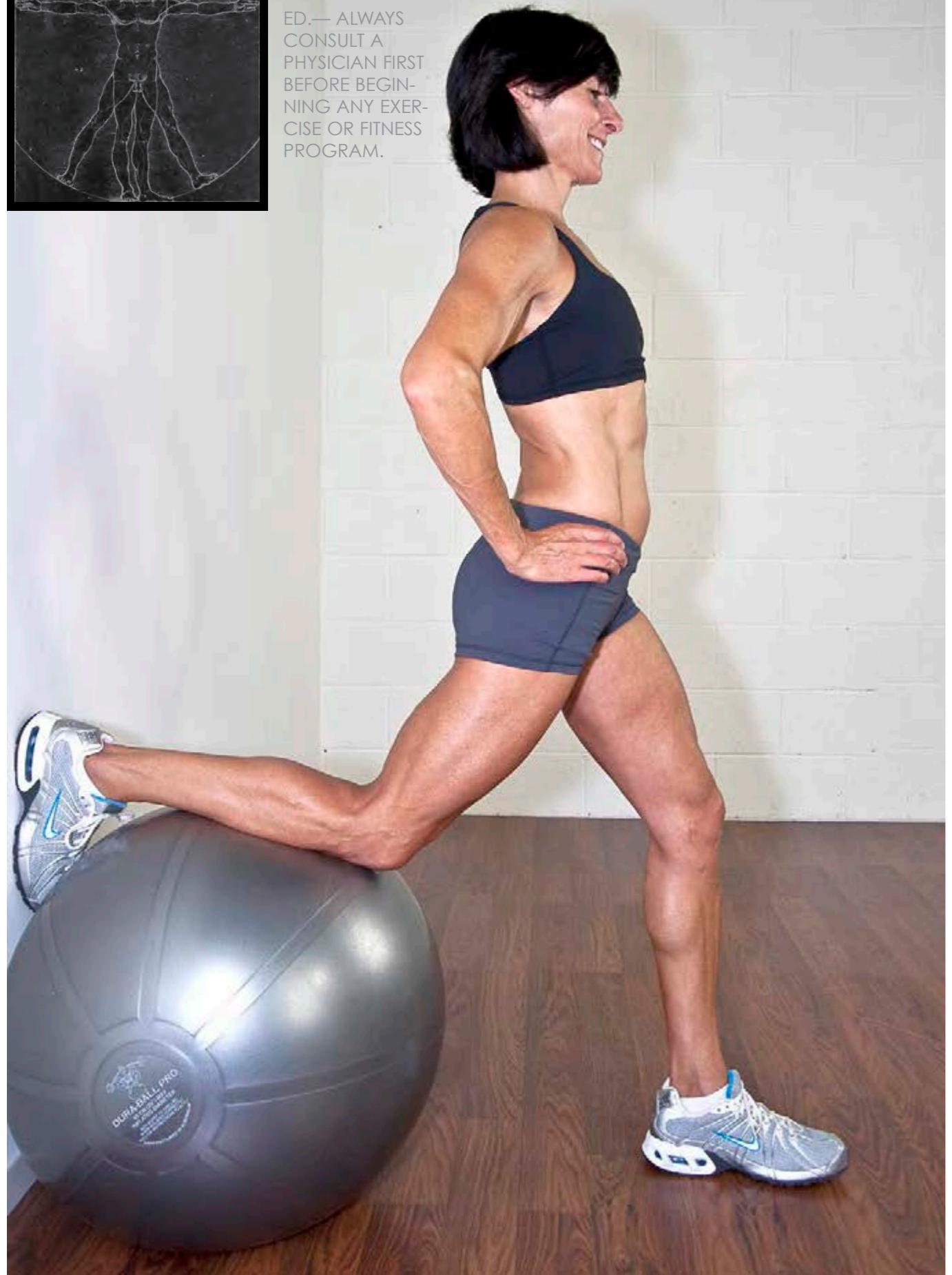




ED.— ALWAYS
CONSULT A
PHYSICIAN FIRST
BEFORE BEGIN-
NING ANY EXER-
CISE OR FITNESS
PROGRAM.



Leg Strong

Training Legs for Diving

Text and photos courtesy
of Gretchen M. Ashton,
CFT, SFT, SFN, NBFE

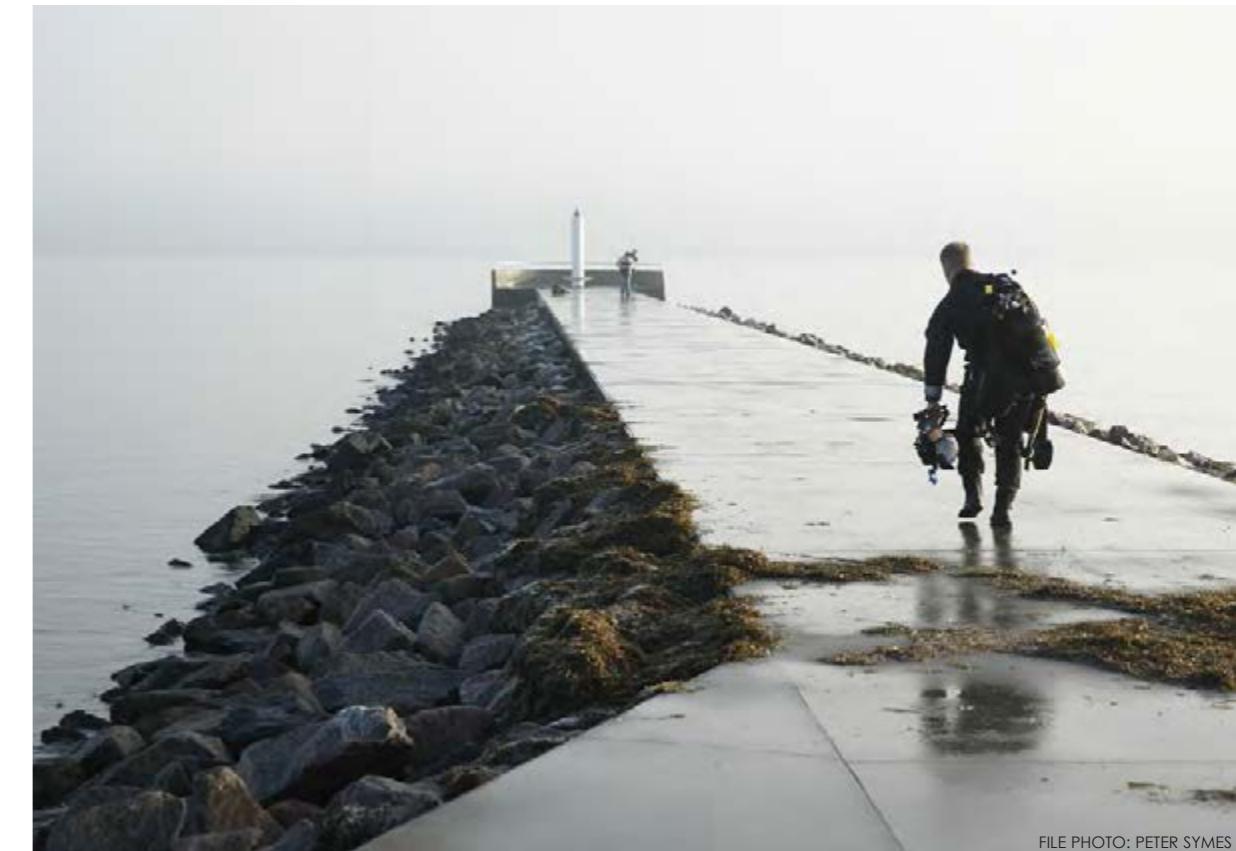
When exercising the legs to keep them strong for scuba diving, it is important to develop muscle strength, endurance and flexibility. The legs must be versatile for diving activities, which place unique demands on the body. During this leg workout, divers will benefit from imagining themselves: safely rising from a seated position under the weight of gear; climbing boat ladders; traversing uneven shore terrain; turtling distances on the surface, moving against and across currents; kicking into high gear in an emergency; positioning the body for underwater photography; maintaining overall self-control preventing collisions with reefs and other divers with efficient fin-kick swimming.

Quad stretch

Divers also need to be particularly aware of balanced leg strength to maximize equipment design. The most ideal set of fins will function better with good muscle balance and biomechanics of the legs. The focus of this fitness for diving workout is training the muscles of the legs, for strength, endurance and flexibility to aid in proper function of the hip and knee joints.

Body mechanics

Most leg exercises train more than one muscle group with each movement. Without getting overly complicated, a close stance targets the outer thigh (abductors), but in the same position, simply pressing the thighs together, as if squeezing a ball between the knees, focuses on the inner thigh (adductors). A wide stance targets the inner thigh (adductors), yet in the same position, pressing



Strong legs come in handy when schlepping gear to and from a dive site

FILE PHOTO: PETER SYMES



away from the center of the body against resistance targets the outer thigh (abductors). Squats target the front upper thigh while leg extensions target the front lower thigh (quadriceps). The quadriceps muscles extend the knee joint so resistance against extension of the knee joint trains the front of the thigh

(quadriceps). The hamstring muscles flex the knee joint so resistance during flexion of the knee trains the back of the thigh (hamstrings). These muscles of the upper leg also act on the hip joint. In the lower leg, the calf muscles assist forward movement when walking and fin-kick swimming.



Sissy Squat starting position

Leg strength and endurance may also be developed with many forms of aerobic exercise such as walking, running, jumping rope, cycling, group exercise classes, dancing, hiking, swimming and sports activities. Leg muscle imbalance can affect gait, foot, hip and back comfort when performing aerobic activities possibly leading to injuries, pain and interruption of exercise programs.

Stretching is important for flexibility and muscle balance. For example, tight hamstrings often lead to low back complications and pain, and tight quadriceps may pull the knee cap (patella) out of alignment. A few minutes of stretching every morning will make a noticeable difference in how divers feel and move. Stretching is best performed after a warm-up or a hot shower.

Location

The featured exercises are performed outside in a local park but with a bit of ingenuity the workout can be completed at a fitness facility or other indoor location. Some gyms have Sissy Squat apparatus that divers can lock their feet into instead of holding a rope or strap.

Equipment

All that is needed for this workout is a good pair of athletic shoes, a strong cotton jump rope or strap, a dumbbell, and a set of stairs or curb (preferably with a railing). A sturdy tree trunk works well in lieu of a railing and a large rock might even do the trick instead of a dumbbell. It is

not recommended to use exercise cables or jump ropes that stretch, diving weights that contain lead, or scuba tanks that lack good hand holds. It is also very important to hold the rope or strap not just the handles.

Breathing

For all of the exercises in this workout inhale through the nose before starting the exercise and during the downward motion; exhale through the mouth during the upward motion (during exertion). If additional breaths are needed during hold positions, work to keep the rhythm and timing of the additional breaths in sequence with the exercise.

Form

Distribute body weight evenly throughout the muscles of the lower body and keep the abdominal muscles contracted during all exercises.

Repetitions

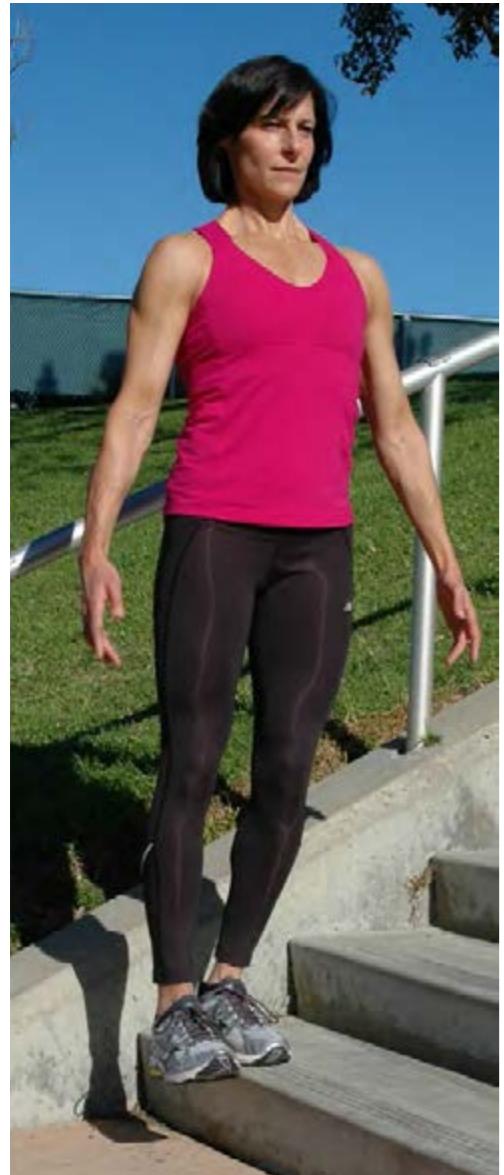
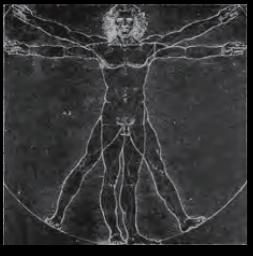
Perform as many repetitions of each exercise as possible in one minute. Repeat the entire sequence one to four times.

Exercise: Sissy Squat – Close Stance

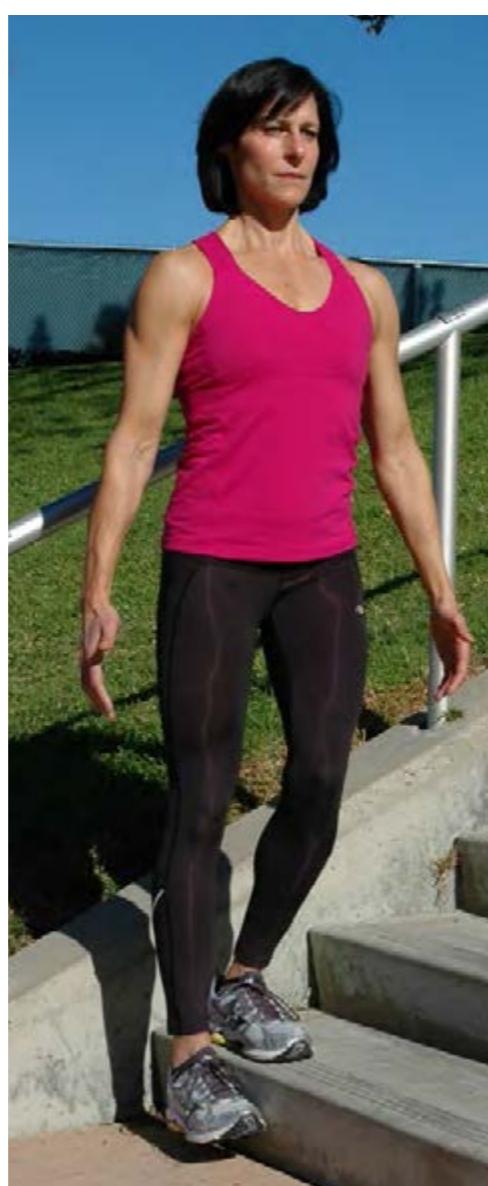
Wrap a non-stretch rope or strap around a railing, pole or tree as shown. With feet in a close stance, rise as high as possible onto the toes. Lean back slightly and use the rope to suspend the position. Sit back into a squat as if reaching for a chair that is just a bit too far behind. Establish a position of

TOP TO BOTTOM RIGHT:
Sissy Squat ending position for beginner, intermediate and advanced





Step Down starting position (above);
Step Down ending position (right)



Exercise: Step Down
Stand sideways with one foot on a step or platform and the other foot suspended at the same height alongside as shown. Hold a railing or carefully balance while bending the knee of

Exercise: Wide Stance Squat

Establish a wide stance as shown. Look down each leg to make sure that the hip, knee and toe are aligned. Hold a dumbbell or other weighted object in front of the hips with elbows slightly bent. Sit back and down reaching for that chair or bench that is too far behind. Once in the seated position, the knee, hip and ankle joints are to be as close as possible to right angles. At the bottom of the squat, squeeze the glutes (buttocks) to reverse the direction of the squat. Note: Do not lock out the knees at the top of the range of motion. Always look up (never look down) when performing a squat.

marine mammals



Author Kurt Amsler photographing a sperm whale, photographed by freediving icon, Fred Buyle



Looking for Moby Dick

ANDREAS GRUBER

It's an adventure. You swim like a champion, trying to be as streamlined as possible and glide effortlessly through the water. Your heart rate is already at its limits and your breathing borders on hyperventilation. Your focus is on the sperm whale and its blow, which you can see just as you slide into the water. You are hoping to get the animal in front of your camera, but it is a bit of gamble.

Text by Kurt Amsler. Translation by Peter Symes, edited by Gunild Symes. Photos by Kurt Amsler, Fred Buyle and Andreas Gruber

For three days now we've been cross-crossing the ocean between the islands Fajal and Pico in the Azores, in Norberto Diver's bright red RIB, for six to seven hours each day. We are joined on board by freediving champion Fred Buhle and photographer Andreas Gruber. It's peak season, the weather is great and the sea is calm here in the



Whale spotter on the lookout for sperm whales

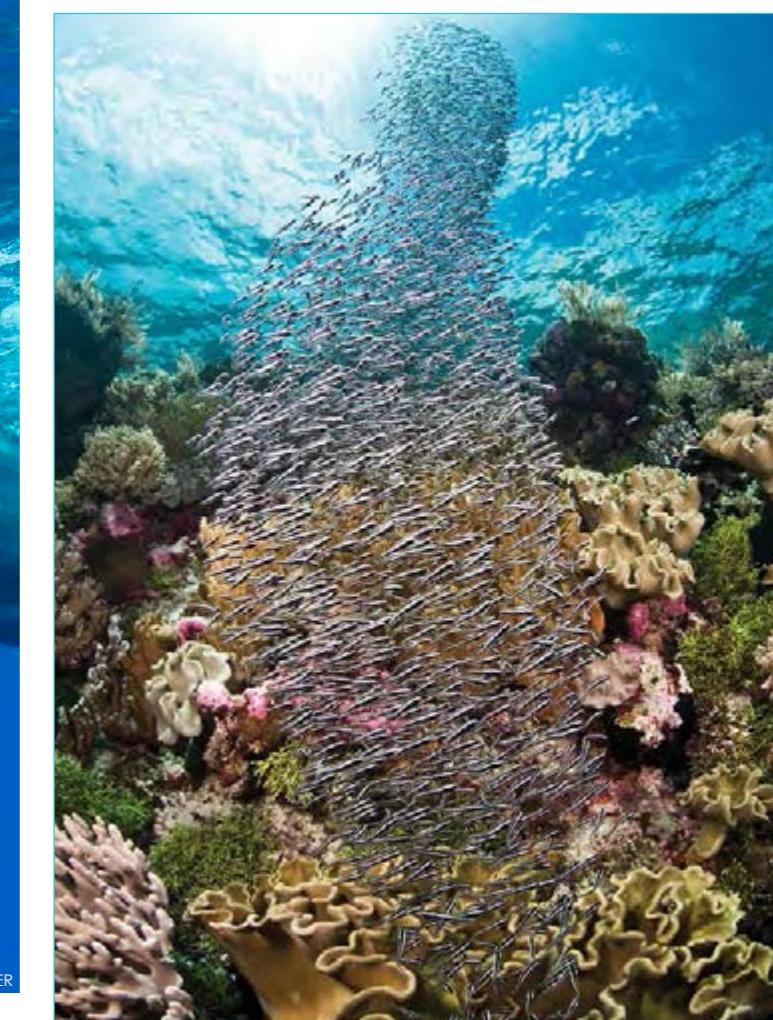
KURT AMSLER



marine mammals



THIS PAGE:
Diving with
sperm whales
in the Azores



An experience without equal



"After 20 years of diving around the world, we are speechless for the first time. Whoever thinks that he knows what diving is about does not know Wakatobi. For sure this is the last paradise on Earth!"

Marlies and Wolfgang Liebau, November 2013

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Kurt Amsler and Fred Buyle prepare to dive with sperm whales





mammals

Moby Dick

and the words of freediving champion Fred Buyle comes to mind: "Don't feel bad, Kurt. They always win!"

Moby Dick

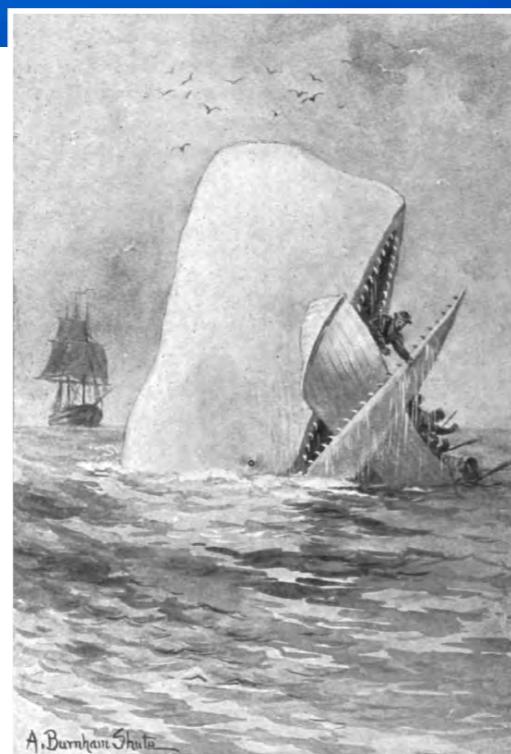
This novel, which is now a literary classic, was a commercial failure when it was first published in London and New York in 1851. And it



Herman Melville

was only a long time after the author's death in 1891, when the book was well out of print, that its reputation rose during the 20th century. The first translations into German appeared in 1927.

One of the most distinctive features of the book is the variety of genres that appear. Melville uses a wide range of styles and literary devices to blend the complexity of the fascinating whale, the ethical ambivalence of hunting these magnificent creatures, and the incredibly diverse appreciation of whales and whaling across the



sages are written using the old jargon of the New England Quakers, others like the preaching tales of old bible translations. He moved with ease from the language of a sailor to the dry prose of expedition reports. He

world's cultures. Moby Dick is based on Melville's actual experience on a whaling vessel. He described the whale in either florid mythical terms or in the language of the early marine biologists. Some pas-

described exotic cultures in the style of the racist adventure literature of the day in order to fit right into the prevailing tone of the establishment.

The sperm whale (*Physeter macrocephalus* or *Physeter catodon*). Even at birth the sperm whale breaks all records for toothed whales; A baby whale can weight over a ton. But it is their diving capabilities that really stand out. One specimen which was equipped with sensors and transmitters dove to a depth of 2,270 meters. The bulls can reach a length of 18 meters and a weight of 40 tons. As such they are the biggest predators on the planet. The body is stocky and the characteristic bulbous head can account for a third of the total length. The dorsal fin is small and it has short and stubby pectoral fins. The tail fluke is shaped like two equilateral triangles and is

slightly rounded at the top and deeply notched in the middle.

The one blowhole is located at the upper tip of the head. The huge head of a sperm whale is to a large part filled with an oily substance, also called spermaceti. It is believed that the head also serves as an "acoustic lens" focusing sound waves sent out during echo location. Emitting high-frequency clicking sounds the animals scan the surrounding environment and are able to image a large area.

The sperm whale is found in all oceans. It is most common in the tropics and subtropics, but is also found in colder seas. In 2004, a sperm whale was even spotted in the Baltic Sea for the first time.

On average, the males dive deeper than females. The duration of a dive can be from 20 to 120 minutes. How it's possible for sperm whales to hold their breath for such extended periods of time has not yet been fully



Sperm whale family (above); Fred Buyle photographs sperm whale (left)



Whale museum in Horta (above); Illustration by A. Burnham Shute from early edition of *Moby-Dick* by Herman Melville (left inset)

mammals



Sperm whale underwater; and in illustration from *Moby-Dick* (left)



explained. It is known that they are able to restrict and slow down their metabolism to a minimum while diving, during which time, blood is directed only towards essential organs such as the heart, brain and spinal cord.

In addition, sperm whales have 50 percent more hemoglobin in their blood

mature males then leave and later form associations or groups with older males but travel alone.

Whaling in the Azores

Whalers from America and later, England, brought whaling to the Azores. Whaling was not actually performed in

than humans do, enabling them to store large supplies of oxygen. Sperm whales' preferred prey is squid, and parts of the fabled giant squid has regularly been found in their stomachs.

Females form social networks with their young and live in groups of about 15 to 20 animals. Sexually

these waters, but the islands were used for provisions and supplementing crews with young, brave and energetic men from the archipelago. In time, the Azoreans took up whaling themselves and established their own whaling stations along the coast.

On the islands, high above sea level, lookouts were established from whence the so-called "Vigias da Baleia" or "looking for whales" could be conducted using binoculars overlooking the ocean. These observers were the most important men in the whaling, because only their eyes could direct the whalers to their targets. When a whale was spotted, at first smoke signals were used, later rockets were shot into the sky until finally radios were used.

The whalers were fishermen, craftsmen or farmers who dropped what they were doing once a whale was sighted. The cry "Baleia! Baleia!" signaled the men in the fields to leave what they were doing and head as fast as possible to the har-

Moby Dick



Kurt Amsler underwater with sperm whale

FRED BUYLE

mammals



Display of sperm whale in the whale museum of Horta, which is housed in a former whale factory on Faial Island in the Azores



KURT AMSLER

bor where their boats were constantly ready to sail.

Early on, they went out in long slender rowing boats called "Canoas" sometimes assisted by sails. In the second half of the 20th century, motor boats were used to power the whaling boats, which had a crew of up to seven

out at sea.

If the whale surfaced, the crew had to row over to it as quickly as possible. The "Arpoador" hurled the harpoon by hand into the flanks of the giant. Hit by the harpoon, the whales would flee, in most cases, by diving deep. In such cases, the up to one kilome-

ter-long rope wound out rapidly. This was the most dangerous part of the hunt, because if anyone got snagged by the rope reeling out, he would be pulled under.

Many whalers lost their lives in the hunt. Whole boats could be pulled to the depths if the rope was not cut before the end was



KURT AMSLER

reached.

In 1984, whaling in the Azores came to an end, making room for a new lucrative business; nowadays, the only hunting done is with photo and video cameras and not with harpoons. Many of the old observation posts are also in use again this time by whale watching companies taking tourists and divers out. Even some of the old "Vigias" are now back in action many years after the ban on whaling came into place; they now assist the tourists with their good eyes, which still provide an important service.

Freediving with whales

I have been so fortunate to dive with some of the largest whales of the oceans. The first encounter I had was in 1990 diving with resident pilot whales. At that time, there were virtually no commercial whale watching or snorkelling tours and no regulations. We

could spend days with the animals without being disturbed. In Polynesia, I have been freediving with humpback whales, which bring their young to the warm waters there.

Another unforgettable experience

Experiencing these giants was simply huge. Appreciating that humpbacks expend their energy reserves during the long trek from the Arctic, I cannot let go of the idea of also diving with these creatures in the Arctic. But the most impressive of all cetaceans, is the sperm whale which "Moby Dick" once made world-famous! He is the beast of superlatives and the largest predator that ever lived on our planet. He can hold his breath for two hours, dive to 3,000 meters and eats a ton of

squid per day!

The Azores, which are now my second home, is probably the best place to get a camera in front of these giants. There are places, Mauritius and Dominica, where the access is much easier, but the challenge and adventure

cannot compare.

Despite being hunted to the brink of extinction by humans, the animals show absolutely no aggression when you are with them in the water. Catch

them on a good day, the sperm whales can also be quite curious and try to communicate with their extremely well-developed cognitive abilities—our problem is to figure out how to answer. □

"We can only dream about the diving skills of these whales."
—Freediving icon Fred Buyle

For more information, please visit Kurt Amsler's website at: www.photosub.com



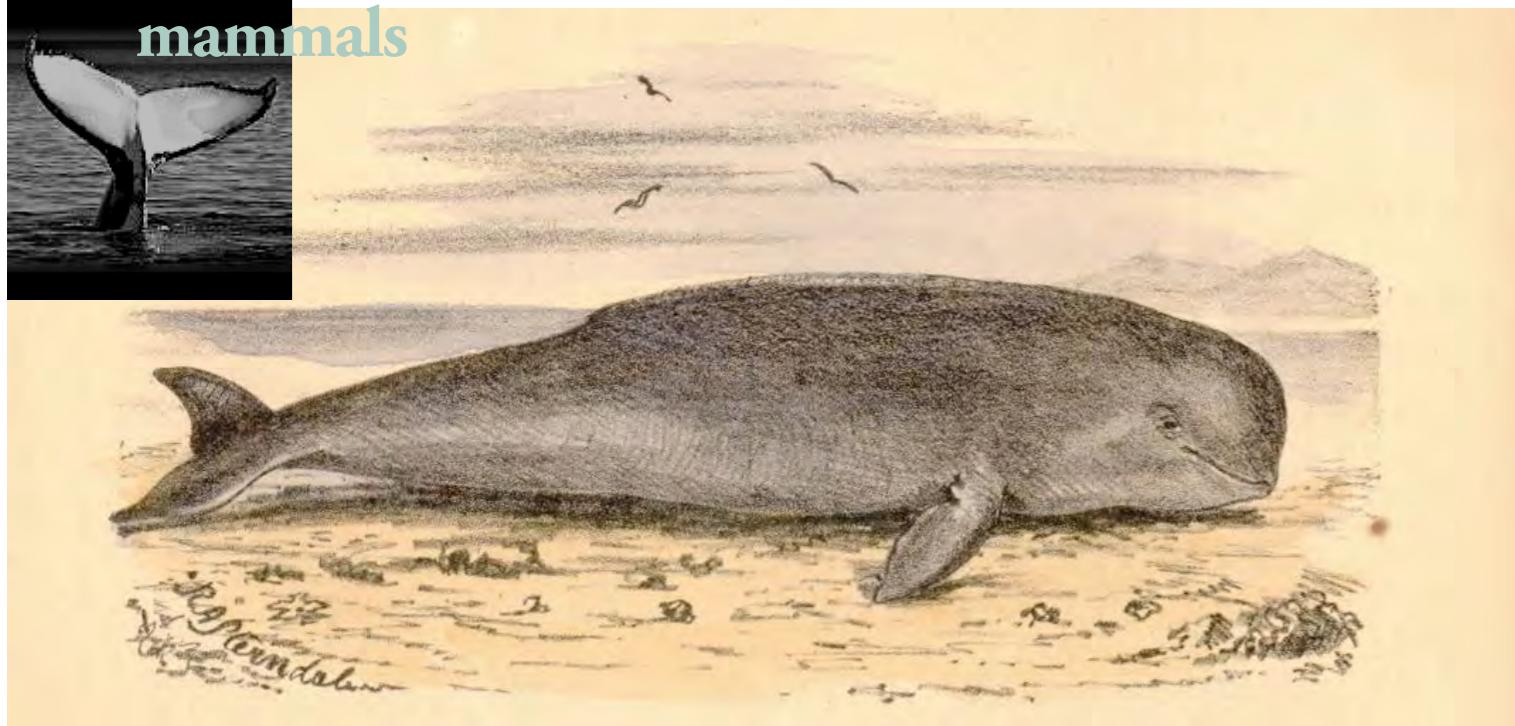
KURT AMSLER

THIS PAGE: Holding its breath for two hours, a sperm whale can dive to depths up to 3,000m

Moby Dick



KURT AMSLER



Rewards offered for sighting Yangtze porpoise

In a bid to try and save the Yangtze finless porpoise, Chinese authorities are giving people who report an injured or dead finless porpoise a cash reward.

The Yangtze finless porpoise is one of three recognised subspecies and is the world's only freshwater porpoise. The porpoises stay in shallow waters, up to 50m (160ft) deep, close to the shore, in waters with soft or sandy seabeds, or in estuaries and mangrove swamps. Unfortunately, it seems to now be on a similar path to extinction as the now infamous

baiji, or Yangtze River dolphin, that was declared functionally extinct at the end of 2006.

Experts say pollution and low water levels are harming the fragile species. It is thought only about 1,000 of these freshwater animals remain in the wild. About half the population lives in Poyang Lake, which used to be China's largest freshwater lake,

but the construction of a dam and recent droughts have reportedly reduced its size by nearly 95 percent.

Reporting that a Yangtze finless porpoise has been injured or is at risk—and helping to save the animal before officials arrive—could be rewarded with 300 yuan (US\$48, GB£29), the People's Daily newspaper said. □

Female humpbacks head to shallower waters to shake off bothersome males

Scientists believe females could be choosing shallower waters to avoid unwanted advances from males, save energy and give their calves a better chance of survival.

Lead scientist Dr Alison Craig, from Edinburgh Napier University explained: "There are no long-

term social bonds between male and female whales, and the males approach lots of females in the hope that they will get the chance to mate."

The findings revealed that females with a newborn calf were frequently chased by one or more males in deeper waters. This

meant that the mother and her baby had to speed up their swimming nearly 75 percent. However, as they swam to shallower depths, the number of males pursuing the mother decreased. Hence, more often than not, the mothers in the shallows were found to be alone with their calves. □

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Ann Donahue, October 2013



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Mystery solved: Minke whale cause of bizarre quacking sound

For decades, the noise—nicknamed "the bio-duck"—has been recorded in the Southern Ocean, but the animal producing it has remained a mystery. The strange sound was first detected by submarines about 50 years ago. Those who heard it were surprised by its quack-like qualities. The researchers now say they have "conclusive evidence" that the bio-duck is produced by the Antarctic minke whale. In 2013, acoustic recorders were attached to two of the marine mammals and recorded the whales making the strange noise.

□ SOURCE: BIOLOGY LETTERS



Antarctic minke whale

NOAA

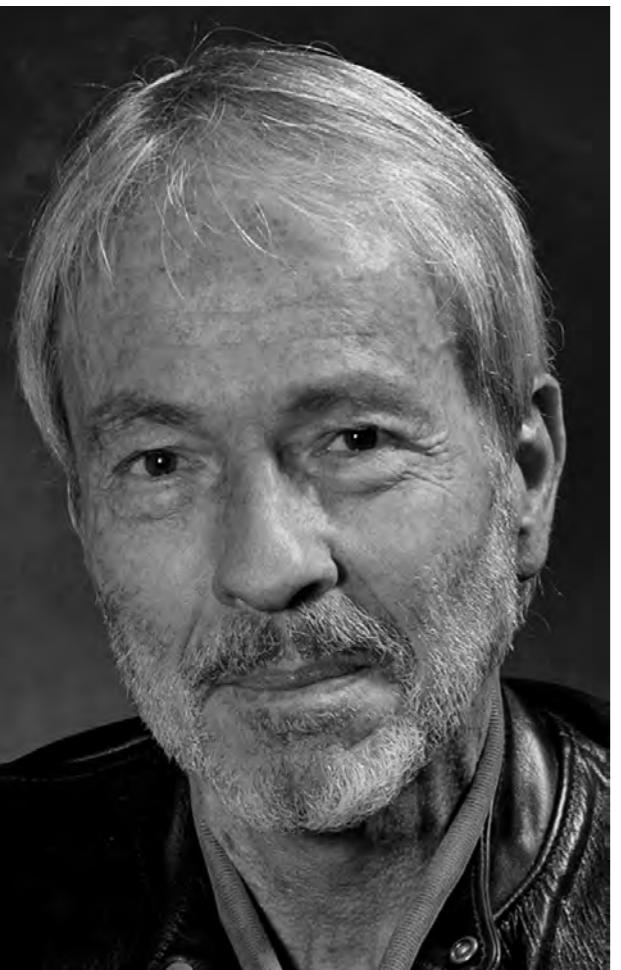
shark tales



Edited by
Ila France Porcher

Text by Ila France Porcher
Photos courtesy of Wolfgang Leander

At the almost venerable age of 73, Wolfgang Leander is one of the great pioneers of freediving with sharks, whose writing and photography have made him a legend.



Wolfgang Leander

Of German descent and now living in Cochabamba, Bolivia, Leander was fascinated from early childhood by the sea and its occupants. By the time he was a teenager, he was spending his time spearfishing in the Mediterranean, which was then a diver's paradise. Inspired by

the feeling of flying weightlessly through the spectacular submarine landscapes, he honed his skills while exploring and fishing.

Freediving

Freediving gave him the sensation of

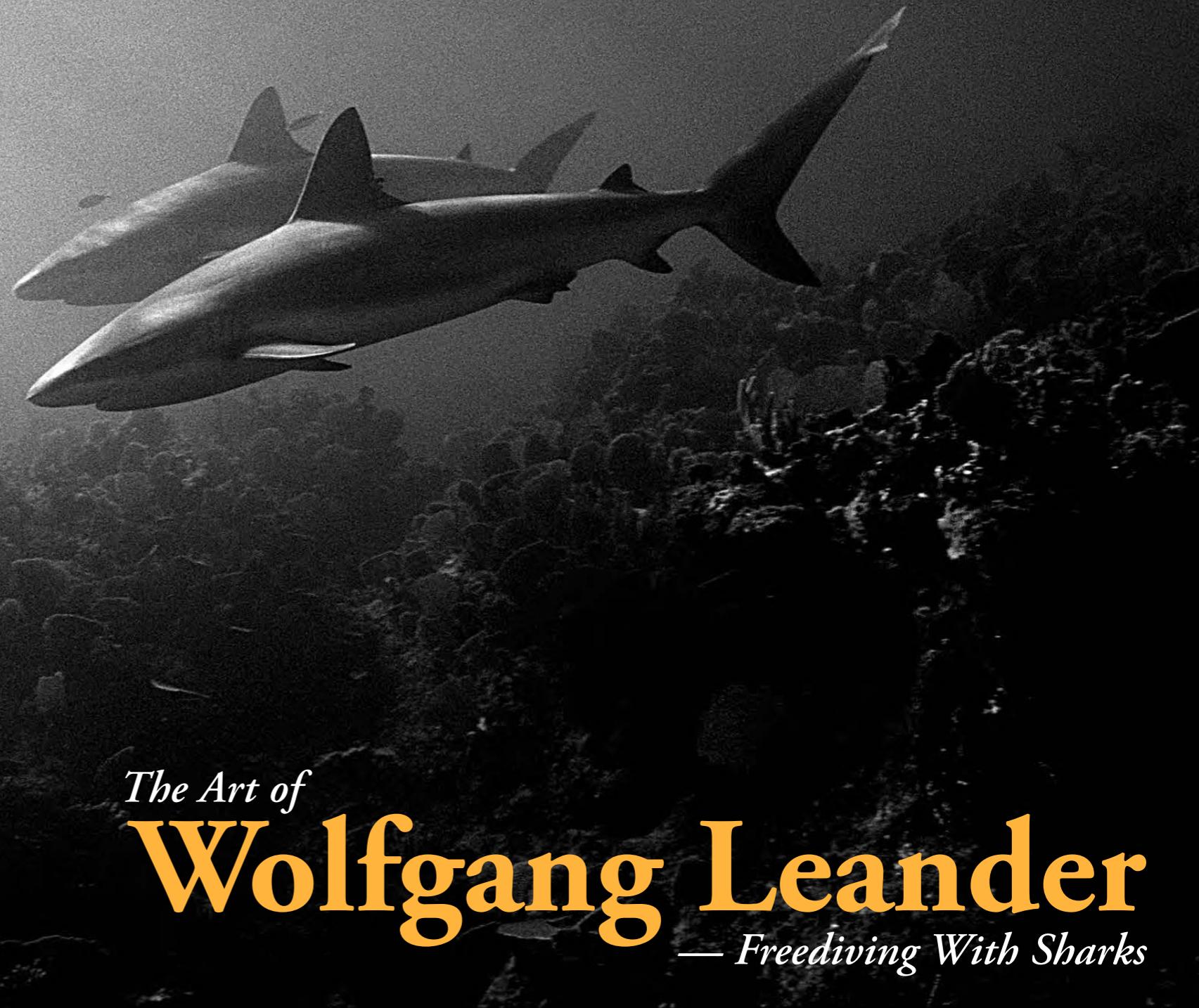
being at one with nature, and he resisted scuba diving, and finally refused it, because he thought he would lose that sensation of freedom of motion under the weight of the gear and tank.

The first time Leander saw a shark close-up, he was spearfishing alone in

1968 in the British Virgin Islands, and just as he targeted a fish, a four-metre shark glided by him. He was riveted by the sight of it, and replayed the moment over again and again, trying to keep the enchantment alive. He found the experience so moving that he began to seek

The Art of **Wolfgang Leander**

— Freediving With Sharks



shark tales



THIS PAGE: Scenes with tiger sharks

sharks out, and tried not only to see them, but to interact with them. Caribbean reef sharks were his favourites. He found them to be the most elegantly designed of sharks, and they accompanied him on his lone spearfishing sojourns. He saw them in many situations, and became increasingly familiar with them and the other sharks on the reef. He had always had an intuitive sensitivity to animals, and knowing their body language, he learned to move with them in harmony with their moods. He soon perceived that they were intelligent animals, and was awed by their capacities to win out in countless situations that developed in their



Leander



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THIS PAGE: Tiger sharks

complex environment. Leander was one of the rare individuals who discovered on his own, independently of the rest of human kind, that sharks were nothing like what he had been taught, that they do not behave the way people believe they do, as shark mythology tells us that they do. Once he knew this, he became an avid shark advocate and a leader in the effort to save these maligned fish from extinction.

Sharks in art

Photographing them regularly, he tried to capture their essence in black and white, and followed his own instincts as he had always done, to remain faithful to his old Nikonos V camera long after the world went digital.

shark tales



THIS PAGE: Various portraits of tiger sharks



Leander's photography is straightforward. He describes it as "minimalistic" as he concentrates on what he calls the bare essentials in photography in general: composition, composition, composition, with nothing extraneous to distract from the centre of attention.

He is one of the very few underwater photographers who works with available light only, and he does not use distorting ultra-wide-angle lenses to create special effects. His camera becomes an extension of his eye, literally focussed on his subjects, as he works.

Leander sees himself as a purist when it comes to diving and pho-

tography, and his uncanny sense of harmony may be behind his skill in capturing striking images that reflect the supernatural beauty he found in the ocean. He says that he has most images in his head before squeezing the shutter.

With their delicate shadows illuminated by the white sand, Leander's lighted images enhance the clean and graceful silhouettes of sharks in motion. The black and white medium emphasizes the play of light over the streamlined forms of his subjects while his sharp eye captures dramatic compositions that highlight their elegance. His works present the most fragile-looking harmonies of form.

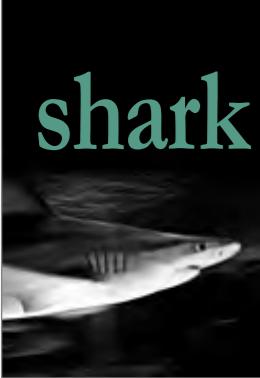
The presence of the tiger

In March, 2007, Leander dove with tiger sharks at Tiger Beach in the Bahamas, and found the underwater presence of these great sharks spellbinding. Their curious and very slow approaches to gaze at him were unexpected and irresistible. He writes, "I looked into their dark eyes, and I immediately felt what the French call '*le coup de foudre*', love at first sight."

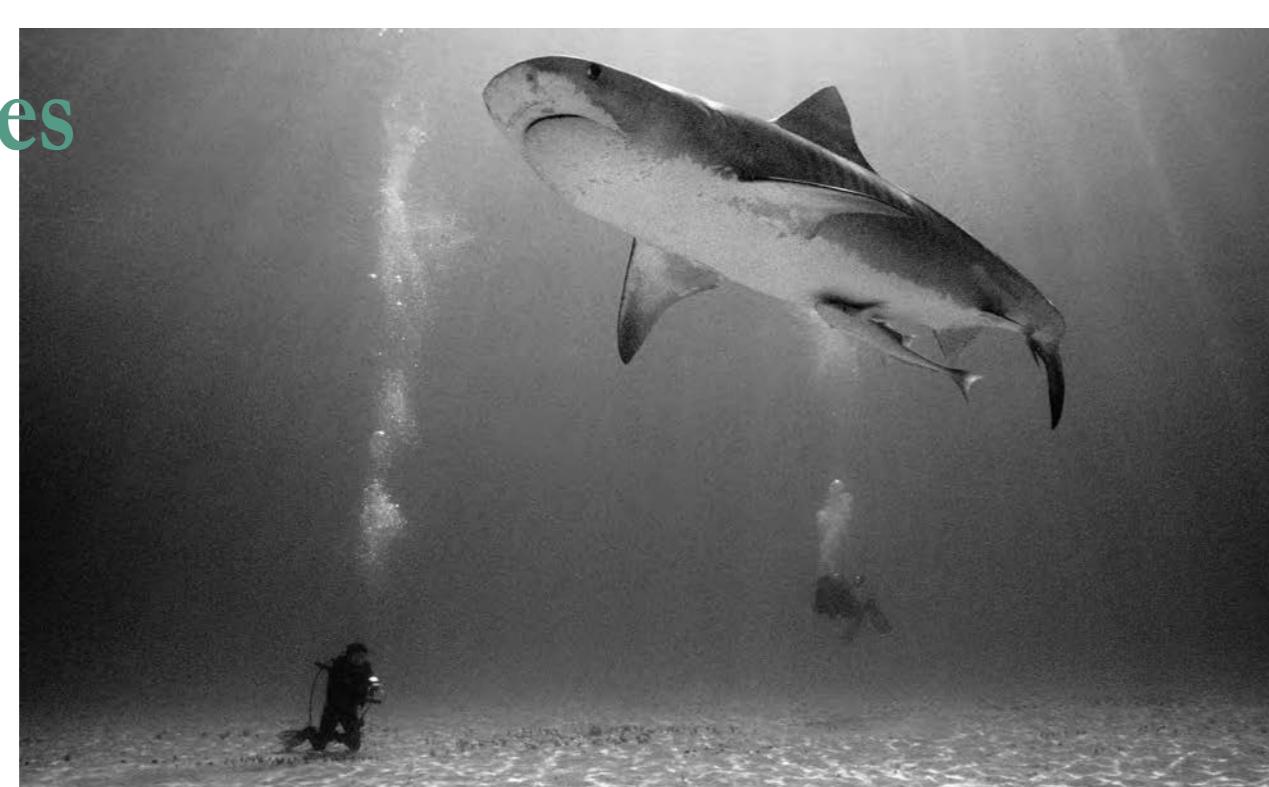
Leander returned again and again to swim and interact with tiger sharks, each time marvelling anew at the intelligence he found reflected in their eyes.

At the same time, he has been a passionate, and at times vociferous,

shark tales



Divers with large tiger shark (right); Hammerhead shark on sandy bottom (far right and below)



Mystic Manta Ray, by Wolfgang Leander (left)

makes eye contact with the living shark, will recognize that it is not the monster it is portrayed to be.

To Leander, no one can meet a tiger shark and fail to be enchanted by his or her beauty, peacefulness

and intelligence, sensed, rather than seen, in the "dark and inquisitive" eyes of the tiger. □

spokesperson for sharks, assuring others that humans are not on their menu, and that they are intelligent and peaceful animals who treat humans gently. He regularly denounces their demonization by the media, their slaughter for shark fin soup, and the shark tro-

phy fishing culture that dominates public thinking in many regions.

He urges all those who fish for sharks, and those who fear or hate them, to go and meet them underwater, because he is convinced that anyone who sees them in their habitat and

For more information about how Leander crafts his images to transmit powerful visual messages visit: **fleander.blogspot.com**

shark tales



Blacktip reef shark at Sea Life Centre; Baby blacktip reef shark at Sea Life Centre in Weymouth (lower right)

Flirting sharks at Sea Life Centres hold promise for wild populations

Text by Ila France Porcher
Photos by Mark Oakley of Sea Life Centre and Ila France Porcher

A breeding programme for blacktip reef sharks has been launched at Sea Life Centres in Britain and Europe, with the goal of restocking wild populations fished out for the shark fin market.

Marine scientists are hopeful it will provide a model for future captive breeding programmes. There are about 70 blacktip reef sharks in Sea Life Centres across Europe, and they are all reaching reproductive age at the same time. The facilities are preparing to welcome the many pups soon to arrive with the best possible care.

A pup born in Scheveningen, Holland is now more than a year old, and three more born in Oberhausen, Germany, two months ago, are thriving in a special

nursery tank in Weymouth, Dorset. Several centres in Britain are expecting pups soon. The females give birth to up to six live young, and since the species pursues a complicated social life in the wild, plans are being made, and ways are being found, to ease the capricious shark mothers-to-be through a successful birthing.

"We have the opportunity to establish a world-leading captive breeding programme, but we will need to learn a great deal very quickly—we have suspected pregnancies at several centres," said Sea Life senior curator, marine biologist Chris Brown. "The pressures on sharks in the wild, mainly from shark-finning, could result in captive-breeding programmes becoming vital to their survival. Reintroduction could soon offer their last hope, in which case we would like to be able either to provide animals for release, or to be able to advise any specially established breeding centres how to achieve the best results."

Shark Watchers

To help staff at the centres remain up to date on all mating activity, Sea Life is calling on their visitors to help watch for signs of mating behaviour, through a new program named Shark Watch, which has recently received a lot of publicity. Helpful visitors are given a questionnaire and guide to make it as straight forward as possible to report their observations.

What is learned in this exciting new program of hands-on research could be critical to successfully raising sharks in captivity, and later reintroducing



MARK OAKLEY / SEA LIFE CENTRE

them into the wild. Tropical sharks have never been captive-bred before on a significant scale, but the Sea Life team believes it has a unique opportunity to achieve a breakthrough. A special blacktip stud-book has been set up to help ensure a strong gene pool.

Raising sharks

With my background observing the species in the wild, I was invited to Britain to discuss the care of the pregnant

females and pups at various centres, and make suggestions for the questionnaire. I was most impressed by the concerned dedication of all staff members involved, as well as the radiant health of their sharks.

"Blacktips are classed as 'near threatened' in the wild," said Sea Life curator, Carey Duckhouse. "Though still fairly common, some populations, like the one Ila studied, have declined sharply through over-fishing for the shark



MARK OAKLEY / SEA LIFE CENTRE



ILA FRANCE PORCHER

Brighton Sea Life Centre



shark tales



fin market. It's possible that a captive breeding programme for reintroduction could become necessary in the future, in which case everything we learn from our programme could prove valuable.

"As our own displays teams are unable to monitor our sharks day-long, we are recruiting volunteer

Shark Watchers from amongst our visitors," Carey explained, "and with Ila's help have devised a simple, and we hope fun, survey form, to help alert us to courtship and mating at the earliest opportunity, so we can plan accordingly."

At 25 centres across Europe

housing blacktip reef sharks, visitors will be invited to serve as Shark Watchers throughout the summer.

If visitors report mating activity or see it taking place, it will help enable

Sea Life experts to predict the likely birth period and plan accordingly. The mother could be corralled in a special region in the main display, where she could give birth without other sharks preying on her pups, or she could be placed in private in a nursery area.

Decades of shark finning have stripped these tropical reef sharks from their habitats on coral islands throughout the Pacific, the Indian Ocean, and the Middle East. The exact extent of the depletion is unknown, but every time it is studied, the conclusions are more dire.

About the centre

As my host and Sea Life public relations manager, Mark

Author Ila
France
Porcher



MARK OAKLEY / SEA LIFE CENTRE

acquisition in Shanghai, is being arranged. Stranded, injured, sick, or orphaned seals, dolphins and whales found along the shores of Britain are systematically rescued by Sea Life, and housed in one of its specialized hospital facilities.

Breeding

Breeding endangered sea animals is another important aspect of the Sea Life Centres, of which the tropical shark project is one of the latest. Sea Life is also breeding 13 species of endangered rays. Since its inception, Sea Life has tried to play a direct role in helping sea life of all kinds, and its enlightened approach stands as a dramatic example of how rescue, rehabilitation, release and education can make aquaria into important facilities for aiding wildlife, as well as displaying it. Sea Life's work provides a ray of hope for the survival of the many species of sharks threatened with extinction. □

Ila France Porcher, author of *My Sunset Rendezvous: Crisis in Tahiti*, is an ethologist who focused on the study of reef sharks after she moved to Tahiti in 1995. Her observations, which are the first of their kind, have yielded valuable details about their lives, including their reproductive cycle, social biology, population structure, daily behaviour patterns, roaming tendencies and cognitive abilities. Her next book, *On the Ethology of Reef Sharks*, will soon be released.

ILA FRANCE PORCHER

Sea Life information poster



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