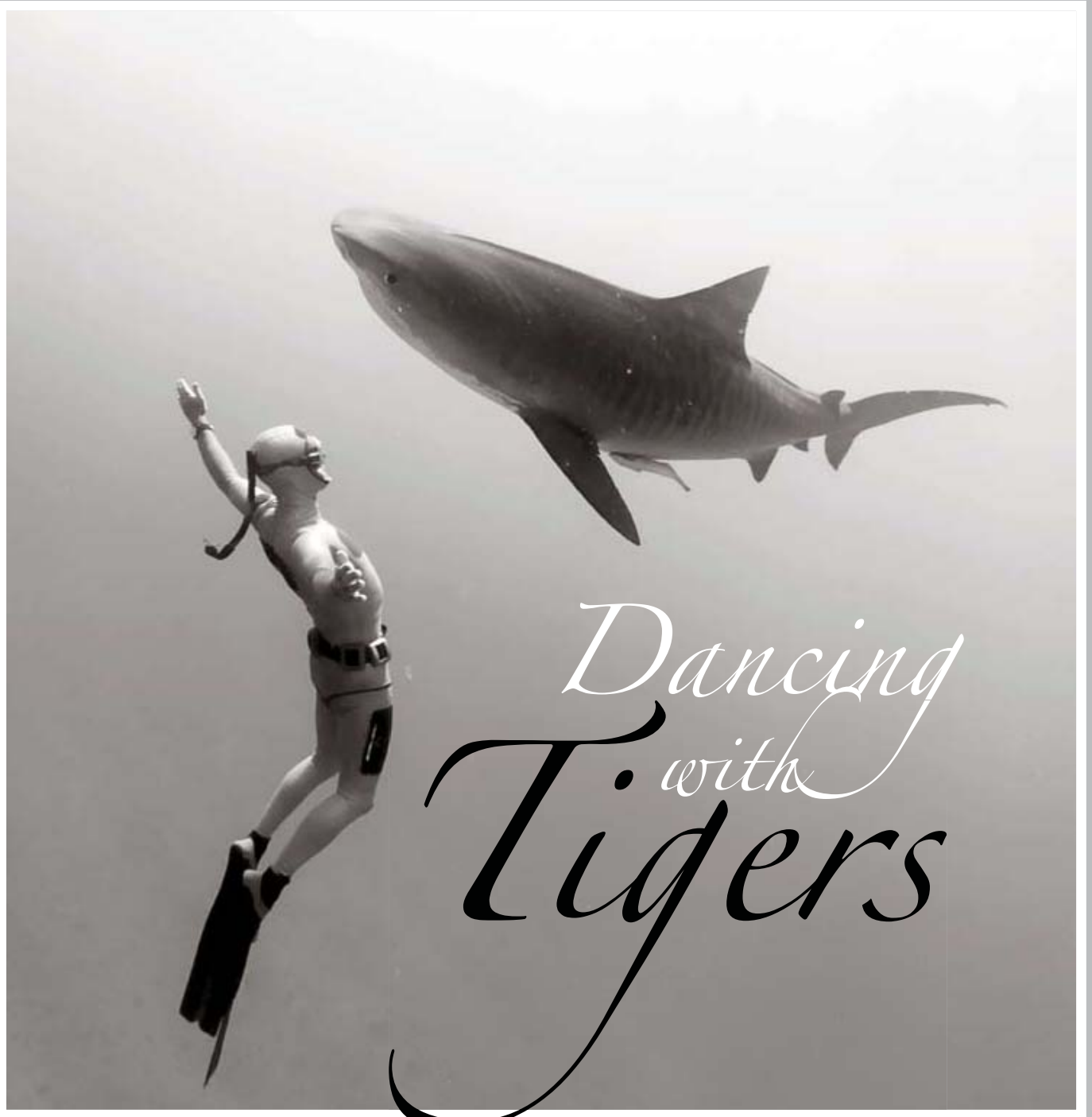


# OCEAN GEOGRAPHIC

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## *Dancing with Tigers*

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STEALTH DIVER'S SHARKS SURVEILLANCE • THE DRIFTERS • THE COLOURS OF ICE • REQUIEM FOR A MIDDLEWEIGHT



**WILLIAM WINRAM**, world class freediver is swimming in the middle of a large group of hammerhead sharks.



# Stealth Diver's Sharks Surveillance

*Story and Pictures by*  
**FRED BUYLE**

Four Times Freediving World Champion

Imagine diving into the swim path of hammerheads in the hundreds. It's an amazing and exhilarating experience! At the "golden triangle" of sharks – loosely bordered by the Islands of Cocos, Galapagos and Malpelo, such an up close and personal fantasy can be a reality.

These hammerheads, studied since the 70s, now have a marine sanctuary at Malpelo. The management of this sanctuary, awarded to the Malpelo Foundation

seven years ago was created by Sandra Bessudo who has been involved in the protection of this unique Colombian natural heritage. With the advent of new technology and innovations in data collection, Sandra is able to centralize the financial, logistical and human resources required to protect this jewel, and thus offer a better understanding to evolve better solutions for their preservation.

Malpelo Island, is about 500 km from the mainland of South America. It is 1.6-kilometer long, 300-meters high at its peak, and is the only visible point of an underwater volcanic range rising from a base that is 4'000-meters deep. Exposed to cold currents that bring nutrients from frequent upwellings, it peeks through the ocean enticing like an oasis on a blue desert curtain, to explore the mysteries of the deep.

Malpelo's distance and isolation though a dissuasion for the common plunderer, encumbers surveillance and protection of its unique biotope. However to the large foreign fishing companies, this dissuasion is a persuasion to plunder and abuse the rich and unprotected treasures. Poor local fisherman were lured with lucrative returns into this conspiracy. The Hammerhead sharks then fell prey to drifting nets and long lines delighting the fishermen; for the fins always yielded princely profits feeding the insatiable Asian demand.

Fortunately and thanks to the efforts of lobbying conservationists, this situation



**THE MARIA PATRICIA**, a 80 feet steel vessel, is used by the Malpelo Foundation to conduct the scientific expeditions.

has changed. A 6-man crew from the Colombian army is now permanently based there. This presence along with the Foundation's frequent and numerous expeditions and the introduction of restricted and monitored dive cruises have become a strong and effective deterrent. In the summer of 2006, the "Arc Sula", a vessel seized from narco traffickers was converted for high speed patrolling of the 25 nautical miles of Malpelo's now protected waters. With a mixed crew of military and Foundation staff members this was a dream come true for Sandra and a boost to the conservation of the hammerheads. Another vessel, the Arc Calima is currently being refitted to support the "Arc Sula" in her enforcement mission.

In July 2006, Malpelo Island was declared a UNESCO World Heritage site, inspiring the Foundation even further to educate the fishermen on sustainable fishing methods based on long-term resource management to guarantee the future generations' subsistence. It also initiated scientific research to protect Malpelo and its shark population. Such

investigative research gathers data that help justify wider protective measures, especially for the *Sphyrna lewini* (scalloped hammerhead shark), often benefiting all parties – the shark, the researcher and of course the fishermen.

Currently the research program launched by the Foundation involves two types of tags. The first being, the acoustic tag which collects time-signatured data such as temperature and depth of evolution. Several receivers placed around Malpelo record this information, which are regularly checked and downloaded.

The second is the satellite tag which is used to store information and, at a pre-determined date, it is released from the animal to float up to the surface where it will automatically upload the data to an Argos' network satellite. The period of recording varies between three and nine months. The first tagging session took place in March 2006, followed by another two in March 2007 and March 2008. In 2006 I was recruited by the Foundation to

tag sharks as a free diver. Free diving offers the advantage of discretion, mobility and prolonged stays underwater to approach the shy hammerheads. In one breath, stealthily, I identify, select and tag according to the sex and size criteria.

During the 2008 mission, another freediver, William Winram, joined me for the research. William is the current world champion in the freediving discipline of Constant Weight without Fins; he is able to swim down to 90 meters and swim back without the help of any propulsion devices, using only the breaststroke technique. William and I were spearfishermen since our childhood. Over the years we have honed our spearfishing skills to approach sea animals silently without distracting or spooking them. Interestingly, the same skills have been ideal in my underwater photography and filming. Now this skill has found use in tagging the sharks in the Malpelo project

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The classic Rob Allen 120 cm rubber-powered spear gun was used, with an adaptor at the tip holding the 5.5 cm dart which is inserted into the animal's back. The dart is attached to the tag by a nylon or Dynema wire. The less powerful gun was chosen for two reasons, the first, being the close proximity to the shark and the second, to minimize the impact. In a typical tagging operation an assistant in a inflatable boat, fills the tag's ID number, checks its operational condition before giving it to the free diver. The freediver then looks for a shark matching the size and sex criteria to tag. He also notes the depth

**HAMMERHEAD SHARK'S** curiosity shifts towards the lens while William is ascending from a dive in the background.



**WILLIAM IS LAYING SILENTLY** on the bottom at 15m. Freediving allows animals to come closer and with minimal impact on the animal's behaviour.





of tagging action and the exact time of execution and gives this information to his assistant as soon as he surfaces. The same protocol is repeated for every tagged shark. At the end of each day, the scientists enter the tagged data into the database.

There are now similar projects in Cocos (Costa Rica), Isla de las Perlas (Panama) and in the Galapagos (Ecuador). The analysis of data recovered from the receivers provides pertinent information about the shark's habits when they are in Malpelo's waters.

One revelation is that the *Sphyrna lewini* (Scalloped Hammerhead Shark) is an avid traveler visiting Cocos and the Colombian shores, swimming thousands of kilometers. Information from the Cocos and Galapagos Islands reveal similar behaviors.

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While diving on a pinnacle in 1998, Sandra saw an unusually large fish whose identity she wasn't too certain then. Having subsequently confirmed that it was the *Odontaspis ferox* (Small tooth Sandtiger shark), she initiated an expedition to obtain a biopsy to determine its DNA. This biopsy was performed at 78 meters depth. In 2007, the relentless Sandra and her team embarked on a study of this little known big shark that prefers the deep, though in Malpelo it can sometimes be observed in relatively shallow waters. The pinnacle is now named "Bajo del Monstruo", *Pinnacle of the Monster*, after the staff's nickname for this shy and elusive giant. With strong currents and at depths of 50 meters to 90 meters, with its rare appearances it made the tagging process a very interesting and

challenging one. From the data analysis collected this far, it appears that it can dive to at least 2'000 meters and be back in 16 meters of water on the same day or disappear for several weeks.

This year, five *Carcharhinus galapagensis* (the Galapagos shark), were tagged with satellite and acoustic tags. We don't know much about these sharks and they are suspected to travel long distances in the vast ocean. To date 76 hammerheads, five Galapagos and five *ferox* sharks have been tagged in

the sanctuary's waters. After each season the team improves the protocols and the tools as well. The partnership with organizations such as Conservation International, Colombian National Natural Parks, Fondo para la Acción Ambiental, Walton Family Foundation, Withley Found for Nature, MarViva, Tagging of Pacific Pelagic (TOPP), University of Davis, UNESCO and UICN allow the Foundation to run, develop and publish the findings of these research programs.

Every year I've returned to Malpelo with a yearning in my heart, for this research is very special to me. Being able to freedive in a place where the abundant and rich marine life accepts the human presence without hostility is indeed a privilege. I've witnessed first hand the difference research and protection make and am compelled to testify and promote this success story. After more than two decades of diving it was a humbling experience to be part of the magnificent ocean and a joy to reveal and share its beauty with humanity. ○