTANT SHARK AND RAY AREAS

IUCN SSC SHARK SPECIALIST GROUP

MAY 2024

ISRA
IMPORTANT SHARK AND RAY AREAS



Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

MERAUKE ISRA

Asia Region

INDONESIA

0–100 metres

1,564.28 km²

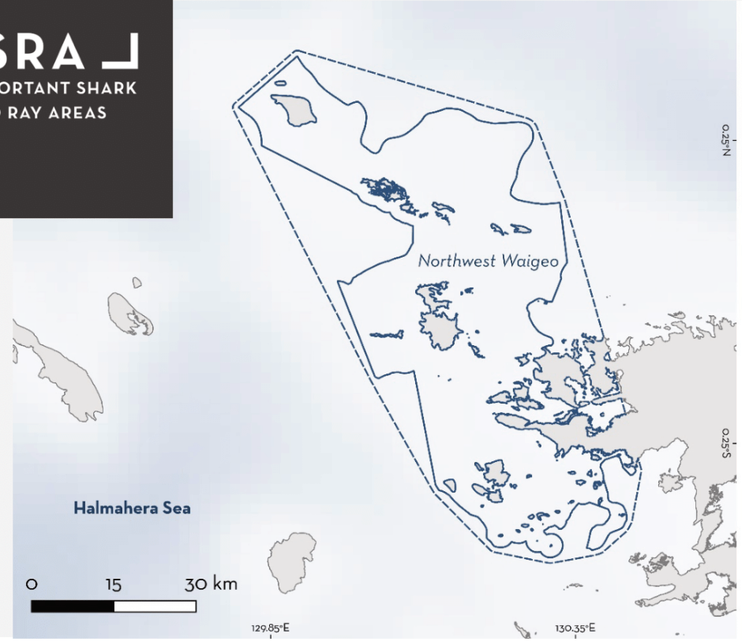
SUMMARY

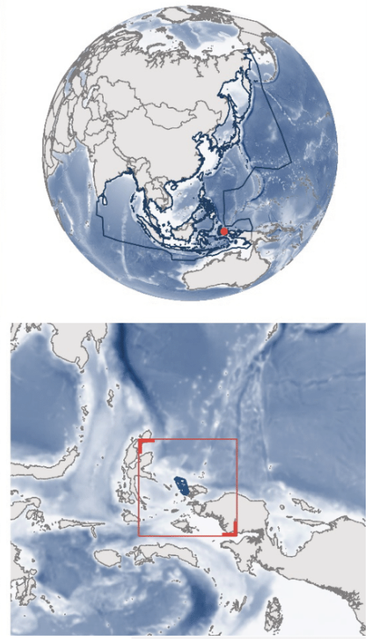
Merauke is located in Papua, Indonesia. The area extends from around the Merauke River mouth to Sabon on Dolok Island. It is characterised by mangrove forests, and sandy and muddy substrates. It is influenced by freshwater influxes from many rivers. This area overlaps with the Kaimana and the Kolepom Island marine protected areas. Within this area there are: **threatened species** (e.g., Largetooth Sawfish *Pristis pristis*), and **reproductive areas** (e.g., Narrow Sawfish *Anoxypristis cuspidata*).

CRITERIA

Criterion A – Vulnerability; Sub-criterion C1 – Reproductive Areas

ISRA
IMPORTANT SHARK AND RAY AREAS





Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

NORTHWEST WAIGEO ISRA

Asia Region

INDONESIA

0–100 metres

2,394.1 km²

SUMMARY

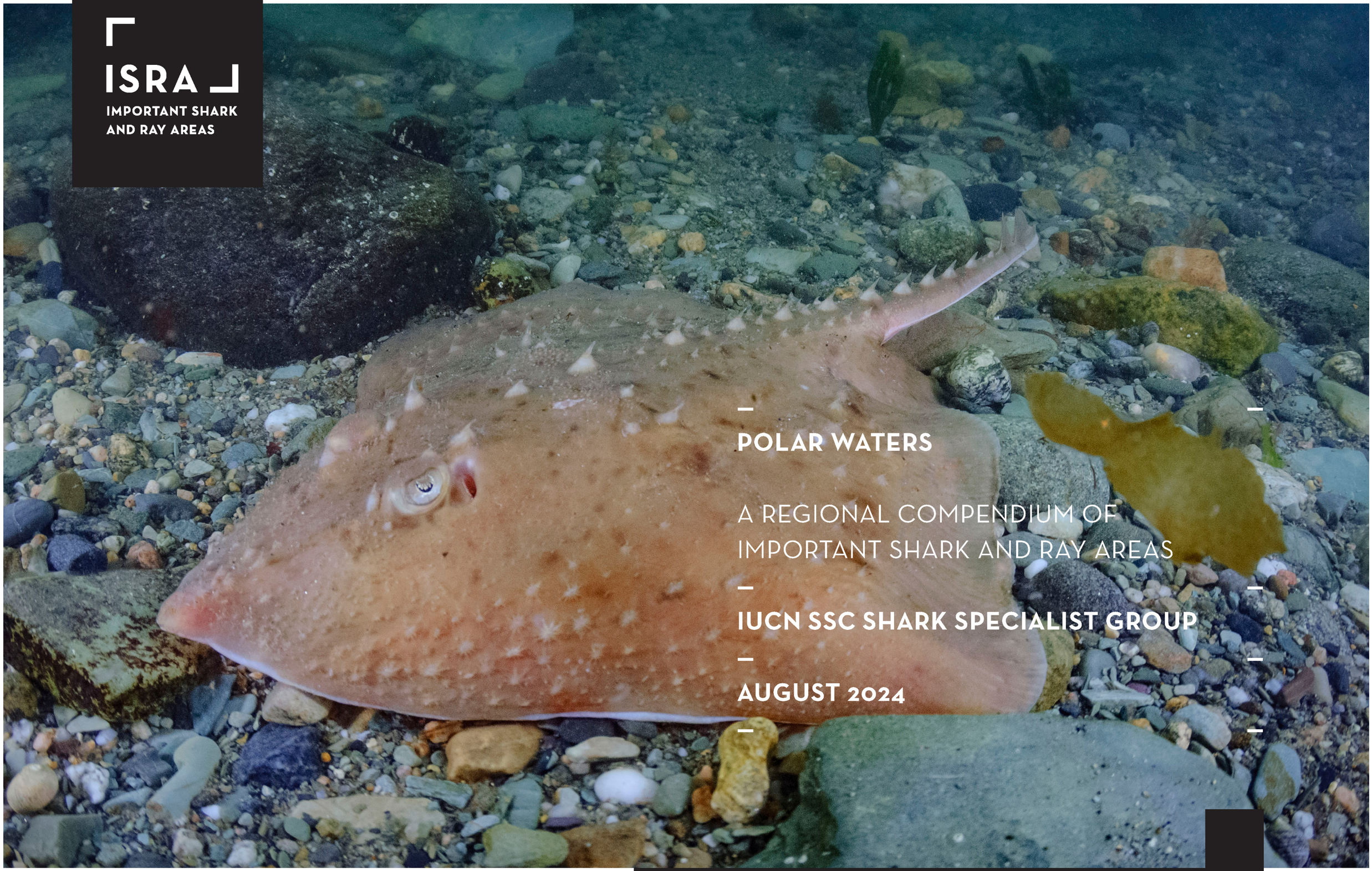
Northwest Waigeo is located in West Papua, Indonesia. The area is part of the Raja Ampat archipelago and includes several bays and islands, and has an extended shelf characterised by the presence of coral reefs, mangroves, and seagrass beds. The area overlaps with one Ecologically or Biologically Significant Marine Area, one Key Biodiversity Area, and with three marine protected areas. Within this area there are: **threatened species** (e.g., Giant Guitarfish *Glaucostegus typus*); **range-restricted species** (e.g., Raja Ampat Epaulette Shark *Hemiscyllium freycineti*); **reproductive areas** (e.g., Blacktip Reef Shark *Carcharhinus melanopterus*); **feeding areas** (Reef Manta Ray *Mobula alfredi*); **undefined aggregations** (e.g., Oceanic Manta Ray *Mobula birostris*); and the area sustains a **high diversity of sharks** (33 species).

CRITERIA

Criterion A – Vulnerability; Criterion B – Range Restricted;
Sub-criterion C1 – Reproductive Areas; Sub-criterion C2 – Feeding Areas;
Sub-criterion C5 – Undefined Aggregations; Sub-criterion D2 – Diversity

ISRA

IMPORTANT SHARK
AND RAY AREAS



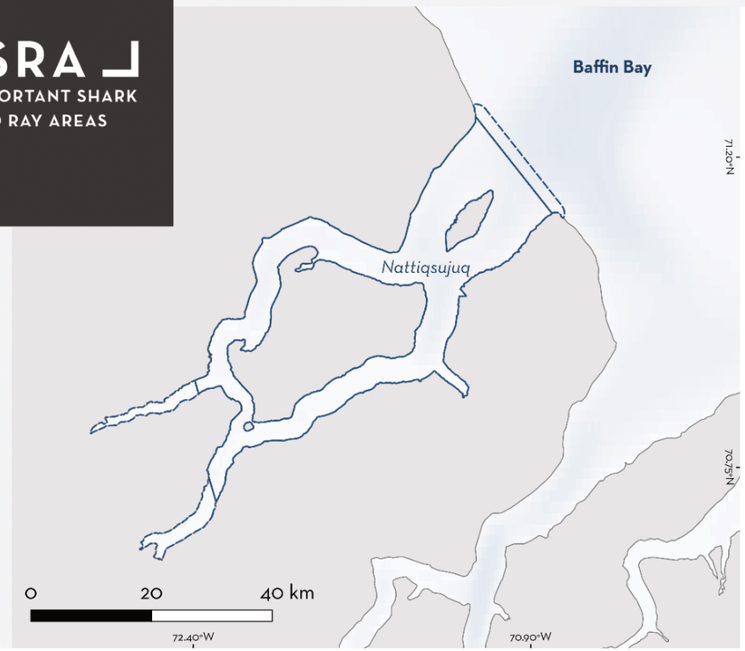
POLAR WATERS

A REGIONAL COMPENDIUM OF
IMPORTANT SHARK AND RAY AREAS

IUCN SSC SHARK SPECIALIST GROUP

AUGUST 2024

ISRA
IMPORTANT SHARK AND RAY AREAS



Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

NATTIQSUJUQ ISRA

Polar Waters Region

SUMMARY

Nattiqsujuq, also known as Scott Inlet, is situated on the east coast of Baffin Island, Canada. The area comprises two deep fjords connected to offshore Baffin Bay waters by a prominent deepwater channel. Benthic habitat consists of fine-grained sediments, rocks, and soft corals. The area is influenced by seasonal cycles oscillating between open water during the boreal summer and sea ice coverage during the winter. The area overlaps with the Scott Inlet Key Biodiversity Area. Within the area there are: **threatened species** and **undefined aggregations** (Greenland Shark *Somniosus microcephalus*).

CRITERIA

Criterion A – Vulnerability; Sub-criterion C5 – Undefined Aggregations

CANADA

–

–

0–800 metres

–

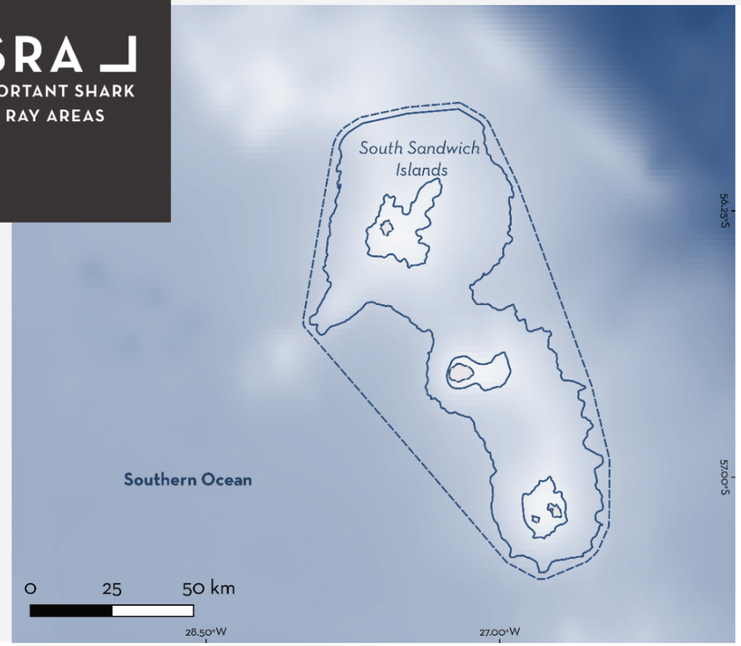
–

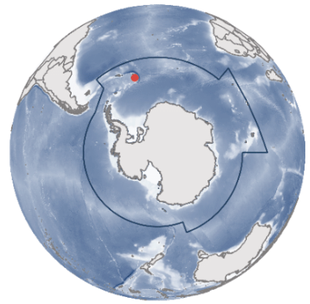
826.2 km²

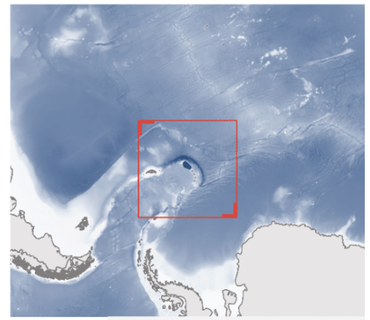
–

–

ISRA
IMPORTANT SHARK AND RAY AREAS







Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

SOUTH SANDWICH ISLANDS ISRA

Polar Waters Region

SUMMARY

South Sandwich Islands is located in the South Georgia and the South Sandwich Islands of the Southern Ocean. The area is within an archipelago of volcanic islands and the benthic environment consists of steep slopes and submarine seamounts. The area is a biological transition region between the sub-Antarctic and maritime Antarctic and is characterised by extensive sea ice coverage in the austral winter. The area lies within the South Georgia and South Sandwich Islands Marine Protected Area. Within this area there are **undefined aggregations** (Antarctic Starry Skate *Amblyraja georgiana*).

CRITERIA

Sub-criterion C5 – Undefined Aggregations

SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS

–

–

500–1,900 metres

–

–

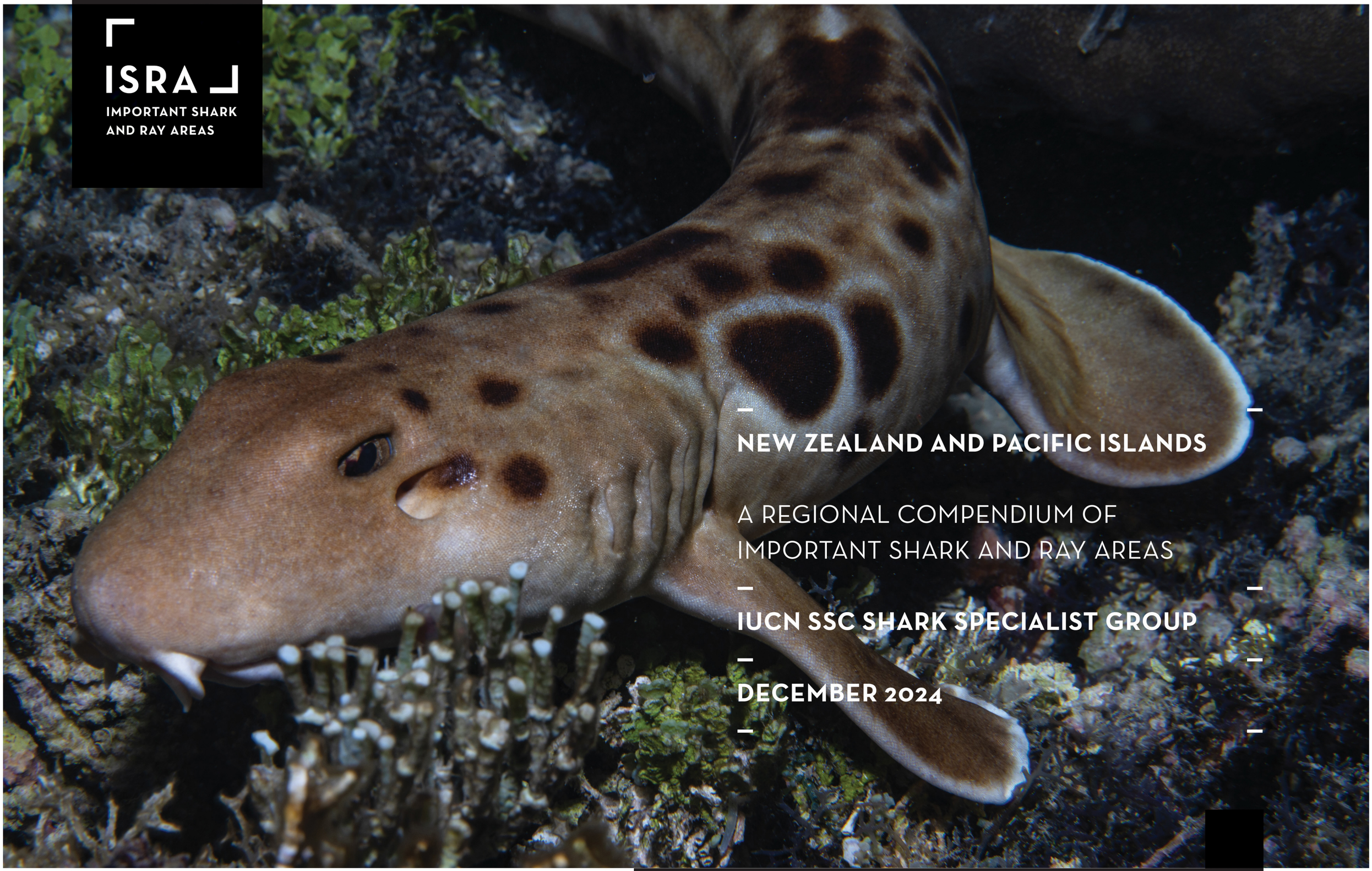
5,251.8 km²

–

–

ISRA

IMPORTANT SHARK
AND RAY AREAS



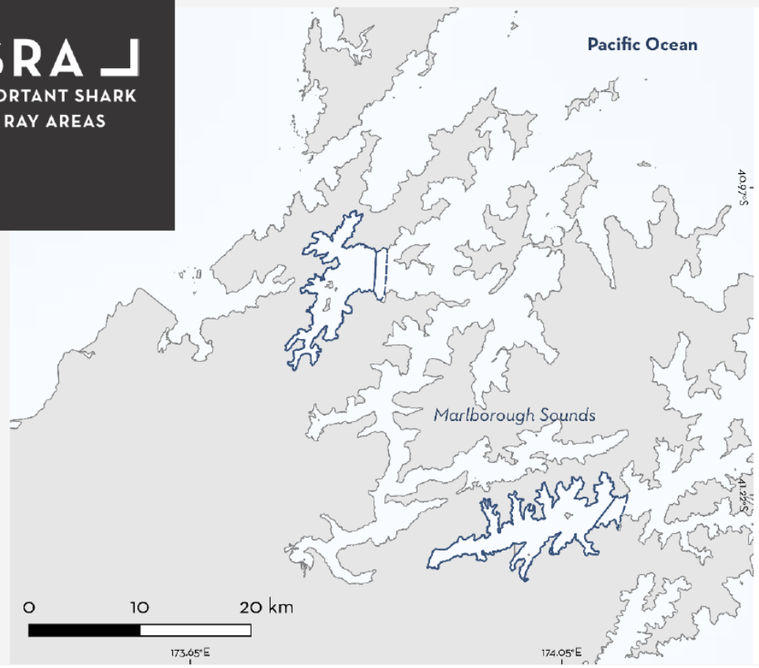
NEW ZEALAND AND PACIFIC ISLANDS

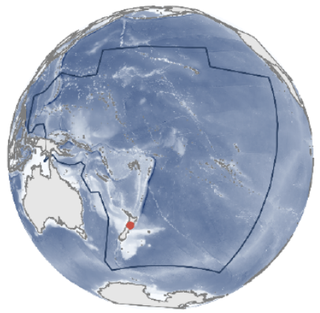
A REGIONAL COMPENDIUM OF
IMPORTANT SHARK AND RAY AREAS

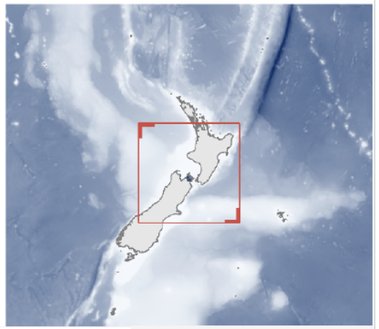
IUCN SSC SHARK SPECIALIST GROUP

DECEMBER 2024

ISRA
IMPORTANT SHARK AND RAY AREAS







Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

MARLBOROUGH SOUNDS ISRA

New Zealand & Pacific Islands Region

SUMMARY

Marlborough Sounds is located at the top of the South Island of New Zealand. This drowned river valley system includes two main sounds with multiple bays and islands: Pelorus Sound in the north and Queen Charlotte Sound in the southeast. The sides of the bays and main body of the sounds generally consist of rocky reefs, cobbles and boulders, with silty sands and muds dominating deeper areas. Muddy and sandy substrates are common in the area along with biogenic substrates. The area overlaps with the Marlborough Sounds Key Biodiversity Area. Within this area there are: **reproductive areas** (Elephant Fish *Callorhinchus milii*).

CRITERIA

Sub-criterion C1 – Reproductive Areas

NEW ZEALAND

–

–

0–50 metres

–

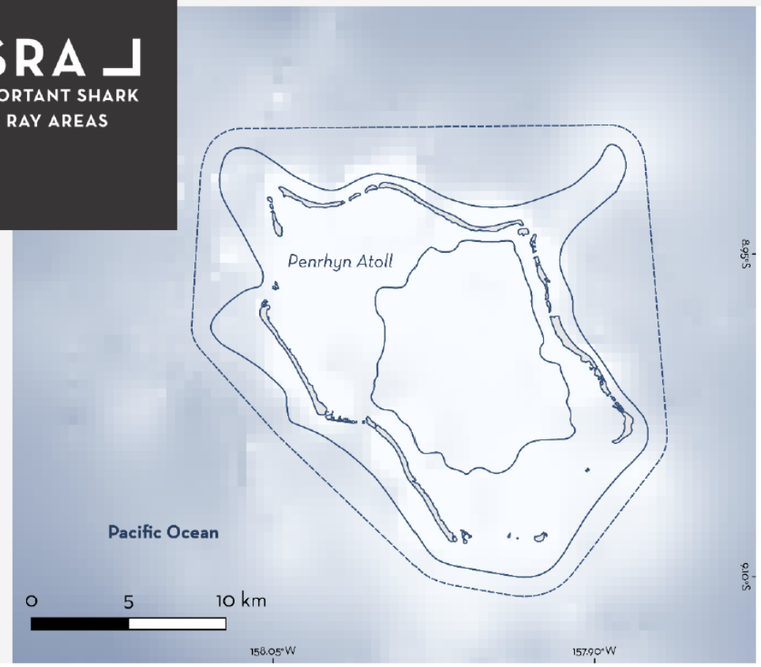
–

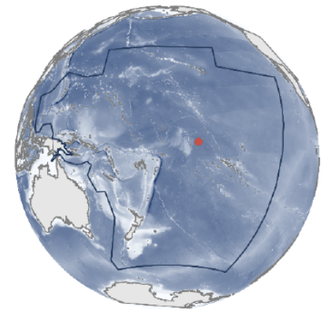
98.89 km²

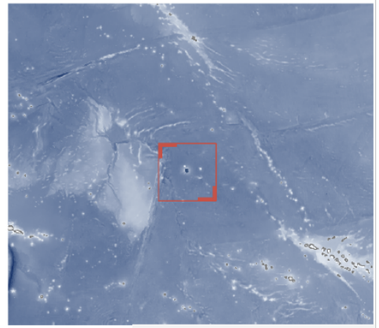
–

–

ISRA
IMPORTANT SHARK AND RAY AREAS







Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

PENRHYN ATOLL ISRA

New Zealand & Pacific Islands Region

SUMMARY

Penrhyn Atoll is located in the northern group of the Cook Islands in the south Pacific Ocean. It is the largest atoll in the Cook Islands and includes 18 major islets. It is characterised by a coral reef that surrounds a lagoon. Omaka Reef comprises a slope, including hard coral and macroalgae and is influenced by a low current. Within this area there are: **threatened species** (e.g., Blacktip Reef Shark *Carcharhinus melanopterus*) and **undefined aggregations** (e.g., Grey Reef Shark *Carcharhinus amblyrhynchos*).

CRITERIA

Criterion A – Vulnerability; Sub-criterion C5 – Undefined Aggregations

COOK ISLANDS

–

–

0–80 metres

–

–

209.9 km²

–

–

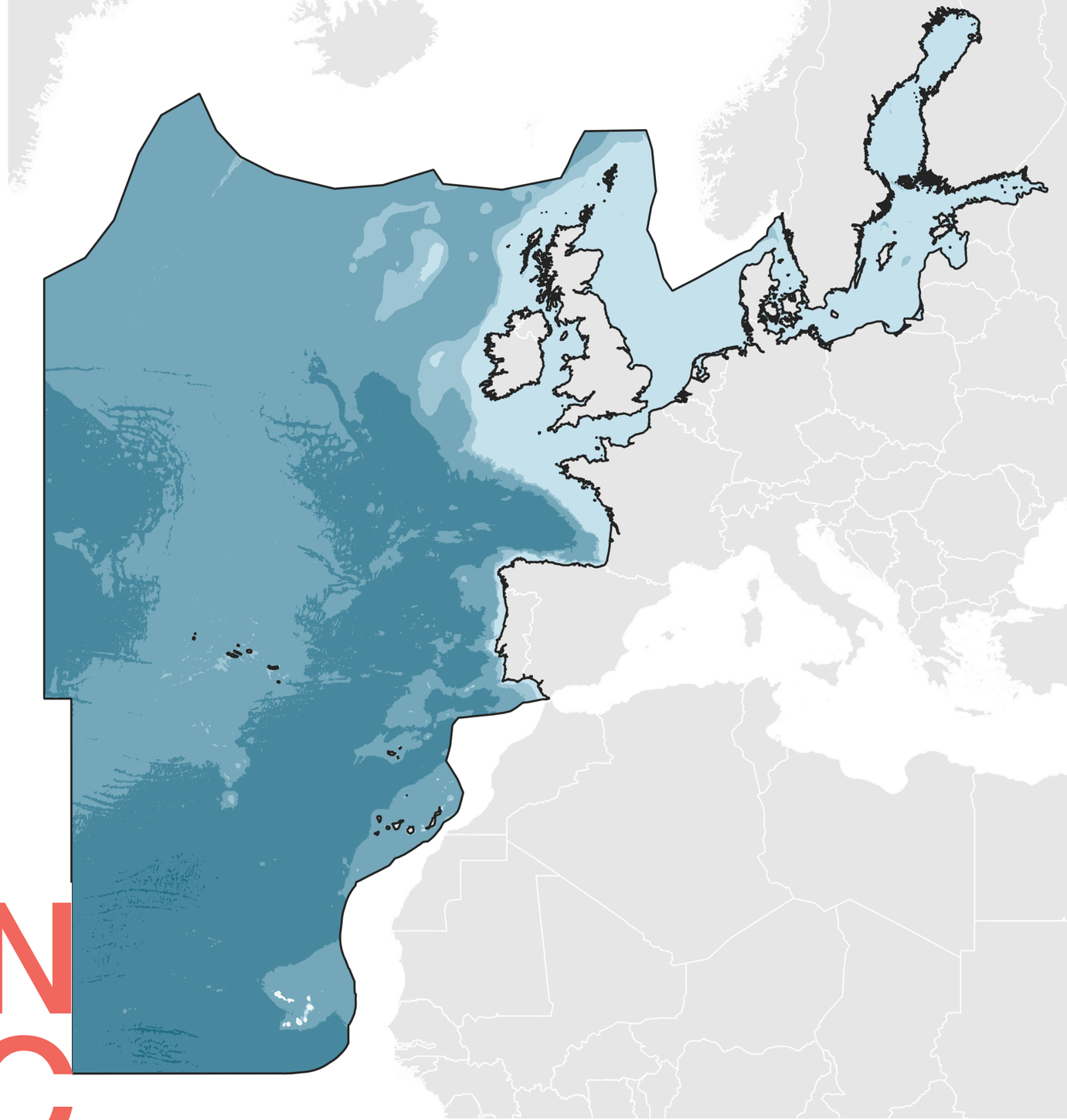
ISRA
IMPORTANT SHARK AND RAY AREAS

Call for proposals for preliminary Areas of Interest

We are seeking proposals for preliminary Areas of Interest in European Atlantic which we will be used to delineate candidate Important Shark and Ray Areas.

The workshop will be held in May 2025

Please submit proposals to submissions@sharkrayareas.org



EUROPEAN ATLANTIC

IUCN SSC
Shark Specialist Group

Ana Barbosa Martins
Integrated Fisheries Lab, Department of Biology, Dalhousie University
Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University

Ian Campbell
PADI AWARE Foundation

Andrew Chin
Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University
IUCN SSC Shark Specialist Group | Oceania regional member

Scaling up citizen science for shark and ray conservation

Photo by PADI

It is no news to most of us that sharks and rays are amongst the most threatened groups of animals on the planet. We probably all agree that urgent action is needed at different geographical and political levels to reduce the impacts of overfishing, habitat loss, climate change, and pollution on shark and ray populations worldwide. Unfortunately, as things currently stand, management planning and implementation are often made more difficult by the lack of data on shark and ray distribution and habitat use, populations, life history, and ecology.

One of the key drivers behind this lack of data is limited scientific capacity. The world's coasts and oceans are massive and are home to over 1,200 species of sharks and rays. Field research can be challenging, funding is limited, and while many of us would like to spend more time doing surveys and research in remote wild places and in fish markets, the time, funding, capacity, and physical ability to do this are limited. There are not enough scientists and conservationists around the world to monitor shark and ray populations, and many scientists cannot get into the field regularly. This is why citizen science can be so powerful.

While we often think of citizen science as a relatively new research approach that involves divers and volunteers working on our research projects, we may forget that citizen science has been a fundamental data source for shark and ray conservation and management for a very long time. For decades, fisheries stock assessments and conservation actions have relied on fisheries data such as catch and effort, landings size, and species composition and catch trends to manage and monitor fisheries. In many fisheries, these data are recorded in fisheries logbooks and landings records filled out by fishers themselves who are acting as citizen scientists. Meanwhile, we are also aware that fisheries logbook data can be problematic to use, which underscores the importance of quality assurance and quality control when using citizen science data. Just like with fisheries data, the reliability of citizen science can vary greatly depending on program design, data validation, capacity, complexity, and the motivations and drivers of the people collecting the data (Chin & Pecl, 2018).

When done well, citizen science can be of enormous value to shark and ray conservation. For example, a decades-long dataset collected by passionate scuba divers was crucial in detecting climate change effects on shark movements and population dynamics (Osgood et al., 2021). In the Asia-Pacific, scuba diver photos have resulted in new records of species distributions (Chin et al., 2019), and social media records are helping scientists locate species once thought to be extinct (McDavitt & Simeon, 2024). Just this year, a paper was published showing how a citizen scientist provided the first evidence of the spread of the American Cownose Ray (*Rhinoptera bonasus*) to Bermuda (Ajemian et al., 2024) and can be incorporated into the IUCN Red List of Threatened Species assessments (Gallagher et al., 2024). The world is changing, and citizen scientists and new technology are providing the research community with a cost-effective way to monitor species and populations at a global scale. However, a significant challenge remains in engaging and mobilizing citizen scientists at scale.

This is where research collaborations between scientists and global-scale organizations can bridge the gap. As the world's largest scuba diving training and development organisation that trains over a million divers every year, PADI (the Professional Association of Diving Instructors) has enormous potential to connect researchers to the global marine and diving community. Recognizing the potential for citizen science to contribute to shark and ray conservation and management, the non-profit conservation organization, the PADI AWARE Foundation, has launched the Global Shark & Ray Census (GSRC), with support through the Blancpain Ocean Commitment, a global citizen science program that aims to collect data on sharks and rays and their populations around the world. The program invites everyone in or on the water (divers and non-divers) to contribute. This encompasses dive centers or research groups with regular access to locations where sharks and rays are known to inhabit, but also citizens that occasionally encounter sharks and rays during their beach walks or water activities, such as swimming, snorkeling, diving, kayaking, fishing, among many others. Meanwhile, using the technology readily accessible within the reach of their pockets, ocean enthusiasts can log sightings of any shark and ray species they encounter or choose to regularly monitor specific sites to track population trends through a user-friendly app. Users will also be specifically asked to record any evidence of impacts including fishing injuries, entanglement with debris, and boats strikes, as well as records of aggregations or reproductive behavior.

As mentioned previously, citizen science programs need to be carefully designed and have robust quality assurance (QA) and quality control (QC) processes (Chin & Pecl, 2018). The Fish and Fisheries Lab at James Cook University (JCU) in Australia is serving as the scientific QA/QC hub for the PADI AWARE GSRC. The JCU team has advised PADI AWARE on developing new training manuals and materials to help divers collect useful data and provided input into the data fields and design of the new mobile app. Once the program goes live, data submitted by the marine community will proceed through three levels of quality checking. The first occurs within the PADI AWARE quality review process to check the completeness and quality of the data. Data will also be tagged according to how they are collected and the amount and quality of supporting information (e.g., photos or videos) and these will be used to assess the confidence in each data record. In addition, every single data entry that includes photos or videos will be sent to the JCU Data Validation Team for independent data validation. During this process, each record will be categorized according to image quality, and double-checked by two independent data validators. Once validated, the data will be re-checked one last time through the PADI AWARE system before being uploaded to the PADI AWARE online dashboard and website where it will be visualized (note that no personal information or shark or ray species location data will be made publicly available). The JCU Team will provide periodic data summaries, analyses, and reports of notable findings, patterns, and trends emerging from the data. To ensure that the data are widely used, the team is developing collaborations with other shark and ray citizen science programs to ensure data from the PADI AWARE GSRC are used by other scientists.

The temporal and spatial scale of the PADI AWARE GSRC will provide essential data for conservation and management, especially in places where no other data exists. For example, the workshop to identify Important Shark and Ray Areas (ISRAs) in the New Zealand and Pacific Islands region relied on a significant amount of data from dive shops and scuba divers – and for many locations were the only data available. In the future, the GSRC can also provide a way to monitor ISRAs in places where no other monitoring programs exist. GSRC data collected on migratory sharks and rays could also support the implementation and monitoring of the Convention on the Conservation of Migratory Species (CMS) Sharks Memorandum of Understanding (Sharks MOU) by providing information on key threats facing migratory species, for example, by providing data on threats such as illegal fishing (e.g., fresh fishing injuries within a no-take Marine Protected Area (MPA)) or entanglement in marine, debris, and collecting data on species in places where no other data exist. These data can also be used for national and local shark and ray management and conservation initiatives, and the PADI AWARE team has already been approached by a national government to enquire if the program could help assist national efforts to monitor sharks and rays and to help develop a National Plan of Action for Conservation and Management of Sharks (NPOA-Sharks). In places where divers conduct regular GSRC surveys for the GSRC (and crucially, collect and submit 'zero' data), such as a PADI Five Star dive shop participating in a periodic 'global shark count', over time these data could be used to track population trends.

The GSRC is currently still in development with efforts focused on building the mobile app and background data systems. As with any citizen science program, there are also future challenges to meet. Key challenges include creating the right incentives and motivations to ensure that the community will continue to contribute data over the long term; educating contributors about the importance of collecting 'zero' data; and showing contributors how the data are being used. Other challenges may arise in handling the sheer quantity of the data, keeping track of issues that may compromise data quality (e.g., poor species identification), and helping contributors improve their submissions (training and support materials). Lastly, we need to build trust with the intended end-users of the data, local and national managers and conservation practitioners, scientists, and the global shark and ray community. To that end, if you are curious about the GSRC, we invite you to join us on this journey by trying out the app (when it is launched) and logging your encounters with sharks and rays, setting up or contributing monitoring data of specific sites with your colleagues, students or members of the community; and by letting us know if you are interested in collaborating as a GSRC data users. Lastly, if you have questions about how the science and data side of the GSRC, get in touch and let us know.

PADI AWARE FOUNDATION®

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Photo by PADI

Tiger Shark
(***Galeocerdo cuvier***)

Spotted Eagle Ray
[*Aetobatus ocellatus*]

Ocean Image Bank | Amanda Cotton

All time high for shark, ray, and chimaera representation at the 7th International Marine Conservation Congress (IMCC) - Making marine science matter!

Photo by IMCC7| Society for Conservation Biology Marine Program

Written by Alexandra Z.A. Morata
IUCN SSC Shark Specialist Group | Program Officer

The 7th International Marine Conservation Congress (IMCC) was held in Cape Town, South Africa from 13th–18th October 2024, and was hosted by the Society for Conservation Biology – Global Marine Program. IMCC is one of the largest marine conservation conferences globally that only occurs every four years. The IMCC had over 130 sessions that were targeted to an international audience and gathered over 800 scientists and researchers from around the world. The talks and presentations covered a wide variety of marine topics from seagrass to turtle conservation to climate change and human dimensions, etc.

This meeting also had one of the largest turn-out for sharks, rays, and chimaeras experts in IMCC's history, with 42 presentations and five posters focused on these species. This includes 16 IUCN SSC Shark Specialist Group (SSG) members. A wide variety of topics were covered, from talks about shark and ray meat trade in India and beyond, refuges for deepwater sharks, Important Shark and Ray Areas (ISRAs), tracking the movement of species across jurisdictions, global efforts to 'put sharks in parks', and incorporating citizen science to support shark and ray data collection.

Thursday 17th October was an extra festive day for sharks as it was also International Sawfish Day. Appropriately, there were presentations that featured sawfish conservation efforts in South America leading to this.

Dr Rima Jabado, IUCN SSC SSG Chair, also gave a keynote talk entitled 'A long road to recovery: pathways to accelerate the conservation of sharks and rays'. At the end of the talk, Rima announced a 'teaser' for the release of *The global status of sharks, rays, and chimaeras* report which was officially published on December 2nd (check out the article about this new report!).

Some of the contributors to *The Global status of sharks, rays, and chimaeras*

Photos by IMCC7 | Society for Conservation Biology Marine Program

Some of the contributors to *The Global status of sharks, rays, and chimaeras*

Photo by IUCN SSC Shark Specialist Group

e Program

IMCC 2024

Making Marine Science Matter

7th International Marine Conservation Congress | Cape Town, South Africa

Some of the editors of *The Global status of sharks, rays, and chimaeras*

Photo by IMCC7 | Society for Conservation Biology Marine Program

Photos by iSea | Dimitris Tosidis

Keynote: Bycatch and the socioeconomic importance of shark and ray fisheries
Panel facilitator: Ali Hood *Keynote speakers*: Dimitrios K.Moutopoulos, Periklis Kleitou, Samira Enajjar and Caroline Bousquet

The European Elasmobranch Association Annual Conference held in Greece for the first time, between 21st–24th October 2024

Written by Ioannis Giovos

iSea
IUCN SSC Shark Specialist Group | Mediterranean and Black Seas regional member

The European Elasmobranch Association (EEA) Annual Conference has once again proven to be an essential gathering for the global community committed to protecting sharks and rays. EEA 2024, organized by iSea in Thessaloniki, Greece, under the topic 'Stronger Collaboration for Better Conservation', brought together 214 participants from 19 countries in a dynamic four-day event brimming with innovation, insight, and impactful dialogue.

Building on the values of diversity, equity, and community, the program was rich with 54 oral presentations, 39 posters, six interactive workshops, and five keynote panels. From groundbreaking research in biology and ecology to actionable policy strategies, attendees explored pressing issues and shared cutting-edge solutions to the challenges shark and ray species face. Workshops tackled critical topics like marine spatial planning in the Mediterranean Sea, advancements in acoustic telemetry, and leveraging social media for conservation, offering practical tools to strengthen conservation efforts.

Keynote speakers from regions including northern and southern Europe, the United States of America (USA), the United Arab Emirates (UAE), and underrepresented areas such as the Balkans, eastern Europe, northern Africa, and the Middle East enriched discussions with diverse perspectives. Fishers from Greece and Tunisia also exchanged best practices for handling and releasing protected species, and explored alternative livelihoods like fishing tourism, fostering collaboration between conservationists and industry stakeholders.

A significant focus of EEA 2024 was empowering early-career researchers and youth. More than 40 young conservationists actively participated in workshops, sharing their findings, and even chairing panel sessions, fostering mentorship opportunities and amplifying their voices. This investment in the next generation of scientists reflects the conference's commitment to sustainability in conservation efforts.

The sense of unity and purpose was evident throughout, with panel discussions addressing timely topics such as emerging policy tools and public engagement strategies, sparking new collaborations and highlighting ongoing projects. In parallel with the conference's program, a significant number of meetings were held among established teams or fresh consortiums that grabbed the chance of envisioning common efforts. Among them, more than 30 experts from 18 partners of LIFE PROMETHEUS met and officially kicked off the beginning of the project dedicated to the improvement of the conservation status of Mediterranean Sea sharks and rays.

The event also underscored the socio-economic importance of sharks and rays, catalyzing actionable ideas to bridge science and community-driven solutions. But, the conference was not just a forum for exchanging knowledge but a celebration of the progress achieved in shark and ray research and advocacy. The Angel Shark Project family celebrated its 10 years of collaborative work and project partners had the opportunity to build on new initiatives and priorities for promoting the conservation and protection of Angel Shark (family Squatinidae) population.

As Rima Jabado, Chair of the IUCN Species Survival Commission (SSC) Shark Specialist Group (SSG), noted, EEA 2024 left a powerful sense of hope driven by its attendees' collective passion and dedication. By the end of the event, it was clear that the shared mission of conserving these magnificent marine creatures had gained fresh momentum, proving that tangible and lasting change is possible through collaboration.

www.isea.com.gr

The European Elasmobranch Association 2024 Annual Conference organised in Greece from 21st to 24th October

THESSALONIKI 2024
EUROPEAN ELASMOBRANCH ASSOCIATION CONFERENCE

How to use social media to talk about shark science and conservation, and why you should?
Presenter: David Schiffman

Keynote: Biology and ecology of sharks, rays and chimaeras
Panel facilitator: Carlotta Mazzoldi
Keynote speakers: Marco Milazzo, Yannis P. Papastamatiou, Jenny Bortoluzzi and Claudia Junge

Keynote: Policy framework and emerging tools
Panel facilitator: Ioannis Giovos
Keynote speakers: Lobna Ben Nakhla, Rima Jabado and Simone Niedermueller

Keynote: Working in data-poor areas
Panel Facilitator: Monica Barone
Keynote speakers: Ilija Četković, Sara Al Mabruk, Adib Ali Saad and Mahmoud Farrag

Photos by iSea | Dimitris Tosidis

Keynote: Biology and ecology of sharks, rays and chimaeras
Panel facilitator: Carlotta Mazzoldi
Keynote speakers: Marco Milazzo, Yannis P. Papastamatiou, Jenny Bortoluzzi and Claudia Junge

THESSALONIKI 2024
EUROPEAN ELASMOBRANCH ASSOCIATION CONFERENCE

Keynote: Stimulating public engagement
Panel facilitator: Eva Meyers
Keynote speakers: Isla Hodgson, Felipe Ravina, Ian Campbell, Eleonora de Sabata and Michael Scholl

THE 5TH IUCN SPECIES SURVIVAL COMMISSION (SSC) LEADERS' MEETING

The 5th IUCN Species Survival Commission (SSC) Leaders' Meeting, hosted by the SSC and the Environment Agency – Abu Dhabi (EAD), was organised in Abu Dhabi, between October 25–28, 2024. This meeting brought together over 300 participants, including leaders and experts in species conservation from the world's largest volunteer conservation science network.

Held every four years, the meeting aimed to leverage the expertise and experience of SSC Groups to facilitate knowledge-sharing and collective action, with the ultimate goal of advancing the mission of species conservation. For more than 15 years, with the dedicated partnership of EAD, SSC Leaders' Meetings have served as a vital platform for global conservation strategizing, collaboration, and action. Since the inaugural meeting in 2008, these gatherings have driven advancements in species conservation, making the SSC Leaders' Meeting an indispensable event on the conservation calendar. This year's event emphasised the regenerative power of nature and the crucial roles of animals, fungi, and plants in sustaining ecosystems, regulating climate, and supporting life. Together, the SSC Network continues to play a pivotal role in halting extinctions, reversing species declines, and driving species recovery efforts worldwide.

Dr Rima Jabado attended the Leaders meeting in her roles as Deputy Chair for the SSC and Chair of the IUCN SSC Shark Specialist Group (SSG). The SSG received two awards during the meeting. The Citation of Excellence is a recognition from the IUCN Species Survival Commission to groups for their outstanding contributions to any of the Key Species Results (KSR) established in the Species Strategic Plan, allocated throughout the five components of the Species Conservation Cycle: Network - Assess - Plan - Act - Communicate. Furthermore, the Harry Messel Award for Conservation Leadership was awarded to Prof Nicholas Dulvy, the SSG co-Chair between 2009–2020. This award recognizes his contribution to species conservation on the ground and through leadership, as part of the work of the SSC.

Over 120 sessions occurred in a programme designed to reflect the Species Conservation Cycle (Assess-Plan-Act), which is the core framework for SSC activities, with an entire day fully dedicated to each of these components. The agenda comprised more than 20 plenary sessions and numerous workshops, panel discussions, symposia, and training opportunities, among other diverse sessions to share experiences and lessons learned by SSC leaders during the quadrennium, and throughout the eight decades of existence of the Commission.

The declaration issued by SSC members and partners at the meeting conveys the critical role of species in ensuring clean water, food security, cultural connections, economic stability, and social justice. It calls on diverse sectors—including governments, businesses, Indigenous peoples and local communities, religious groups, and individuals—to prioritise species conservation within their actions, strategies, and giving, recognising that protecting animals, fungi, and plants is fundamental to sustaining life on earth.

The 2024 meeting built upon the foundational 2019 Abu Dhabi Call for Global Species Conservation Action, which underscored species conservation as a shared priority and responsibility. It inspired the 2023 launch of IUCN Global Species Action Plan, which was presented at the Convention on Biological Diversity meeting in Nairobi. Continuing this legacy, the 2024 declaration renews IUCN's commitment to empowering communities, supporting governments, and engaging civil society and businesses to prioritise species conservation at all levels and achieve the goals and targets agreed to in the GBF.

As the declaration states:

Saving Species Sustains Life.

We know how to save species and we have proved that conservation works.

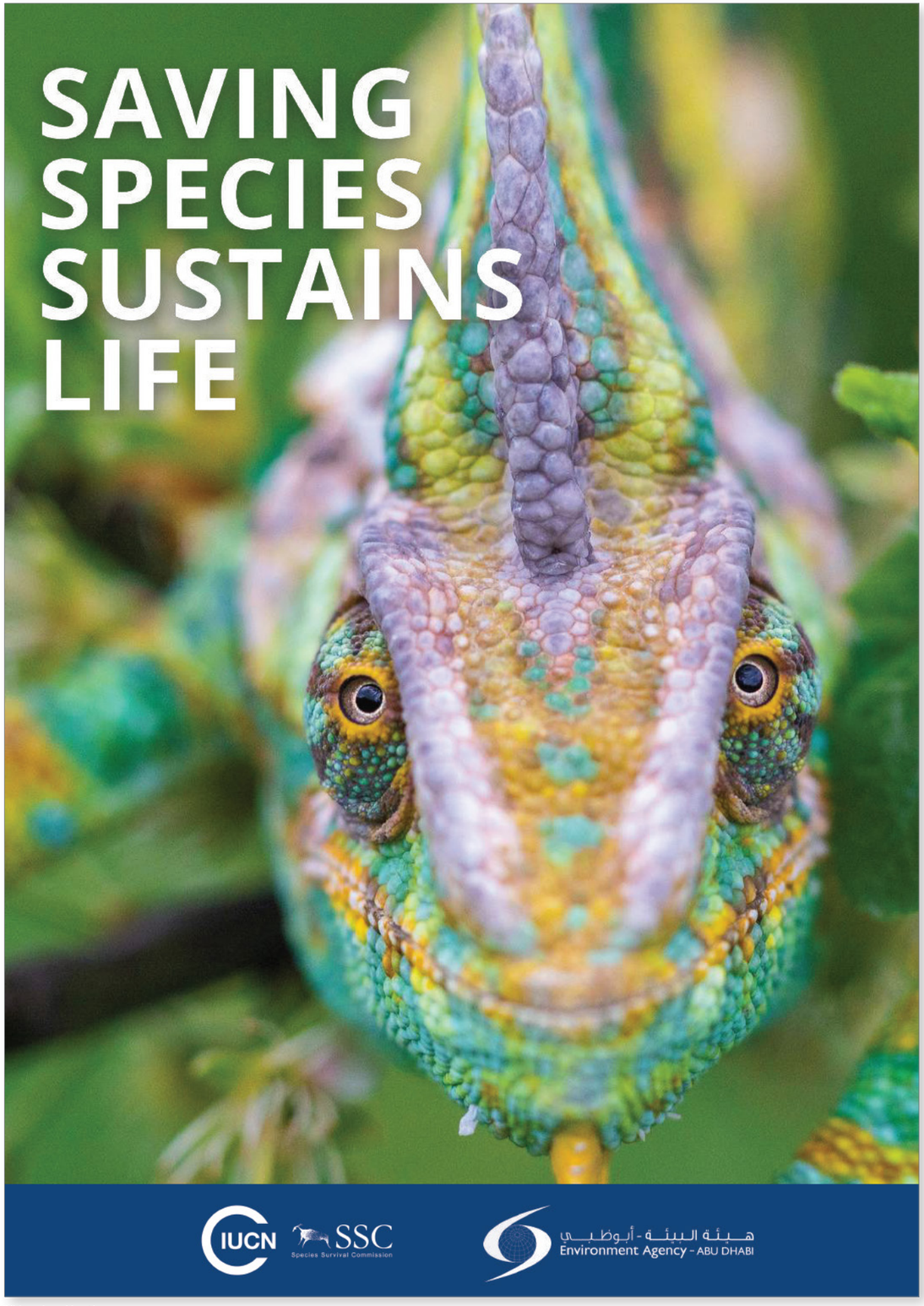
SSC has doubled its actions since our 2019 Abu Dhabi Call for Global Species Conservation Action, even as threats continue to emerge and accelerate.

The world has already committed to the Sustainable Development Goals, the Kunming-Montreal Global Biodiversity Framework and the Paris Agreement.

Saving species is fundamental to achieving these commitments.

This 2024 declaration was created to inspire urgent and widespread action on behalf of all species. While climate action and area-based measures are critical to protecting and restoring nature, species conservation is also an essential part of this effort. SSC members asserted that species conservation underlies achieving the Sustainable Development Goals, the Kunming-Montreal Global Biodiversity Framework (GBF), and the Paris Agreement. This call to action, advanced by SSC members in line with Reverse the Red and the global conservation community, calls for the world to rally to protect and restore the species that sustain us all.

The full declaration is available here.



IUCN SSC Leaders Meeting Declaration 2024

SSC Leaders attending the meeting in Abu Dhabi in October 2024
The IUCN Species Survival Commission is the world's largest volunteer conservation-science network with over 10,000 members globally | Environment Agency – Abu Dhabi (EAD)

SSC Leaders Meeting Award ceremony
Dr Rima Jabado, Deputy Chair of the SSC and Chair of the IUCN SSC Shark Specialist Group, receiving the Citation of Excellence by SSC Chair Dr Jon Paul Rodriguez in recognition of the work of the IUCN SSC Shark Specialist Group | Environment Agency - Abu Dhabi

4th Meeting of the Advisory Committee (AC4), CMS Sharks MOU

The 4th Meeting of the Advisory Committee (AC4) to the Convention on Migratory Species (CMS) Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOU) was held from November 25–29, 2024 in Puerto Princesa, Philippines.

Following the 4th Meeting of the Signatories to the Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOS 4) from 28th February–2nd March, 2024, the Advisory Committee worked towards identifying CMS- and Sharks MOU-listed species and conservation measures of highest priority at regional scales to improve implementation; review the amendments made to the species proposals for Annex I of Sharks MOU, as well as suggest other species to potentially include in the next Conference of Parties (CoP); and further developed the Conservation Strategies for Annex I-listed species and Concerted Actions for rhino rays and pelagic sharks and rays.

Another topic discussed was the plans to work towards improving synergy between CMS Sharks MOU and the relevant Regional Fisheries Management Organizations (RFMOs) and Regional Fisheries Bodies (RFBs).

Participants of the 4th Meeting of the Advisory Committee (AC4) visiting a landing site in the Philippines | Convention on Migratory Species (CMS) Sharks MOU

Participants of the 4th Meeting of the Advisory Committee (AC4) | Convention on Migratory Species (CMS) Sharks MOU

The global status of sharks, rays, and chimaeras

Edited by Rima W. Jabado, Alexandra Z. A. Morata, Rhett H. Bennett, Brittany Finucci, Jim R. Ellis, Sarah L. Fowler, Michael I. Grant, Ana P. Barbosa Martins, and Sally L. Sinclair

INTERNATIONAL UNION FOR CONSERVATION OF NATURE

A third of sharks, rays and chimaeras are threatened with extinction, as new report narrows in on solutions

The International Union for Conservation of Nature (IUCN) has released a report, Global Status of Sharks, Rays and Chimaeras, that highlights new knowledge compiled by 353 experts from 115 countries and stresses the urgent need to address overfishing and bycatch in all countries.

The IUCN Species Survival Commission (SSC) Shark Specialist Group (SSG) has published a status report on sharks, rays and chimaeras, nearly 20 years after its first report warned that sharks were threatened but underrepresented in conservation. Today we understand more about sharks, rays and chimaeras than ever before, but the scale of their declines threatens to outstrip improvements made in research and policy.

In Oman, shark liver oil is used in traditional eyeliner. In Indonesia, shark and ray skins are packaged as chips. Skates are the seafood counterpoint to buffalo wings at restaurants in the USA, along with mako and thresher sharks. Across Europe, you can sling a luxury stingray skin bag over your shoulder as you sample shark meat sold as European conger, order veau de mer in France, and find ray cheeks purveyed as a delicacy in Belgium. Ray and shark skins are fashioned into shoes, wallets, belts, handbags and purses in Thailand. In Yemen, even the corneas of shark eyes have been reportedly used for human transplant and the cartilage is marketed as a cure to all sorts of human ailments.

These are the extraordinary country-by-country insights detailed in the report, which consolidates the biology, fisheries, trade, conservation efforts and policy reforms for sharks, rays and chimaeras across 158 countries and jurisdictions.

More than 2,000 pages long, the report follows one in 2005 that highlighted a rise in the global fin trade and the low conservation profile of sharks, and especially rays and chimaeras.

Since then, the global demand for shark meat has nearly doubled: the value of shark and ray meat is now 1.7 times the value of the global fin trade. Trade has diversified and products such as ray gill plates, liver oil and skins are valued at nearly US$1-billion annually.

Sarah Fowler of the Save Our Seas Foundation (SOSF) led the 2005 report's publication and contributed to the latest version. She says, 'The conservation and management of sharks is difficult for a variety of reasons, but many governments are breaking down the silos that separate how we deal with sharks and rays as fisheries resources, and as wildlife to conserve.'

'Nearly 20 years after the first report, there have been drastic changes, with sharks and rays now among the most threatened vertebrates on the planet,' explains Alexandra Morata, the IUCN SSC SSG programme officer.

Overfishing is driving most species to extinction. Indonesia, Spain and India are the world's largest shark fishing nations, with Mexico and the USA adding to the top five shark catchers. But only 26% of species globally are targeted: most are caught (and retained) as bycatch. Huge population declines have been seen in the rhino rays (such as wedgefish), whiprays, angel sharks and gulper sharks.

But two decades of research and major policy changes also mean that the solutions are now outlined country by country and can guide governments to implement conservation action and make fisheries sustainable.

'This report is a call to action so we can work together and make each of the country recommendations a reality, especially those relating to responsible fisheries management. It is the only way these species will survive and continue to thrive in aquatic ecosystems,' says Dr Rima Jabado, the IUCN SSC deputy chair and SSG chair who led the 2024 report.

We need sharks, rays and chimaeras. We are only beginning to decipher the role they play in delivering life-supporting resources and services. Some species cycle nutrients around the ocean; others help us fight climate change by acting as carbon sinks or maintaining carbon sequestering ecosystems like mangroves. They underpin food security in vulnerable coastal communities. In some developing nations, fishers have reported that more than 80% of their income depends on shark and ray fisheries.

'The report is also a reflection of the tremendous dedication of scientists, researchers and conservationists who are working as a community to contribute to conservation and make a lasting change,' Dr Jabado adds.

Access to remote areas, especially across Africa, has increased scientific understanding of the scale of exploitation. Knowledge has improved significantly in Asia, Africa, Central America, the Caribbean and the Indian Ocean. There are also hopeful instances of sustainable fisheries in Canada, the USA and Australia.

There have been incredible strides in research and policy, but this hard work will only save species from extinction if the report's recommendations are implemented nationally.

'The message is clear,' says Dr Jabado. 'With the precarious state of many of these species, we can't afford to wait.'

Citation

Jabado, R.W., Morata, A.Z.A., Bennett, R.H., Finucci, B., Ellis, J.R., Fowler, S.L., Grant, M.I., Barbosa Martins, A.P., & Sinclair, S.L. (eds.) (2024). The global status of sharks, rays, and chimaeras. Gland, Switzerland: IUCN. doi.org/10.59216/ssg.gsrsrc.2024

Quotes from editors

Dr Rima W. Jabado

Deputy Chair, IUCN Species Survival Commission (SSC)
Chair, IUCN SSC Shark Specialist Group

'This report provides evidence of how overexploitation is impacting shark, ray, and chimaera populations around the world. It showcases how our actions as humans are jeopardizing the future of these species. But it is also a reflection of the tremendous dedication of scientists, researchers, and conservationists who are working as a community to contribute to conservation and make a lasting change. The message is clear however – with the precarious state of many of these species, we can't afford to wait. This report is a call to action so we can work together and make each of the country recommendations a reality, especially those related to responsible fisheries management. It is the only way these species will survive and continue to thrive in aquatic ecosystems.'

Alexandra Z. A. Morata

IUCN SSC Shark Specialist Group Programme Officer

'After nearly 20 years since the first status report of sharks, rays, and chimaeras, there have been drastic changes, with this species group becoming one of the most threatened vertebrate groups. This report showcases in great detail the past, present, and future conservation efforts dedicated towards sharks, rays, and chimaeras at the regional, and especially the national level with over 150 countries and overseas territories from over 350 contributors globally. Beyond the 'doom and gloom' there has also been herculean efforts that led to today's success stories.'

Dr Rhett Bennett:

Wildlife Conservation Society, Western Indian Ocean shark and ray program; South African Institute for Aquatic Biodiversity, Grahamstown, South Africa
IUCN SSC Shark Specialist Group Africa regional member

'With sharks and rays under such threat globally from overfishing, there is a critical need for conservation action, policy reform and making fisheries sustainable, yet all of these rely on good information. Developing countries, such as those in Sub-Saharan Africa, represent the intersection of particularly high fishing pressure, dependence on fisheries for livelihoods, and limited access to scientific information, making the publication of all types of available information that much more important, to support conservation and management. This report brings together scientific information and the collective knowledge of hundreds of experts from around the world, on the biology, ecology, fisheries, trade, threats, policy and other aspects pertaining to sharks and rays, in arguably one of the most comprehensive reports on a group of species, to date. Governments, scientists, conservation practitioners, educators, and other stakeholders are encouraged to use and draw from the report as a reference and guide in their important work towards improving the conservation status of sharks and rays around the world.'

Dr Brittany Finucci

National Institute of Water and Atmospheric Research (NIWA), Wellington, New Zealand
IUCN SSC Shark Specialist Group Red List Authority Coordinator

'The Global Report is arguably the most comprehensive document available for sharks, rays, and chimaeras. The overwhelming number of contributions truly capture the diversity of chondrichthyans from every corner of the globe, the increasing human pressures they face, and the challenges of conserving this unique group of animals into the future. This report also highlights the conservation and management successes by the tremendous efforts of the rapidly growing global research community. The Global Report is a go-to reference for anyone interested in sharks and their relatives.'

Dr Michael I. Grant

Centre for Sustainable Tropical Fisheries and Aquaculture, College of Science and Engineering, James Cook University, Townsville, QLD, Australia
IUCN SSC Shark Specialist Group Oceania regional member

'With over 160 countries and territories included, this report provides the most in-depth national overview of chondrichthyan fisheries, trade, and conversation management to date.

This report offers a resource for scientists, managers, and policy makers to easily access up to date information on shark and ray management across a range of nations, and for comparisons to be made between fisheries, trade, and management initiatives across these nations

The national level detail of this report highlights the level of knowledge, and research and management capacity differences across nations. It will be a foundational text for identifying nations and regions where greater research and management support are needed.'

Dr Ana Paula Barbosa Martins

Ocean Frontier Institute, Department of Biology, Dalhousie University, Halifax, Nova Scotia, Canada

'Historically, scientific knowledge about sharks and rays has been limited to a few regions and species. This report's greatest achievement is its comprehensive portrayal of the diverse ecological, socioeconomic, and cultural roles that sharks and rays play around the world. The report underscores the need for a multidisciplinary and global approach to shark and ray conservation, emphasizing the importance of collaboration among governments, academia, industry, and the public.'

Sally Sinclair

University of Göttingen, Oxford, United Kingdom

'The availability of comprehensive, accurate information is key to informing sustainable management of species, including chondrichthyans. Sharks, rays and chimaeras face a range of threats that need to be addressed through concerted management and conservation actions in order to secure positive outcomes for these species and communities relying on their ecological and economical roles. With this in mind, this report provides a comprehensive resource amalgamating experts' understanding with the most up-to-date information available on the study of this group across the globe, proving a 'go-to' reference point of current knowledge, utilisable by both those in positions to improve conservation outcomes and for those simply with an interest in learning more about this group.'

Quotes from IUCN SSC Shark Specialist Group Regional Vice Chairs

Dr Oscar Sosa-Nishizaki and Dr Mario Espinoza

IUCN SSC Shark Specialist Group Central America and the Caribbean co-Regional Vice Chairs

'The Central America and the Caribbean (CA&C) region is a biologically diverse and geopolitically dynamic area with a variety of coastal and marine ecosystems in the Eastern Tropical Pacific, the Gulf of Mexico, and the Caribbean Sea. In this report, we present the latest information of sharks, rays, and chimaeras in the CA&C region, which represents a substantial improvement in our knowledge since the previous global report in 2005.'

Prof Alen Soldo

University of Split - Department of Marine Studies, Split, Croatia.
IUCN SSC Shark Specialist Group Mediterranean and Black Seas co-Regional Vice Chair

'For those of us working on shark and ray conservation in regions like the Mediterranean, shared by 22 countries, and the Black Sea, shared by six countries, having a global report will undoubtedly inspire new ideas and actions. Drawing on experiences from other regions, it can help us discover new ways to address our complex challenges.'

Fabrizio Serena

National Research Council–Institute of Marine Biological Resources and Biotechnologies, Livorno, Italy
IUCN SSC Shark Specialist Group Mediterranean and Black Seas co-Regional Vice Chair

'The Mediterranean, and also the Black Sea, constitute perhaps one of the most problematic marine regions in the world. Many countries with different languages, different religions, and different political interests all face the same sea from which they think they are exploiting the same shared resource. The proposed Global Report is certainly a useful tool to promote, where

Elisabeth Fahrni Mansur and Daniel Fernando

IUCN SSC Shark Specialist Group Indian Ocean co-Regional Vice Chairs

'This collaborative effort has been a unique opportunity to showcase recent shark, ray, and chimaera research, policy and outreach efforts, which have yielded significant new insights in the Indian Ocean region, to be represented in an updated global knowledge base.'

Dr Zhang Jie

Key Laboratory of Animal Ecology and Conservation Biology, Institute of Zoology (IOZ); Chinese Academy of Sciences (CAS), Beijing, China
IUCN SSC Shark Specialist Group Asia co-Regional Vice Chair

'This work gives us a better understanding of shark conservation status and the efforts made in each country, and is also the basis for future cooperation and collaborative management among various countries. The global report leads global responsibility to protect sharks and rays!'

Dr Fahmi

Research Center for Oceanography, National Research and Innovation Agency of Indonesia, Jakarta, Indonesia
IUCN SSC Shark Specialist Group Asia co-Regional Vice Chair

'As the world's most heavily exploited region, efforts to conserve sharks and rays in Asia are particularly challenging. This global report provides the latest information on the region's shark and ray fisheries and related management efforts.'

Dr Patricia Charvet

Programa de Pós-Graduação em Sistemática, Uso e Conservação da Biodiversidade (PPGSis), Centro de Ciências, Universidade Federal do Ceará (UFC); Marine Vertebrate Evolution and Conservation Lab - EvolVe, Centro de Ciências, UFC, Curitiba, Brazil
IUCN SSC Shark Specialist Group South America co-Regional Vice Chair

'South American marine and freshwater environments hold some of the highest chondrichthyan biodiversity hotspots in the world. Cartilaginous fishes are found in a variety of habitats in South America ranging from deepsea trenches to vast river basins. This diversity of habitats is reflected in a rich species biodiversity, comprising globally distributed and strictly endemic species. South American inland watersheds are home to endemic Neotropical freshwater stingrays, species highly valued in the aquarium ornamental trade. Freshwater stingrays are facing unprecedented environmental impacts in most river basins where they are found. The largest contiguous stretches of mangrove areas are found in the Atlantic northern coast of South America sheltering and serving as nursery grounds to many species. The Atlantic northern coast of South America is still home to an unique and critically endangered population of Largetooth Sawfish (*Pristis pristis*). Fisheries regulations are present in most countries but monitoring and enforcement remain as challenges to be overcome.'

Dr Vicente Vieira Faria

Programa de Pós-Graduação em Sistemática, Uso e Conservação da Biodiversidade (PPGSis), Centro de Ciências, Universidade Federal do Ceará (UFC); Marine Vertebrate Evolution and Conservation Lab - EvolVe, Centro de Ciências, UFC, Fortaleza, Brazil
IUCN SSC Shark Specialist Group South America co-Regional Vice Chair

'South America is home to the Amazon River, the largest river in the world, whose significant freshwater discharge creates the unique Amazon Coast. This region is one of the last strongholds for critically endangered sawfishes and other rare sharks and rays. It boasts one of the highest diversities of chondrichthyans globally, thriving in various habitats crucial for conservation efforts. Fishery management of chondrichthyans in South America faces challenges such as weak regulation enforcement, shark product trade, and inadequate fishery statistics. However, many countries in the region are taking proactive steps to conserve these remarkable species.'

Dr Carlos Bustamante

CHALLWA, Laboratorio de Biología Pesquera, Instituto de Ciencias Naturales Alexander von Humboldt, Facultad de Ciencias del Mar y Recursos Biológicos, Universidad de Antofagasta; Programa de Conservación de Tiburones (Chile), Facultad de Ciencias del Mar y Recursos Biológicos, Universidad de Antofagasta, Antofagasta, Chile
IUCN SSC Shark Specialist Group South America co-Regional Vice Chair

'In an unparalleled and groundbreaking endeavour, a comprehensive compilation of our understanding of sharks and their fisheries has been consolidated into a single, universally accessible document.

The vast diversity of shark species and their historical importance in South America's coastal development reflect the pressing need for research and innovation to ensure the sustainability of its fisheries and safeguard biodiversity.'

Dr Sophy McCully Phillips and Heike Zidowitz

IUCN SSC Shark Specialist Group Northern Europe co-Regional Vice Chairs

'This region encompasses some of the most highly managed fisheries worldwide. This publication highlights some of the 'success stories' for our region since the last Global Report (2005) from improvements in data, analytical assessments and signs of recovery for some depleted species. However, it also highlights the ongoing threats, data gaps and priorities for our region, which will be an invaluable tool for scientists, managers and policy makers alike in continuing to support the sustainable exploitation and conservation of sharks and rays.'

IUCN SSC SHARK SPECIALIST GROUP REPORT 2024:

THE GLOBAL STATUS OF SHARKS, RAYS, AND CHIMAERAS

Artwork ©Jamy Silver

ABOUT THE REPORT

- **20 years** since the first report in 2005
- **353 authors from 115 countries**
- **> 2,000 pages covering 158 countries** and territories with a coastline

SUCCESSES

- **Improved information** from Asia, Africa, Central America and the Caribbean, the Indian Ocean, and South America
- Sharks and rays **increasingly represented in fisheries and trade regulations**

GAPS

- **Enforcement** of fisheries regulations and Marine Protected Areas (MPAs) is limited
- **Implementation of policies** at the national level is slow

Catastrophic shark, ray, and chimaera declines need improved fisheries management, bycatch mitigation, enforced protected areas, and implemented trade and fishery policies.

SHARK, RAY, AND CHIMAERA SPECIES

There are **1,266** species of sharks, rays and chimaeras

>25%
of sharks, rays, and chimaeras only discovered in last 20 years.

We're battling to save what we know, but we don't even know what we have.

Artwork ©Jamy Silver

WHY WE NEED SHARKS, RAYS, AND CHIMAERAS

ECOLOGICAL VALUE
They regulate prey numbers, influence behaviour, cycle nutrients, and act as carbon sinks.

CULTURE
They are part of coastal stories, histories, and spirituality globally.

TOURISM
Shark and ray tourism generates over USD $300M/year; a number expected to double in the next 20 years.

FOOD
They are linked to culinary traditions, are a key source of protein, and ensure food security.

JOBS & LIVELIHOODS
In some low-income nations, >80% of reported fishing income comes from sharks, rays, and chimaeras.

TRADE
Shark and ray meat is now valued at 1.7 times that of the global fin trade.

PRODUCTS
Shark and ray products are diverse, and are worth close to USD 1 billion annually.

Artwork ©Jamy Silver

A MAJOR THREAT: OVERFISHING

OVERFISHING IS THE KEY DRIVER OF SHARK, RAY, AND CHIMAERA DECLINES. OVER 90% OF SPECIES ASSESSED BY THE IUCN ARE IMPACTED SOLELY BY OVERFISHING.

Only 26% of species are intentionally targeted; **most species are caught as bycatch.** 99% of incidental catches are retained, and often consumed, marketed, and traded.

While shark fins are of higher value than shark meat, and the global fin trade has received more attention, **the global shark and ray meat trade is larger in volume and value than the global fin trade.**

Huge declines have been seen in species such as **rhino rays (e.g. wedgefishes), whiprays, angel sharks, and gulper sharks.**

Artwork ©Jamy Silver

ADDITIONAL & EMERGING THREATS

HABITAT LOSS & DEGRADATION
Sharks, rays, and chimaeras use different habitats at different life stages. **We must protect essential habitats as we alter mangroves, estuaries, coasts, and deepwater habitats.**

POLLUTION
Organic pollution (river discharges, fish farms) can add nutrients or reduce oxygen from coastal areas. Some sharks and rays are also ingesting **micro- and macroplastics.**

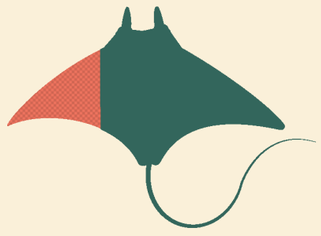
CLIMATE CHANGE
Climate change is now a hazard for 10% of sharks and rays threatened with extinction on the IUCN Red List of Threatened Species. Habitat loss, smaller geographic ranges, and impaired reproduction will affect sharks, rays, and chimaeras.

DEEP-SEA MINING
The combined threat of **habitat loss, ecosystem disruption, and potential direct damage to deep-water species from deep-sea mining for minerals, oil and gas** is an emerging concern.

Artwork ©Jamy Silver

THREAT STATISTICS

- Critically Endangered (CR) 93 species
- Endangered (EN) 129 species
- Vulnerable (VU) 179 species
- Near Threatened (NT) 130 species
- Least Concern (LC) 546 species
- Data Deficient (DD) 175 species
- Extinct (EX) 1 species



ONE THIRD of sharks, rays, and chimaeras are **THREATENED WITH EXTINCTION**.

TWO THIRDS of these threatened species are at risk of extinction from **OVERFISHING** alone.

COASTAL SPECIES ARE MOST THREATENED, and that threat is highest in the **TROPICS and SUBTROPICS**.

Artwork © Jamy Silver

SOLUTIONS

SUSTAINABLE FISHERIES MANAGEMENT
Improve data collection for stock assessments, **support leadership from within local communities, and nurture community involvement.**

MITIGATE BYCATCH
Change fishing practices or timing of fishing seasons, modify fishing gear, and change fisher behaviour to **minimize the incidental catch and retention of sharks, rays, and chimaeras.**

ENFORCE MPAS
More MPAs designed for sharks, rays, and chimaeras to **protect essential habitats, and enforce boundaries** of existing parks.

IMPLEMENT POLICIES
In 2005, only two shark species were listed on Appendix II of CITES*; today, over 150 species are listed. But **policies need to be implemented nationally and regionally to work.**

*Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)

Artwork © Jamy Silver

A GLOBAL FISHERIES SNAPSHOT

CATCHES OF SHARKS, RAYS, AND CHIMAERAS HAVE BEEN REPORTED TO FAO* SINCE 1950.
GLOBAL REPORTED CATCHES PEAKED IN 2000 AND HAVE BEEN DECLINING STEADILY SINCE THEN.

MOST COMMON SPECIES IN THE FIN TRADE

- Blue Shark
- Silky Shark
- Blacktip shark complex
- Milk Sharks
- Smoothhound sharks
- Scalloped Hammerhead
- Smooth Hammerhead
- Shortfin Mako

MOST COMMON SPECIES IN THE FIN TRADE

- 55% of the high value meat trade comprises skates & tropical rays
- Blue Shark
- Rajiformes
- Shortfin Mako
- Smoothhounds *Mustelus* spp.

UNITED STATES OF AMERICA
Strong shark and ray fisheries management but one of the top 5 shark fishing nations globally.

MEXICO
One of the top 5 shark fishing nations globally.

COSTA RICA
Between 2000-2011, Costa Rica was one of Hong Kong and Taiwan's largest shark fin exporters.

EASTERN TROPICAL PACIFIC
Shark landings in this region are decreasing while fishing effort is increasing.

SOUTH AMERICA
Together with Europe, accounts for a major proportion of the global meat trade.

ARGENTINA
Top exporter of ray meat.

SPAIN
Top shark meat exporter and one of top 3 shark fishing nations.

EUROPEAN UNION
Accounts for 22% of the global shark and ray meat trade.

ITALY
Top importer of shark meat.

WEST AFRICA
Increasing shark and ray artisanal fishing pressure as protein demand rises; industrial fishing dominated by Europe and China with negligible monitoring or control.

CHINA
Largest distance-water fishing fleets and one of 4 largest importers of shark fins globally.

INDIA
One of the top 3 shark fishing nations that together with Indonesia and Spain accounts for 35% of all shark fishing.

BANGLADESH
Shark fins, meat, and skins are exported to Myanmar for re-export to Singapore, Hong Kong SAR, China, and the United States.

SOUTH KOREA
Top importer of skate meat.

HONG KONG SAR
Key consumer market for shark fin and is one of the largest global trade hubs for shark fin-related products.

WESTERN INDIAN OCEAN
A shark and ray diversity hotspot with poor data reporting, meat caught in small-scale fisheries is consumed locally and fins are exported.

SRI LANKA
Largest Silky Shark catcher and the second-largest mobulid ray (Mobulidae) catcher in the Indian Ocean.

MALAYSIA & SINGAPORE
Two of the 4 largest importers of shark fins.

INDONESIA
Largest shark fishing nation, reporting the highest catch volumes.

*The Food and Agriculture Organization of the United Nations

TOP 5 FISHING NATION | TOP MEAT IMPORTER | TOP MEAT EXPORTER | TOP FIN IMPORTER | GROWING MEAT DEMAND

Artwork © Jamy Silver

BY REGION

AFRICA
High fishing pressure meets high dependence on fisheries for livelihoods and food security. Information and effective management lacking in many areas. Enforcement, improved information and corrective management needed.

ASIA
Asia's coastal fishing area accounts for about 40% of the world's total. The region is home to nearly 60% of the global human population. The demand for valuable shark and ray products has intensified fishing, and the largest processing and consumption markets are in this region.

CENTRAL AMERICA & THE CARIBBEAN
Knowledge of shark and ray fisheries has improved significantly since 2005. However, biological and ecological information for most threatened species is lacking.

MEDITERRANEAN & BLACK SEAS
Sharks and rays have declined throughout the Mediterranean and Black Seas since the 1950s. Shark and ray landings reached a minimum in the mid-2000s, and after another relative maximum at the end of the 2010s, a new decline has been observed.

NORTHERN EUROPE
Knowledge of sharks, rays, and chimaeras has improved, and several fisheries management and conservation measures have been introduced. However, target fisheries have declined substantially across the region due to declining stocks, reduced or zero total allowable catches, and some prohibitions.

NORTH AMERICA
Although North America has some of the strongest shark management in the world, there are knowledge gaps for several sharks, rays, and chimaeras. Canada and the USA require more targeted funding to assess the status of species of low commercial value, or those that are not protected nationally.

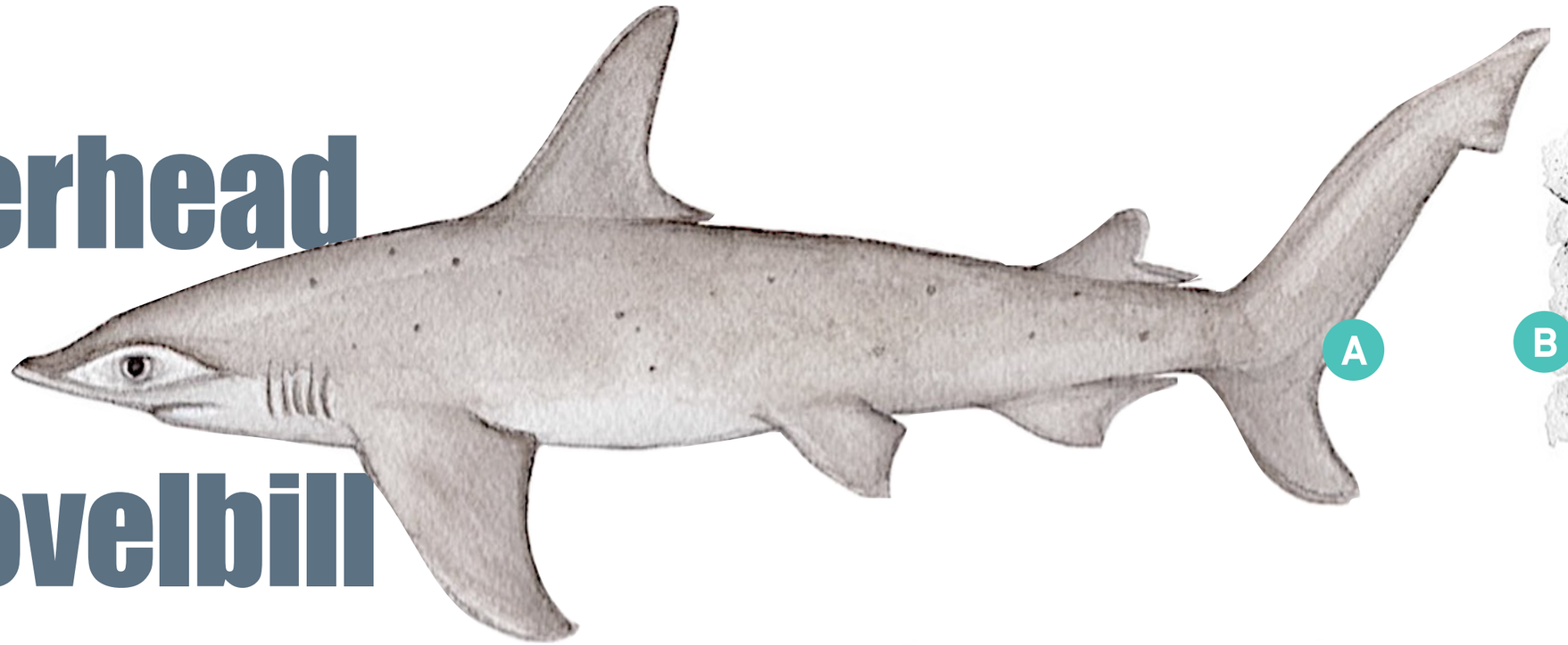
OCEANIA
Island nations have improved protection measures, but enforcement of regulations is challenging across vast ocean expanses. Most fisheries in Australia are considered sustainable, but there are significant domestic markets for shark meat.

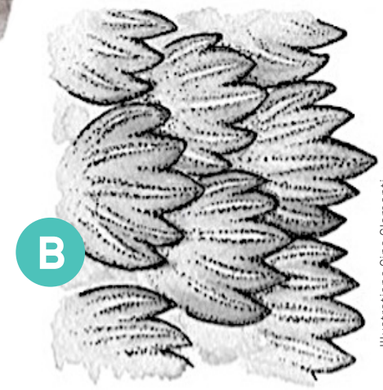
POLAR WATERS
Climate change is an emerging threat and shark, ray, and chimaera bycatch may increase as commercial fish stocks move to avoid rising sea surface temperatures. Local pollution may increase as boat and shipping access into the Arctic increases with melting ice.

SOUTH AMERICA
A key role player in the global shark and ray product trade, but fisheries management for these species remains challenging. Regulations are often lacking or unenforced, resulting in widespread illegal activity, and fishery statistics are limited or unreliable.

Artwork © Jamy Silver

A new hammerhead shark: the Shovelbill Shark (*Sphyrna alleni* sp. nov.)





Illustrations Gina Clementi

Shovebill Shark (*Sphyrna alleni* sp. nov.) **A)** Horizontal view; **B)** dermal denticles; **C)** upper and **D)** lower teeth; Dorsal and ventral representation of the head shape of **E)** Female and **F)** Male.

Written by
Dr Cindy Gonzalez

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Twitter / X: @CINDYLAPITU

Cindy Gonzalez working on the genetics of the new hammerhead species

A new hammerhead species to science, the Shovelbill Shark (*Sphyrna alleni* sp. nov.), has been hiding in the warm waters of the Caribbean Sea and the southwestern Atlantic. Due to its close resemblance to a close relative (the Bonnethead Shark, *Sphyrna tiburo*), the Shovelbill Shark was considered to be the same species. After a decade of research, and six years of doctoral studies, Cindy Gonzalez, a Colombian shark scientist and a collaborative team led by Demian Chapman, provided conclusive evidence to prove that these two are distinct species, challenging the widely accepted description by biologist Carl Linnaeus, known as the father of modern taxonomy, who first described *Sphyrna tiburo* in 1758.

How to describe a new species of shark?

This is one of the most commonly asked question in this field. To describe a new species for science is a challenging and long process. Historically in taxonomy, organisms were classified by their physical (morphological) traits, but we now know that this approach is insufficient to classify species since similar species can be morphologically similar but genetically different (cryptic species). Now, by integrating taxonomy with new technologies such as genetics, CT scans, X-rays, and geometric morphometrics (the use of Cartesian landmark coordinates to mathematically model an organism and evaluate its shape, structures, and size), we can describe and study organisms in greater detail.

In our case, to describe this new species, I started by studying the biological, ecological, and evolutionary species concepts; believe it or not to date there is no consensus about the definition of a 'species'. Secondly, we collected and compared several specimens of Shovelbill Shark and Bonnethead Shark, evaluating the physical traits between them, and, finally, we complemented our study with genetic approaches to confirm that these two species have independent evolutionary paths.

Before we continue further, there are some key concepts that need to be defined:
Morphometrics: All measurable traits of a fish (e.g., total length, distance from the snout to caudal fin, and measurements of each fin).
Meristics: All countable traits of a fish (e.g., number of fins, number of vertebrae, number of teeth).
Nuclear DNA (nDNA): DNA found in the nucleus of the cell, providing the genetic background from the two parents (diploid).
Mitochondrial DNA (mDNA): DNA found in the mitochondria of the cell, providing information about the maternal line (haploid).

About the study

Conducting this research was a process spanning several years, learning and integrating science, community work, and fishers observations. For our study we evaluated twelve specimens of (what we now know is) Shovelbill Shark collected in Riversdale, Belize and compared them to eleven Bonnethead Shark from Florida, United States (U.S.). For each specimen, 61 morphometric measurements and three meristic counts (upper and lower functional rows of teeth and precaudal vertebral counts) were performed. Samples of each specimen (fin clips or muscle) were collected, and two mitochondrial markers and 12 nuclear markers (microsatellite loci) (nDNA and mDNA) were analyzed to provide evidence for the status of the species, Shovelbill Shark.

Between 2019–2021, the world got paralyzed by the COVID pandemic and my work got stuck in the middle of it. It took a lot of initiative to build my own lab in my apartment, carrying the equipment from the original lab, conducting dissections, and running genetic protocols at home. Of course, no fieldwork was possible during this time.

The team: "Teamwork makes the dreamwork"

My name is Cindy Gonzalez and I oversaw putting all the pieces together, this included a large collaborative effort lasting more than 10 years. To describe the new hammerhead species, I consolidated all the previous data available and worked closely with other scientists that had previously found similar patterns. In 2018, I started my Ph.D. in Biology as part of the Predator Ecology and Conservation Lab at Florida International University. With Dr. Demian Chapman, the director of this study and my Ph.D. advisor, we created a solid plan to investigate the possibility of two different lineages.

During the duration of this project, I required help from a multidisciplinary team. We worked with taxonomists, museum curators, fish experts, genetics experts, and fisheries scientists. Everyone in the lab was involved at some point with the genetic or taxonomic work (postdocs, Ph.D. students, volunteers), as well as my friends and family.

However, the most important piece of this project are, without a doubt, the local fishers from Riversdale, Belize and Bocas del Toro, Panama. Between 2015-2024, the fishers from these localities were the key to finding these animals in the wild. I had the opportunity to share my knowledge with them, and reciprocally, they thought me about artisanal fishing and provided all the specimens, using artisanal gillnets. The fishers were open to explore shark conservation as a way to help their communities.

Keys to identify the Shovelbill Shark

The distribution range:

The Shovelbill Shark inhabits coastal waters, coral reefs, sandy and muddy substrates, estuaries, and seagrass beds. It is distributed from Belize in the Caribbean Sea to the southwestern Atlantic in Brazil. Its presence has been confirmed in Belize, Panama, Colombia, Venezuela, Trinidad, Tobago, and Brazil.

The body:

The Shovelbill Shark has a pointier, shovel-shaped head (like a triangle), with the posterior margins of the head with a lobule shape. The Shovelbill Shark has in average 82 precaudal vertebrae. Compared to the Bonnethead Shark, this species has a more rounded head shape, the lobules on the posterior margin of the head are not present, and in average has 72 precaudal vertebrae. The Shovelbill Shark has more rows of enlarged, molariform, posterior teeth (teeth at the back of the jaw); and the front teeth (anterior) are pointier, narrower, and more sharpened than the Bonnethead Shark.

The genetic composition:

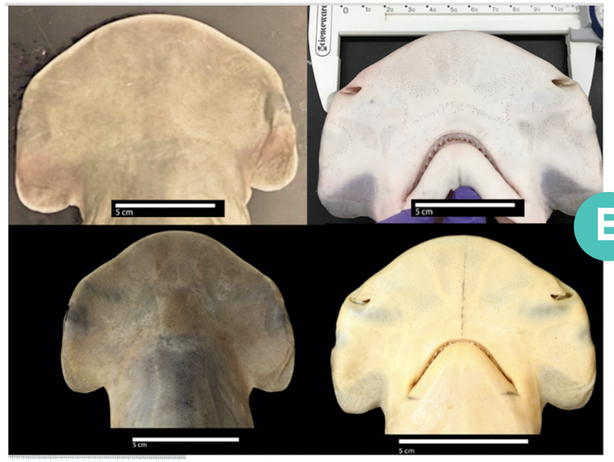
When analyzing both the nuclear and mitochondrial DNA, it was fascinating to see the differences in the genetic composition of the two species. Significant genetic differences showed that Sphyrna alleni is a differentiated species, that diverged from S. tiburo around 3.5-5 million years ago.

A

Female,TL: 103 cm
Riverdale, Belize

***Sphyrna alleni* sp. nov.**

Male,TL: 86 cm
Riverdale, Belize



B

Female,TL: 82 cm
Sarasota, FL, U.S.

Sphyrna tiburo

Male,TL: 73.5 cm
Sarasota, FL, U.S.

C

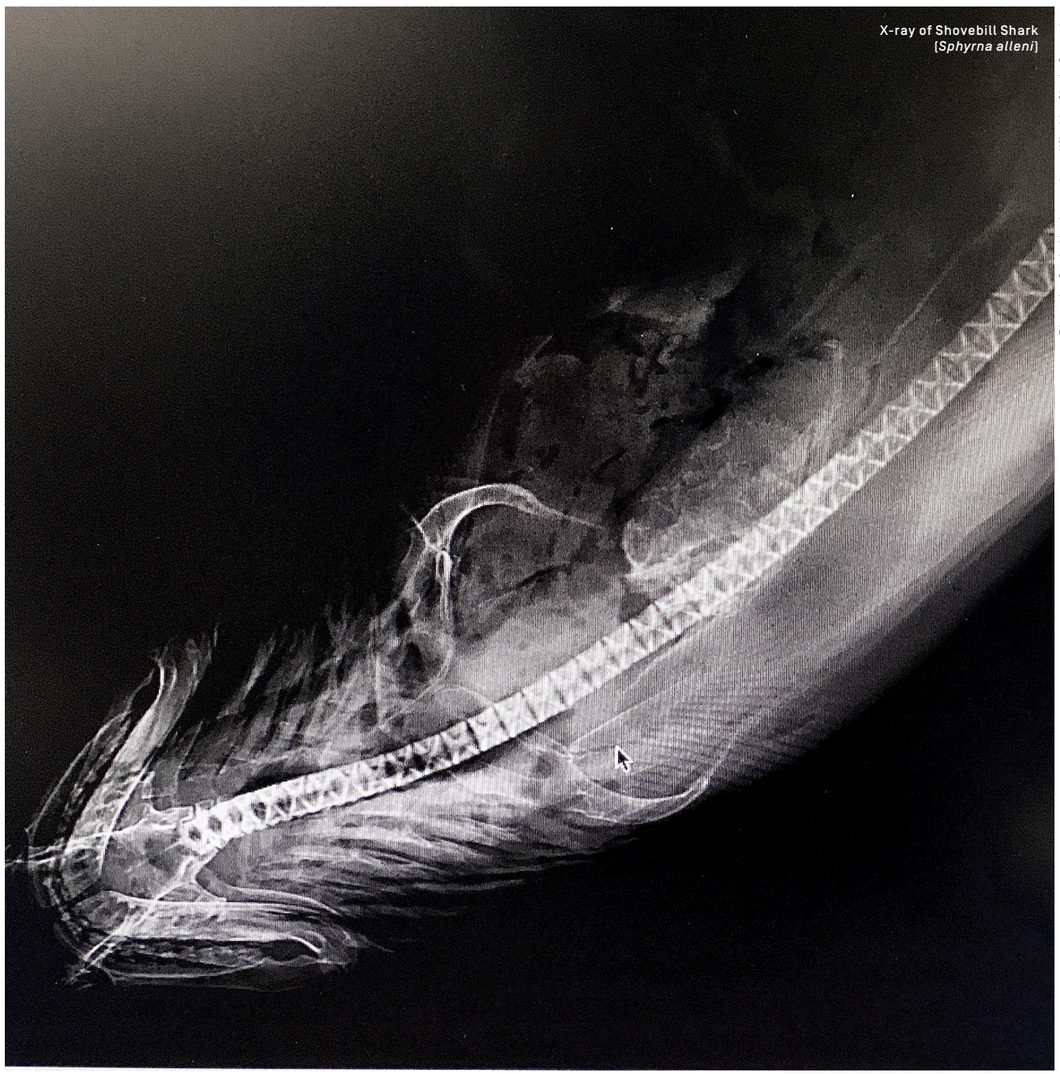
Female,TL: 107 cm
Gulf of Chiriqui, Panama

Sphyrna vespertina

Male,TL: 99 cm
Gulf of Chiriqui, Panama

Cephalofoil comparison (dorsal and ventral views of each specimen are provided). Bar scale 5cm. TL Total length of specimen. A) *S. alleni* sp. nov.; B) *S. tiburo*; C) and *S. vespertina*.

Cephalofoil of Shovebill Shark
(*Sphyrna alleni*)



X-ray of Shovebill Shark
(*Sphyrna alleni*)

Photo by Gavin Naylor and modified by Cindy Gonzalez

The naming of the new species:

The newly described species was named after the late Microsoft co-founder and philanthropist Paul G. Allen for his legacy in shark research and conservation. His contributions of more than US$ 2.65 billion during his life, and now through the Paul G. Allen Foundation, were focused on providing solutions based on a teamwork approach to study wildlife, explore the depths of the ocean, save threatened species, and develop new technologies for bioscience and the study of epidemics. Paul was driven to connect great talents and people with extraordinary ideas, so big things could happen when working in a collaborative environment.

The specimens:

The holotype and paratype specimens are deposited at the Florida Museum of Natural History, located at the Florida University in Gainesville, FL. Other specimens were dissected, and vertebral counts were performed by hand.

Samples of fins, muscle, liver, and some stomachal contents for the specimens' studies were also preserved in three different ways (ethanol, RNAlater, and frozen) to further contribute to other studies. Subsamples are available upon request.

Conservation status and threats:

The Shovelbill Shark is a common component of local fisheries in many Latin American countries, caught primarily in gillnets, shrimp trawls, and longline fisheries. Despite being one of the most productive sharks with one of the highest population growth rates calculated for sharks, populations are facing a drastic decline. In Brazil, this species was assessed as locally extinct with populations having collapsed due to overfishing. The species has become rare to find in many other countries.

Conclusion

As the Shovelbill Shark is new to science, no management or assessments of their conservation status have been conducted to date. However, since this species was misidentified as the Bonnethead Shark, it was covered under the Bonnethead Shark's 2019 assessment as Endangered on the IUCN Red List of Threatened Species, facing a global population reduction of up to 80%. While the Bonnethead Shark is managed and protected in the U.S and the Bahamas, there is no protection for the Shovelbill Shark across its distribution range, so it is likely to be at even greater threat.

In fisheries, most hammerheads are not distringuished at the species level making it difficult to assess their populations. It is important to highlight that most Latin American countries lack fisheries management, and the resources to conduct studies and work with the fishers are scarce.

In 2022, all species of the hammerhead family (Sphyrnidae) were included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to regulate their international trade. According to CITES, there is a two to three-year time frame for the implementation of policies and regulations for these sharks. As this is a good initiative to protect hammerhead sharks it is important to work closely with the local communities to ensure that we are also evaluating their socio-economic and cultural aspects. We urgently make a call to conduct the first assessment of the populations of the Shovelbill shark and other small hammerheads that are unrepresented and are restricted to the American continent.

Acknowledgements

This project was possible with the support of a Fulbright Scholarship, the Paul G. Allen Foundation, Save Our Seas Foundation, Mote Marine Laboratory, and the Smithsonian Tropical Research Institute. Also, I am grateful for the supportive and constructive guidance of my advisor Demian Chapman, my mentor from Colombia Susana Caballero, and my Ph.D. committee members.

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Shortfalls in the protection of Important Shark and Ray Areas undermine shark conservation efforts in the Central and South American Pacific

The Important Shark and Ray Areas (ISRA) team is excited to share their latest paper: 'Shortfalls in the protection of Important Shark and Ray Areas undermine shark conservation efforts in the Central and South American Pacific.' This research looked at how Important Shark and Ray Areas (ISRAs) overlapped with marine protected areas in the Central and South American Pacific ISRA region

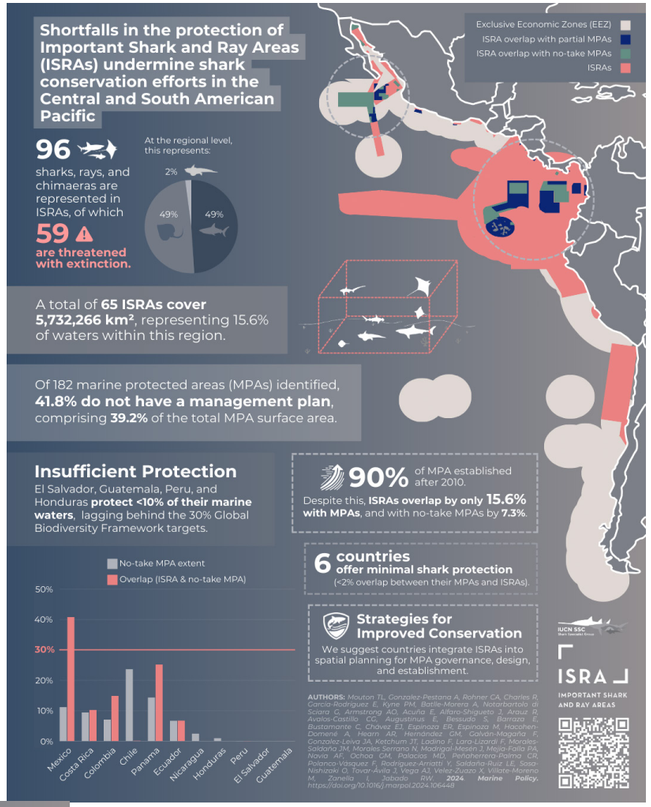
Abstract

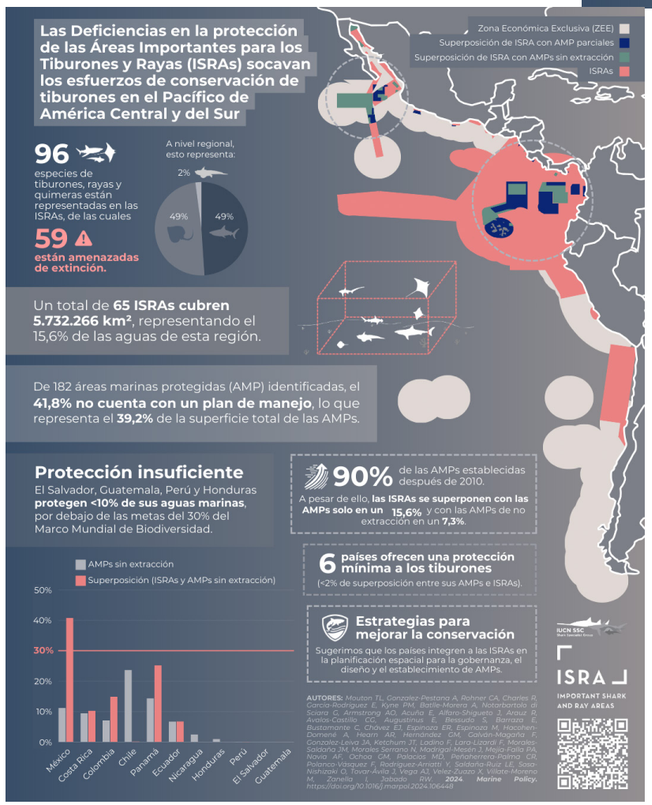
Global biodiversity targets require nations to designate 30 % of their marine waters as protected areas by 2030. Sharks, rays, and chimaeras (hereafter 'sharks') are key components of aquatic ecosystems; however, over a third are globally threatened with extinction. Across the Central and South American Pacific Ocean region, we (i) assessed trends in Marine Protected Area (MPA) expansion and extent across the 12 nations of the region; (ii) quantified the spatial overlap between MPAs and Important Shark and Ray Areas (ISRAs); and (iii) evaluated the effectiveness of the current MPA governance structure at protecting sharks and their critical habitat. There has been a recent rapid increase in the establishment of MPAs with 90 % of current MPAs designated since 2010. Yet, El Salvador, Guatemala, Peru, and Honduras still protect less than 10 % of their waters. We find that ISRAs overlap with all MPAs by only 15.6 % and with no-take MPAs by 7.3 %. This raises concerns about the low level of protection afforded to critical shark habitats in the region. Of 182 MPAs identified, 41.8 % do not have a management plan, comprising 39.8 % of the total MPA surface area. Mexico, Costa Rica, and Colombia have relatively strong governance frameworks in place and, along with Panama, Honduras, and Ecuador, represent the highest overlap between MPAs and ISRAs. However, the contribution of the remaining six countries to shark protection via MPAs is low based on limited spatial overlap with ISRAs (<2 %). As countries mobilise to meet the 30×30 target, we propose considering ISRAs as a key component of spatial planning when designing new MPAs, designating existing partially protected areas as no-take zones, or reshaping the boundaries of existing MPAs.

Explore the key findings and their implications for the conservation of sharks, rays, and chimaeras across the region. The full publication can be found online here.

How to cite the document:

Mouton, T.L., Gonzalez-Pestana, A., Rohner, C.A., Charles, R., García-Rodríguez, E., Kyne, P.M., ... Jabado, R.W. (2025). Shortfalls in the protection of Important Shark and Ray Areas undermine shark conservation efforts in the Central and South American Pacific. Marine Policy, 171, 106448. doi.org/10.1016/j.marpol.2024.106448





Technical Note

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Approaches for identifying areas of particular importance for marine biodiversity

This Technical Note was published in collaboration with the IUCN Species Survival Commission (SSC)

Identifying and conserving areas of particular importance for biodiversity is a fundamental element of the Kunming-Montreal Global Biodiversity Framework (GBF). There are a number of standardised approaches for identifying areas of particular importance for biodiversity in the marine realm: Ecologically or Biologically Significant Marine Areas (EBSAs), Important Marine Mammal Areas (IMMAs), Important Shark and Ray Areas (ISRAs), and Key Biodiversity Areas (KBAs), with a standard for Important Marine Turtle Areas (IMTAs) also nearing completion. This document provides a brief summary of these approaches — highlighting the biodiversity considered, identification process, and outputs — and showcases how they can be used to inform GBF planning. Taken together, these approaches provide crucial data to inform planning towards the GBF, and continuing identification of important marine biodiversity areas should be a priority for CBD Parties. These approaches can feed into, but do not replace, the need for robust conservation planning to inform GBF achievement.

Dolphins in the waters of Kaikōura, New Zealand by Pablo Heimplatz (Unsplash)

A turtle in the waters of Aruba by David Courbit (Unsplash)

The crucial need to identify important marine areas

Identifying and conserving areas of particular importance for biodiversity is a fundamental element of the Kunming-Montreal Global Biodiversity Framework (GBF). While broad actions to improve overall environmental sustainability are also essential, it is critical that Parties identify and map areas of high biodiversity importance. This will help prioritise limited resources for conservation, and enable effective implementation of conservation interventions. This is especially true in the marine realm, where protection lags far behind terrestrial areas, and overall understanding of the distribution and status of known biodiversity is lower than on land. There are also large areas beyond national jurisdiction, where migratory and highly mobile species can be relatively common, or where deepwater species depend on highly vulnerable ecosystems.

Approaches for identifying areas of particular importance for marine biodiversity

Written by Rima W. Jabado
IUCN SSC Shark Specialist Group | Chair

IUCN WCPA Technical Note 16

A technical brief develop by members of the IUCN World Commission on Protected Areas (WCPA) and Species Survival Commission on important marine areas was released at the 2024 United Nations Biodiversity Conference of the Parties (CoP 16) of the Parties to the Convention on Biological Diversity held in Cali, Colombia from 21 October – 1 November 2024.

Parties, heads of states, representatives from non-governmental organizations, and other conference delegates were able to learn more about area-based conservation approaches including Important Shark and Ray Areas (ISRAs), Ecologically and Biologically Significant Marine Areas (EBSAs), Important Marine Mammal Areas (IMMAs), Key Biodiversity Areas (KBAs), and the upcoming Important Marine Mammal Areas (IMTAs). Information included covers how each approach can contribute to conservation planning while considering targets under the Kunming–Montreal Global Biodiversity Framework.

The full technical brief is available for download here.

Citation

Jones, K.R., Bandimere, A., Boyd, C., Chaisson, S., Davies, T., Hoyt, E., Jabado, R.W, Neugarten, R., Notarbartolo di Sciara, G., Palmer, C., Paredes, F., Rathbone, V., Rodríguez, J.P., Stephenson, F., Wallace, B., Woodley, S., & Yerena, E. 2024. Approaches for identifying areas of particular importance for marine biodiversity. Technical Note No. 16. Gland, Switzerland: IUCN WCPA. 9pp.

Meat on the menu and fins for export: Latin America's shark trade with Asia

Executive summary

Global shark conservation has come a long way, with the Convention on International Trade in Endangered Species (CITES) 19th Conference of the Parties (CoP19) in November 2022 being a real tipping point; CITES parties supported the inclusion of 97 additional shark species on Appendix II and, together with already listed species, more than 90% of global fin trade is now under CITES control.

Different regions play an active role in the global shark trade; supplying the Asian markets with shark fins, receiving shark meat for domestic consumption or making profit through internationally operating fishing fleets and/or facilitating the transit of shark products for re-export. Prior to CoP19 in 2022, Bloom Association in collaboration with the International Fund for Animal Welfare (IFAW) undertook an extensive analysis of official raw customs data of Hong Kong Special Administrative Region (referred to as Hong Kong SAR hereafter), Singapore and Taiwan province, China (referred to as Taiwan province hereafter) and published the findings in the report *Supply and Demand: The EU's role in the global shark trade, www.ifaw.org/international/resources/eu-role-global-shark-trade,* in March 2022, demonstrating that the EU is one of the top sources of shark fin products for these Asian markets[1].

To complement the 2022 trade analysis, IFAW followed up with its 2023 report *Shark safeguards: Elevating EU controls on shark trade, www.ifaw.org/resources/eu-safeguards-shark-trade,* giving more insights into the legal and illegal trade flows by looking at both the legal trade data as reported by the EU, covering import into and export by the EU 27 Member States to all countries worldwide, and also illegal trade data as registered by the Member States[2]. The study illustrated the economic value of the trade and the dominant trade flows by identifying the main suppliers and export destinations.

The current report follows in the series of trade analyses of raw customs data of Hong Kong SAR, Singapore, and Taiwan province from 2003-2020, this time mapping out the role of Latin America and Caribbean (LAC) countries, with the aim of helping governments in the region to understand, monitor and regulate their shark-related trade. Several of the recommendations focus on improving transparency and traceability of the traded products. Given the global scale of the shark-related trade, and the multiplicity of trading partners, countries trading in the products will need to proactively work together to share trade data, standardise trade reporting formats and greatly improve the quality of the trade data collected. Such steps are required to bring the level of data transparency and traceability to where it needs to be for a trade as complex and potentially detrimental as the shark trade.

The trade analysis series aims to contribute to this much-needed endeavour by mapping out trade flows, highlighting discrepancies, increasing transparency of the global shark trade and making recommendations for this and other regions in order to prevent them from contributing further to the extinction of shark species.

The LAC study shows that the region plays an important role not only in the shark meat trade, but also supplies a significant proportion of shark fin trade to Asia. Given its significance in the trade with Asia, it is recommended that further research into the LAC region's shark-related trade with other key trade players, such as the European Union (EU), is undertaken to find out the extent of the LAC region's role (both in volume and in its diversity of trade partners) in the global trade.

ifaw

Visual overview: Latin America and Caribbean region's shark trade with Asia*

Shark fin trade**

Study period 2003-2020

Photo: © Steve De Neef

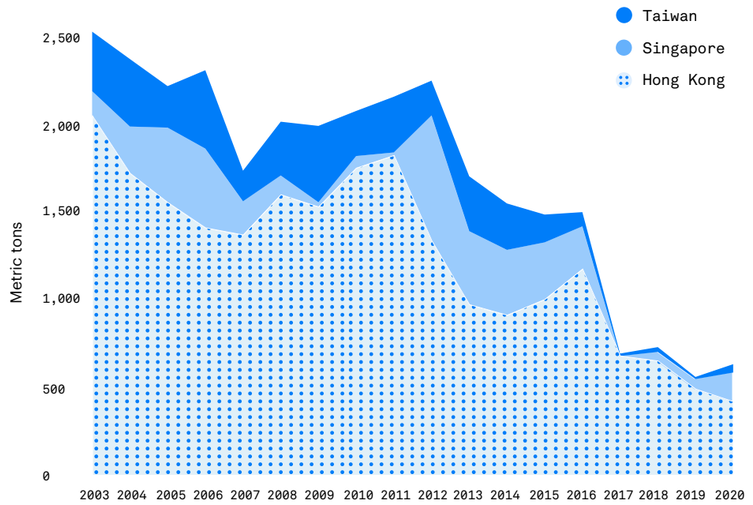
188,369 mt

of shark-fin related products were reported in imports into Hong Kong SAR, Singapore, and Taiwan province combined, with an annual average of 10,465 metric ton[3]

16%

equivalent to 30,608 mt of the total 188,369 mt of shark fin products imported into Asian trade hubs were sourced from the LAC region

Total shark fin imports



Total shark fin-related imports into Hong Kong SAR, Singapore, and Taiwan province (aggregated) from the LAC region 2003–2020

* Asia in this report refers to the three Asian trade hubs Hong Kong SAR, Singapore and Taiwan province since we only analysed their raw customs data. As a follow-up research, data from major traders like China should also be analysed.

**'shark meat' covers all data from shark meat-related customs codes
'shark fin' covers all data from shark fin-related customs codes

Despite a declining trend in the volume of shark fins traded with Asia, the LAC region remains a significant supplier

Top fin sources

	Reported source of imports	Total reported trade (metric tons), 2003-2020
1	Costa Rica	5,613
2	Peru	3,714
3	Uruguay	3,475
4	Mexico	3,429
5	Argentina	2,429
6	Trinidad and Tobago	2,223
7	Brazil	2,067
8	Panama	2,066
9	Ecuador	1,875
10	El Salvador	721
11	Chile	701
12	Guyana	472
13	Suriname	446
14	Guatemala	333
15	Colombia	312
16	Venezuela	253
17	Belize	156
18	Nicaragua	150
19	St Vincent and the Grenadines	99
20	Cuba	23

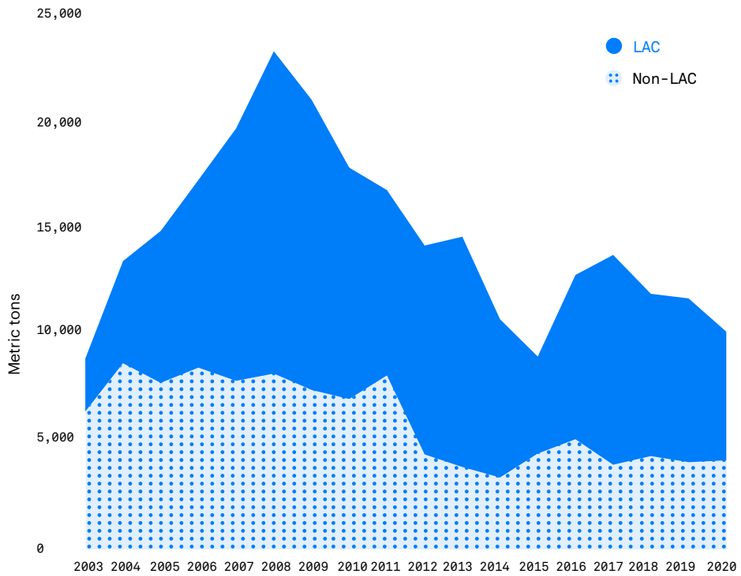
Top 20 reported LAC region sources for total shark fin-related products imported into Hong Kong SAR, Singapore, and Taiwan province, 2003-2020.

Due to its key role as fin supplier and meat consumer, the LAC region has to ensure that its participation in the global trade is not driving shark species towards extinction

Shark meat trade

Study period 2003-2020

Total shark meat exports



Total shark meat-related exports from Hong Kong SAR, Singapore, and Taiwan province (aggregated) 2003–2020. Taiwan was the main exporter of meat to the LAC region, but it is not possible to tell from the trade data if the products were re-exports or domestic exports from local shark fisheries, as Taiwan is also one of the top shark fishing actors.[4]

The LAC region received the majority of all shark meat exports in 2020 and represents the main destination globally for meat exports from Asian trade hubs

Top meat destinations

	Reported export destinations	Total reported trade (metric tons)
1	Uruguay	69,444
2	Brazil	60,361
3	Mexico	25,006
4	Trinidad and Tobago	1,158
5	Guatemala	456

Top five reported LAC region destinations for the total shark meat-related products exported from Hong Kong SAR, Singapore, and Taiwan province.

267,345 mt

of shark-meat related products were reported in exports from Hong Kong SAR, Singapore and Taiwan province with an annual average of 14,853 metric tons

58%

equivalent to 157,240 mt of the total 267,345 metric tons of shark meat products exported from the Asian trade hubs went to the LAC region. This reiterates previous research which shows South America (and South Korea) to be key consumers of shark meat[5].

Bigger discrepancies in data Peru and Ecuador

Hong Kong SAR data recorded far more in imports from Peru (an average of 257 mt from 2015-2020) than Peru reportedly exported (an average of 2 mt). This comparison only considers Hong Kong SAR import data and had not investigated trade data from other destinations. Discrepancies were also noted in comparison to Ecuador's data. This may suggest possible under-reporting in Ecuador and Peru's total exports. Smaller discrepancies were noted in the data of Chile and Colombia. Data from other countries could not be compared due to lack of comparable data and/or no response to our data request.

Recommendations

1. **Ensure the effective implementation of CITES Appendix II listings of shark species**
   - Increase capacity for detailed trade reporting.
   - Undertake specialised training for customs and border control staff to visually identify products belonging to CITES-listed shark species to deter illegal trade activities.
   - Establish channels for effective communication between government departments of key trading partners regarding suspect shipments.

2. **Improve recording of data and trade records via a review of the Harmonized System (HS) commodity codes for shark products and standardise code use with key trading partners**
   - Initiate collaborations with key trading partners to review HS codes used and reach consensus on updating codes, to provide more detailed information on products traded and increase traceability by using compatible codes and include species-specific information for at least CITES-listed species.

3. **Build domestic capacity for long-term trade monitoring through trade data analysis and research**
   - Make a comprehensive dataset available, to make comparisons of the customs data against the CITES trade database and FAO's FishStatJ database, to identify potential inconsistencies in reporting format or product values and quantities.

4. **Prioritise the use of trade data to combat illegal wildlife trade in sharks and shark products**
   - Share trade data in cross-national platforms to enable the better coordination of intelligence, at least with relevant key trading partners.
   - Establish a mechanism to exchange information regarding successful seizures (excluding sensitive personal and/or intelligence data) conducted by governments and accessible for trading partners.

International Fund for Animal Welfare

Meat on the menu and fins for export:
Latin America's shark trade with Asia

About IFAW
For over a decade, IFAW has been working with governments around the world to support better management for sharks and rays. From the development of shark identification materials for fisheries, customs, and enforcement officers, to raising awareness of the conservation needs of shark species and building the capacity of governments to meet their obligations under international conventions such as the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS). IFAW also provides technical support for governments looking to enact progressive and precautionary management for shark catch limits, or prohibitions when warranted, at a national level.

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Cover photo: Silky shark in Queen's Gardens, Cuba.

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Abbreviations

CITES - Convention on the International Trade in Endangered Species of Wild Fauna and Flora
CMS - Convention on the Conservation of Migratory Species of Wild Animals
EU – European Union
FAO - Food and Agriculture Organization of the United Nations
HS - Harmonized Commodity Description and Coding System, commonly referred to as the Harmonized System
LAC – Latin America and Caribbean region covering the main continent of South America, Central America, and the scattered islands in the Caribbean Sea which includes the West Indies including the Great and Lesser Antilles, and the Lucayan Archipelago. For the full list of countries and territories included, see Annex 1 of the full report.
mt - metric tons

Endnotes

1 Shea S, Slee, B., O'Toole, M. (2022). *Supply and Demand: The EU's role in the global shark trade.* Stichting IFAW (International Fund for Animal Welfare), The Hague, The Netherlands. 36pp.https://www.ifaw.org/resources/eu-role-global-shark-trade

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Ecological erosion and extinction risk of sharks and rays

A new analysis published in the journal Science reveals that overfishing has caused populations of chondrichthyan fishes – sharks, rays, and chimaeras – to decline by more than 50 per cent since 1970

To determine the consequences, a team of researchers developed an aquatic Red List Index (RLI) which shows that the risk of extinction for chondrichthyan has increased by 19 per cent. The study also highlights that the overfishing of the largest species in nearshore and pelagic habitats could eliminate up to 22 per cent of ecological functions.

Chondrichthyans are an ancient and ecologically diverse group of over 1,199 fishes that are increasingly threatened by human activities. Overexploitation by target fisheries and incidental capture (bycatch), compounded by habitat degradation, climate change and pollution, has resulted in over one-third of chondrichthyans facing extinction. Here, the RLI was used to track the status of these species over the past 50-years.

"The shark and ray RLI shows how declines first occurred in rivers, estuaries, and nearshore coastal waters before spreading across the oceans and then down into the deep sea", said Professor Nicholas K. Dulvy at Simon Fraser University. "The sequential depletion of the largest and most functionally important species – such as sawfishes and rhino rays – was followed by the decline of large stingrays, eagle rays, angel sharks, hammerheads and requiem sharks. Eventually, fisheries turned to deepwater sharks and skates for the liver oil and meat trade".

These widespread documented declines are expected to have significant consequences on other species and aquatic ecosystems.

"Sharks and rays are important predators, and their decline disrupts food webs throughout the Ocean. Larger wide-ranging species connect ecosystems, for example, reef sharks are vital in transferring nutrients from deeper waters to coral reefs, helping to sustain those ecosystems", said Dr. Nathan Pacoureau at the European Institute for Marine Studies, Brest University, France. "Rays, meanwhile, are important foraging animals that mix and oxygenate sediments, influencing marine productivity and carbon storage".

Despite these alarming trends, the team emphasizes the positive development in the appreciation and conservation of sharks and rays.

"This analysis points to solutions" said Professor Colin Simpfendorfer, James Cook University, Australia. "Nations can reduce the extinction risk by lowering fishing pressure to sustainable levels, strengthening fisheries governance, and eliminating harmful subsidies. Progress has already created bright spots of hope for chondrichthyans, including in Australia, Canada, New Zealand, United States, and parts of Europe and South Africa"

"The Red List Index has been a tool used by governments for monitoring conservation progress on land, yet no equivalent existed for the Ocean." said Dr Rima Jabado, Deputy Chair of the IUCN Species Survival Commission (SSC) and Chair of the IUCN SSC Shark Specialist Group. "This new shark and ray RLI will help track progress toward ocean biodiversity and sustainability targets, identify the species and places most at risk and guide future conservation efforts".

The study was completed as part of the Global Shark Trends Project (GSTP), a collaboration of the IUCN Species Survival Commission Shark Specialist Group, Simon Fraser University, James Cook University, and the Georgia Aquarium established with support from the Shark Conservation Fund to assess the extinction risk for chondrichthyan fishes (sharks, rays, and chimaeras). The analysis is based upon the first global reassessment of IUCN Red List Status published in 2021 (bit.ly/GlobalSharkStatus) The team engaged 322 experts through 17 workshops from around the world to complete the 8-year long reassessment.

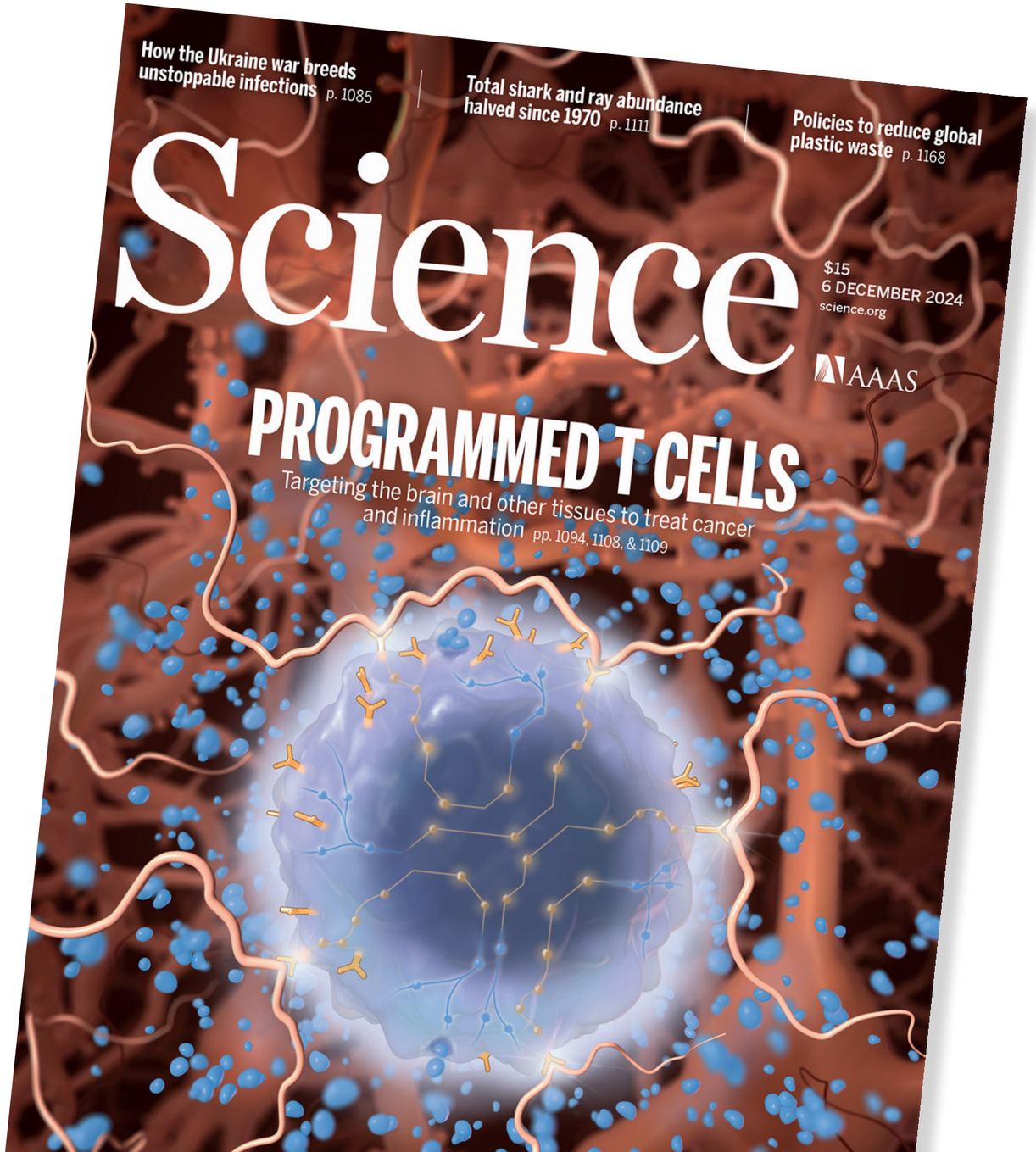
The Red List Index (RLI) shows trends in overall extinction risk for species, and is used by governments to track their progress towards targets for reducing biodiversity loss. Up to now, the RLI is available for five taxonomic groups only (those in which all species have been assessed at least twice): birds, mammals, amphibians, cycads and warm-water reef-forming corals. The RLI can be disaggregated in various ways: thematic RLIs show trends for subsets of species of particular policy relevance. The RLI can be calculated for individual countries and regions, with each species contributing to the index weighted by the proportion of its global range within the country or region.

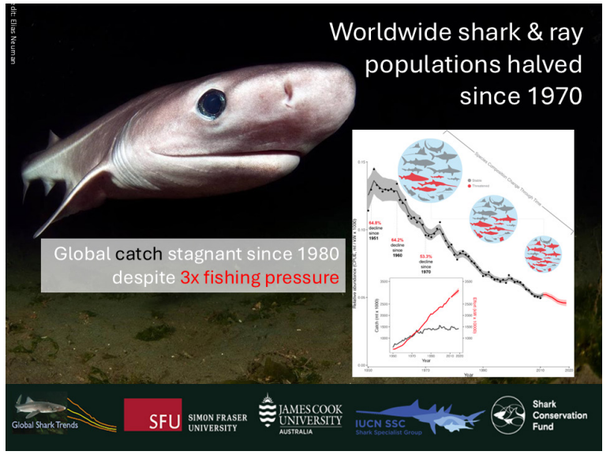
Class Chondrichthyes comprises three main lineages: sharks, and rays, and chimaeras (a relatively small group of mainly deepwater species). Chondrichthyans make up the oldest and largest evolutionary radiation of vertebrates and one of the three taxonomic Classes of fishes. Here we consider 1,199 species from the comprehensive global reassessment, which is the most accurate assessment of the decade.

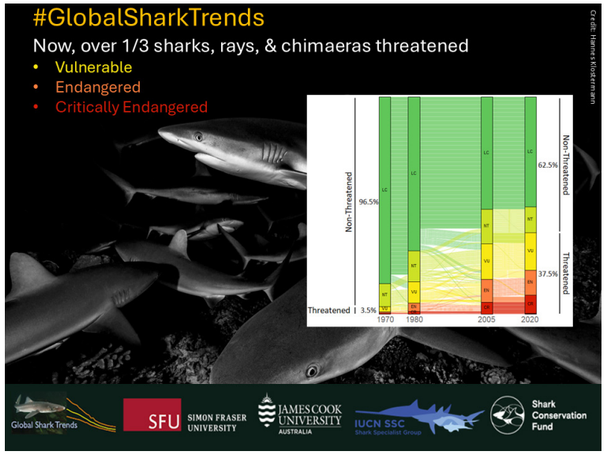
Starting in the 1990s, the conservation of sharks and rays has been increasingly considered within Regional Fisheries Bodies (including Regional Fisheries Management Organizations) and international wildlife treaties, particularly the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). Through various associated actions aimed primarily at ending overexploitation of threatened species, member governments are required to restrict fishing and/or exports to sustainable levels, but the record for fulfilling these commitments has to date been generally poor. To date, deepwater sharks and rays have largely been ignored from these efforts

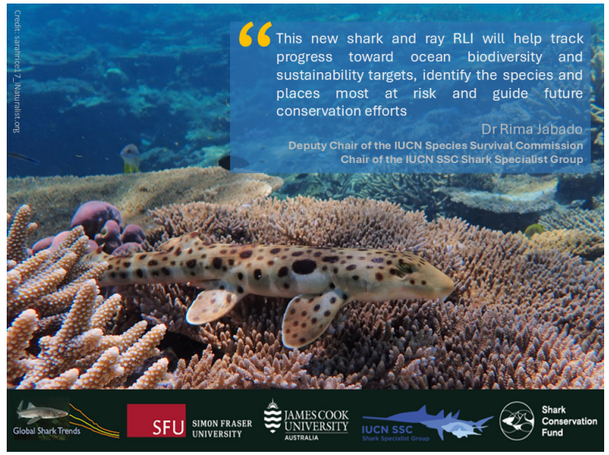
The paper can be accessed here.

How to cite the document: Dulvy, N.K., Pacoureau, N., Matsushiba, J.H., Yan, H.F., Vander-Wright, W.J., Rigby, C.L., Finucci, B., Sherman, S.C., Jabado, R.W., ... Simpfendorfer, C.A. (2024). Ecological erosion and expanding extinction risk of sharks and rays. Science, 386, eadn1477. doi.org/10.1126/science.adn1477




Worldwide shark & ray populations halved since 1970
Global catch stagnant since 1980 despite 3x fishing pressure
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
IUCN SSC Shark Specialist Group
Shark Conservation Fund


#GlobalSharkTrends
Now, over 1/3 sharks, rays, & chimaeras threatened
Vulnerable
Endangered
Critically Endangered
Non-Threatened
Threatened
96.5%
3.5%
62.5%
37.5%
1970
1980
2005
2020
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
IUCN SSC Shark Specialist Group
Shark Conservation Fund


This new shark and ray RLI will help track progress toward ocean biodiversity and sustainability targets, identify the species and places most at risk and guide future conservation efforts
Dr Rima Jabado
Deputy Chair of the IUCN Species Survival Commission
Chair of the IUCN SSC Shark Specialist Group
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
IUCN SSC Shark Specialist Group
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Chondrichthyans are an ecologically diverse and ancient lineage of over 1,199 sharks, rays, & chimaeras.
Dr. Nicholas Dulvy
Simon Fraser University
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
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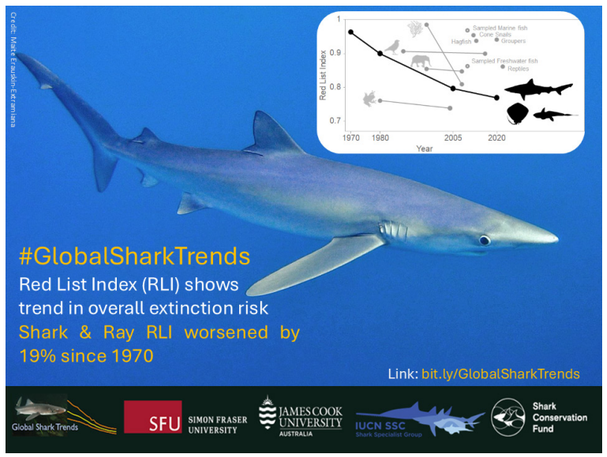
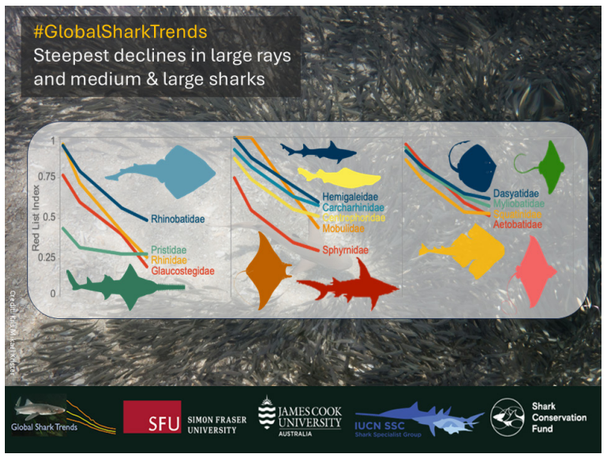
Shark Conservation Fund


#GlobalSharkTrends
Red List Index (RLI) shows trend in overall extinction risk
Shark & Ray RLI worsened by 19% since 1970
Link: bit.ly/GlobalSharkTrends
Red List Index
Year
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
IUCN SSC Shark Specialist Group
Shark Conservation Fund


#GlobalSharkTrends
Steepest declines in large rays and medium & large sharks
Red List Index
Rhinobatidae
Pristidae
Rhinidae
Glaucostegidae
Hemigaleidae
Carcharhinidae
Mobulidae
Sphymidae
Dasyatidae
Myliobatidae
Gymnuridae
Aetobatidae
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
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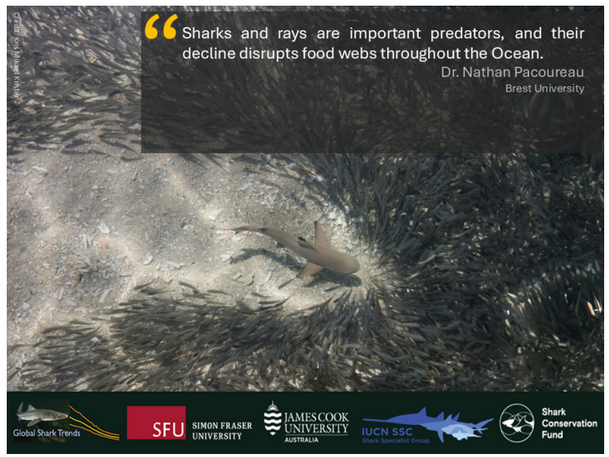
Sharks and rays are important predators, and their decline disrupts food webs throughout the Ocean.
Dr. Nathan Pacoureau
Brest University
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
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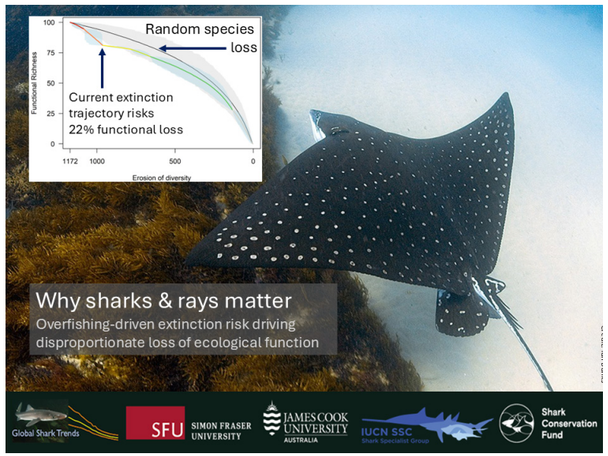
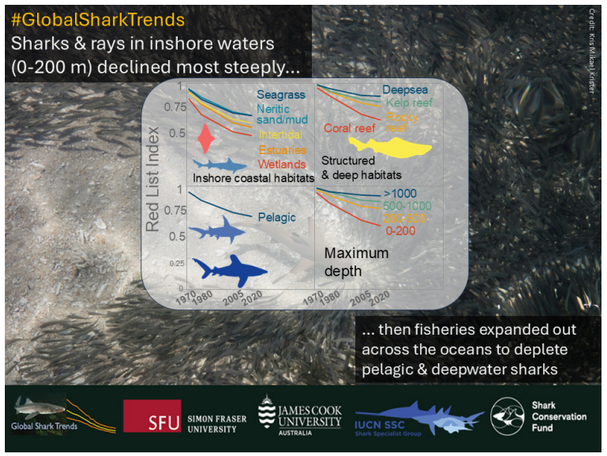
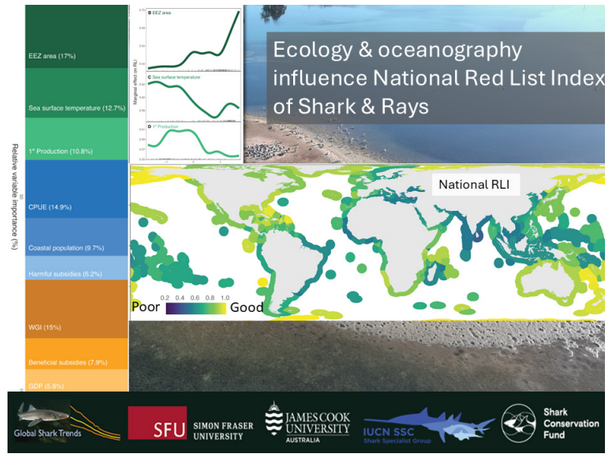
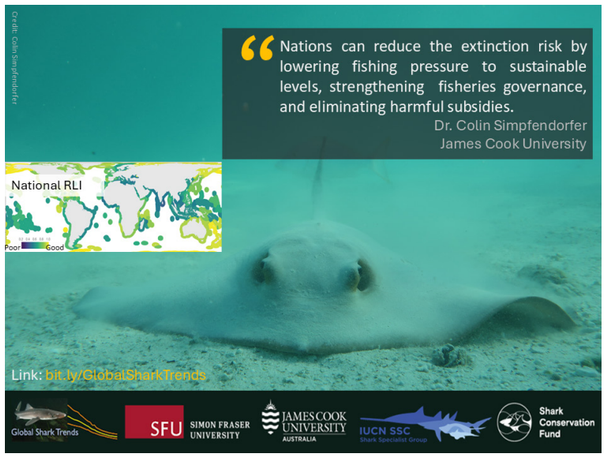

Random species loss
Current extinction trajectory risks 22% functional loss
Functional Richness
Erosion of diversity
Why sharks & rays matter
Overfishing-driven extinction risk driving disproportionate loss of ecological function
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
IUCN SSC Shark Specialist Group
Shark Conservation Fund


#GlobalSharkTrends
Sharks & rays in inshore waters (0-200 m) declined most steeply...
Red List Index
Seagrass
Neritic sand/mud
Intertidal
Estuaries
Wetlands
Inshore coastal habitats
Coral reef
Deepsea
Kelp reef
Rocky reef
Structured & deep habitats
Pelagic
>1000
500-1000
200-500
0-200
Maximum depth
... then fisheries expanded out across the oceans to deplete pelagic & deepwater sharks
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
IUCN SSC Shark Specialist Group
Shark Conservation Fund


Ecology & oceanography influence National Red List Index of Shark & Rays
EEZ area (17%)
Sea surface temperature (12.7%)
1° Production (10.8%)
CPUE (14.9%)
Coastal population (9.7%)
Harmful subsidies (6.2%)
WGI (15%)
Beneficial subsidies (7.9%)
GDP (5.8%)
National RLI
Poor
Good
Global Shark Trends
SFU SIMON FRASER UNIVERSITY
JAMES COOK UNIVERSITY AUSTRALIA
IUCN SSC Shark Specialist Group
Shark Conservation Fund


Nations can reduce the extinction risk by lowering fishing pressure to sustainable levels, strengthening fisheries governance, and eliminating harmful subsidies.
Dr. Colin Simpfendorfer
James Cook University
National RLI
Poor
Good
Link: bit.ly/GlobalSharkTrends
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IUCN SSC Shark Specialist Group
Shark Conservation Fund

CATSHARKS LAY EGGS ON PLASTIC:

A sign of adaptation or a warning of conservation crisis?

Libby Keatley | iNaturalist.org [CC BY]

Smallspotted Catshark

Small-spotted Catshark egg cases attached to a longline

Large accumulation of Small-spotted Catshark egg cases attached to a longline over the deck of a bottom trawler

Photos by Arnau Subías-Baratau

David Ruiz-García

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Plastic accumulating in our oceans is triggering a series of alarming and unexpected changes in marine ecosystems. Our recent discovery reveals a troubling shift in the behaviour of the Small-spotted Catshark (*Scyliorhinus canicula*), which has begun using plastic debris as a substrate for laying its eggs (Figuerola et al., 2024). Is this an adaptive response to habitat degradation or a sign of deeper ecological concern?

The alarming shift to plastic

The Mediterranean Sea, long impacted by human activity, has become a hotspot for marine plastic debris. Among the most pervasive pollutants are ghost fishing gear - abandoned, lost or otherwise discarded nets, lines, or traps - that remain on the seabed for decades or even centuries. We have unveiled that catsharks (family Scyliorhinidae), which typically lay their eggs on biogenic substrates formed by invertebrates such as hydrozoans and sponges, are now increasingly using plastic debris, especially ghost fishing gear, as their chosen surfaces for oviposition.
This behaviour was recorded across numerous bottom trawling sites in the western Mediterranean Sea, where 60.8% out of 1,505 catshark egg cases observed were attached to plastic items, predominantly ghost fishing gear. This finding represents a notable shift from their natural reproductive habits, indicating that catsharks may be adapting out of necessity to an environment increasingly devoid of natural egg-laying sites.

Why are catsharks turning to plastic?

Biogenic substrates such as corals and sponges provide stability, camouflage, protection, and essential resources for developing embryos and hatchlings. These natural sites are most commonly found in biologically rich areas of the continental shelf and upper slope. However, the combined impacts of intensive trawling and climate change are leading to the degradation of these critical habitats, forcing the species to seek alternative sites for egg-laying. Catsharks have thus increasingly turned to artificial substrates when biogenic ones are less available, especially on the deeper continental slope. In these areas, ghost fishing gear, which is both widespread and offers a large surface area, has become an unintended alternative for egg-laying. This shift underscores the species' resilience but also highlights the severe decline in natural habitats and the urgent need for conservation efforts.

The risks of laying eggs on plastic

While the use of plastic as an oviposition substrate may seem a resilience strategy, it poses a range of risks to catshark survival. Plastic lacks the ecosystem services provided by natural substrates, such as shelter and resources for newly hatched catsharks and their prey. Furthermore, egg cases laid on plastic debris may be buried in the seabed sediments or transported by currents to areas unsuitable for hatching or juvenile development, potentially impacting survival rates. Reports have shown that plastic debris containing unhatched egg cases frequently washes up on shorelines, driven by waves and currents, leading to the loss of individuals during their prenatal stage.

The implications for marine ecosystems

Drifting pathways can have unknown implications, and even if some dispersal may enable the catshark to colonize new habitats, it can also intensify competition with other species, disrupting the balance of ecosystems. The increasing dependence on plastic substrates for oviposition could intensify these issues, negatively impacting marine life and altering benthic ecosystems. The effects of this extends well beyond the catsharks themselves. As plastic becomes a common surface for egg-laying, other marine species may also be affected, further destabilising the delicate balance of the marine ecosystems, especially those from the Mediterranean Sea.

Further research is essential to fully understand the long-term effects of this behaviour on catshark populations and the broader marine ecosystem. Given the crucial roles that sharks and rays play in maintaining marine food webs, any decline or shift in their behaviour could have cascading consequences for ecosystem stability.

Conclusion: A wake-up call for policy change

This unexpected discovery of catsharks laying eggs on ghost fishing gear should serve as a wake-up call of the threats - both known and unknown – that marine species face. While this behaviour demonstrates the resilience of certain species in adapting to environmental stress, it underscores the urgent need to address the degradation of marine habitats and the growing threat of plastic pollution. Protecting species and the ecosystems they rely on requires prioritising policies that safeguard biological habitats and reduce marine plastic pollution. Collaborative action from local and global stakeholders is essential to mitigate these threats. Initiatives such as managing ghost fishing gear and promoting habitat protection are critical to preserve vital biogenic ecosystems and conserving biodiversity.

Source

Figuerola, B., Ruiz-García, D., Subías-Baratau, A., Maceda-Vega, A., Sanchez-Vidal, A., & Barría, C. (2024). Adapting to a pollution hotspot? Catsharks shift to plastic substrates for oviposition. Science of The Total Environment, 955, 176998. doi.org/10.1016/j.scit tenv.2024.176998

Small-spotted Catshark egg cases
attached to ghost gear

Small-spotted Catshark egg cases
attached to a rope

Photos by Arnau Sublas-Baratau

Photo by philwilkinson | iNaturalist.org [CC BY-NC]

The road ahead for the recovery of Oceanic Whitetip Sharks

Andy Mann

Region Update: North America

Written by Ms. Chelsey Young and Dr. John Carlson

IUCN Shark Specialist Group | North America Region | Regional Vice Co-Chairs & NOAA Fisheries Service

The scientific results and management conclusions, as well as any views or opinions expressed herein, are those of the authors and do not necessarily reflect those of their institution.

National Oceanic and Atmospheric Administration (NOAA) Fisheries recently announced the publication of the Oceanic Whitetip Shark Recovery Plan. Explore the history behind its development and what's in store for the road ahead.

The Oceanic Whitetip Shark (*Carcharhinus longimanus*) is a large, highly migratory, pelagic shark, described historically as one of the most abundant shark species in tropical seas worldwide (Mather & Day, 1954; Backus et al., 1956; Compagno, 1984). For example, during exploratory research surveys in the 1950s in the Gulf of Mexico, historical accounts of the Oceanic Whitetip Shark described the species as 'remarkably persistent,' noting that several individuals often gathered at the surface around longlines, persistently investigated baited hooks, and occasionally attacked dead or dying tuna before they were hauled in. These sharks were so prevalent and persistent, even using underwater explosives were largely unsuccessful in attempts to drive them away (Backus et al. 1956). In fact, in Lineaweaver and Backus's (1969) book 'Natural History of Sharks' Oceanic Whitetip Sharks were described as "extraordinarily abundant, perhaps the most abundant large animal, large being over 100 lb (45 kg) on the face of the earth."

Despite its former abundance, the Oceanic Whitetip Shark has declined significantly over the past several decades (Young & Carlson, 2020). As a result, the species is now classified as Critically Endangered on the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species (Rigby et al. 2019), and listed as 'threatened' under the United States (U.S.) Endangered Species Act. These precipitous declines are due to high levels of bycatch in commercial fisheries and international demand for shark fins.

Using a Bayesian state-space tool for trend analysis of abundance indices from IUCN Red List (Sherley et al. 2018), the global population change over three generations (~61 years) was 87–88%, resulting in its assessment as Critically Endangered (Rigby et al. 2019). These declines have raised concerns over the species' status and prompted protective actions in various international fora, including the Convention on International Trade of Endangered Species of Wild Flora and Fauna (CITES) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS). In addition, each major tuna Regional Fishery Management Organization (RFMO) has implemented regulations prohibiting their retention.

The Oceanic Whitetip Shark was listed as 'threatened' under the U.S. Endangered Species Act (ESA) in 2018, which means it is likely to become an endangered species throughout all or a significant portion of its range within the foreseeable future. Once a species is listed under the ESA, NOAA Fisheries is required to develop a recovery plan—a guidance document that outlines the path and tasks required to restore and secure self-sustaining wild populations to the point that a species no longer needs the protections of the ESA. Recovery plans under the ESA include three major components: 1) a description of site-specific management actions necessary to achieve species recovery; 2) objective, measurable criteria which, when met, would result in a determination that the species be delisted; and 3) estimates of the time and costs required to achieve recovery.

In the case of the Oceanic Whitetip Shark, the recovery planning process began in 2019, when NOAA Fisheries held two recovery planning workshops: one in Honolulu, Hawai'i and another in Miami, Florida. The purpose of these workshops was to gather information, facts, and perspectives on how to recover the oceanic whitetip shark. This included identifying potential recovery criteria and actions to address the threats to the species. Participants included a broad range of experts from federal and state agencies, the scientific community, commercial fishers, conservation partners, and non-governmental organizations (NGOs).

Based on input from these two recovery planning workshops, as well as the best available data and scientific literature, NOAA Fisheries adopted the final Oceanic Whitetip Shark Recovery Plan (Plan) in July 2024. The Plan includes two types of recovery criteria: 1) demographic criteria that reflect the population and life history parameters that would indicate the species is no longer threatened; and 2) threats-based criteria that indicate the threats to the species are sufficiently reduced, managed, or eliminated. The demographic criteria include specific targets to support the objectives of species' viability (e.g., abundance and population growth). The recovery plan for the Oceanic Whitetip Shark includes seven threats-based criteria that collectively address threats of bycatch, international trade of Oceanic Whitetip Shark fins, and inadequate regulatory mechanisms to mitigate threats to the species.

Because the main threat to the Oceanic Whitetip Shark is bycatch in commercial fisheries, the overarching strategy of the Plan is to minimize fishing mortality through a two-pronged approach: 1) reduce the frequency of fishing interactions; and 2) increase survivorship before, during, and after interactions with fishing gear occur. The recovery strategy also includes international cooperation through RFMOs and other international partners because the Oceanic Whitetip Shark's range is largely outside of U.S. jurisdiction. The Plan recommends the following nine major actions to recover Oceanic Whitetip Shark:

- Improve knowledge and understanding of Oceanic Whitetip Shark population status, abundance trends, and genetic structure.
- Improve knowledge and understanding of the species' distribution, movement, and habitat use.
- Improve knowledge and understanding of the demographics and life history.
- Minimize fisheries bycatch and mortality by determining and addressing the frequency of capture and severity of fishing interactions in commercial, artisanal, and recreational fisheries.
- Minimize fisheries bycatch and mortality of these sharks in international fisheries and trade through enhanced international coordination and collaboration with relevant international organizations, such as RFMOs.
- Determine the effects of the international shark fin trade on Oceanic Whitetip Shark populations in all management units, and take management actions to minimize, and/or eliminate if necessary, the amount of their fins in the global trade.
- Improve species-specific monitoring and reporting of Oceanic Whitetip Sharks in commercial and artisanal fisheries by RFMOs and individual countries to provide a better understanding of the effects of illegal, unreported, and unregulated (IUU) fishing, improve estimates of catch and discards, and measure progress towards recovery.
- Minimize fishing mortality of oceanic whitetip sharks through effective development, implementation, and enforcement of international and domestic measures, such as legislation and regulations.
- Develop and implement outreach and education strategies and programs to increase public and stakeholder (including fishers) awareness on the status and recovery needs of the Oceanic Whitetip Shark.

Successful implementation of the Plan will require the cooperation of international stakeholders and partners across the species' range. To assist NOAA Fisheries and other stakeholders in planning and implementing activities to carry out the recovery actions in the Plan, NOAA Fisheries developed a Recovery Implementation Strategy. This document is a flexible, operational document that steps down the recovery actions in the Plan into more specifically defined activities that implement and support the recovery actions. The activities identified in the Recovery Implementation Strategy can be revised and adapted over time based on recovery progress and availability of resources or new data or literature. We encourage IUCN members to submit any information or data they may have that will aid NOAA Fisheries in implementing the recovery plan.

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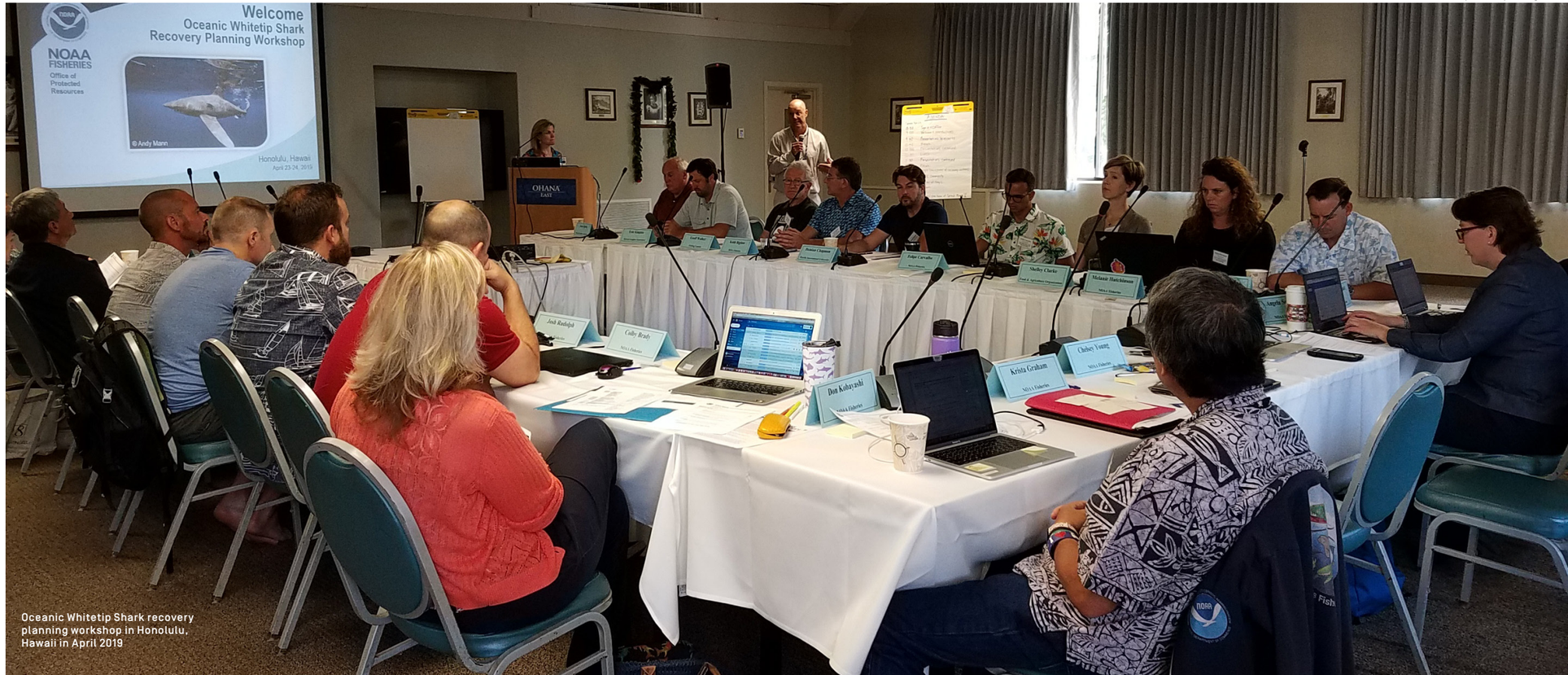
Photo by Chelsey Young



Oceanic Whitetip Shark recovery planning workshop in Honolulu, Hawaii in April 2019

Photo by Chelsey Young

Photo by Chelsey Young

Oceanic Whitetip Shark recovery planning workshop in Honolulu, Hawaii in April 2019

Photo by Andy Mann

Oceanic Whitetip Shark

Participants at the Oceanic Whitetip Shark recovery planning workshop in Miami, Florida, in November 2019

Written by
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in representation of the Organized Group of Tourist Service Providers of Bull Shark Diving, Playa del Carmen, Quintana Roo, Mexico. (ceci@baalche.com.mx)

Region Update: America and Caribbean

Protection efforts for an aggregation of female Bull Sharks off Playa del Carmen, Mexico: A community science project by shark-diving stakeholders

A female Bull Shark, known as Mancha, is with divers during a shark dive.

Photo by Cecilia Gutiérrez Navarro

Members of the Organized Group of Tourist Service Providers of Bull Shark Diving with local and federal authorities

Cecilia Gutiérrez Navarro

Playa del Carmen hosts an extraordinary event every winter. A group of female Bull Shark (*Carcharhinus leucas*), most of them during their last stages of pregnancy, arrive between November–March on the coast of this Mexican Caribbean paradise, south of the busy tourist city, Cancun.

Shark-diving tourism has become important worldwide, allowing several coastal communities to develop a shark-diving industry. The yearly aggregation of female-only Bull Sharks, possibly only occurring here, has given rise to diving activities. Over the last decade, these operations at Playa del Carmen have presented us with unique opportunities. This dive tourism has proven itself as a sustainable economic alternative to fishing; some fishers have even given up their fishing gear. It has also brought together a whole community to conserve the Bull Shark aggregation and the diving industry. Today, divers, fishers, authorities, and scientists are working towards the same goal, all of us united by our love for sharks and cooperating to conserve them for the next generations. This is a refreshing breath of hope.

Diving here has grown to be something bigger than just an epic dive. Locals noticed that the same sharks come back each season. Six years ago, aware of all the challenges sharks face to survive and worried about the 1,600 people that depend on these sharks, the community started working to understand their sharks better. A Bull Shark photo identification project was born in the spirit of being part of the solution. This community science project has expanded to allow people to be part of something bigger, aiming to preserve sharks and the activity in the long term.

Since 2019, with the support of the Organized Group of Tourist Service Providers of Bull Shark Diving and the National Commission of Natural Protected Areas (CONANP, abbreviation in Spanish), more than 10,000 photographs have been analyzed. Today, the community has identified 58 female Bull Sharks. However, only 25 have been verified and are part of the first edition of a photo identification catalog funded by Mar Alliance and Dr. Rachel Graham, with the scientific support and guidance of Oscar Sosa-Nishizaki and Luz Saldaña-Ruiz, researchers at the Ensenada Center for Scientific Research and Higher Education (CICESE).

Our main goal is to understand the aggregation's dynamics and demography better. As its first step, our initiative uses photo identification (photo-ID) to identify individual sharks, provide them with easily recognizable names for tourists (e.g., 'Guacamole'), and record their presence each season. This could potentially be used in population analysis approaches, such as mark and recapture methods, to understand the changes in the aggregation through time. These efforts are aimed at providing valuable data to set the basis for their management and conservation and to propose scientifically sound public policies to protect Bull Sharks, divers, and fishers in collaboration with the authorities.

Even though there are concerns about shark-based tourism, especially when there is provisioning, changes in the behavior of the sharks have not been observed until now. We carried out our shark-diving operations inside a large natural protected area, the Mexican Caribe Biosphere Reserve, which ensures a certain level of protection and the need for monitoring. Our project allows divers to be involved in both the awareness of the need for shark protection and as sources of photos for the ID database and monitoring.

Also, after being in waters off Playa del Carmen, we do not know yet where these pregnant Bull Sharks go to give birth and where the nursery areas for newborns are. Based on our observations, the 25 sharks in our catalog have returned at least during two or more seasons; however, four of these females have been seen across all six years covered by our catalog, indicating that the aggregation behavior in our waters has been ongoing. Each dive is an opportunity to discover which shark survived another year in the great blue sea and returned to this area. Will Adelita, Alpha, Sarape, or Guacamole come back to revisit us? What stories will they tell? Should the establishment of a shark sanctuary assure our goals? Many questions remain about safeguarding a sustainable diving activity. So, our community science project is not yet done, and our efforts must continue to answer all these questions.

Cover of the photo identification catalog.

Three female Bull Sharks

Photo by Cecilia Gutiérrez Navarro

Underwater photographer documenting a female Bull Shark known as Lizzia

Photo by Mizael Palomeque

Photograph by Mizael Palomeque

A female Bull Shark known as Ha.

Divers, fishers, and local community members were with the authorities during the Community

Photo by the Organized Group of Tourist Service Providers of Bull Shark Diving activities

Dr. Sosa-Nishizaki and Cecilia Gutiérrez are working on the photo ID catalog at the lab

Photo by Candy López

Female Bull Shark known as Scarface.

Photo by Cecilia Gutiérrez Navarro

Kitefin Shark (*Dalatias licha*) in the Guatemalan Caribbean Sea

Written by
Julio Sánchez Jiménez
Fundación Mundo Azul

Dorsal view of the Kitefin Shark (*Dalatias licha*)

Region Update: Central America & the Caribbean

Taxonomy

The family *Dalatiidae* (order Squaliformes) includes ten species in seven genera (including *Dalatias*). These species range from dwarf to medium-sized deepwater sharks and are distributed almost worldwide in the open ocean or on the bottom in mostly temperate to tropical seas (Ebert et al., 2021). *Dalatias licha* (Bonnaterre, 1788), commonly known as the Kitefin Shark, is the unique species in the Dalatias genus.

Distribution, life history, and fishery importance

The Kitefin Shark is a medium-sized deepwater species found in warm, temperate, and tropical waters at depths ranging from 37–1,800 m (Compagno, 1984). It has a circumglobal but patchy distribution, forming regional subpopulations (Finucci et al., 2018). This species is targeted for its flesh, liver oil, fishmeal, and leather (Compagno, 1984; Ebert et al., 2021). Its slow growth and large size at maturity make it susceptible to overfishing, with significant declines observed in some areas, leading to its classification as Vulnerable on the IUCN Red List of Threatened Species (Finucci et al., 2018).

Presence in the Guatemalan Caribbean Sea

In fishery landing surveys coordinated by Blue World Foundation to characterize sharks, rays, and chimaeras present off El Quetzalito fishing village, a 142 cm total length adult female was caught by an artisanal fishing vessel using a longline at 284–334 m depth. This fishing area is located 11 km from the coast and belongs to the Cayman Trench, which connects deepwater species through an extensive region in the Caribbean.

Given the limited information on the presence of the Kitefin Shark in the western Atlantic, this record enhances regional knowledge and increases the number of known shark species in the Guatemalan Caribbean to 25 (Sánchez-Jiménez et al., 2024).

The importance of landing monitoring program

The landing monitoring surveys through a citizen science program in El Quetzalito village increase the community's awareness of the importance of monitoring landings of sharks, rays, and chimaeras to inform management measures to conserve these vulnerable species. Besides, continuous monitoring of landing surveys is needed due to the expansion of coastal fisheries into deeper waters in the Caribbean that threaten deepwater species (Baremore et al., 2021).

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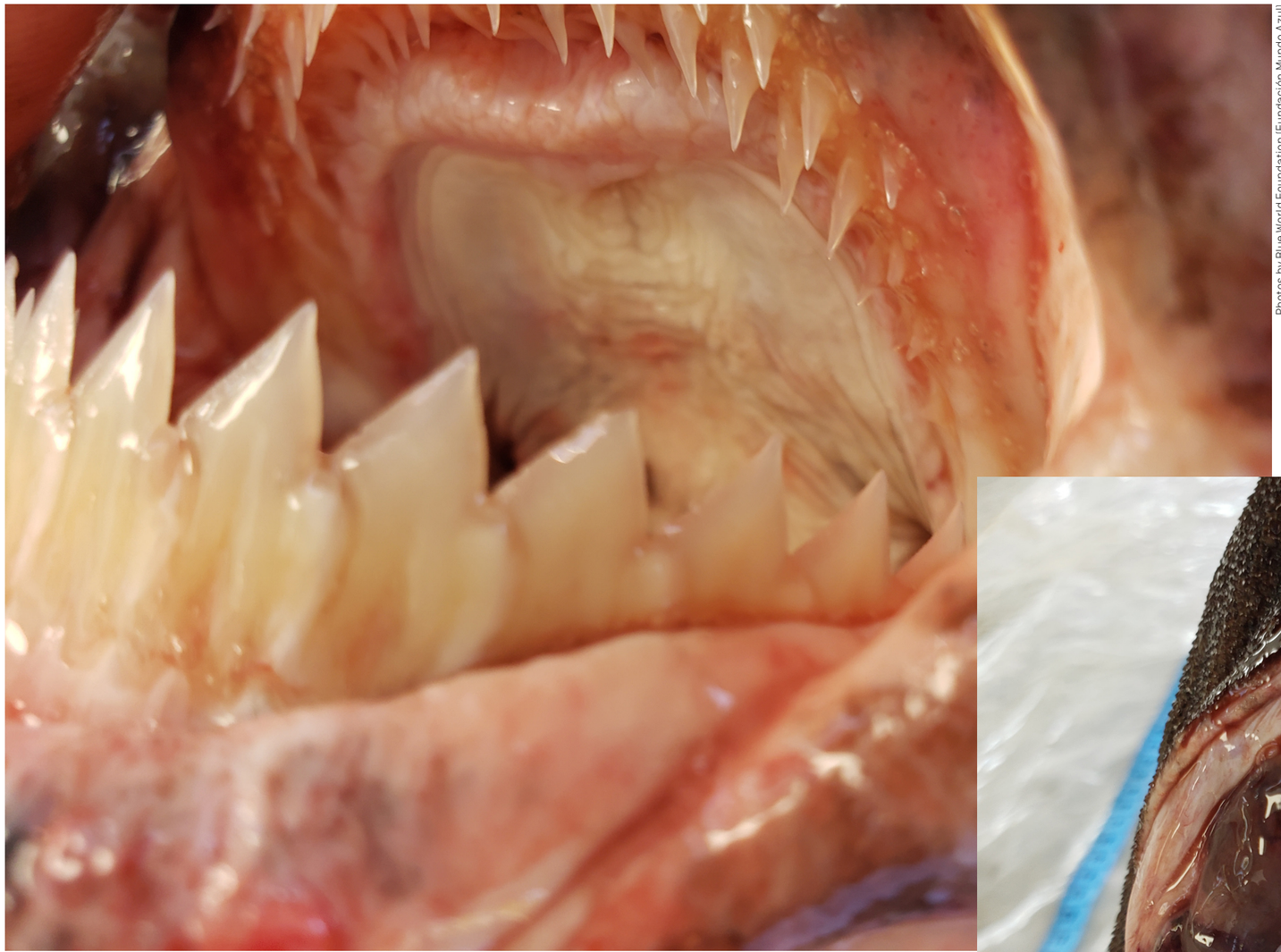
Blue World Foundation (Fundación Mundo Azul)



Photos by Blue World Foundation [Fundación Mundo Azul]

Upper and lower jaw teeth of the Kitefin Shark [*Dalatias licha*]

SOCIOECONOMIC ASPECTS AND VALUE CHAIN OF THE SHARK AND RAY SMALL-SCALE FISHERY IN GUATEMALA

Blue World Foundation (Fundación Mundo Azul)

Shark trunk/meat for sale

Region Update: Central America & the Caribbean

Written by
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Small-scale fishing in Guatemala

Small-scale fishing (SSF) is a crucial economic activity along Guatemala's coastlines, providing vital income for fishers and dealers through various fishery products, including those from sharks and rays. This fishery uses small outboard motored boats of 6–7 m in length. The main shark and ray species subject to fishing, as target or bycatch, include Silky Shark (*Carcharhinus falciformis*), Scalloped Hammerhead (*Sphyrna lewini*), and rays of the genus *Hypanus* (Hacohen-Domene et al., 2020, Avalos-Castillo & Santana-Morales, 2021).

Socioeconomic aspects and value chain

Data were gathered through surveys of fishing actors from 10 coastal communities in the Caribbean and Pacific, as well as 32 fishing distribution centers and traditional markets across eight departments in Guatemala. The key findings are provided below (Rosales-Melgar et al., 2024):

- Fishing is the primary employment source, with an average of 24 years spent in this activity.
- Most fishers lack education; they typically have low incomes that restrict their access to formal education and begin fishing at a young age to contribute to their family's income.
- Of those involved in the fishery, 25% depend on sharks and rays for their income, while 65% rely on finfish, shrimp, and lobster.
- The value chain involves various stages, from capture and distribution (via intermediaries) to marketing and retail.
- Fishers trade their products to intermediaries under disadvantageous conditions, leaving little room for price negotiation.
- The average price increase through the value chain is USD 1.66/kg, with dried salted sharks showing the highest price increase (USD 2.65/kg) and fresh rays the lowest (USD 1.12/kg).

Guatemala's participation in the international market

Guatemala represents 2.76% of Convention on International Trade in Endangered Species of Wild Flora and Fauna species exports from Central America, exporting skins (55 tons), fins (47.5 tons), and live specimens (1.9 tons) of Silky Shark and Pelagic Thresher (*Alopias pelagicus*) between 2018–2022. Guatemala is the main importer of shark meat (65.1 tons), accounting for 99.78% of total imports in Central America. This indicates that Guatemalan catches do not meet national demand, highlighting the need for careful management to prevent increased fishing pressure on sharks and rays (Rosales-Melgar et al., 2024). The continuous monitoring of fisheries and studies on socioeconomic aspects and the value chain are necessary to understand potential threats to elasmobranch populations.

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Photo by Blue World Foundation (Fundación Mundo Azul)

Shark for sale at market

Dried and salted sharks and rays

Shark meat slices (upper left)

Photos by Blue World Foundation [Fundación Mundo Azul]

The Bluntnose Sixgill Shark in the Guatemalan Caribbean Sea

Written by
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El Colegio de la Frontera Sur

Taxonomy

The family Hexanchidae (order Hexanchiformes) comprises five species in three genera, including *Hexanchus*. These sharks have moderately slender to stocky and cylindrical bodies, featuring six or seven pairs of gill slits. They are primarily found in deep, cold water in warm-temperate and tropical regions but may also enter shallow waters in cool-temperate areas (Ebert et al. 2021). *Hexanchus griseus*, commonly known as the Bluntnose Sixgill Shark, is one of the three species within the *Hexanchus* genus.

Distribution and life history

The Bluntnose Sixgill Shark is a large species, reaching up to 482 cm in total length (TL), found worldwide in temperate and tropical waters from the surface to 2,500 m deep (Compagno, 1984, Ebert et al., 2021). Differences in its ecology and life history between the Atlantic and Pacific forms are due to population structure (Vella & Vella, 2017). Despite its presence in the southwestern Caribbean, it was not confirmed in the western Caribbean until recently. This species is considered Near Threatened according to the IUCN Red List of Threatened Species due to population declines. It faces threats from deepwater fisheries, and there is a lack of species-specific management (Finucci et al., 2020).

Presence in the Guatemalan Caribbean Sea

Two immature female Bluntnose Sixgill Shark, measuring 300 and 310 cm TL, were caught and released off El Quetzalito, Guatemala, at depths of 430–465 m. These captures occurred during fishery-independent surveys using longlines conducted by the Blue World Foundation team and local fishers. The surveys aimed to characterize deepwater sharks, rays, and chimaeras in the fishing area (Sánchez-Jiménez et al. 2024), belonging to the Cayman Trench, which reaches up to 6,000 m deep in some regions.

The relatively high encounter rates of deepwater sharks, rays, and chimaeras with fisheries in the Caribbean highlight the need for periodic fishery-dependent and fishery-independent surveys to assess Bluntnose Sixgill Shark susceptibility to deepwater fishing pressures. These data are crucial for developing effective future regional management and conservation measures.

Region Update:
Central America
& the Caribbean

Bluntnose Sixgill Shark (*Hexanchus griseus*) caught for tagging and releasing in the Guatemalan Caribbean

Photo by Blue World Foundation (Fundación Mundo Azul)

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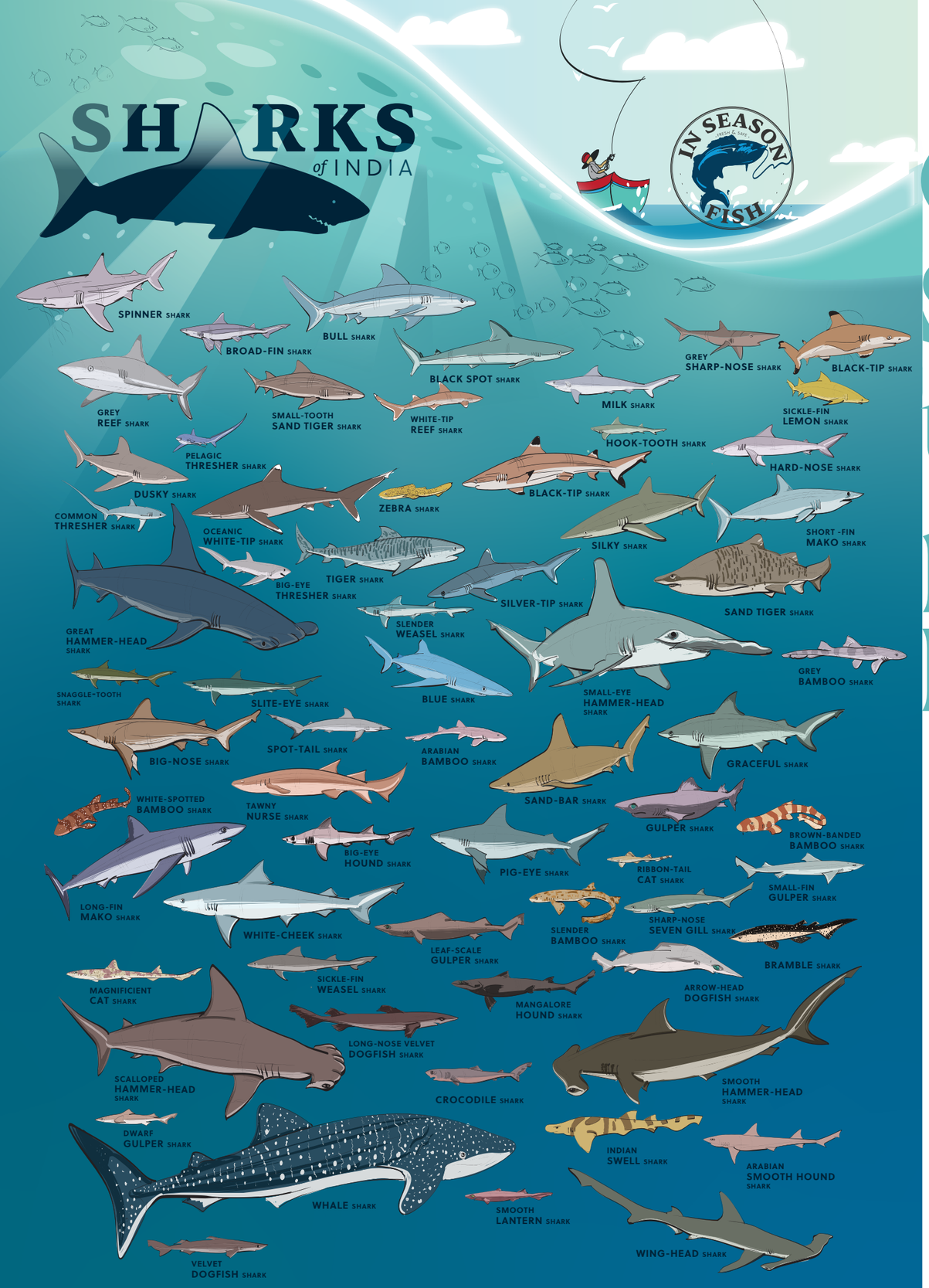

Getting curious: Shark conservation through education programmes with InSeason Fish

Region Update: Indian Ocean

Written by Sudha Kottillil

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Sharks of India, an interactive website developed by InSeason Fish.

Photo by Manini Bansa

An after-school learning centre session of the marine education program.

"I hardly go to the beach. So, I don't know what kind fish live in the sea here", said a six-year-old child, in the coastal city of Chennai, India. "We don't learn about marine animals in school", piped up another boy sitting nearby. "We only learn mathematics, languages, science etc." These were students of a government-run public primary school, whose parents were daily wage-workers. Some of these children's parents were fish sellers at the local fish market. Despite living a mere five kilometres away from the beach, these children's parents do not have the time or resources to take their kids to the beach. With no exposure or understanding of the ocean, these kids take their cues to form opinions about species, like sharks, from whatever they could find online in their local languages. For the most part, online sources do not mention marine species, and any reports on sharks were largely sensationalised as 'fearsome predators', with dramatic descriptions of shark bites. As the famous saying by Baba Dioum goes, "In the end we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught". How could these children love species like sharks without having learnt or seen some of these marine animals?

Public engagement is vital to shark conservation in India, since policy enforcement and compliance with regard to shark conservation policies are very low. Although the Indian Wildlife (Protection) Act was amended in 2022 to include a total of 22 species of sharks and rays to be protected by law, public awareness about which species are now protected is low, even among authorities. Only species that have been the subject of high-profile conservation campaigns, such as the Whale Shark (*Rhincodon typus*), are widely recognised as protected species. Given how urgently shark and ray conservation plans need to be implemented to stabilise their populations in Indian waters, the next generation of policy makers, enforcement authorities, and citizens should be more aware of these species' importance. Therefore, our team at InSeason Fish, a sustainable seafood initiative in India, with a soft corner for sharks, decided to step in and help build these connections between children and sharks.

Studies worldwide have documented the growing disconnect between children and nature. This loss of human-nature relationships not only affects species under threat, but also people. Early exposure to nature fosters environmental stewardship, creativity, and critical thinking, all of which are vital to developing well-adjusted and nature-conservation-oriented adults! Consequently, our team worked with teachers, after-school learning facilitators, and educational consultants to develop an ocean-themed shark conservation curriculum for 11–13-year-old school students. While we modelled the curriculum around shark biology and conservation, our collaborators from the education system helped us tie in the curriculum to existing topics within the student's science syllabi. What emerged was a six-week long curriculum, that we were able to share with 120 students from the Union Christian Matriculation Higher Secondary School (a school) and two after-school learning centres: Pudiyador and Yein Udaan with support from The Habitats Trust and Future for Nature Foundation[1]. The after-school centres prioritize nature-related education and were both immensely supportive and enthusiastic about hosting sessions focused on sharks and the ocean.

The development of this curriculum took four months. It included an extensive review of the current school syllabus (Grades 6–8) across three educational boards in India. Despite India's extensive coastline and reliance on the ocean for ecosystem services, trade, and fisheries (to name a few), none of the children of this age group were being exposed to any marine related topics, except a small part in physiology where marine adaptations and osmoregulation of fish were considered. To get children with no exposure to marine education to understand and love sharks, we had to start with the basics. Through games, interactive story-telling, and art workshops, we delved into topics such as, the water cycle, ocean currents, introduction to marine species, food webs, and more. This curriculum, and the assessment strategy that we devised to evaluate its effectiveness in improving students' knowledge and attitudes, were vetted by a certified psychologist.

Through our six-week long engagement at each school, we noticed the children gradually growing curious and confident enough to participate and ask questions. The shark module was the central component that sparked interest in the species found along the Chennai coast, their behaviour, habitat, and ecological importance. We developed an online tool, i.e. our website Sharks of India, to bring the ocean into classrooms. This allowed students to explore the various species and their unique adaptations at their own pace. We chose to deep-dive using key species such as Whale Shark, hammerheads (family Sphyrnidae), and so on, as gateways for discussions about diverse marine ecosystems, from coral reefs to the deep ocean, to mangroves. What was especially interesting was observing how children reacted to sharks once we debunked the myth that they are 'mindless predators that attack humans' (among many more questions, as the children wanted to confirm if the shark behaviors they had heard about in videos were true). After the class, one girl exclaimed with excitement, "I'm really interested in learning more about sharks!" Another girl added, "I'm going to tell my parents all about today's lesson and how sharks are so special," as we wrapped up the session. Coincidentally, a Tamil (local language) film was recently released, and it featured a *Megalodon*, called "Meg". Unsurprisingly, most children also had a lot of questions about megalodons. This underscored the importance of sharks being featured in mainstream cinema, videos, and writing, to spark curiosity.

Working with a mix of schools and learning centres gave us so much insight into how important basic education is to creating an informed and discerning citizenry. Students from diverse backgrounds, economic classes, and language of instruction reacted quite differently and seemed to engage with specific components from the curriculum, more than others in both the short and medium-term. While it has been a challenge to get semester-long or year-long commitments from school managements, non-governmental organisation-led after-school centers were more open to our programme, viewing it as a valuable addition to their work. We are currently evaluating our assessments and should have more specific and detailed analyses to help us adapt this education programme for future iterations at more schools.

[1] Union Christian Matriculation School is a private, registered and legally recognised school in Chetpet, Chennai, India. Pudiyador ("anew" in Tamil) is an education-driven child and family organization that caters to disadvantaged communities in Chennai, India. Yein Udaan is an NGO that caters to low income communities in Chennai through various programs.

Acknowledgements:

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Debunking myths associated with sharks through the program.

Hands-on-activities and students presenting on sharks: students during a school session

Photos by Manini Bansa

Photo by Sudha Kottillil

Hands-on-activities and students presenting on sharks: a presentation by a group of students from an after-school learning centre.

Discovery of the Eyebrow Wedgefish in Malaysia

Photo by Irsyad Pishal

Trawl fishing boats used in the capture of Eyebrow Wedgefish at a fisheries landing site in Peninsular Malaysia.

Written by

Region Update: Asia

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The Eyebrow Wedgefish (*Rhynchobatus palpebratus*) was first described 16 years ago from specimens primarily collected in northern Australia, and one individual from Thailand (Compagno & Last, 2008). The main populations are thought to be concentrated in Australia where populations of the Eyebrow Wedgefish are reportedly thriving compared to other wedgefish relatives (family Rhinidae). Given that Australia experiences significantly less fishing pressure than other countries within the Indo-Pacific region (Kyne & Rigby, 2019; Kyne et al., 2020), this reasoning led to the classification of Eyebrow Wedgefish as Near Threatened (NT) on the IUCN Red List of Threatened Species; the only wedgefish species not currently listed as Critically Endangered (CR).

As part of a larger ongoing study focused on documenting highly threatened rhino rays in Malaysia, fisheries landing sites and markets all over the country have been visited by our research team. In the field, we set out identifying what rhino rays we could, taking photos, recording basic measurements, and collecting tissue samples. Several distinct individuals from select sites on the western coast of Peninsular Malaysia and Sarawak immediately stood out - displaying patterns and morphological traits very much unlike the more common Bottlenose Wedgefish (*Rhynchobatus australiae*). We had originally thought that these specimens may be the Broadnose Wedgefish (*Rhynchobatus springeri*) which have been recorded in Malaysia.

Following extensive surveys across Malaysia, and subsequent molecular confirmation, we were pleasantly surprised when the identities of these distinctive individuals were matched to the Eyebrow Wedgefish, except for one individual which was indeed a Broadnose Wedgefish. Judging by their appearance, the Eyebrow Wedgefish and Broadnose Wedgefish greatly resemble each other, with very subtle differences in thorn prominence and patterning (Compagno & Last, 2010). This adds an additional rhino ray species to the current 12 species recorded in Malaysia (IUCN, 2024).

The presence of the Eyebrow Wedgefish in Malaysian waters potentially resolves a 'missing link' to its seemingly disjointed distribution between Australia and Thailand. Therefore, its actual distribution could encompass a larger portion of the waters between these two countries as was predicted in its current IUCN Red List assessment (Kyne & Rigby, 2019). The coastal waters of the Indo-west Pacific region, home to diverse rhino ray species (Pytka et al., 2024), are generally heavily fished (Dulvy et al., 2021). Our findings highlight an opportunity, and an urgency to revise the global IUCN Red List assessment of the Eyebrow Wedgefish. We found that a single landing site visit can record up to 11 individuals of varying sizes, including juveniles and adults, and there are signs of ongoing international trade based on an individual imported from Malaysia into Singapore despite being listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 2019 (D'Alberto et al., 2023).

The existence of an actively exploited Eyebrow Wedgefish population outside Australia is simultaneously a ray of hope yet also a cause for alarm, as predicted historical populations in Asia are believed to have been largely extirpated, including in Thailand, within the last few decades (Kyne & Rigby, 2019). In order to supply data for a reassessment, further studies are needed focusing on Eyebrow Wedgefish distribution, biology, and fishery threats - especially in Malaysia, Thailand, and also neighbouring countries where it likely occurs such as in Indonesia. Considering the recent declaration of ten Important Shark and Ray Areas (ISRAs) in Malaysia such as the West Tioman ISRA for the Bottlenose Wedgefish, further research aimed at distinguishing critical habitats of the Eyebrow Wedgefish will be a prime objective for species conservation and management. Moving forward, our team intends to tackle these objectives in Malaysia, whilst hoping to collaborate with teams in other countries.

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Amanda Leung

Bottlenose Wedgefish caught with trawl net and landed at a fishing port in Peninsular Malaysia.

Photo by Amanda Leung

Assoc. Prof. Dr. Amy Then and her research team observing an Eyebrow Wedgefish and recording data at a fish market

Assoc. Prof. Dr. Amy Then and her research team observing an Eyebrow Wedgefish and recording data at a fish market.

Broadnose (*Rhynchobatus springeri*) from markets in Peninsular Malaysia and Sarawak

Bottlenose Wedgefish caught with trawl net and landed at a fishing port in Peninsular Malaysia.

Photos by Amanda Leung

Members of the research team observing a wedgefish and recording data at a market.

Photo by Irsyad Pishal

Assess Working Group
IUCN Red List of Threatened Species Update

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The IUCN SSC Shark Specialist Group is considered the Red List Authority on the status of all species of sharks, rays, and chimaeras. The 2024 IUCN Red List of Threatened Species' latest update was published on October 28 and details of assessments can be found here: www.iucnredlist.org. Including the earlier 2024 Red List assessment update on 27 June 2024, an updated 86 (26 shark, 45 ray, and 15 chimaera) assessments were published in 2024. Table 1 provides an overview of the updated statuses for these species.

Generally, unless new information that might impact the status of a species is made available, each IUCN Red List assessment is valid for ten years. In 2025, 117 sharks, rays, and chimaeras are planned for re-assessment. A list of species for re-assessment is provided in Table 2.

We extend our sincere gratitude to IUCN SSC Shark Specialist Group members and non-members who have contributed to these assessments.

For any questions regarding these or upcoming assessments, please reach out to Cassandra Rigby and Brittany Finucci, Red List Authority Coordinators: redlist@iucn-ssg.org, crigby@westnet.com.au; brit.finucci@gmail.com

Table 1: Updated table of shark, ray, and chimaera IUCN Red List of Threatened Species assessments indicating the previous category species were assigned to and the new category as published in October 28. CR – Critically Endangered, EN – Endangered, VU – Vulnerable, NT – Near Threatened, LC – Least Concern, DD – Data Deficient, NE – Not Evaluated. | Source: IUCN Red List of Threatened Species 2024

Scientific name	Common Name	Previous Red List Category	New Red List Category
SHARK			
Carcharhiniformes			
CARCHARHINIDAE			
Carcharhinus albimarginatus	Silvertip Shark	VU	VU
DICHICHTHYIDAE			
Dichichthys satoi	Roughback Bristle Shark	NE	DD
HEMIGALEIDAE			
Hemipristis elongata	Snaggletooth Shark	VU	EN
PENTANCHIDAE			
Apristurus ampliceps	Roughskin Catshark	LC	LC
Apristurus aphyodes	White Ghost Catshark	LC	LC
Apristurus longicephalus	Longhead Catshark	LC	LC
Apristurus melanoasper	Fleshynose Catshark	LC	LC
Apristurus ovicorrugatus	Ridged-egg Catshark	NE	LC
Galeus murinus	Mouse Catshark	LC	LC
PSEUDOTRIAKIDAE			
Pseudotriakis microdon	False Catshark	LC	LC
TRIAKIDAE			
Hypogaleus hyugaensis	Pencil Shark	LC	DD
Heterodontiformes			
HETERODONTIDAE			
Heterodontus marshallae	Painted Hornshark	NE	LC
Heterodontus zebra	Barred Bullhead Shark	LC	LC
Hexanchiformes			
CHLAMYDOSELACHIDAE			
Chlamydoselachus anguineus	Frilled Shark	LC	LC
HEXANCHIDAE			
Hexanchus vitulus	Atlantic Bigeye Sixgill Shark	LC	LC
Lamniformes			
ODONTASPIDIDAE			
Odontaspis ferox	Smalltooth Sand Tiger	VU	EN
Orectolobiformes			
HEMISCYLLIIDAE			
Chiloscyllium punctatum	Grey Carpetshark	NT	NT
ORECTOLOBIDAE			
Eucrossorhinus dasypogon	Tasselled Wobbegong	LC	LC
STEGOSTOMIDAE			
Stegostoma tigrinum	Indo-Pacific Leopard Shark	EN	EN
Squaliformes			
CENTROPHORIDAE			
Centrophorus granulosus	Gulper Shark	EN	EN
Centrophorus lesliei	African Gulper Shark	EN	EN
Centrophorus squamosus	Leafscale Gulper Shark	EN	EN
Centrophorus uyato	Little Gulper Shark	EN	EN
Centrophorus westraliensis	Western Gulper Shark	DD	DD
Deania profundorum	Arrowhead Dogfish	NT	NT
DALATIIDAE			
Euprotomicrus bispinatus	Pygmy Shark	LC	LC

Scientific name	Common Name	Previous Red List Category	New Red List Category
RAY			
Myliobatiformes			
AETOBATIDAE			
Aetobatus ocellatus	Spotted Eagle Ray	VU	EN
DASYATIDAE			
Brevitrygon manjajiae	Sandwich-tail Whipray	NE	NT
Himantura leoparda	Leopard Whipray	VU	EN
Maculabatis astra	Blackspotted Whipray	LC	NT
Megatrygon microps	Smalleye Stingray	DD	DD
Pateobatis fai	Pink Whipray	VU	VU
Pateobatis jenkinsii	Jenkins' Whipray	VU	EN
Taeniurops meyeni	Blotched Fantail Ray	VU	VU
Urogymnus asperrimus	Porcupine Ray	VU	EN
Urogymnus granulatus	Mangrove Whipray	VU	EN
HEXATRYGONIDAE			
Hexatrygon bickelli	Sixgill Stingray	LC	LC
MYLIOBATIDAE			
Aetomylaeus vespertilio	Ornate Eagle Ray	EN	CR
PLESIOBATIDAE			
Plesiobatis daviesi	Giant Stingaree	LC	LC
POTAMOTRYGONIDAE			
Heliotrygon rosai	Rosa's Round Ray	NE	VU
Plesiotrygon nana	Dwarf Antenna Ray	NE	NT
Potamotrygon boesemani	Suriname Freshwater Stingray	NE	NT
Potamotrygon magdalenae	Magdalena Freshwater Stingray	LC	NT
Potamotrygon schuemacheri	Rosette Freshwater Stingray	DD	DD
Rajiformes			
ARHYNCHOBATIDAE			
Bathyraja abyssicola	Deepsea Skate	DD	LC
Bathyraja aleutica	Aleutian Skate	LC	LC
Bathyraja interrupta	Bering Skate	LC	LC
Bathyraja lindbergi	Commander Skate	LC	LC
Bathyraja maculata	Whiteblotched Skate	LC	LC
Bathyraja minispinosa	Whitebrow Skate	LC	LC
Bathyraja parmifera	Alaska Skate	LC	LC
Bathyraja taranetzi	Mud Skate	LC	LC
Bathyraja trachura	Roughtail Skate	LC	LC
Notoraja azurea	Blue Skate	LC	LC
Notoraja sticta	Blotched Skate	LC	LC
RAJIDAE			
Dipturus nidarosiensis	Norwegian Skate	NT	EN
Dipturus oxyrinchus	Longnosed Skate	NT	VU
Malacoraja kreffti	Krefft's Skate	LC	LC
Okamejei picta	Fine-spotted Skate	NE	DD
Raja asterias	Starry Skate	NT	LC
Raja brachyura	Blonde Skate	NT	NT
Raja clavata	Thornback Skate	NT	NT
Raja montagui	Spotted Skate	LC	LC
Raja polystigma	Speckled Skate	LC	LC
Raja undulata	Undulate Skate	EN	NT
Rajella kukujevi	Mid-Atlantic Skate	LC	LC
Rostroraja alba	White Skate	EN	EN
Rhinopristiformes			
RHINIDAE			
Rhynchobatus laevis	Smoothnose Wedgefish	CR	CR
Rhynchobatus mononoke	Japanese Wedgefish	NE	CR
RHINOBATIDAE			
Rhinobatos lionotus	Smoothback Guitarfish	CR	CR

Scientific name	Common Name	Previous Red List Category	New Red List Category
Torpediniformes			
TORPEDINIDAE			
Torpedo suessi	Red Sea Torpedo	CR	CR
CHIMAERA			
Chimaeriformes			
CALLORHINCHIDAE			
Callorhinchus milii	Elephantfish	LC	LC
CHIMAERIDAE			
Chimaera argiloba	Whitefin Chimaera	LC	LC
Chimaera fulva	Southern Chimaera	LC	LC
Chimaera lignaria	Giant Chimaera	LC	LC
Chimaera macrospina	Longspine Chimaera	LC	LC
Chimaera stellata	Stellated Chimaera	NE	DD
Chimaera supapae	Andaman Shortnose Chimaera	NE	LC
Hydrolagus colliei	White-spotted Ratfish	LC	LC
Hydrolagus homonycteris	Black Ghostshark	LC	LC
Hydrolagus lusitanicus	Portuguese Chimaera	LC	LC
Hydrolagus marmoratus	Marbled Ghostshark	LC	LC
Hydrolagus trolli	Pointy-nose Blue Chimaera	LC	LC
RHINOCHIMAERIDAE			
Harriotta haeckeli	Small-spined Chimaera	LC	LC
Rhinochimaera africana	Paddlenose Spookfish	DD	LC
Rhinochimaera pacifica	Pacific Spookfish	LC	LC

The IUCN Red List status of Sharks, Rays and Chimaeras

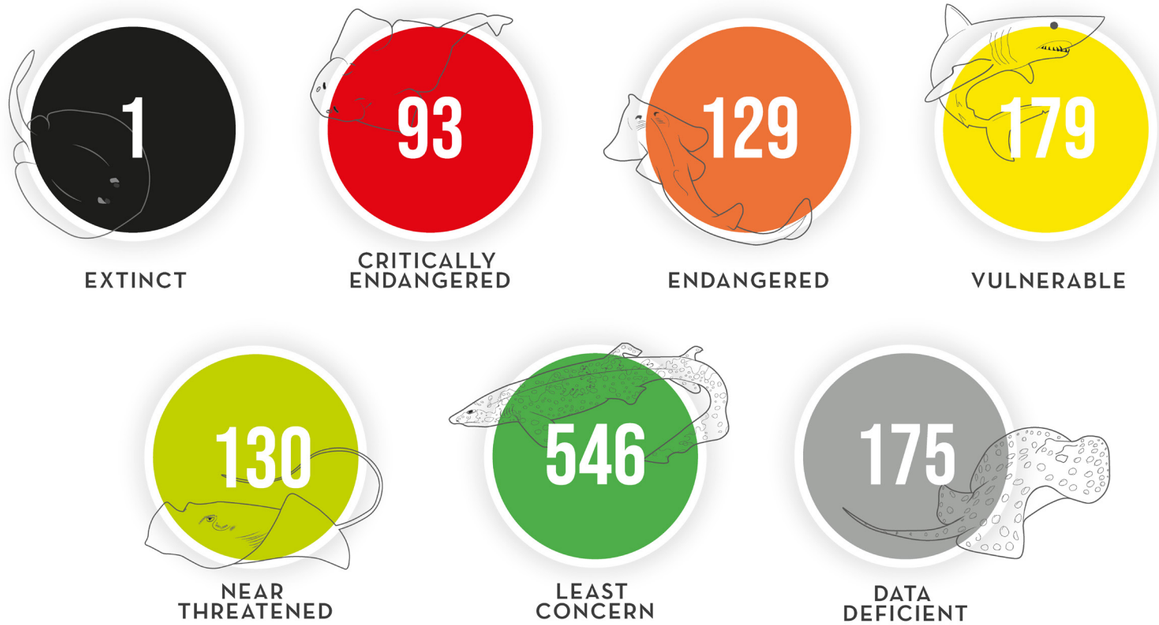

Table 2: Table of **upcoming** shark, ray, and chimaera IUCN Red List of Threatened Species assessments for 2025. CR – Critically Endangered, EN – Endangered, VU – Vulnerable, NT – Near Threatened, LC – Least Concern, DD – Data Deficient, NE – Not Evaluated.

Scientific name	Common name	Current IUCN Red List Category
SHARK		
Carcharhiniformes		
HEMIGALEIDAE		
Hemigaleus australiensis	Australian Weasel Shark	LC
PENTANCHIDAE		
Apristurus albisoma	White-bodied Catshark	LC
Apristurus australis	Pinocchio Catshark	LC
Apristurus bucephalus	Bighead Catshark	DD
Asymbolus analis	Grey Spotted Catshark	LC
Asymbolus funebris	Blotched Catshark	DD
Asymbolus occiduus	Western Spotted Catshark	LC
Asymbolus pallidus	Pale Spotted Catshark	LC
Asymbolus parvus	Dwarf Catshark	LC
Asymbolus rubiginosus	Orange Spotted Catshark	LC
Asymbolus submaculatus	Variegated Catshark	LC
Asymbolus vincenti	Gulf Catshark	LC
Bythaelurus incanus	Dusky Catshark	DD
Dichichthys bigus	Short-tail Catshark	DD
Figaro boardmani	Australian Sawtail Shark	LC
Figaro striatus	Northern Sawtail Shark	DD
Galeus gracilis	Slender Sawtail Shark	DD
Halaelurus sellus	Speckled Catshark	LC
SCYLIORHINIDAE		
Atelomycterus fasciatus	Banded Catshark	LC
Atelomycterus macleayi	Marbled Catshark	LC
Atelomycterus marnkalha	Eastern Banded Catshark	DD
Aulohalaelurus labiosus	Blackspotted Catshark	LC
Cephaloscyllium cooki	Cook's Swellshark	DD
Cephaloscyllium hiscosellum	Reticulate Swellshark	LC
Cephaloscyllium laticeps	Draughtboard Shark	LC
Cephaloscyllium signourum	Flagtail Swellshark	DD
Cephaloscyllium speccum	Speckled Swellshark	DD
Cephaloscyllium ventriosum	Swell Shark	LC
Cephaloscyllium zebrum	Narrowbar Swellshark	DD
TRIAKIDAE		
Furgaleus macki	Whiskery Shark	LC
Hemitriakis abdita	Darksnout Houndshark	DD
Hemitriakis falcata	Sicklefin Houndshark	LC
Mustelus antarcticus	Gummy Shark	LC
Mustelus lunulatus	Sicklefin Smoothhound	LC
Heterodontiformes		
HETERODONTIDAE		
Heterodontus galeatus	Crested Hornshark	LC
Heterodontus portusjacksoni	Port Jackson Shark	LC
Orectolobiformes		
BRACHAELURIDAE		
Brachaelurus colcloughi	Colclough's Shark	VU
Brachaelurus waddi	Blind Shark	LC
HEMISCYLLIIDAE		
Hemiscyllium hallstromi	Papuan Epaulette Shark	VU
Hemiscyllium ocellatum	Epaulette Shark	LC
ORECTOLOBIDAE		
Orectolobus floridus	Floral Banded Wobbegong	LC
Orectolobus halei	Gulf Wobbegong	LC
Orectolobus hutchinsi	Western Wobbegong	LC
Orectolobus maculatus	Spotted Wobbegong	LC
Orectolobus ornatus	Ornate Wobbegong	LC
Orectolobus parvimaculatus	Dwarf Spotted Wobbegong	LC
Orectolobus reticulatus	Network Wobbegong	DD
Sutorectus tentaculatus	Cobbler Wobbegong	LC
PARASCYLLIIDAE		
Parascyllium collare	Collared Carpetshark	LC
Parascyllium elongatum	Elongate Carpetshark	DD
Parascyllium ferrugineum	Rusty Carpet Shark	LC
Parascyllium sparsimaculatum	Ginger Carpetshark	DD
Parascyllium variolatum	Varied Carpetshark	LC
RHINCODONTIDAE		
Rhincodon typus	Whale Shark	EN
Pristiophoriformes		
PRISTIOPHORIDAE		
Pristiophorus cirratus	Common Sawshark	LC
Pristiophorus delicatus	Tropical Sawshark	LC
Pristiophorus nudipinnis	Southern Sawshark	LC
Squaliformes		
ETMOPTERIDAE		
Etmopterus dianthus	Pink Lanternshark	LC
Etmopterus dislineatus	Lined Lanternshark	LC
Etmopterus evansi	Blackmouth Lanternshark	LC
Etmopterus fusus	Pygmy Lanternshark	LC
Etmopterus molleri	Moller's Lanternshark	DD
Squatiniformes		
SQUATINIDAE		
Squatina albipunctata	Eastern Angelshark	VU
Squatina australis	Australian Angel Shark	LC
Squatina pseudocellata	Western Angel Shark	LC
Squatina tergocellata	Ornate Angelshark	LC
RAY		
Myliobatiformes		
DASYATIDAE		
Maculabatis toshi	Brown Whipray	LC
Neotrygon leylandi	Painted Maskray	LC
Neotrygon ningalooensis	Ningaloo Maskray	DD
Neotrygon picta	Speckled Maskray	LC
Urogymnus dalyensis	Freshwater Whipray	LC
MOBULIDAE		
Mobula birostris	Oceanic Manta Ray	EN
Mobula mobular	Spinetail Devil Ray	EN
Mobula tarapacana	Sicklefin Devil Ray	EN
Mobula thurstoni	Bentfin Devil Ray	EN
MYLIOBATIDAE		
Myliobatis tenuicaudatus	Southern Eagle Ray	LC
RHINOPTERIDAE		
Rhinoptera neglecta	*Australian Cownose Ray*	DD
Rajiformes		
ANACANTHOBATIDAE		
Sinobatis caerulea	Indigo Legskate	DD
Sinobatis filicauda	East Australian Legskate	DD
ARHYNCHOBATIDAE		
Bathyraja microtrachys	Fine-spined Skate	LC
Bathyraja richardsoni	Richardson's Skate	LC
Insentiraja laxipella	Eastern Looseskin Legskate	DD
Irolita waitii	Southern Round Skate	LC
Irolita westraliensis	Western Round Skate	DD
Pavoraja alleni	Allen's Skate	LC

Scientific name	Common name	Current IUCN Red List Category
ARHYNCHOBATIDAE		
Pavoraja arenaria	Sandy Skate	DD
Pavoraja mosaica	Mosaic Skate	LC
Pavoraja nitida	Peacock Skate	LC
Pavoraja pseudonitida	False Peacock Skate	LC
Pavoraja umbrosa	Dusky Skate	LC
Bathyraja ishiharai	Abyssal Skate	DD
RAJIDAE		
Dentiraja confusa	Australian Longnose Skate	CR
Dentiraja flindersi	Pygmy Thornback Skate	DD
Dentiraja lemprieri	Australian Thornback Skate	LC
Dentiraja oculus / oculata	Australian Ocellate Skate	LC
Dentiraja polyommata	Argus Skate	LC
Dipturus acrobelus	Australian Deepwater Skate	LC
Dipturus apricus	Pale Tropical Skate	LC
Dipturus canutus	Grey Skate	EN
Dipturus grahami	Graham's Skat	LC
Dipturus gudgeri	Bight Skate	NT
Dipturus melanospilus	Blacktip Skate	DD
Dipturus queenslandicus	Queensland Deepwater Skate	DD
Dipturus wengi	Weng's Skate	LC
Leucoraja pristispina	Sawback Skate	LC
Okamejei leptoura	Australian Thintail Skate	LC
Rajella challengeri	Challenger Skate	LC
Zearaja maugeana	Maugean Skate	EN
Rhinopristiformes		
TRYGONORRHINIDAE		
Aptychotrema rostrata	Eastern Shovelnose Ray	LC
Aptychotrema timorensis	Spotted Shovelnose Ray	VU
Aptychotrema vincentiana	Western Shovelnose Ray	LC
Trygonorrhina dumerilii	Southern Fiddler Ray	LC
Trygonorrhina fasciata	Eastern Fiddler Ray	LC
Zapteryx exasperata	Banded Guitarfish	DD
Torpediniformes		
HYPNIDAE		
Hypnos monopterygius	Coffin Ray	LC
PLATYRHINIDAE		
Platyrhinoidis triseriata	Thornback Ray	LC
CHIMAERA		
Chimaeriformes		
RHINOCHIMAERIDAE		
Harriotta raleighana	Bigspine Spookfish	LC

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Photo by Andy March | sharksandrays.com

Puffader Shyshark
Haploblepharus edwardsii

Photo © Rob Stewart

Opinion piece

Sharkwater Extinction
Advocacy, Policy Making, and Implementation

Rob Stewart free dives with a massive Great Hammerhead shark in *Sharkwater: Extinction*

Written by Michael Turtz

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Rob Stewart was a conservationist, filmmaker, and photographer who passed away soon after the film, Sharkwater Extinction (2018), was released. Sharkwater Extinction (2018) is the sequel to his first film Sharkwater (2006) which was released in 2006. His documentary focused on legislative and community advocacy. Sharkwater (2006) pioneered advocacy for shark finning not only in the United States (U.S.) but also in 90 countries that banned shark finning or the trade of shark products (Rob Stewart, 2018). Rob Stewart also helped start hundreds of conservation groups.

Shark finning is a serious threat to shark populations. Sharks have been around for over 400 million years and are crucial in the maintenance of a healthy ocean. Without sharks which are often apex predators, the ocean becomes unpredictable, and their ecosystem, which includes coral reefs and seagrass beds, is at risk of degrading (Oceana, 2020). Sharks die in cruel ways such as suffocation or eaten alive due to the loss of movement. Shark fins are primarily sold to be used for shark fin soup. Sharks are then discarded into the ocean to either bleed to death, drown, or be eaten by other fish (Oceana, 2020). According to the Federal Register, a "fin means any of the fins of a shark (including the tail) or a portion thereof" (Federal Register, 2010).

The film created a domino effect in which Hawaii was the first Pacific State to enact a shark protection law (Environment News Service, 2010). Then, in 2010, 10 states also enacted a shark protection law including territories. Rob Stewart traveled to Guam to testify in front of their legislators where he presented clips from the Sharkwater (2006) film (Shark Defenders, 2011). This finally led to the Shark Conservation Act of 2010 which specifically "prohibit[s] any person from removing any of the fins of a shark at sea" (Federal Register, 2013, p.25685). The Act also avoided any legal loopholes that were presented in The Shark Finning Prohibition Act of 2000.

Originally, the Shark Finning Prohibition Act of 2000 was intended to limit the decline of the shark population by "prohibit(ing) any person under U.S. jurisdiction from engaging in shark finning, possessing shark fins harvested on board a U.S. fishing vessel without corresponding shark carcasses, or landing shark fins harvested without corresponding carcasses" (Federal Register, 2002). Essentially, any fishing vessel in the U.S. could not possess a shark fin without its corresponding body. Legal issues immediately occurred after the Shark Finning Prohibition Act of 2000 was implemented.

In 2002, not even three months after the act was implemented, King Diamond 2, a U.S. flagged, Hong Kong-based vessel off Guatemala was searched by the Coast Guard. They found 32.2 tons of shark fins without their carcasses. The National Oceanic and Atmospheric Administration (NOAA) Fisheries Office for Law Enforcement fined King Diamond 2, $600,000, the largest amount ever to date. In 2005, the local court agreed with NOAA's ruling. However, in 2008, the Ninth Circuit Court upheld the decision in the case of the U.S. v. Approximately 64,695 lbs of Shark Fins. According to the Judge, "The court looked at two specific provisions within the regulation: the possession prohibition and the landing prohibition" (University of Mississippi Law School, 2008). From that moment on, citizens, nonprofits, and businesses were outraged and demanded stricter laws against shark finning (Bordallo.House.Gov, 2008).

A few years later, with support from nonprofits such as Shark Allies on the state level and Oceana on the international level, the bill passed both chambers of Congress and President Obama signed the Shark Conservation Act of 2010 to avoid loopholes in the future. The Shark Conservation Act of 2010 specifically "prohibit(s) any person from removing any of the fins of a shark at sea" (Federal Register, 2013, p. 25685).

Twelve years later, sharks were still facing global extinction at a faster rate since the shark fin trade grew exponentially. This led to Stewart's next film: Sharkwater Extinction (2018) which revealed illegal overfishing in six countries around the world. He worked on exposing the industry that has now exceeded several billion dollars. The film begins in Costa Rica in 2012 where President Chinchilla signed a law that made shark finning illegal. Rob attended the press conference and asked the President of Costa Rica "Is shark finning happening in Costa Rica?" (Sharkwater Extinction 2018). He responded stating shark finning still occurs without the support of their government. He also stated that authorities are taking the necessary steps to stop shark finning. Rob re-visited the Port of Puntarenas in Costa Rica, one of the largest shark finning ports in the world. The loophole is that the shark fins come to the port on the weekend when the fisheries department only works during the week. Essentially, there is no official body watching.

Back in 2006, Rob visited the port and his vessel came across the Taiwanese government which was involved in illegal shark finning. This time, he took a drone over warehouses in Puntarenas and found an absurd number of fins hanging illegally. In this film, he also visits Panama, where his crew filmed a fisher bringing onshore 800 lbs of baby hammerhead shark fins worth $300,000 which he states is just the tip of the iceberg in Panama. Eventually, they visit the U.S. where they tested samples of fish and different products found at local grocery stores and try to trace shark fin DNA in those products. They found that 33% of pet food products tested positive for shark fin DNA and found traces in raw salmon, fertilizer, and beauty care products. We are not just killing sharks for shark fin soup but also for everyday products here in the US. This issue is now a consumer awareness issue.

At the end of Rob's film, he used legislative advocacy by hosting marches around Capitol Hill and state legislatures. His footage directly led to the California Legislature successfully banning drift nets. Essentially, after watching the documentary, Rob thought it was necessary that his footage needed to be included in the legislative process. I also agree and additionally "the truth is that non-profit leaders of all stripes need to be involved in the legislative process because otherwise the debate happens without them" (Libby, 2011, p.8). He also used community advocacy, by changing the ideas and attitudes of U.S. citizens on not only the shark fin trade but also presenting a case that shark fin DNA is found in pet food, raw salmon, fertilizer, and beauty care products. This would be the main premise of the Shark Sales Elimination Act in 2019.

His non-profit, The Rob Stewart Sharkwater Foundation is involved in grassroots lobbying. They were directly involved in the general public signing petitions for the House of Representatives to pass The Shark Fin Sales Elimination Act last year. Essentially, "Only when an organization is trying to reach beyond its members to get action from the general public does grassroots lobbying occur" (Smucker, 1999, p.52). The nonprofit's grassroots lobbying outreach extended not only to the federal level but also state level. The last sentence of the film was "While you were watching this movie over 25,000 sharks were killed" (Sharkwater Extinction, 2018). Essentially, by writing this message, Rob "thought strategically about (his) audience and the best ways to reach them" (Fenton, 2009, p.6).

Sharkwater Extinction (2018) presented numerous advocacy efforts including "1) influencing public opinion, 2) public education, 3) research for interpreting problems and suggesting preferred solutions, 4) agenda setting and policy design, 5) constituent action and public mobilizations, and 6) lobbying" (Gerston, 2010, p.3). Overall, his film presented a case that the U.S. is still a participant in the shark fin trade around the world, even indirectly as we found out with consumer awareness issues. The main premise of the current Shark Fin Sales Elimination Act that recently passed the House of Representatives on November 20, 2019, was for the U.S. to remove itself as a participant in the shark fin trade around the world, even indirectly (Oceana.org, 2020). On July 25, 2020, Representatives Kilili Camacho Sablan (D-MP) and Michael McCaul (R-TX) invited congressmen and staffers to a briefing titled "Sharkwater Extinction and the Shark Fin Trade" where they showed Sharkwater Extinction (2018) in its entirety to receive more votes on the Shark Fin Sales Elimination Act which at that moment in time had 220 cosponsors (Hill Happenings, 2019). The bill would pass the House of Representatives a few months later (Congress.Gov, 2020).

Overall, Rob Stewart's Sharkwater Extinction was one of the highest-rated documentaries of all time. The film presented to the audience that there was a loophole in the previous federal shark bill that was passed in 2010 (Shark Conservation Act of 2010). This is due to him identifying shark fin DNA in pet food, raw salmon, fertilizer, and beauty care products. This would eventually be the main premise of the Shark Sales Elimination Act in 2019 that the U.S. was still a participant in the shark fin trade, even if indirect. Rob' film would later be shown in a briefing before the House of Representatives passed the bill trying to acquire more votes. This, in addition to what advocacy groups have done to lobby immediately afterward including the California Legislature successfully banning drift nets (Sharkwater Extinction, 2018).

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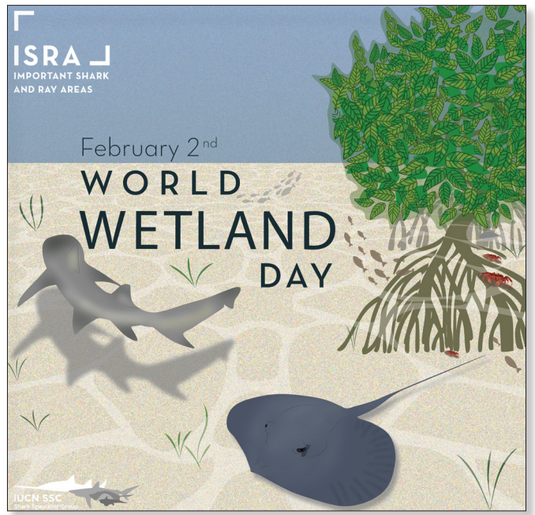
Photo by ead72 from stock.adobe.com

Finned (fins removed and carcass disposed of) shark left to decompose underwater

Wildlife and Ocean Fest:
Dive into Conservation Celebrations!
Did you Celebrate?

Throughout the year, various important days and celebrations related to wildlife and marine conservation are observed. These celebrations serve as opportunities to educate and engage the public in conservation efforts and highlight the critical role of marine life in maintaining the health of our planet.

Illustrations by Eloisa Pinheiro

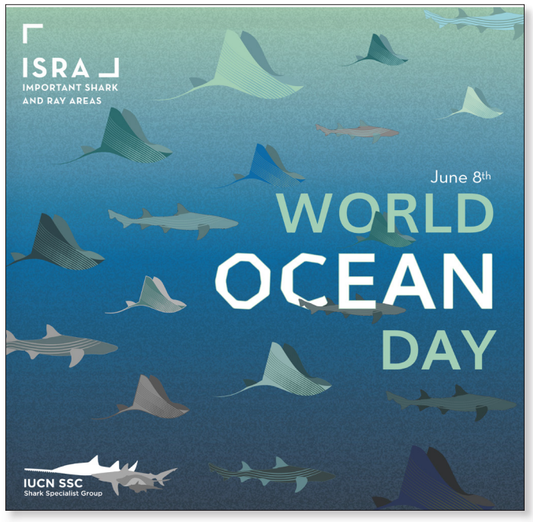


World Wetland Day (February 2rd): A day celebrating the Ramsar Convention and to raise awareness of the importance of wetlands.

World Wildlife Day (March 3rd): A day dedicated to raising awareness about the importance of wildlife and its conservation as well as partnerships for wildlife conservation.

International Day for Biological Diversity (May 22nd): This day highlights the significance of biodiversity in sustaining life on Earth.

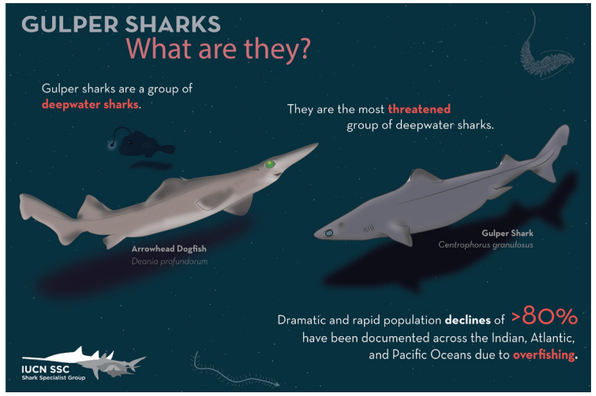
World Seagrass Day (March 1st): A day to highlight the ecological role of seagrass meadows in marine ecosystems. These meadows are vital feeding and breeding areas for many species of sharks and rays, supporting their life cycles and biodiversity.

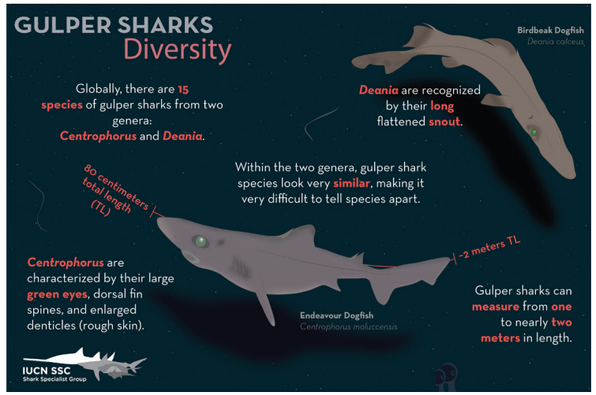


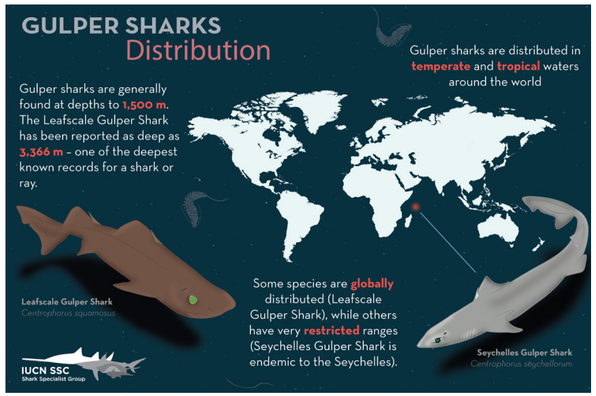
World Ocean Day (June 8th): A day to promote global efforts to protect oceans and sustain marine biodiversity. Healthy oceans ensure balanced ecosystems, crucial for sustaining populations of sharks, rays, and chimaeras.

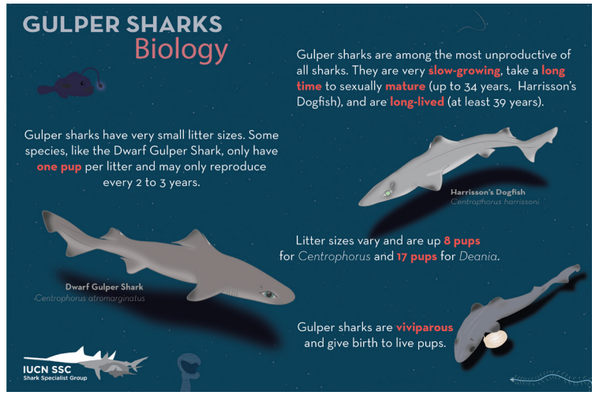
Angel Shark Day (June 26th): A day focused on raising awareness about angel sharks (*Squatina* spp.).

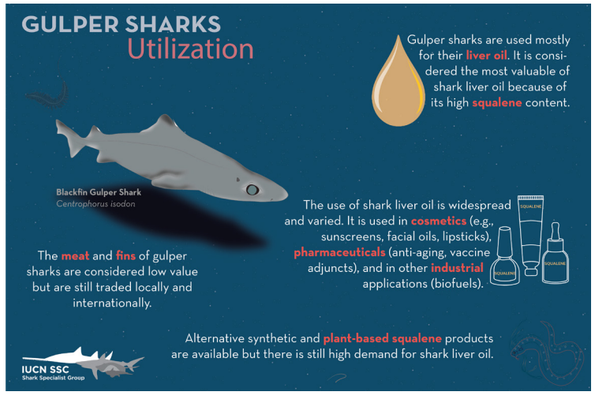
Shark Awareness Day (July 14th): An occasion to educate people about the vital role of sharks in marine ecosystems. This year we decided to bring awareness to the gulper sharks (Centrophoridae), a group of often overlooked but highly threatened deepwater species.

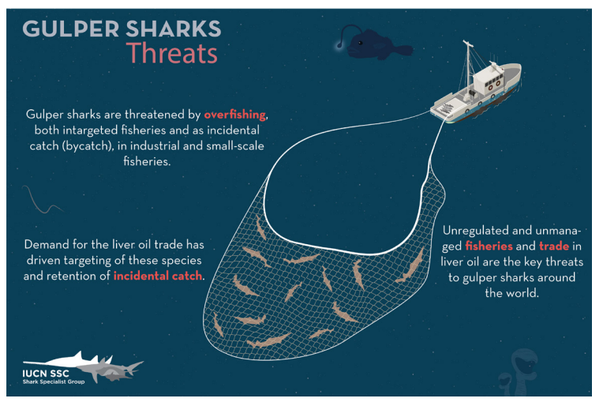


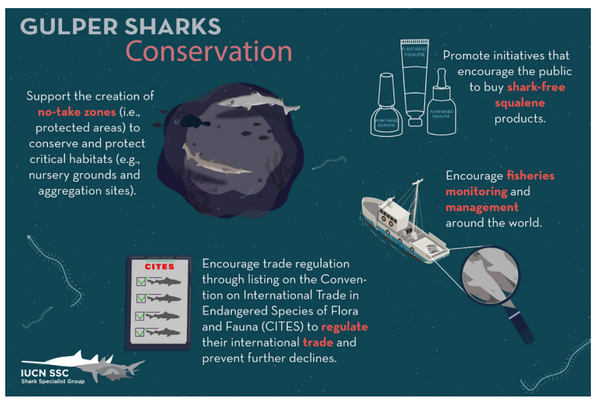




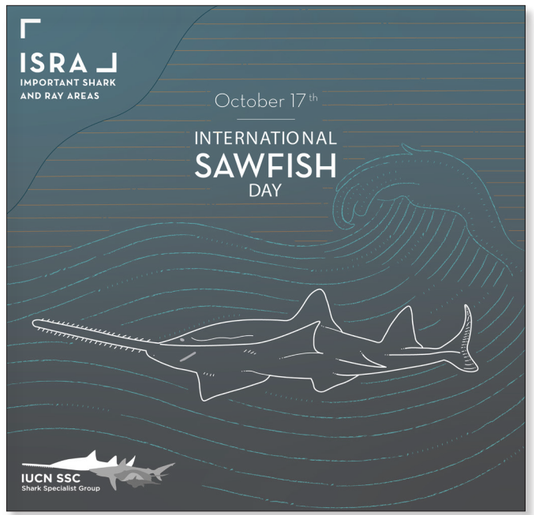








International Whale Shark Day (August 30th): Celebrates the largest fish species, the Whale Shark, and promotes efforts to protect them from threats like overfishing and habitat destruction. Whale Sharks are important for the health of marine ecosystems as they help regulate plankton populations and support marine tourism economies.



International Sawfish Day (October 17th): A day to highlight the plight of sawfish, a unique and threatened species group. Critically Endangered due to overfishing and habitat loss. Sawfish are important for healthy coastal ecosystems, as their presence helps maintain biodiversity and contributes to the balance of prey species in estuarine areas.

World Manta Day (September 17th): A day dedicated to manta rays (Mobulidae) and the need to conserve them in the face of overfishing and habitat degradation.

International Ghost Shark Day (October 30th): A day to recognize the often-overlooked ghost sharks (chimaeras) and promote their conservation. Ghost sharks help sustain marine food webs, as they are scavengers that help regulate the populations of smaller fish and invertebrates in the deep ocean.

World Fisheries Day (November 21st): A day to focus on the importance of sustainable fishing practices for livelihoods and ocean health. Sustainable fisheries help mitigate bycatch and overfishing, which are significant threats to sharks, rays, and chimaeras worldwide.

Exciting News – it's Official! Sharks International 2026 will take place from May 4–8 2026, in Colombo, Sri Lanka

Written by Daniel Fernando
Blue Resources Trust
IUCN SSC Shark Specialist Group | Indian Ocean | Regional Vice Chair

This will be the fifth edition of the world's largest conference on sharks, rays, and chimaeras, held every four years. Even more exciting, it will be the first time the event is hosted in Asia, opening up new and unique opportunities for participants from across the continent and beyond! Whether you are presenting new research, learning from experts in the field, or networking with like-minded individuals, Sharks International 2026 will be a space to share ideas, spark new collaborations, and build lasting partnerships and friendships.

We* believe that by uniting researchers and practitioners from around the world, we can drive meaningful progress toward the conservation of these vital aquatic species. This conference will also offer various exciting opportunities for networking and professional development. Attendees can look forward to a range of workshops, plenary sessions, and panel discussions featuring renowned experts in shark, ray, and chimaera research, conservation, and policy. With a particular emphasis on inclusivity, equity, and diversity, we are dedicated to ensuring that voices from across the globe - especially those from the Global South - are heard and represented.

Sri Lanka provides an ideal location, offering easy accessibility for our international attendees via an online visa portal (with subsidised rates for our south Asian neighbours) and excellent connectivity through multiple international airlines serving our airport, which is a short drive from the capital, where the conference venue is situated. The city of Colombo offers a range of accommodations, from budget-friendly to more luxurious stays; ensuring that everyone can find a comfortable place to stay. There are several forms of local transportation (including our famous tuk-tuks) to get you effectively from your accommodation to the conference venue. In between all of this, you will have the opportunity to enjoy some of our incredible food. In case this is not enough to entice you, we are going to be offering heavily subsidized registration fees and grant opportunities for our attendees!

We also encourage you to extend your stay after the conference to explore the natural beauty of Sri Lanka. Whether you want to explore ancient temples or palaces, hike our mountains or jungles, take a safari through one of our many national parks, visit fish markets, or relax on the island's idyllic beaches, Sri Lanka has something for everyone.

The conference is accepting proposals for conference sessions, plenary speakers, and workshops. If you are interested in sharing your expertise, research, or a new conservation initiative, we encourage you to submit a proposal! Further details are available on our website (www.si2026.org) and social media channels.
The call for abstracts (including talks and posters) will open later this year, alongside registration, so be sure to stay connected and be part of this exciting event.
Stay updated on all conference news by following our social media accounts on Instagram (@sharks.international) and Facebook (@Sharks.International).

We cannot wait to welcome you to Colombo in May 2026!

*The host, Blue Resources Trust, in partnership with our primary funders for this conference - Save Our Seas Foundation (SOSF), Shark Conservation Fund (SCF), and the Marine Conservation Action Fund (MCAF) of the New England Aquarium - are committed to creating a dynamic, inclusive, and impactful event. Our goal is to shape the future of shark, ray, and chimaera conservation through the sharing of knowledge, the expansion of international collaborations, and the development of strategic partnerships that will lead to long-term, sustainable outcomes.

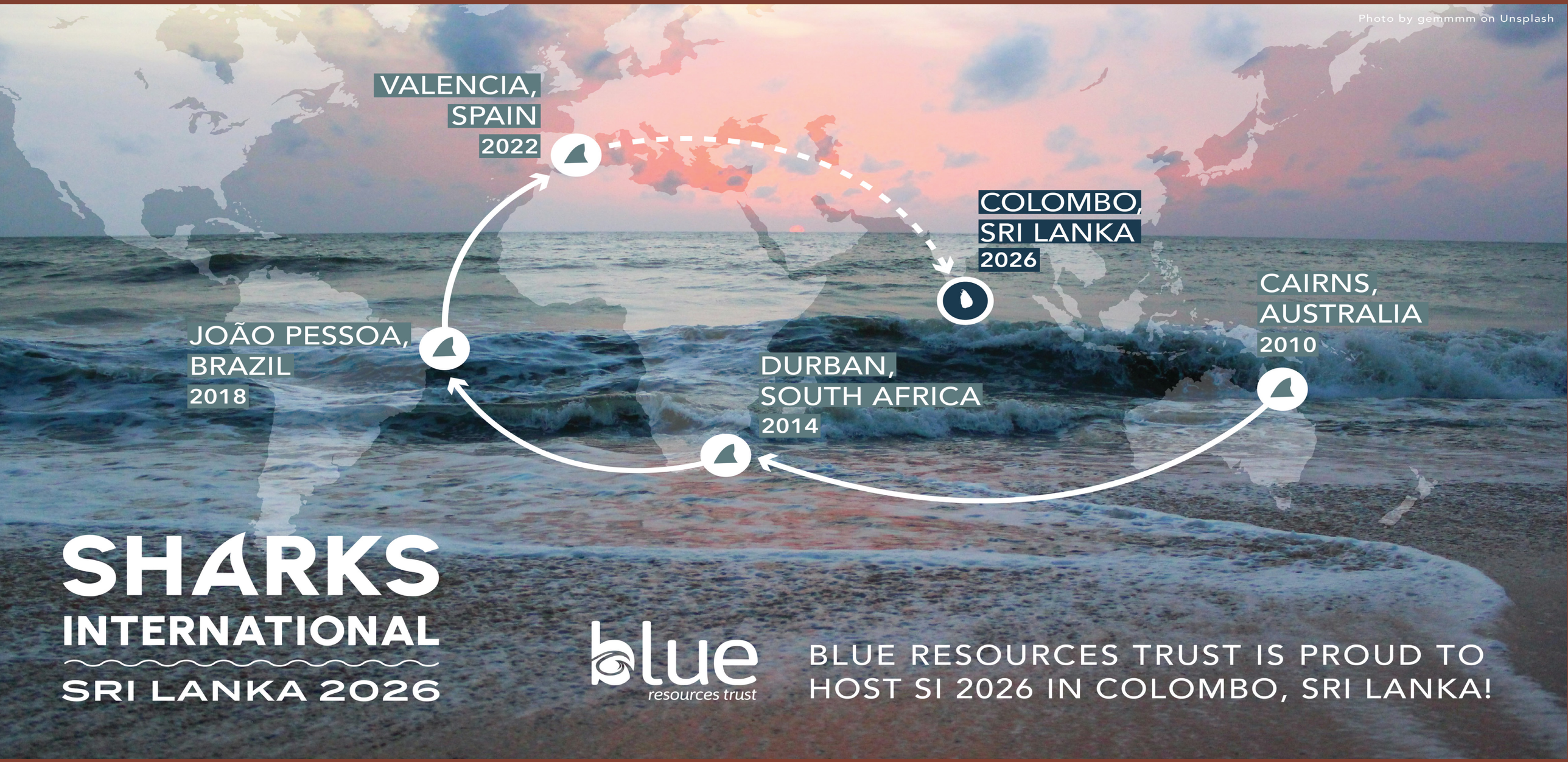


Photo by gemmmm on Unsplash
VALENCIA,
SPAIN
2022
COLOMBO,
SRI LANKA
2026
CAIRNS,
AUSTRALIA
2010
JOÃO PESSOA,
BRAZIL
2018
DURBAN,
SOUTH AFRICA
2014
SHARKS
INTERNATIONAL
SRI LANKA 2026
blue
resources trust
BLUE RESOURCES TRUST IS PROUD TO
HOST SI 2026 IN COLOMBO, SRI LANKA!

Photo by Сарматбатаров | Pexels

Photo by Rajitha Fernando | Pexels

Meditating Buddha statue in Nissankamallapura, Sri Lanka

SHARKS INTERNATIONAL SRI LANKA 2026

Aerial view of Mirissa Beach in Sri Lanka

Photo by Daniel Klein | Unsplash

Fishing on sticks in Mirissa,
Sri Lanka

Photo by Agnieszka Stankiewicz | Unsplash

A tuk tuk in Kuwada,
Sri Lanka

Elephant Bathing Site,
Rambukkana, Sri Lanka

Photo by Ajai S | Unsplash

Inclusive Coasts and Seas: Connecting Diverse Voices

Introducing Inclusive Coasts and Seas:

Connecting Diverse Voices by MISS x SIARC, a collaboration between Minorities in Shark Sciences (MISS) and Project SIARC (Sharks Inspiring Action and Research with Communities) that will bring to life a virtual workshop in early 2025. The workshop will focus on inclusive marine conservation, skills tutorials, networking opportunities, and provide various listening and presentation sessions.

There will be the opportunity for attendees to present their work and/or research during the workshop. Early career and established career professionals and researchers, community members and other interested parties over the age of 16 are encouraged to attend. We also strongly encourage individuals who are not members of MISS or Project SIARC but whose work aligns with the workshops goals and interests to apply.

Workshop topics include:

- Community science and local ecological knowledge approaches
- Management and policy initiatives
- Applied and theoretical biological research

Skills tutorial topics include:

- Qualitative methods and analyses
- Quantitative methods and analyses
- Fundraising and grant writing
- Community organizing and inclusive marine conservation

*This list will be updated as more topics are added, and we would warmly welcome suggestions from workshop applicants.
The workshop is completely virtual, and funding will be available to offset financial barriers that may prevent a participant from attending, such as lost wages or childcare expenses.

For more information see here.

MISS
MINORITIES IN SHARK SCIENCES

SiARC

Funding Opportunities

Asian Species Action Partnership
Conserving species on the brink

ASAP Species
Rapid Action Fund

www.speciesonthebrink.org/rapid-action-fund

Status: Open

During a conservation project, conservation emergencies or a need for unforeseen activities may arise. In such cases, time is of the essence. Fast action can make all the difference to a species' chance of survival. That is why ASAP is offering grants of up to SGD 13,500 to ASAP Partners for urgent and emergency conservation of ASAP species. The fund will provide rapid disbursement of small amounts of funds to address urgent requests from the field for conservation actions. Grants can be used in the following ways:

- To address unforeseen conservation emergencies where urgent action is needed; and
- For the seamless continuation of important current conservation actions. Proposals to support the on-going costs of a long-term conservation project are not eligible except where there is an unforeseen funding gap, and where the seamless continuation of activities is imperative for the ongoing or long-term conservation of the ASAP species in question.

They invite ASAP Partners to submit proposals to the ASAP Species Rapid Action Fund. Proposals will be reviewed on a rolling basis throughout the year; they can be submitted at any time.

ASAP Species
Conservation Grant

www.speciesonthebrink.org/species-conservation

Status: Open

ASAP Species are some of the most at risk of extinction on the planet. The ASAP Species Conservation Grant is designed to support ASAP Partners in their efforts to conserve ASAP Species and their habitats.
To be considered for an ASAP Species Conservation Grant, an organisation must be an existing ASAP Partner. ASAP Partners are invited to submit pre-proposals for a maximum of SGD 16,000. The duration of the ASAP-funded project or project component should be 12 months or less.
The priorities for ASAP Species Conservation Grants are:

- projects within Southeast Asia, but priority conservation actions for ASAP species outside this region will be considered where there is strong justification.
- projects submitted by national organisations and those where the Project Lead is from the country in which the conservation actions take place.
- ASAP Species that are receiving less conservation attention globally than is average for ASAP Species, and to applications making a clear case that the species in question is severely under-supported globally.

Please note that funding for this opportunity is limited and the grant will close once funding is allocated.

ASAP Species
Continuation Grant

www.speciesonthebrink.org/species-continuation

Status: Open

The ASAP Species Continuation Grant is open to ASAP Partners who have previously received funding from either the ASAP Species Conservation Grant or the ASAP Species Rapid Action Fund.
There are two components to the ASAP Species Continuation Grant: funding to enable follow-up conservation activities for ASAP Species and funding to address the organisational needs or priorities of ASAP Partners. Applications must address both components. Proposals should be submitted in Singapore Dollars for a maximum of SGD 30,000 a year, with activities relating to project implementation and organisational development included in each year of the grant. Up to SGD 20,000 a year can be for project activities, with up to SGD 10,000 a year to support organisational development. Proposals can be for a maximum of three years.

ASAP Partner
Networking Grant

www.speciesonthebrink.org/partner-networking

Status: Open

The ASAP Partner Networking Grant is designed to facilitate collaboration and networking between ASAP Partners to catalyse conservation action for ASAP Species.
To be eligible:

- All applicants must be ASAP Partner organisations.
- The application must detail how the collaboration will further the conservation of ASAP Species. This can be for a single or multiple ASAP Species.

Proposals should be submitted in Singapore Dollars for a maximum of SGD 13,500. The duration of the ASAP-funded activities should be 6 months or less.

Funding Opportunities

Quick Response Fund for Nature

RAINFOREST TRUST

Preventing Extinction Fund:
Protected Area Conservation Action Grants

www.quickresponsefund.org/preventing-extinction-fund/

Status: Open

The Quick Response Fund for Nature and Rainforest Trust jointly launched The Preventing Extinction Fund, to protect habitat for the world's most threatened species.
Priority will be given to "Rare Species Sites" as defined on the Global Safety Net.
The Protected Area Conservation Action Grants will support actions that establish or expand protected areas during the timeframe of the grant. Projects will help improve the status of threatened animal species and their habitats. Two levels of funding are available:

1. Rapid Response Awards (funds up to $50,000): 100% of funding must go directly towards establishment or expansion of protected areas.
2. Extended Awards (funds $100,000 to over $1,000,000): funding is available for protected area creation and management costs.

Preventing Extinction Fund:
Species Planning Grants

www.quickresponsefund.org/preventing-extinction-fund/

Status: Open

Applications endorsed by IUCN Species Survival Commission (SSC) or World Commission on Protected Areas (WCPA) Specialist/Working Groups or Task Forces will be viewed favorably as will applications with a clear linkages to other IUCN Commissions and the KBA Secretariat.
The Species Planning Grants, of up to USD 10,000, will be provided to IUCN Specialist Groups, KBA regional focal points or local Civil Society Organizations to support the identification and assessment of priority sites for protected area establishment. These grants are intended to provide groups with the opportunity to identify key sites and begin the process of protection.

IUCN

SSC Internal Grant

iucn.org/our-union/commissions/species-survival-commission/partners-and-donors/partnership-and-grants

Status: Opens for a month in January and June

The main purpose of this grant is to encourage and promote activities that contribute to the Species Conservation Cycle ratified as the SSC framework in our Species Strategic Plan 2021-2025, through the allocation of small funds —from ($USD) $2,000 to $3,500. These funds are available thanks to this partnership with the Environment Agency Abu Dhabi. In addition, as well as falling under the Species Conservation Cycle framework, we also seek to support those activities specified by SSC groups in their annual 'SSC DATA' target setting and reporting effort.

Upcoming Meetings

Please visit the respective websites and communication from the host organisation for more information

CITES Seventy-eighth meeting of the Standing Committee

February 03–08, 2025
Geneva, Switzerland

cites.org/eng/sc/78

The 78th meeting of the Standing Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) will take place in February 2025.
The Standing Committee provides policy guidance to the Secretariat on the implementation of the Convention, oversees the management of the Secretariat's budget, and oversees and coordinates the work of other committees and working groups.

International Basking Shark Conference

May 9–11, 2025
Galway, Ireland

baskingshark.ie/conference2025

There has been increasing global interest in Basking Shark distribution, population status, and sightings trends in recent decades, coinciding with new technologies and methods for monitoring highly mobile marine species. Additionally, there is growing consensus that international coordination is required to manage and conserve this endangered species. The Irish Basking Shark Group, in collaboration with the National Parks and Wildlife Service, therefore plan to organise and host an International Basking Shark Conference in Galway, Ireland from May 9–11, 2025, to coincide with the Basking Shark season in Ireland. The aim of the conference is to provide a forum where the latest in Basking Shark science, conservation and policy can be presented, and will be open to anyone with an interest in the species.

One Ocean Science Congress

June 3–6, 2025
Nice, France

one-ocean-science-2025.org

The Centre national de la recherche scientifique (CNRS) and Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) have been tasked with organizing the One Ocean Science Congress (OOSC), a Third United Nations Conference on the Oceans (UNOC3) Special Event dedicated to Science, and to provide Heads of State, Government, and the broader society, with comprehensive scientific insights on the Ocean's health and future trajectory. Science-informed decisions should enable the conservation and sustainable use of the Ocean, optimize the solutions it offers, and safeguard the services and benefits it provides to humanity.
The Congress will feature a mix of plenary sessions, including opening and keynote speeches, alongside parallel oral and poster presentations. To enhance interactions between science and society, action and policy, and to engage civil society more broadly, 'townhalls' such as panels and roundtables will also be arranged.

2025 United Nations Ocean Conference

June 9–13, 2025
Nice, France

sdgs.un.org/conferences/ocean2025

The Centre national de la recherche scientifique (CNRS) and Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) are organising the One Ocean Science Congress (OOSC), a Special Event of the Third United Nations Conference on the Oceans (UNOC3). This event aims to provide Heads of State, Government, and society with scientific insights into the Ocean's health and future trajectory. Science-driven decisions will support the conservation and sustainable use of the Ocean, maximise its solutions, and protect the services it provides to humanity.
The Congress will include plenary sessions, keynote speeches, parallel oral and poster presentations, and interactive 'townhalls' like panels and roundtables to foster dialogue between science, society, and policy while engaging civil society.

Upcoming Meetings

Asian Society of Ichthyologists Annual Meeting and the 12th Indo-Pacific Fish Conference

June 9–13, 2025
Taipei, Taiwan

2025asi-ipfc12.tw

The annual meeting of the Asian Society of Ichthyologists and the Indo-Pacific Fish Conference will return to their regular schedule post-COVID-19. The most recent meetings were successfully held at Universiti Sains Malaysia in Penang, Malaysia, on May 28-29, 2024, and at the University of Auckland, New Zealand, on November 20-24, 2023. The upcoming joint conference, combining these two prestigious ichthyological events, will take place in Taipei, Taiwan, from June 9-13, 2025. This welcomes ichthyologists from around the world who are interested in sharing research about the systematics and ecology of Asian and Indo-Pacific fishes, including topics such as evolution, biogeography, taxonomy, ecology, biology, sustainable fisheries, and conservation. The conference will provide an excellent opportunity to share the latest research results, develop collaborations, and promote research.

20th Oceania Chondrichthyan Society Conference

June 16–19, 2025
Sunshine Coast, Queensland, Australia

oceaniasharks.com.au/ocs-conference-2025

The Oceania Chondrichthyan Society (OCS) Conference is returning, celebrating their 20th year anniversary! This milestone event will take place between the 16th– 19th June 2025, on the beautiful Sunshine Coast, Queensland.
This year's conference is particularly special as it marks two decades of progress and collaboration in the field. For this event, their hope is to expand their reach and encourage both new and long-standing members to join us.

IUCN World Conservation Congress

October 9–15, 2025
Abu Dhabi,
United Arab Emirates

iucncongress2025.org

The IUCN World Conservation Congress is where the world comes together to set priorities and drive conservation and sustainable development action. IUCN's 1400+ government, civil society and Indigenous peoples' Member organisations vote on major issues to help guide humanity's relationship with our planet.
The Congress is also the largest marketplace for conservation and sustainable development science, practice and policy. Scientists, policy experts, business leaders and professionals from around the globe share their experience, innovation and latest research.
IUCN's unique convening power of state and non-state actors together gives Congress a powerful mandate to set the nature conservation agenda for decades to come.

Sharks International 2026

May 04–08, 2026
Colombo, Sri Lanka

si2026.org

The 5th Sharks International conference is set to take place from 4th to 8th May 2026 in Colombo, Sri Lanka. This will be the fifth edition of the world's largest conference on sharks, rays, and chimaeras, held every four years. Sharks International 2026 will be a space to share ideas, spark new collaborations, and build lasting partnerships and friendships. This conference will also offer various exciting opportunities for networking and professional development. Attendees can look forward to a range of workshops, plenary sessions, and panel discussions featuring renowned experts in shark, ray, and chimaera research, conservation, and policy. With a particular emphasis on inclusivity, equity, and diversity, we are dedicated to ensuring that voices from across the globe - especially those from the Global South - are heard and represented.

IUCN SSG Sponsors & Supporters

The IUCN SSC Shark Specialist Group is fiscally sponsored by Re:wild, a 501[c][3] non-profit organization with headquarters in Austin, TX, USA [tax ID: 26-2887967].

Sharks and rays need you!
Please donate and help us make a difference.

Sharks and rays are some of the most threatened species in the world, more so than land animals. Populations are declining at alarming rates and 37% of species are already threatened with extinction. With your support we can find solutions and take actions to conserve these incredible animals before it is too late.

The IUCN SSC Shark Specialist Group achievements over the last 30 years have been possible due to the generous support of funders, members, and other volunteers from countless organizations. Our members volunteer their time, effort and expertise to advance our mission and vision.

We would like to express our most sincere gratitude for the generous grants, collaborations, and support to our group, our teams, our projects, and our efforts. We appreciate the support that has been provided over the years and look forward to continuing our journey and endeavors together into the future.

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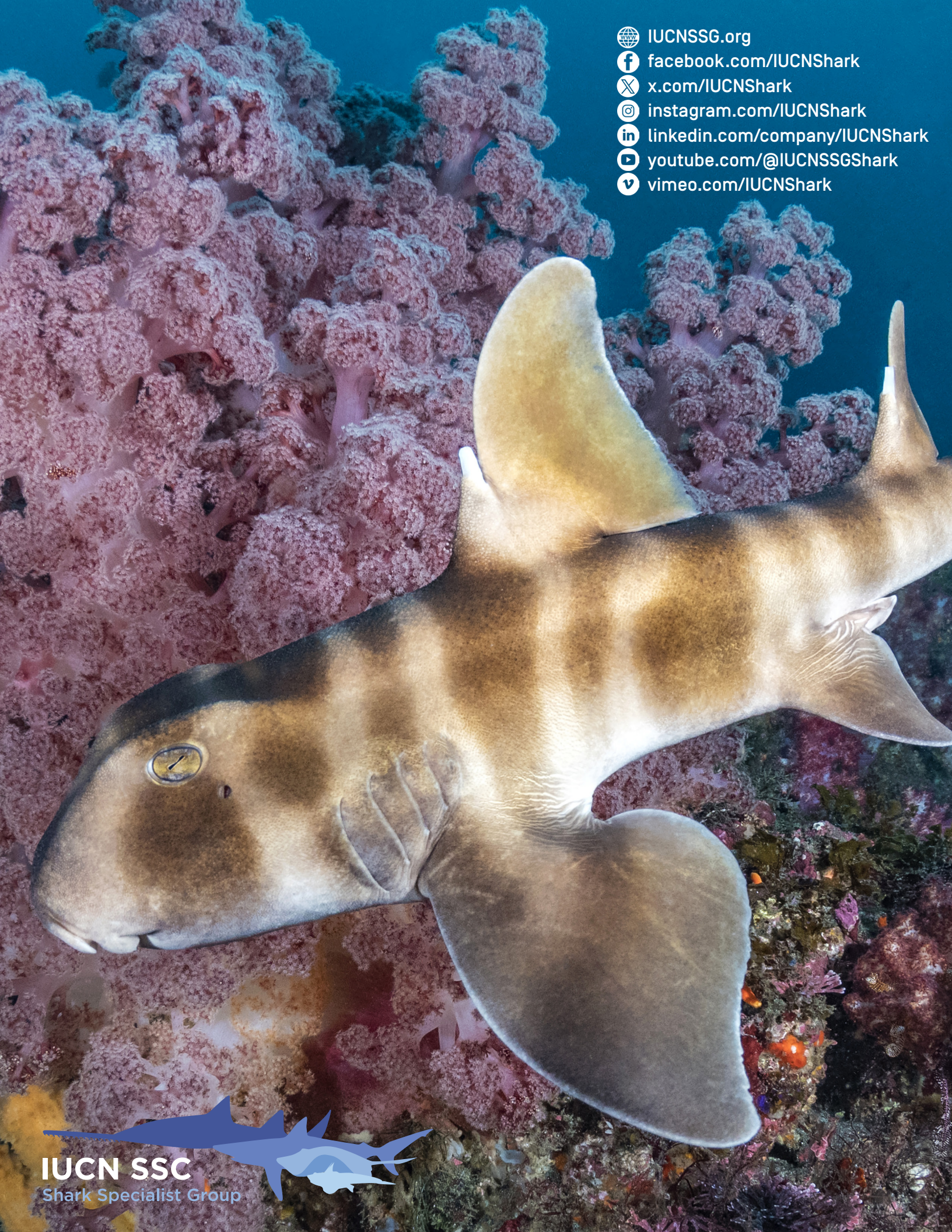
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