

Reshark

















An international, collective effort to recover threatened sharks and rays around the world

ACTIVE PROJECTS



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COVER

In a world-first, StAR Project scientists and veterinarians extracted semen from wild Indo-Pacific leopard sharks while on SCUBA off North Stradbroke Island, Australia. Photo by Mark Erdmann.

EDITOR

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PHOTOGRAPHY

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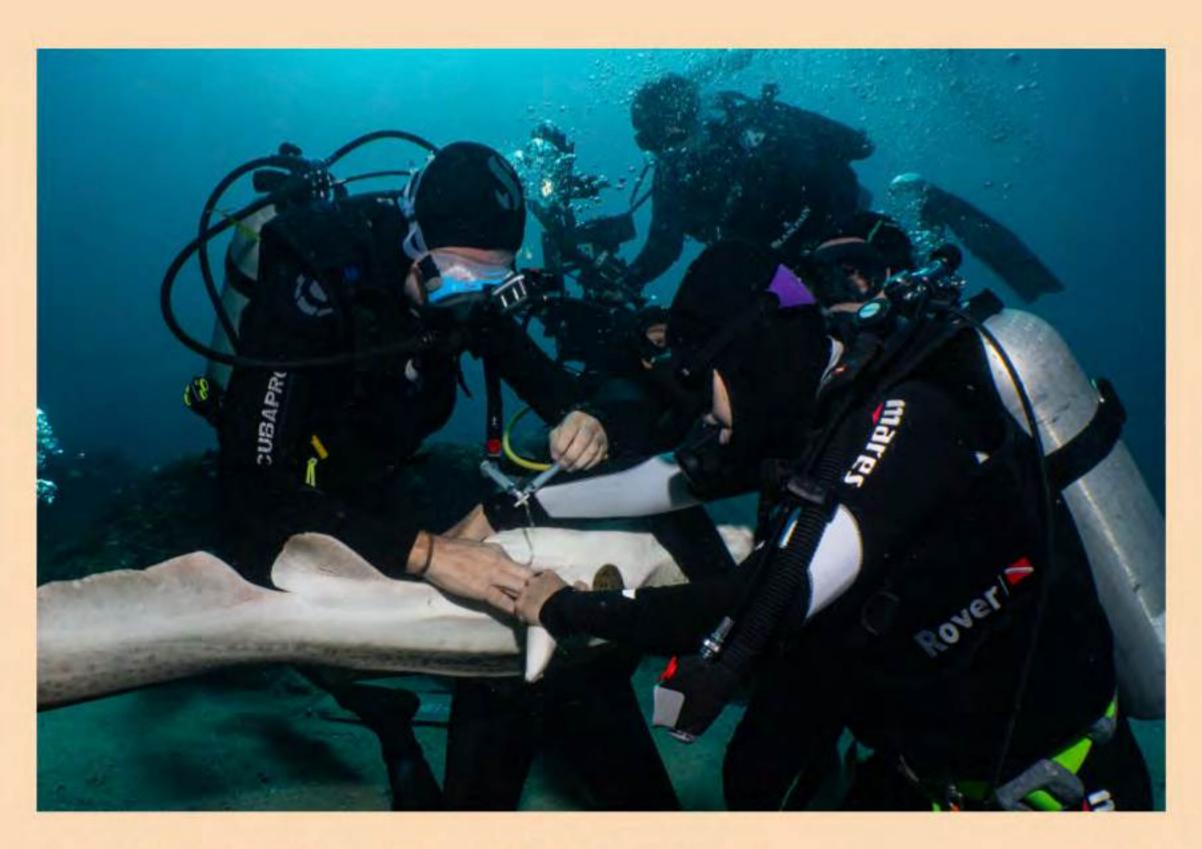
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MESSAGE FROM OUR EXECUTIVE DIRECTOR, DR. MARK ERDMANN





DEAR READERS,

Having just taken on the role of Executive Director of ReShark in July 2025, I am delighted to introduce the 6th Edition of *The ReSharker*.

This issue highlights just how far our international, multi-partner initiative has come in only five years. From the GASSE expedition's world-first collection of semen from wild leopard sharks for artificial insemination ("the other Al") in human care, to the impressive momentum of StAR Project Thailand, to resightings of released pups thriving in Raja Ampat after nine months in the wild, this edition is full of hopeful, inspiring milestones proving that rewilding sharks and rays is not only possible, but powerful.

You'll see how StAR Project Thailand (officially launched in May 2025) has advanced at remarkable speed thanks to extraordinary collaboration among three government ministries, conservation organizations, dive operators, and aquariums. The team is already preparing for its first pup releases later this year. Nearly 4,000 km east in Raja Ampat, StAR Project Indonesia is also in full stride, releasing 21 pups in the first half of the year and managing nurseries now bursting with eggs and young sharks. Sixteen Indonesian interns have already joined the program, and an ambitious marine education initiative is set to bring ReShark's story to all 100+ coastal villages in Raja Ampat.

This edition also shines a light on aquarium professionals sharing their expertise across borders — from Georgia Aquarium, Shedd Aquarium, and Ocean Park Hong Kong to partners at Aquaria Phuket, the Phuket Marine Biological Center, SEA LIFE Sydney Aquarium, Sea World Gold Coast, and the Singapore Oceanarium. Witnessing this level of international cooperation underscores the wisdom of the decision, made at the first ReShark Retreat in 2023, to remain a collaborative initiative rather than a standalone NGO. I'm grateful to Re:wild for now serving as our fiscal sponsor, enabling us to fundraise effectively while maintaining our unique, 100+ partner model, and I warmly welcome Re:wild's Dr. Barney Long to the ReShark Council.

I'm excited to lead this diverse and committed coalition, and I look forward to working with each of you to advance innovative conservation breeding and rewilding efforts for sharks and rays globally. We've already achieved incredible results together, but this is just the beginning. Stay tuned as we expand to new regions, resharking the ocean one species at a time!

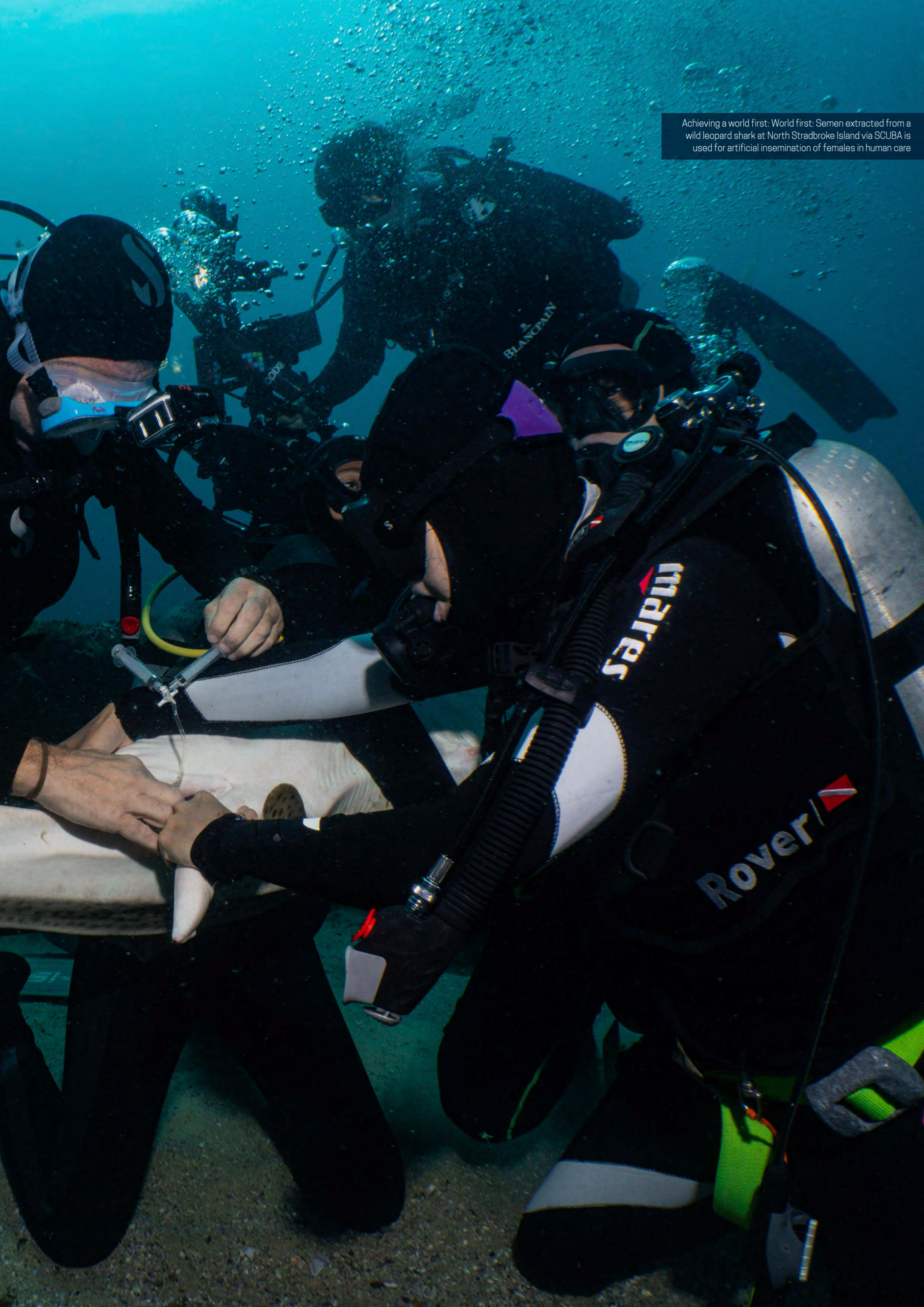
Warm regards,

Dr. Mark Erdmann

Executive Director, ReShark







The 2024 expedition, named the Great Australian Stegostoma Semen Expedition (GASSE) 1.0, brought together 15 researchers from the StAR Project and partner institutions. Over several days of fieldwork off North Stradbroke Island, semen was collected from 17 wild male Indo-Pacific leopard sharks — a technical feat led by Dr. Paolo Martelli, Director of Veterinary Services at Ocean Park Hong Kong. This accomplishment represents a major breakthrough in assisted reproduction for sharks and rays, with wide-ranging implications for species conservation.

Following collection, the semen samples were used to artificially inseminate six female leopard sharks housed in three public aquariums — all current or potential breeders for the StAR Project: Sea World Gold Coast, SEA LIFE Sydney Aquarium, and Singapore Oceanarium (formerly S.E.A. Aquarium). The procedure aims to increase both egg production and genetic diversity in managed populations, directly advancing long-term rewilding efforts in regions where leopard sharks have drastically declined.

"We hope this marine reproduction technique will be a game-changer for international projects aiming to replenish the species

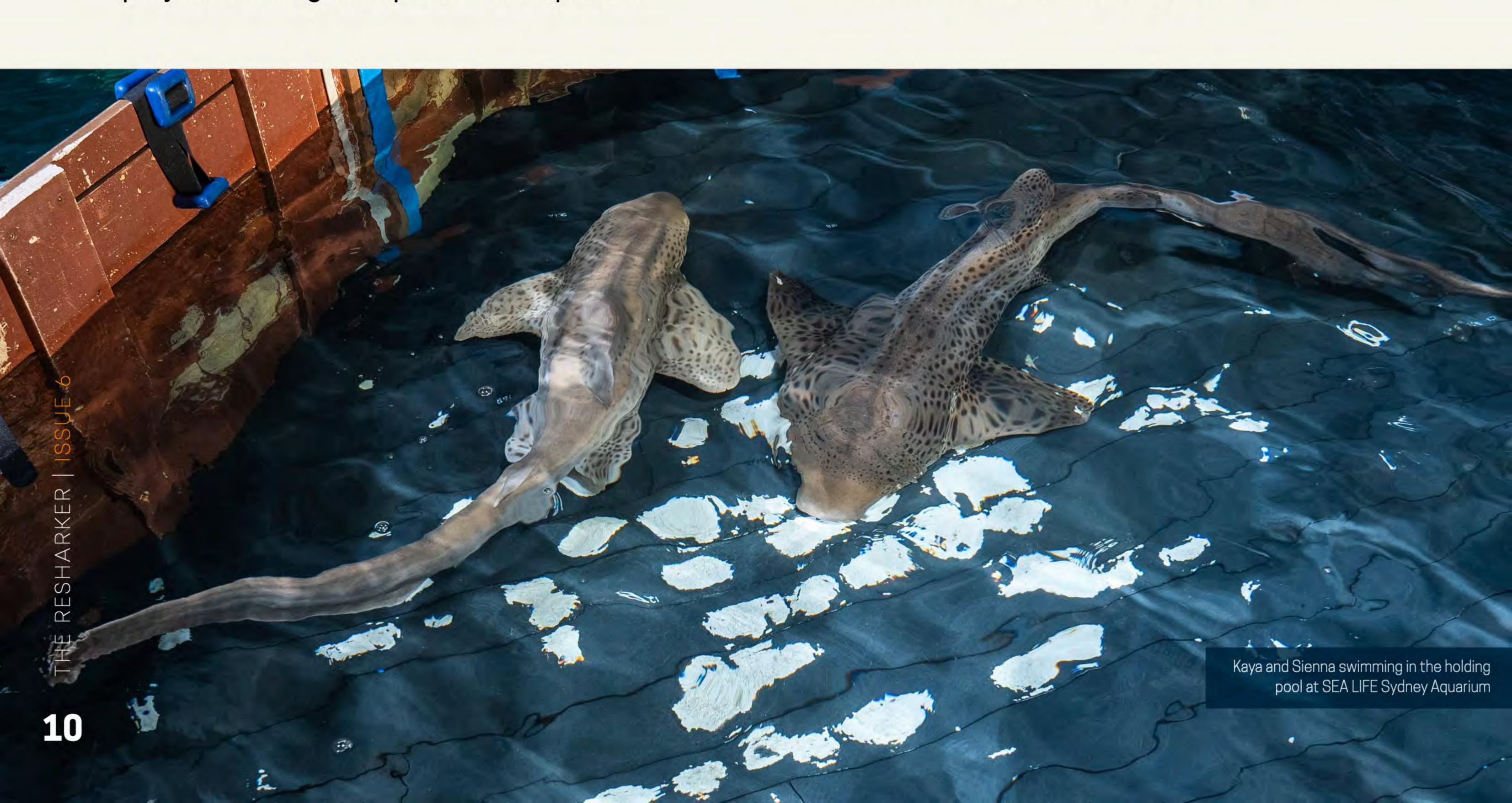
globally," said Dr. Christine Dudgeon, who led the GASSE expedition. "Particularly in areas such as Indonesia, where it is in danger of becoming extinct."

In addition to the inseminations, seven semen samples were cryopreserved for research by Ph.D. candidate Siobhan Houlihan at Griffith University. Her work focuses on reproductive seasonality, semen quality in leopard sharks, and the impacts of human-related threats on their reproductive biology. These insights will be essential for improving assisted reproductive technologies to support shark conservation.

GASSE forms part of the broader research arm of the StAR Project, which is investigating nutrition, reproduction, movement ecology, and habitat use in two healthy wild populations of *Stegostoma tigrinum* — in eastern Australia and New Caledonia.

As a species with many unknowns, this research will inform husbandry, breeding, and the longterm effectiveness of rewilding strategies.

Globally, the Indo-Pacific leopard shark (Stegostoma tigrinum) remains Endangered on the IUCN Red List, highlighting the urgent need for science-based recovery efforts.

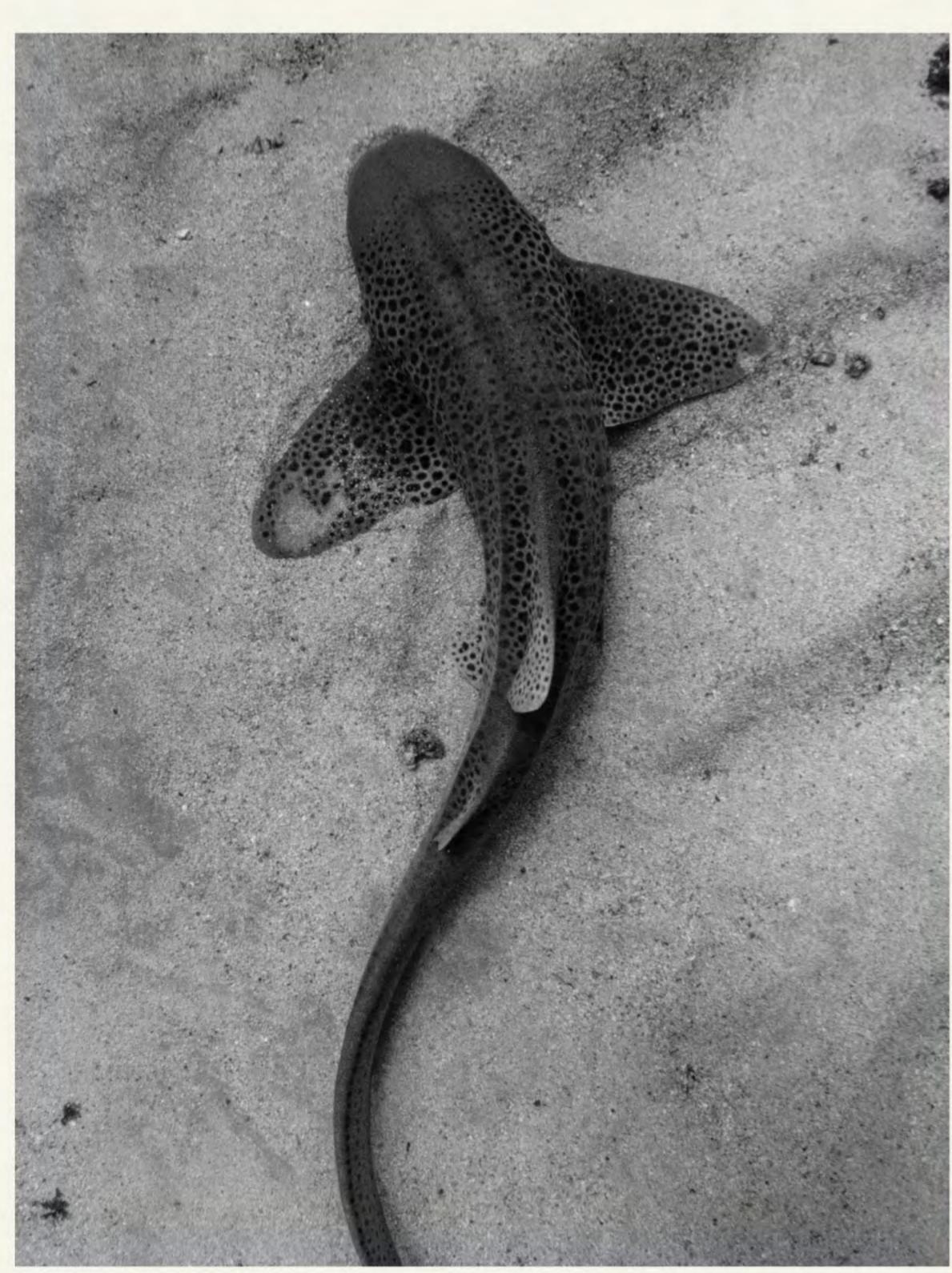




SEA LIFE Sydney Aquarium team with Dr. Paolo Martelli and nurse Irene Tai from Ocean Park Hong Kong after successful artificial insemination of the aquarium's female leopard sharks







Adult leopard shark resting on the seabed at Julian Rocks, Byron Bay



All smiles after the successful artificial insemination of female leopard sharks at Sea World Gold Coast







We hope this marine reproduction technique will be a game-changer for international projects aiming to replenish the species globally, particularly in areas such as Indonesia, where it is in danger of becoming extinct.

Dr. Christine Dudgeon

Senior Research Fellow, University of the Sunshine Coast & Biopixel Oceans Foundation Co-Chair, StAR Project Research Working Group

GASSE 1.0 was made possible through collaboration among numerous institutions, including Conservation International, Ocean Park Hong Kong, University of Queensland, Moreton Bay Research Station, Sea World Australia, SEA LIFE Sydney Aquarium, Singapore Oceanarium, Thrive Conservation, and Biopixel Oceans Foundation.

Building on the success of GASSE 1.0, the team — co-led by Sundive Byron Bay — launched a follow-up pilot study in March 2025 in Byron Bay. This study focused on deploying satellite tags on wild leopard sharks to explore post-aggregation movements and identify potential egg-laying habitats further north.

Byron Bay marks the southernmost aggregation site for leopard sharks on Australia's east coast. Tagging sharks here, toward the end of the aggregation season, provides a unique opportunity to identify key reproductive areas and assess the ecological importance of this location.

A total of four miniPAT satellite tags were deployed — two programmed to pop off after 180 days (in October 2025), and two after 360 days (in April 2026). Until these tags surface, no data will be available, and their status remains unknown.

Meanwhile, researchers are closely monitoring the artificially inseminated females. Updates on fertilized eggs and the health of any resulting pups are expected in the coming months.

As the StAR Project continues to advance science-driven rewilding, plans are already underway for a third phase of the GASSE expedition in late 2025. The next expedition will aim to repeat semen collection and expand assisted reproduction trials across a broader genetic base.





BUILDING CAPACITY THROUGH FIELDWORK AND FACILITY VISITS

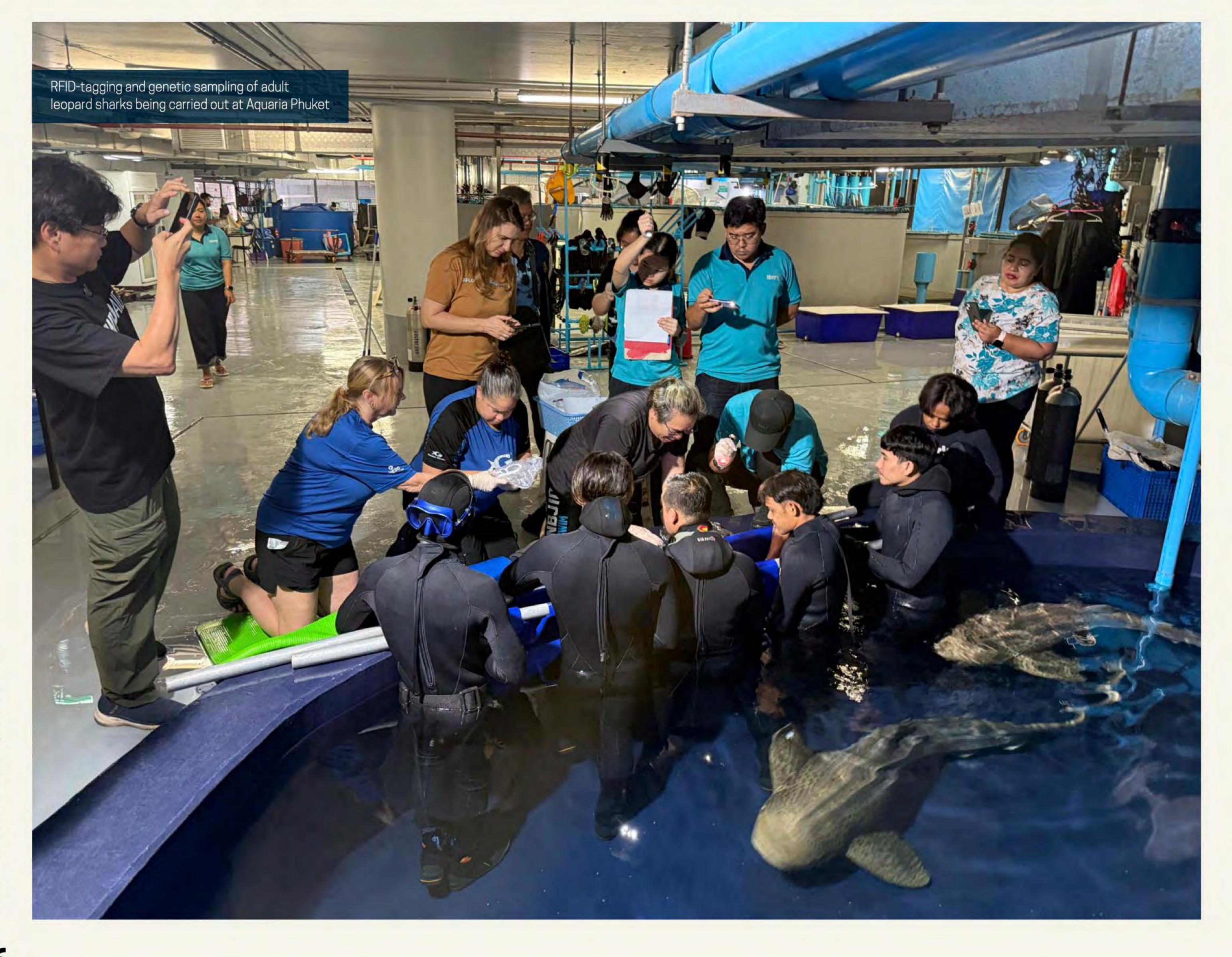
In March 2025, representatives from the StAR Project's Husbandry Working Group — Leah Neal (Georgia Aquarium) and Lise Watson (Shedd Aquarium) — visited two key partner sites in Phuket: Aquaria Phuket and the Phuket Marine Biological Center (PMBC), DMCR.

All adult leopard sharks at Aquaria Phuket were RFID-tagged and genetically sampled, including one female that was treated for signs of egg impaction. At PMBC, all juveniles were also RFID-tagged and sampled, while staff at both facilities received hands-on training in husbandry and monitoring protocols.

A dive survey was conducted off Maiton Island — a private island situated approximately 9 km southeast of mainland Phuket in the Andaman Sea, and the planned site for the sea pen — and the team met with DMCR officials to coordinate future field logistics.

SOLIDIFYING GOVERNMENT SUPPORT

A national-level capacity-building workshop in March brought together representatives from Thailand's Department of Marine and Coastal Resources (DMCR), Department of National Parks, Wildlife and Plant Conservation (DNP), and Department of Fisheries (DoF).





Leopard sharks play a vital role in maintaining marine ecosystem balance and are a key attraction for scuba divers. DMCR has been monitoring these populations and successfully advocated for their protection in Thailand. By raising hatchlings in captivity and preparing them for release in sea pens that mimic natural conditions, we're building a solid foundation for long-term reintroduction success. I'm heartened to see such strong collaboration across sectors to ensure the survival of leopard sharks in Thai waters.

Dr. Pinsak Suraswadi

Director-General of the Department of Marine and Coastal Resources, Thailand

"As the lead agency implementing the National Plan of Action for the Management and Conservation of Sharks - Thailand (NPOA-Sharks), the DoF is committed to supporting research and promoting knowledge sharing on shark breeding and reintroduction. We are ready to continue supporting the development of this project, which plays a vital role in restoring a healthy and genetically diverse leopard shark population in Thai waters," said Bancha Sukkaew, Director-General of the Department of Fisheries.

Organized by WildAid and Ocean Blue Tree on behalf of the StAR Project Thailand team, the workshop focused on shark data collection, reintroduction planning, and monitoring strategies.

In June, WildAid, the implementing partner for StAR Project Thailand, signed a Memorandum of Understanding (MOU) with the DNP to support shark and ray conservation, management, and restoration — and to strengthen overall marine park management across Thailand. This agreement secures formal endorsement of the project and paves the way for future collaboration.

FIRST COHORT OF SHARKS HEADS TO MAITON SEA PEN

Following the successful construction of the sea pen at Maiton Resort, the first group of juvenile leopard sharks (around 14 months old), originally from Aquaria Phuket, was successfully transferred from PMBC to the new facility for pre-release acclimatization. The sea pen provides a comfortable environment that allows the sharks to gradually adapt to ocean conditions before their eventual release.

"Maiton Resort is proud to participate as one of the private sector partners... This marks a significant step in restoring balance to the marine ecosystem. We've long prioritized conservation and have actively engaged in coral restoration and underwater cleanup efforts around Maiton Island. These initiatives align with our mission to restore the richness of Thailand's seas for future generations," said Chalermpong Pathumchotisuwan, Chief Operating Officer, Honeymoon Private Island (Phuket) Co., Ltd. (Maiton Resort).



StAR Project Thailand team and DNP officials sign an MOU to advance shark conservation



First cohort of leopard sharks from Aquaria Phuket arrives at Maiton Island (Photo by © Sirachai Arunrugstichai / WildAid / Ocean Blue Tree / Vital Impacts)



A leopard shark is gently lowered into the sea pen as Project Manager Metavee Chuangcharoendee looks on (Photo by © Sirachai Arunrugstichai / WildAid / Ocean Blue Tree / Vital Impacts)



Press conference marking the launch of the StAR Project Thailand (Photo by © Sirachai Arunrugstichai / WildAid / Ocean Blue Tree / Vital Impacts)



StAR Project Thailand aquarist feeding a leopard shark in the sea pen (Photo by © Sirachai Arunrugstichai / WildAid / Ocean Blue Tree / Vital Impacts)







DMCR Director-General Dr. Pinsak Suraswadi joins StAR Project Thailand's Metavee Chuangcharoendee live on Thai PBS's Wan Mai Variety



Presenting "Spot of Hope: The Future of Conserving Whale and Leopard Sharks" at Thailand Dive Expo (TDEX) in Bangkok



StAR Project Thailand makes the front page of Phuket News



PUBLIC AWARENESS EXPANDS THROUGH NATIONAL MEDIA

Following the successful launch event, StAR Project Thailand continued to build national visibility with a strong presence at the 2025 Thailand Dive Expo (TDEX) in Bangkok.

Presentations in the "Divers Talk" series — including "Spot of Hope: The Future of Conserving Whale and Leopard Sharks" and "Saving Thailand's Sharks: A Call for Conservation"— attracted significant interest from the local and regional diving community.

Complementing the in-person outreach, national media coverage helped amplify the project's message. Department of Marine and Coastal Resources Director-General Dr. Pinsak Suraswadi appeared live on Thai PBS's Wan Mai Variety alongside StAR Project Thailand's Project Manager Metavee Chuangcharoendee to spotlight the project's mission to restore Indo-Pacific leopard sharks — a protected species now under serious threat in Thai waters. The story also made front-page news in Phuket News, under the headline: "Phuket launches endangered shark 'rewilding' project."

FIRST ACOUSTIC TAGS DEPLOYED AND WHAT'S NEXT

In July, a key milestone was reached with the deployment of acoustic tags on the first three juvenile leopard sharks — one by Dr. Paolo Martelli of Ocean Park Hong Kong and two by veterinarians from the Department of Marine and Coastal Resources (DMCR). These tags emit signals that are detected by acoustic receivers strategically deployed within the sharks' projected range, allowing scientists to track their movements and monitor how well they adapt after release.

The first official releases in Thailand are now in planning stages, pending the deployment of an acoustic array, and final discussions with relevant authorities.

Simultaneously, a Population Viability Analysis (PVA) is underway to assess extinction risk, prioritize release sites, and inform the long-term rewilding strategy for the StAR Project Thailand.



From infrastructure upgrades to first-of-their-kind field experiences for young conservationists, StAR Project Indonesia continues to make major strides in restoring Indo-Pacific leopard sharks (Stegostoma tigrinum) in the waters of Raja Ampat.

Since January 2025 — marking the third consecutive year of leopard shark releases in Raja Ampat — the initiative has continued to expand both its technical capacity and community engagement. Here's the latest:



EXPANDING NURSERY CAPACITY

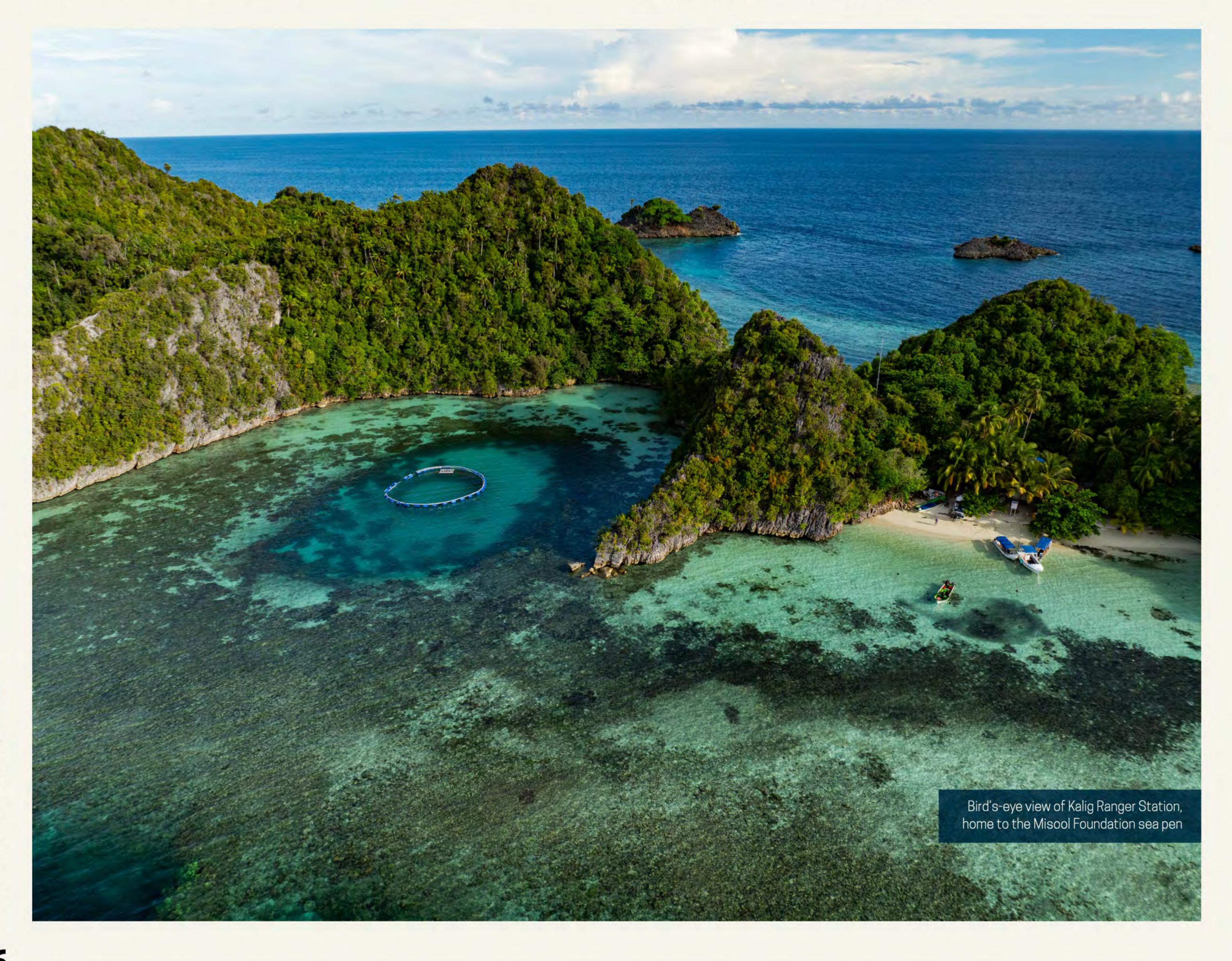
To support the growing number of leopard shark eggs and pups in care, both nurseries in Raja Ampat — Misool Foundation nursery at Batbitim Island, South Misool, and Raja Ampat Research and Conservation Center (RARCC) nursery at Kri Island — have undergone significant infrastructure upgrades.

At RARCC, the team is now planning a solar-powered life support system to improve energy efficiency and sustainability. The sea pen there has also been enlarged to accommodate more animals. Meanwhile, plans are underway to relocate the Misool Foundation nursery to Kalig, a nearby site that currently houses the expanded sea pen, and offers more space for

animal care and improved environmental conditions. Together, these upgrades will support the long-term health and scalability of the rewilding program.

INTERNSHIP PROGRAM SPARKS CAREERS IN CONSERVATION

Since the start of 2025, 16 Indonesian youths have completed, or are currently undertaking, internships at the Misool Foundation and RARCC nurseries. These hands-on experiences have not only equipped young professionals with technical skills in shark husbandry and conservation science but have also launched several into full-time marine conservation careers across Indonesia.





"My biggest takeaway from this internship was realizing how every little task matters in conservation work — that sometimes repetitive tasks, when done with care and intention, can lead to something truly meaningful. I learned that every portion of food we prepared, every centimeter gained in a pup's growth, and every data point collected from receivers contributes to a bigger goal: helping leopard sharks thrive in their natural home.

This internship reminded me how important it is to pay attention — to notice changes, improvements, or things that feel off. I believe that kind of awareness is not only essential in conservation but also valuable for my personal and professional growth. This internship deepened my connection to the ocean and reminded me why I chose marine science in the first place. It gave me real, hands-on experience in conservation. I grew in many ways — learning more about leopard sharks and becoming more adaptable through daily challenges," reflected Syafitri Indah Febryana, who now works with WWF Indonesia's Plastic-Free Ocean Program as a Program Assistant.

Other alumni have gone on to positions at NGOs such as Tapak Diversitas Hayati Nusantara (TARSIUS) or returned to university to complete their studies — each

carrying forward new skills and motivation to contribute to Indonesia's marine conservation efforts.

Plans to hire a new outreach officer for StAR Project Indonesia are also in the works, enabling the expansion of community programs. School visits, fisher engagement, and local homestay briefings have continued across Raja Ampat, with a new children's book — Ma'ya of Raja Ampat — designed, written, and published by a local team, and distributed to schools (and international ReShark partners) as the first storybook developed by ReShark for young readers. Broader national distribution is currently being planned.

MORE THAN 100 EGGS SHIPPED & NEW BREEDER ALERT

Since March, seven new shipments of eggs have arrived in Raja Ampat from partner breeder aquariums across the global ReShark network — crossing the 100-egg milestone for StAR Project Indonesia. With the addition of the Minnesota Zoo as the newest breeding partner to come online with active shipments, the global coalition continues to expand genetic diversity and capacity for wild populations.









Danea makes a triumphant return to the RARCC nursery.



RARCC aquarist Anggi Aenun releases Kambu with the students of Child Aid Papua



RESIGHTINGS AND POST-RELEASE MONITORING

Post-release monitoring has been significantly scaled up. We now rely on three sources of data — citizen resightings, acoustic telemetry, and satellite telemetry — to build a holistic picture of the released sharks' movement ecology.

Significant resightings: Christina was resighted in January 2025 at West Wai, four months after her release. Karen, released in late 2024, was resighted and photographed by a local fisherman in Batanta, 8.5 months later. Danea returned to the RARCC nursery in July 2025 (5 weeks after release), presenting herself for an RFID scan, cloacal swab, health check-up, and measurements — the first time for a released pup. She had grown 7 cm in length, 3 cm in girth, and 80 g in weight, and was later sighted again at Sardine's Reef.

Acoustic telemetry: In May, the team downloaded data from all 44 acoustic receivers currently deployed across Raja Ampat, capturing valuable movement data on released sharks. 10 new acoustic receivers were installed in South Misool earlier this year, with another 10 planned for deployment in the Dampier Strait, significantly increasing monitoring capacity. Jill, released in October 2024, was detected on receivers from November 2024 through March 2025 — providing a solid 5-month movement track.

Satellite telemetry: In a new frontier for the project, three sharks — Syafri,

Geo, and Patrick — became the first to be satellite-tagged in Indonesia. These tags will help reveal large-scale movement patterns and habitat use, feeding into long-term acoustic monitoring design. In fact, Patrick's wide-ranging movement is already helping inform acoustic receiver deployment strategies for StAR Project Thailand.

Alchemy of Change Fund
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AZA SAFE Shark and Ray Program
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Ocean Blue Tree
Ocean Park Conservation Foundation Hong Kong
Paul Webb

SPECIAL THANKS TO OUR SUPPORTERS

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European Association of Zoos and Partners (EAZA) Royal Burgers' Zoo ABQ BioPark Aquarium Aquarium de Lyon Andrew Wickland Design Nausicaá Centre National de la Mer Aquarium of the Pacific Association of Zoos and Aquariums (AZA) Océanopolis Brest AZA Saving Animals from Extinction Columbus Zoo and Aquarium Loro Parque Oceanário de Lisboa Conservation International Oceanogràfic València Poema del Mar Aquarium Discovery Cove Field Museum Georgia Aquarium Golden Nugget IUCN Conservation Planning Specialist Group Jenkinson's Aquarium

Kwame Nkrumah University of Science and Technology

Kansas City Zoo & Aquarium Landry's Downtown Aquarium Loveland Living Planet Aquarium

Loyola University Minnesota Zoo

Mote Marine Laboratory Museum of Science & History

Mystic Aquarium

National Museum and Aquarium

New England Aquarium

North Carolina Aquarium at Fort Fisher

OdySea Aquarium

Omaha's Henry Doorly Zoo and Aquarium

Point Defiance Zoo and Aquarium

Re:wild

Ripley's Aquarium of Myrtle Beach

SEA LIFE Aquarium at LEGOLAND California

SEA LIFE North America

Seattle Aquarium

SeaWorld Orlando

SeaWorld San Antonio

SeaWorld San Diego

Shark Advocates International

Shark Reef Aquarium at Mandalay Bay

Shedd Aquarium

South-East Zoo Alliance for Reproduction and Conservation

Johnny Morris' Wonders of Wildlife National Museum and Aquarium

The Dallas World Aquarium

TJP Inc.

Toledo Zoo and Aquarium

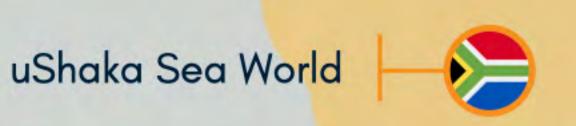
University of Delaware

Virginia Aquarium & Marine Science Center

Wildlife Conservation Society's New York Aquarium



MarAlliance



Fondation Segré

Acquario di Genova



Atlantis, The Palm
IUCN SSC Shark Specialist Group

Okinawa Churaumi Aquarium

Ocean Park Hong Kong

Badan Riset dan Inovasi Nasional (BRIN) Kementerian Kelautan dan Perikanan (KKP) Pemerintah Provinsi Papua Barat Pemerintah Provinsi Papua Barat Daya Badan Riset dan Inovasi Daerah (BRIDA) Provinsi Papua Barat Pemerintah Daerah Kabupaten Raja Ampat BLUD UPTD KKP Kepulauan Raja Ampat Child Aid Papua Elasmobranch Institute Indonesia Indo-Pacific Films Indonesian Ocean Pride Jakarta Aquarium and Safari Konservasi Indonesia Misool Foundation Misool Resort Papua Diving Resorts Pelagos Marine Nusantara Raja Ampat Research and Conservation Centre Thrive Conservation Universitas Papua

Aquaria Phuket
Department of Marine and Coastal Resources, Thailand
Department of National Parks, Wildlife and Plant Conservation, Thailand
Maiton Resort
Ocean Blue Tree
Thai Sharks and Rays
WildAid

Singapore Oceanarium

Biopixel Oceans Foundation
Cairns Marine
Irukandji Shark and Ray Encounters
James Cook University
SEA LIFE Sydney Aquarium
SEA LIFE Trust Australia and New Zealand
Sea World Gold Coast
Sundive Byron Bay
University of Queensland
University of the Sunshine Coast



Aquarium des Lagons Nouvelle Calédonie

Reshark















