

dive fitness

ED.— ALWAYS CONSULT
A PHYSICIAN FIRST BEFORE
BEGINNING ANY EXERCISE
OR FITNESS PROGRAM.

The Clock

— *Extend dive time with physical fitness*

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

Tick tock tick tock. Have you ever heard someone say, “There goes 15 minutes of my life I will never get back?” While there are many different philosophies and applications of time, most divers don’t want to waste it. Instead, divers carefully invest some of their precious time, energy and money planning and preparing for their ideal SCUBA experience.

It is not surprising that one of the earliest and most accurate methods of measuring time is the water clock. In fact, divers seem to have their own built-in water clocks pouring over dive logs, recording time in and time out of the water, bottom time and surface intervals, and adding up the flow of minutes as a measure

of experience. Underwater photographers devote hours of their time dedicated to freeze-framing that perfect fluid moment. Even professionals that have spent years of their lives exploring the oceans of the world still can’t get enough. Racing the clock or watching the clock, divers simply want more dive time.

Participating in daily exercise is an investment of time divers can make for themselves that comes with big payoffs. Physical fitness improves the health of divers, which can extend dive time and add years to the diver’s lifespan.

A diver certified at 20 years of age has the potential for more than 50 years of scuba diving. During this diving lifespan many biological changes will occur. Beginning in early adulthood all body systems begin to lose capacity; muscle strength decreases, cardiovascular capacity diminishes, and body composition changes. Clearly, illness should not be confused with aging however, changes in the body due to aging are

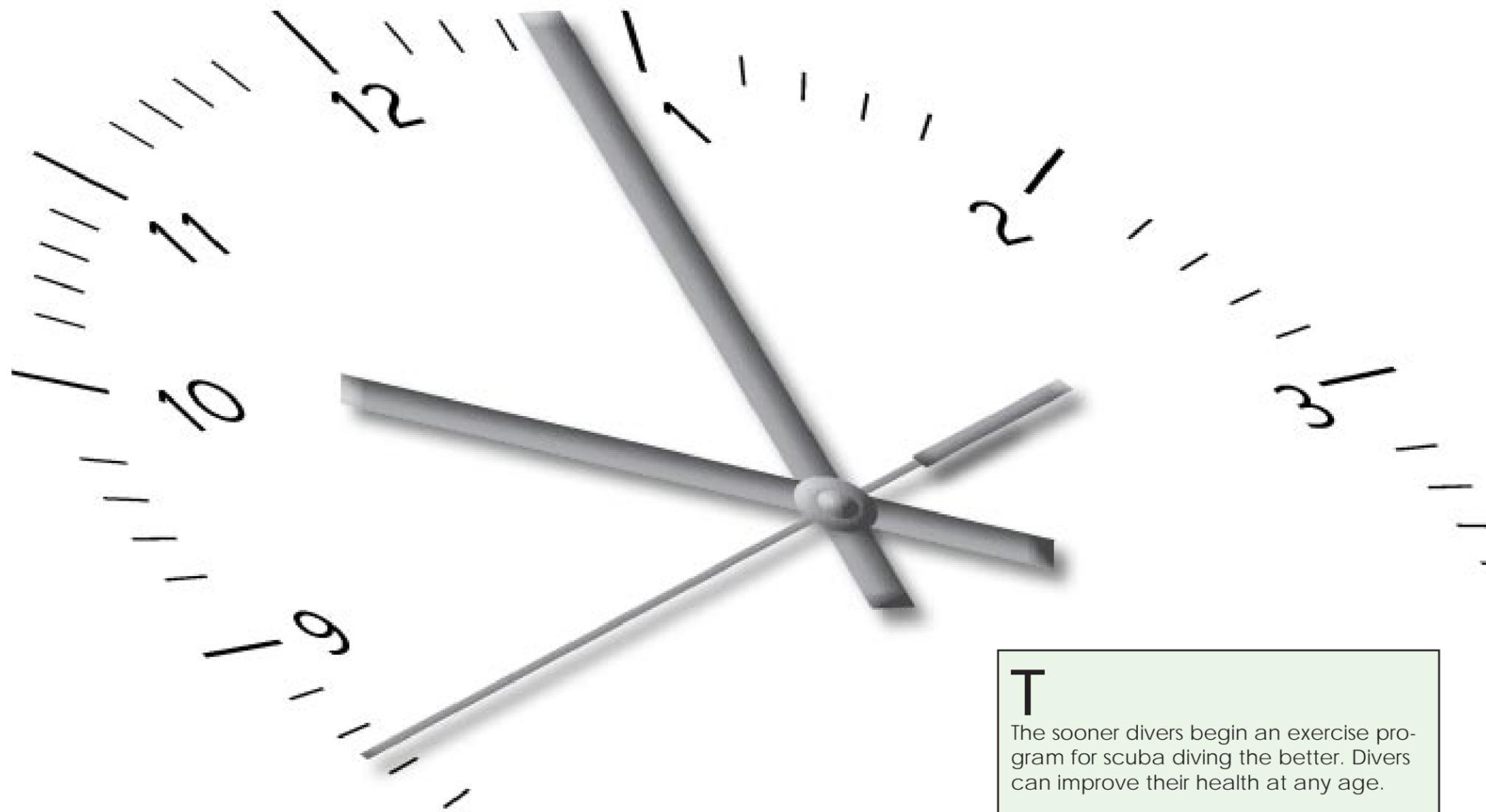
of great concern when combined with illness, injury or a sedentary lifestyle.

There are many theories of aging, but only physical activity is wholly agreed to reverse the effects of aging. As with diving and any activity, there are risks associated with exercising. Fortunately the benefits of physical fitness far outweigh the risks associated with exercise and greatly reduce the risks associated with diving. As the body ages, workouts can be modified to minimize risk and maximize results. Exercise is the great equalizer. A fitness lifestyle may extend biological health by as much as 20 years.

More efficient use of air is perhaps the most significant benefit of exercise that can extend dive time. Physiological adaptations as a result of exercise

increase aerobic capacity, improve the ability of muscle cells to utilize oxygen, enhance the body’s ability to transport oxygenated blood to the muscle cells and carbon dioxide away from the cells, strengthen and train the heart to pump more blood, and metabolize stored body fat as a primary source of energy helping to maintain healthy body composition.

Physical fitness for diving increases endurance and reduces fatigue, facilitates carrying less weight, improves mental acuity, reduces the risk of decompression sickness (DCS), improves agility on boats and uneven terrain, improves comfort and movement on the surface and underwater, improves fin-kick efficiency and overall diving performance.



T
The sooner divers begin an exercise program for scuba diving the better. Divers can improve their health at any age.

I
Interval training, using a timer instead of counting repetitions, is a great way to adapt a workout to enhance diving performance.

M
Make an appointment to workout. Train at the same time every day and vary the length of the exercise session.

E
Exercise at least four times each week for diving. Sixty (60) minutes of physical activity is recommended for everyone every day.





A balanced exercise program incorporates resistance training for strength, aerobic training for cardiovascular fitness, stretching for improved flexibility and injury prevention, and good nutrition.

The Clock is an advanced exercise requiring good leg strength, torso stability and flexibility in the torso, hips and shoulders. Beginners may wish to practice the Split Stance Squat to develop a foundation before progressing to The Clock. Review and follow the biomechanics, form, breathing, and precautions of the Split Stance Squat.

Equipment: A weighted medicine ball adds challenge to the exercise and assists the rotation of the torso. The exercise may be performed without weight with the hands clasped together.

Getting started: Imagine two clocks aligned with each other one below the feet and another above the head. Stand in the center of the clocks in a split front-to-back stance with the right foot forward, feet about hip width apart and



The Clock
—starting position

12 o'clock directly in front. Hold a weighted medicine ball between both hands with fully extended arms. Drop into a lowered Split Stance Squat position and remain in this lowered stance throughout the exercise.

Form and breathing: To begin, inhale while reaching down and across the front knee pointing the medicine ball toward 12 on the imaginary clock below. Slowly begin to exhale and with controlled motion rotate the torso sweeping arms like the hands on a clock to 7 o'clock above. When turning the torso at the waist work to keep the hips pointing forward. Keep eyes on the ball at all times turning the neck and head to keep them in line with the spine. Resist the urge to stand up. Continue the exercise by inhaling while sweeping the arms back down to 12 o'clock below. Repeat for one minute and return to the standing position. Now switch legs front-to-back so that the left knee is forward. Perform the exercise for the other side of the

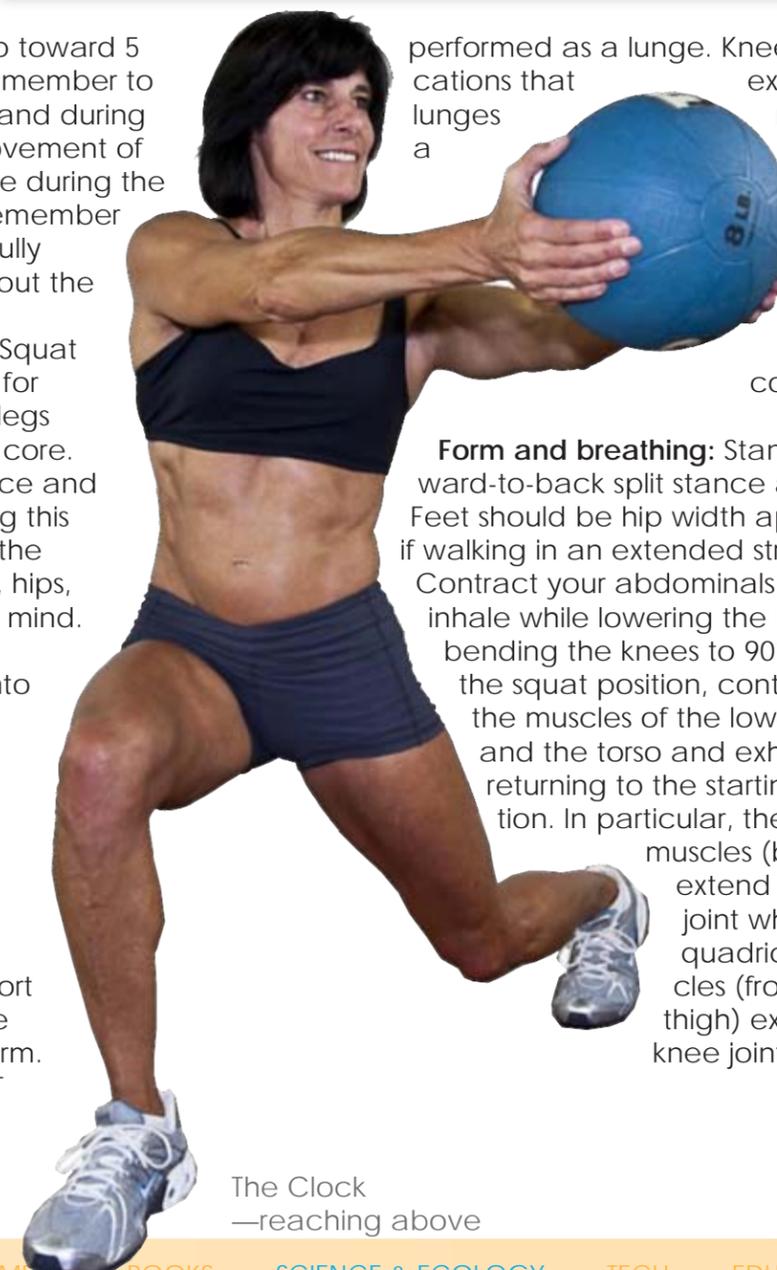
body reaching across the left knee down and toward 11 o'clock below. Then sweep the arms diagonally up toward 5 o'clock above. Remember to inhale at the start and during the downward movement of the exercise. Exhale during the upward sweep. Remember to keep the arms fully extended throughout the range of motion.

The Split Stance Squat is a great exercise for strengthening the legs and stabilizing the core. Maintaining balance and coordination during this exercise engages the abdominals, back, hips, buttocks, legs and mind.

Beginners: Hold onto a chair or railing to practice this exercise. Initially, body weight may be enough of a challenge. In time adding additional weight and standing free from support moves this exercise to its advanced form. This exercise is NOT

- Mask
- Fins
- BCD
- Regulator
- Wetsuit

Saving space for souvenirs since 1946.



The Clock
—reaching above

performed as a lunge. Knee complications that may not be a problem with this exercise when performed correctly.

Form and breathing: Stand in a forward-to-back split stance as shown. Feet should be hip width apart as if walking in an extended stride. Contract your abdominals and inhale while lowering the body by bending the knees to 90°. From the squat position, contract all the muscles of the lower body and the torso and exhale while returning to the starting position. In particular, the gluteal muscles (buttocks) extend the hip joint while the quadriceps muscles (front of the thigh) extend the knee joint.

Repetitions: Depending on individual strength and endurance perform the exercise between ten and 25 repetitions with each leg. Repeat two to four times on each leg.

Precautions: Keep the front knee behind the toes, ideally over the ankle. Do not lock-out the knees or look down. The back knee (as much as possible) should align directly below the hip allowing for a 90° bend at the ankle. Work to adjust the stance so that the back knee aligns directly below the hip with as close to a right angle at the ankle as possible. If the position is not perfect, a slight adjustment of the upper body may bring it into alignment. If it doesn't, return to the starting position and adjust the starting stance front-to-back for proper alignment.

Gretchen M. Ashton is registered with the National Board of Fitness Examiners. An advanced diver, International Sports Sciences Association Elite Trainer, and world champion athlete, Ashton developed the ScubaFit® program and the comprehensive FitDiver® program, which includes the first mobile app for scuba diver fitness. Ashton is the co-author of the PADI ScubaFit Diver Distinctive Specialty course. For more information, visit: Scubafit.com



Norway
Gulen

Text and photos by Christian Skauge



Cold water diving will never be the same after a visit to Gulen situated north of Bergen on the Norwegian west coast. Here, history meets present day, the deep ocean meets kelp forest and the gargantuan meets the miniscule.

Whatever you want to see underwater, chances are good that you will find it at the Gulen Dive Resort. The area at the mouth of the Sognefjord is as rich in marine splendour as it is beautiful

above the surface. The world's longest fjord, it cuts some 220 kilometres into the Norwegian west coast and an area of great strategic importance during World War II. Consequently, the area is strewn with spectacular wrecks of freighters and warships and in terms of rusty WWII action, few places in the world can compete. A week at Gulen leaves one with the chance of being properly "wrecked".

Norway's best wreck

One of Gulen's signature dives is the 122 meter long German freighter *SS Frankenwald*. Practically a cliché, the *Frankenwald* is a virtual window into his-

tory, a piece of WWII memorabilia found nowhere else. Laid bare by corrosion, the deck slopes from 24 to 34 meters toward the bow of the ship. Even though bottom time is decent, many dives are required to properly explore the superstructure, cargo holds and the interior. Weighing in at 5,032 tons, the grand old lady wreck is extremely well-preserved, offering so many different dives that people come back year after year.

The stern rests on the sandy bottom 44 meters and almost resembles a submarine conning tower when viewed from behind. After spending as much time as possible on the wreck, divers can ascend

THIS PAGE: Scenes from the wreck of the *SS Frankenwald*

to the ship's spectacular aft mast for a safety stop. Rising from 20 to 7 meters, the structure is entirely encased with anemo-

nes and teeming with critters and little fish. Several years ago, the *Frankenwald* was voted best wreck in Norway by



Wreck of the *Parat*

the readers of Norwegian dive magazine *Dykking*. And rightly so! Hovering motionless above the *Frankenwald* in good visibility is an out-of-this-world experience not to be missed.

Twin wrecks at Sail Rock

Also not to be missed are the stunning twin wrecks of *SS Ferndale* and *SS Parat*. On 16 December 1944, the 116-meter long freighter *Ferndale* was heading north in the darkness when she ran aground on Sail Rock, 40 minutes north of Gulen Dive Resort. A sitting duck, the *Ferndale* came under attack from allied aircraft the next morning. In the fierce battle that ensued, the allies lost two Mosquito fighter-bombers, but still managed to sink

both *Ferndale* and the salvage vessel *Parat* which had been called in for the rescue.

Today, the *Ferndale* sits upright on a slope ending at a depth of only 8-10 meters. The bow area was salvaged after the war, with only bits and pieces remaining. In stark contrast, the intact midship and stern remain at 34 meters. From this vantage point, one can look down on the *Parat*, resting a meter or so behind *Ferndale*. It is almost a miracle that the large freighter did not crush the small salvage vessel when she sank. The *Parat* is a dive for experienced tech divers, with trimix required between depths of 45 to 60 meters.

After admiring both wrecks, deco and safety stops are done

around the spectacular Sail Rock, the sides of which are completely covered with sea plumes, dead men's finger coral, dahlia anemones and sea squirts. The quantity of fish and invertebrates found here is simply astonishing. It is wise to make room for an extra long deco stop if you don't want to miss out on the rock. Some underwater photographers have been known to ignore the wrecks entirely and concentrate on Sail Rock's colourful plethora of marine wildlife. Even with the unique twin wrecks close by, it is a world-class dive in its own right.

Rust for everyone

Gulen Dive Resort takes divers to no less than 15 different wrecks, ranging from the beginner-friendly



Divers at Sail Rock

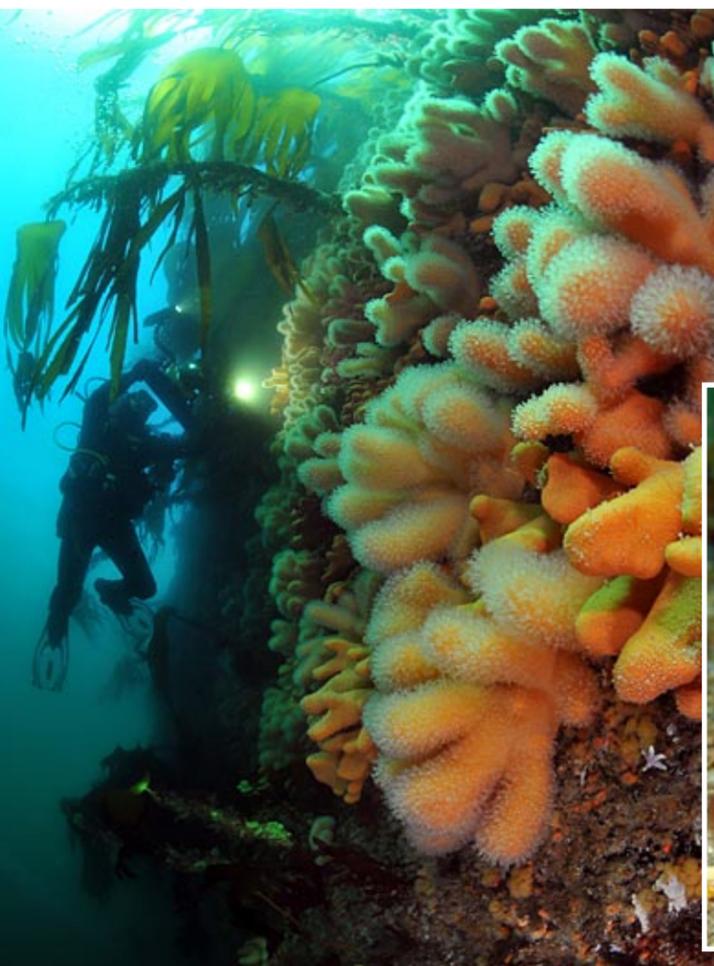
Solvang at 15 meters to the technical deep-dive of *SS Lynx* at 90-100 meters. In between, most divers will find a wreck at suitable depth, be it the *Havda*, *Bandak*, *Server*, *Welheim*, *Oldenburg*, *Inger Seks* or the newly discovered minelayer *KNM Uller* at 55 meters. The latter is the only wreck known to have been sunk by Norwegian seaplanes during WWII. Scattered on the bottom beside the beautiful 27 meter long vessel are ominous-looking mines and a cannon elevated towards the surface as if she's still trying to fend off her aggressors.

On the boat ride out, divers are briefed not only on the dive itself, but you will also the often exciting and violent history of the wrecks.

At Gulen, history is never more than a few meters below the surface.

WRECK DIVING IN GULEN				
SHIP	GRT	LENGTH	SUNK	DEPTH
<i>Frankenwald</i>	5062	122 m	06.01.1940	25-44m
<i>Ferndale</i>	4302	116 m	16.12.1944	8-40m
<i>Parat</i>	135	32 m	16.12.1944	45-60m
<i>Solvang</i>	149	32 m	12.03.1992	8-25m
<i>Bandak</i>	262	38 m	19.02.1949	18-29m
<i>Havda</i>	677	55 m	09.12.1944	16-30m
<i>Inger Seks</i>	4969	116 m	23.04.1945	30-80m
<i>KNM Uller</i>	250	27 m	01.05.1940	55-60m
<i>Server</i>	19864	179,5 m	12.01.2007	2-25m
<i>Mercantil Marica</i>	15000	280 m	21.10.1989	25-50m
<i>Welheim</i>	5455	135 m	27.11.1944	15-70m
<i>Ilse Fritzen</i>	4883	107 m	26.01.1945	45-65m
<i>Bjergfin</i>	648	54 m	25.01.1945	42-55m
<i>Lynx</i>	1366	70 m	19.09.1944	90-100m





CLOCKWISE FROM LEFT: Videographer on house-reef; *Flabellina lineata* nudibrach; Gulen Dive Resort; Jeffrey's goby; *Eledone cirrhosa* octopus

Dive resort

Celebrating its tenth anniversary this fall, the Gulen Dive Resort comes complete with modern RIB dive boats, nitrox and trimix on demand, a great house reef, its own

pub, sauna and outdoor hot tub and a friendly and knowledgeable staff. Dive courses are offered from Open Water to Divemaster and many dive shops and clubs use the resort for their own courses. Rebreather-friendly, the resort is able to handle large groups of technical divers, as well as hosting photography and marine biology workshops every year. The post-dive Norwegian speciality waffles served at the dive shop are a good example of the effort that goes into catering for the divers and their needs.

Visitors stay in up-to-date, clean and cosy twin rooms and can swap dive stories in the spacious living room and kitchen area. A special area is dedicated to laptops, chargers

and camera gear. Editing and admiring pictures taken during the day is a popular past-time in the evenings. Most divers choose to tend to their own meals and enjoy the luxury of complete flexibility, while others prefer the all-inclusive treatment. Almost anything is possible at Gulen Dive Resort; just let owners Monica Bakkeli and Ørjan Sandnes know what you want, and they will most likely be able to provide it. If arriving by air from Bergen, group transfers can be arranged from the airport.

Nudibranchs galore

Gulen Dive Resort offers much more than great wreck diving. The house reef is world-famous for its high number of nudibranch species. Every

year at the end of March, people gather for the annual Nudibranch Safari, with scientists from the university in Trondheim teaching participants all about these exquisite creatures.

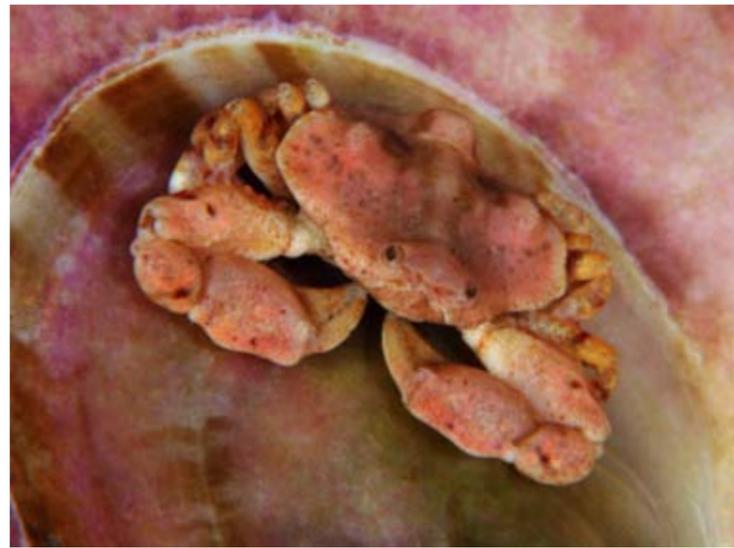
All the diving is done locally to ensure maximum time under water as well as in the classroom. Although Norway boasts close to a hundred nudibranch species, only two thirds can be found at diveable depths. At the Gulen house reef, more than 50 species have been found in just the last two years, attracting divers from all over Scandinavia.

Aliens of the deep

If you are looking for even more exotic and unique marine life experiences,



come to Gulen at the end of January. At this time, the mysterious deep-sea helmet jellyfish *Periphylla periphylla* comes to the surface to mate, an event



CLOCKWISE FROM LEFT: Sea spider, *Nymphon gracile*; Thornback ray, *Raja clavata*; Bryer's nut crab, *Ebalia tumefacta*; Crown or helmet jellyfish, *Periphylla periphylla*; Two-spotted clingfish, *Diplecogaster bimaculata*

that can only be witnessed in very few locations the worldwide. These strange creatures normally live from several hundred to thousands of meters deep in the ocean, but in the middle of the night during winter, divers can witness hundreds if not thousands of them with the bottom 300 meters below. The jellyfish grow to almost a meter across when their 12 tentacles are spread out.

Like blood-red wheels drifting in the pitch-black water, the *Periphylla* has been around for some 650 million years, with scientists only recently beginning to unlock their secrets. Many visiting divers count these dives among the best they have ever had.

Sharks and rays

Elasmobranch and cephalopod lovers will also find rare treats in the Gulen area. Although Norwegian waters are not exactly shark-infested, the summer months of June and July offer opportunities to see congregations of dogfish at some of the deeper wrecks at the mouth of the Sognefjord. They have even been spotted several times on the house reef, much to the astonishment of divers expecting nudibranchs and crustaceans. (Naturally, with the wrong lens on the camera!) I have myself been surprised by 1.2-meter-long sharks swimming close by to investigate what I am doing. The calmness and elegant grace of these apex

predators never cease to amaze me.

More cartilage can be found at Stingray City, so dubbed because of the near 100 percent success rate at finding thorny rays on the sandy bottom. These flat bottom feeders grow up to about a meter in length, and are normally not very camera shy. Depths of 14-18 meters ensure long dives even for the less experienced and smiles will be in abundance upon leaving the water.

Stunning house reef

During the fall, things start to noticeably change off the Norwegian coast and Gulen is

no exception. As the days grow shorter and evenings darker, thousands of strange creatures begin to appear at nights on the house reef. Covered in spiky protrusions or algae camouflage, an army of crustaceans begin their march towards domination. With

snapping claws and glowing eyes punctuating the darkness, camouflage crabs, nut crabs, swimming crabs, spider crabs, stone crabs, hermit crabs, squat lobsters, different shrimp and sea spiders crawl and creep.

At 30+ meters on the house



shelter under the big, pink sea anemones as they wait to shed their spiky carapace when they are moult. The anemones also house whole families of bright red Spirontocaris shrimp, using the stinging tentacles for shelter like clownfish.

At night, little squid emerge from the fine-grained sand at the house reef's shallow depths. Patient divers can see them hunt, feed and maybe even mate, ensuring that the following year's divers can experience these delicate creatures as they flutter gently in the dark.

The house reef also features rare gobies lingering in the sand and super-cute clingfish guarding their eggs deposited inside empty

reef, really lucky divers may encounter stone crabs seeking



seashells. Squid's eggs are often found on the kelp during spring-time and lobsters, meter-long wolffish and large monkfish are frequent visitors. Even rare deep-sea sponges and stony coral have been found here, along with several species of nudibranchs never before seen in Norwegian waters. A macro heaven, the house reef is renowned among Scandinavian

signature dive awaits the visiting divers: The Troll Wall. This magnificent drop-off starts well above the surface and plummets to 45 meters and deeper, and one feels quite small next to the towering mass of granite. The wall is full of large pink and little white starry-looking anemones, and shallower the kelp harbours lumpfish guarding their eggs and thousands of

CLOCKWISE FROM TOP LEFT: Common Bobtail squid; Diver on wreck of *Bandak*; *Eubranchus farrani* nudibranch; *Limacia clavigera* nudibranch; *Diaphoradoris luteocincta* nudibranch; Liljeborgs shrimp

underwater photographers. Many award-winning images have been shot here with more to come in the future.

Just off the house reef, some 200 meters from the resort pier, another

wrasse going about their business. If one does not venture too deep, it is even possible to swim all the way back to the pier where the evenings attractions are waiting—barbecue in the summer, hot-tub and a pint in the pub all year round.

New adventures

Sitting near the very end of the warm flow of the Gulf Stream, Gulen is part of an ever-changing marine ecosystem that never ceases to amaze. The seasonal changes make every visit special and the marine life is unique each time. Spring



brings excellent opportunities to discover colourful nudibranchs



GULEN FACTS

WHERE: Gulen Dive Resort is located two hours north of Bergen, at the mouth of the Sognefjord.

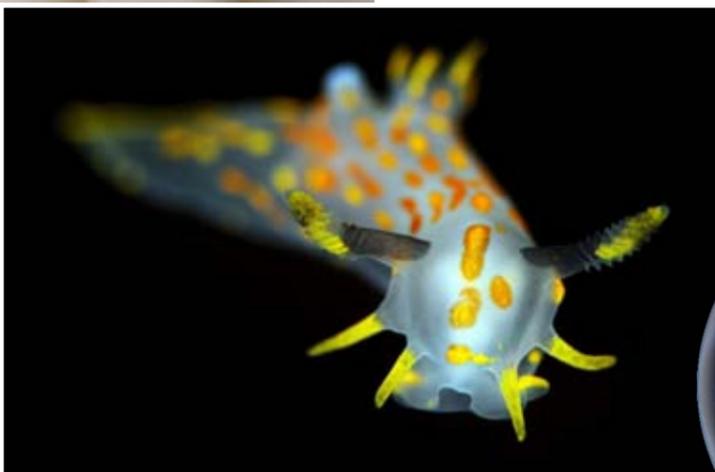
LANGUAGE: Norwegian, but English is spoken by most people.

CURRENCY: Norwegian Kroner, 100 NOK = 13 Euro or 18 USD

WATER TEMPERATURE: Temperature range between 2-4°C during the winter months. Definitely drysuit territory, lots of warm undergarments are also required. In late summer, water temperatures can reach 17-18°C at the surface, but will still be cool at depth.

DIVING: Excellent for novice divers, intermediate and experienced technical divers alike. Gulen Dive Resort offer dives of all kinds for all divers.

FLIGHTS: Getting to Norway by plane is easy and convenient with international connections in Bergen and Oslo. Gulen Dive Resort offer group transfers from the airport. ■



LEFT TO RIGHT: Chameleon prawn, *Hippolyte varians*; *Polycera quadrilineata* nudibranch; Gulen Dive Resort is located in Sognefjord, as located on global map and map of Norway



and see how the ecosystem prepares to go into high gear for mating season in the beginning of the summer.

The following warmer months offer an abundance of algae, fish and plenty of action in the sea. During the fall, crustaceans and cephalopods are the main players. When winter knocks, it is time to put on extra undergarments and explore the fabulous WWII wrecks for which Gulen is justly famous.

These are just a few of the highlights to be experienced during a visit to the Gulen Dive Resort. Depending on the time of year, they offer drift dives, awesome kelp forests, pick-your-own-clams, a fabulous house reef, world-class wreck diving and an assembly of

marine life most people wouldn't think possible outside the tropics. No article could ever have room for all the experiences on offer. Whenever you visit, a different adventure awaits. ■

Christian Skauge is the current Nordic Champion of underwater photography, and has won several national and international photo contests. He has previously worked as editor for the Norwegian dive magazine Dykking. To see more of Christian's images, please visit www.scubapixel.com.

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W30

FULLSUIT 2.5mm

Waterproof takes the step into an exciting venture with the new Sport Series and introduces a stunning 2.5 mm fullsuit. Flatlocked seams, stretchy Microcell CR Neoprene and a streamlined design gives the Diver an edge on the beach, super comfort and mobility under water.

To keep the professional divers happy, the new W30 2.5 mm fullsuit features a unique and clever gadget, the WPAD™.

The WPAD™, or the Waterproof Personal Accessory Dock, is an artfully constructed docking station located on the right thigh for a line of new accessories.

One of the add on accessories is the Tech Pocket, featured in this folder. The Sport Series is a full range which includes: Shorty, swimwear, hood, gloves and socks.



The new WP Accessories Docking system from Waterproof, WPAD™ is a simple, yet ingenious construction where a double Velcro layer fastener provides a rock solid anchor hold of the Tech Pocket.



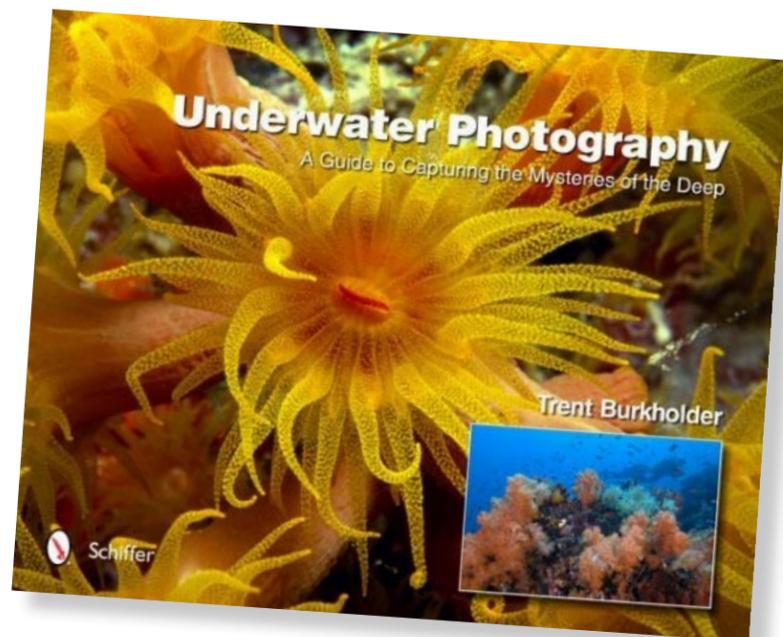
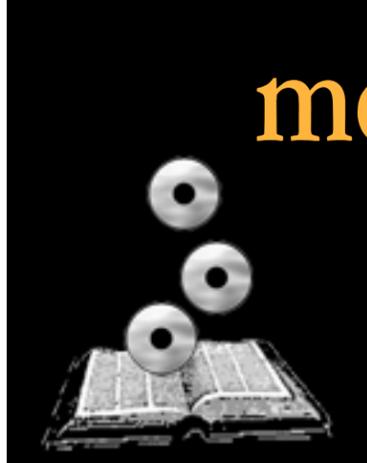
This rugged Tech Pocket is expandable with two high quality zippers and comes with a Stainless Steel D-Ring. The pocket attach to the WPAD™ system.



W30 SHORTY

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Underwater Photography

Want to learn more about underwater photography? Check out this new book by Colorado native and American freelance fine art photographer, Trent Burkholder—avid diver, underwater enthusiast and world traveller. This easy-to-read and informative guide covers the technical, mechanical, and compositional points of underwater photography that will help you produce top quality images. Find 120 exquisite color photographs and 18 instructional illustrations explaining described techniques. Burkholder also describes specific diving techniques that can help aspiring photographers attain those underwater Kodak moments we love so much. Learn how to handle and maintain your equipment, as well as how to choose the best equipment for your needs from the many types available on the market. In addition, you can learn about the pioneers of underwater exploration, photography, and oceanography. Get inspired.

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Indonesia's Global Treasures

Winner of the International Prize for Best Book of the Year at the World Underwater Pictures Festival (Festival Mondial de l'Image Sous Marine), Michael AW's *Indonesia's Global Treasures* captures the rich diversity, essence and opulence of the Coral Triangle—the world's center of marine protected areas. It took 12 expeditions for the Singaporean born author of 29 books on the sea to complete. Emphasizing the importance of protecting the natural treasures found in this region of the planet, it is the first book to celebrate the incredible beauty of seven underwater wonders found in the Indonesian Archipelago. This 180-page high-quality fine art production volume printed on acid-free paper, aims to inspire and raise awareness and appreciation for the Earth's fragile and threatened underwater ecosystems, which need to be preserved and protected for our children and future generations. It serves as a warning that if we do not alter the course of human-induced climate change, pollution and over-fishing, the coral reefs will be destroyed and species will become extinct. Part proceeds go to Ocean Geographic SOS (Save Our Sea) Fund. Price: AU\$80.00 plus postage. www.michaelaw.com/2012/GT.htm

Fishy Calendar

Alaska artist Ray Troll slaps dive humor down in his new tongue-in-cheek calendar sure to bring a grin to the most avid underwater explorer. His street-smart sensibility comes out in the quirky, aquatic images he creates which are often inspired by the latest scientific discoveries, bringing a bit of whacky whit to the world of ichthyology.

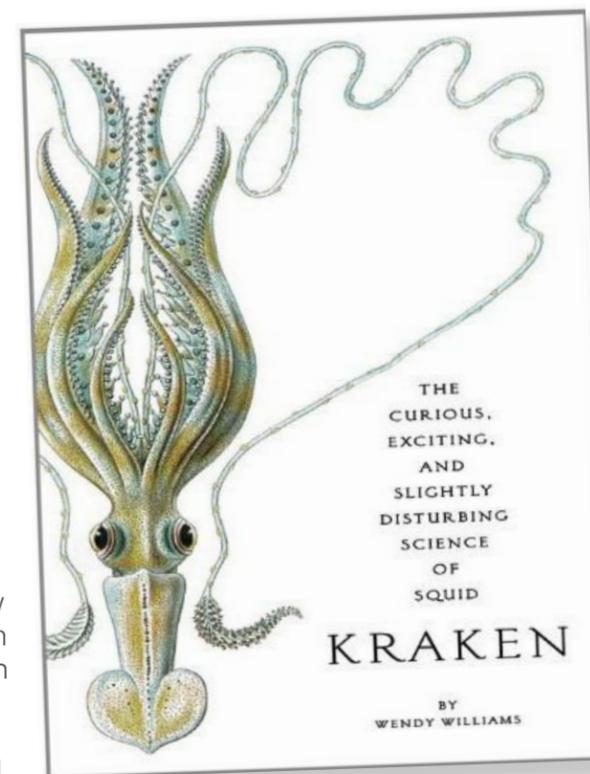
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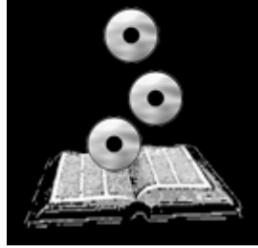


Kraken

Thirty-year science writer Wendy Williams takes us on a wild ride in search of the enigmatic and charismatic squid. The traditional name for huge sea monsters, Kraken, is aptly applied to this most curious of creatures with tentacles, some of which can truly be larger than life, and have over the centuries both awed and terrified. In this narrative book, the author covers squid science, including the unique abilities of squid, such as camouflage and bioluminescence, as well as questions about what intelligence is, and some of the other equally intriguing cephalopods, like octopus and cuttlefish. An entertaining read.

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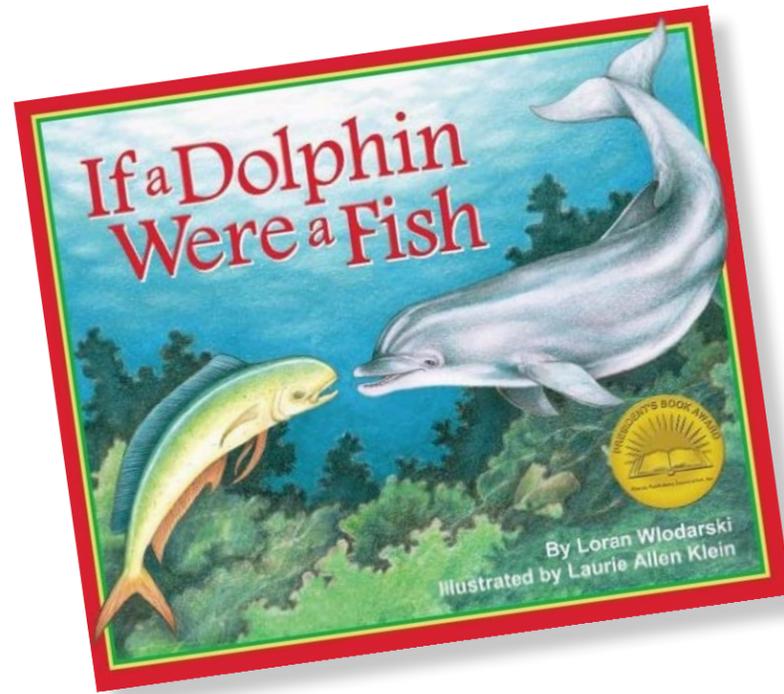
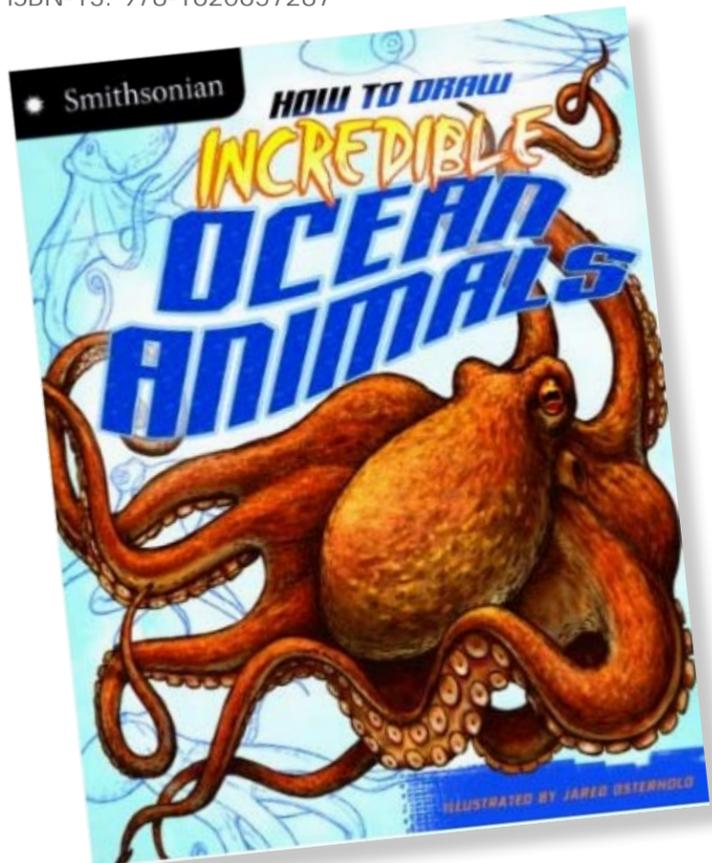


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Always wanted to know how to draw a jellyfish? Well here's your chance. With just a few steps, you can draw these tentacled creatures as well as other cool marine animals from manatees to octopus and more! So grab some paper and pens, crayons and ink. It's easy with the help of illustrator Jared Osterhold and author Kristen McCurry, writer and editor for Capstone Press and mother of twins who also love books. Part of the Smithsonian Drawing Books series.

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If a Dolphin Were a Fish

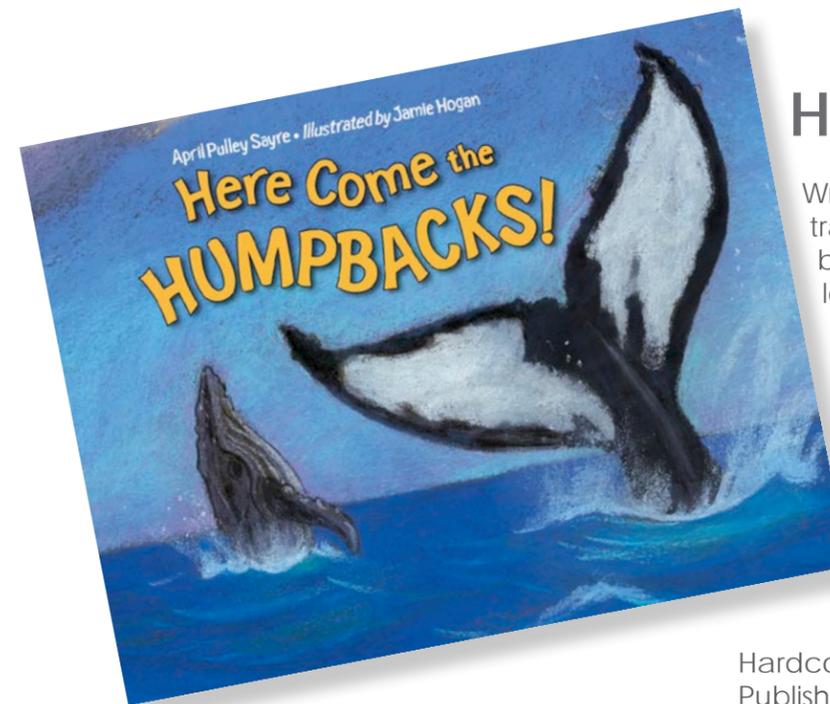
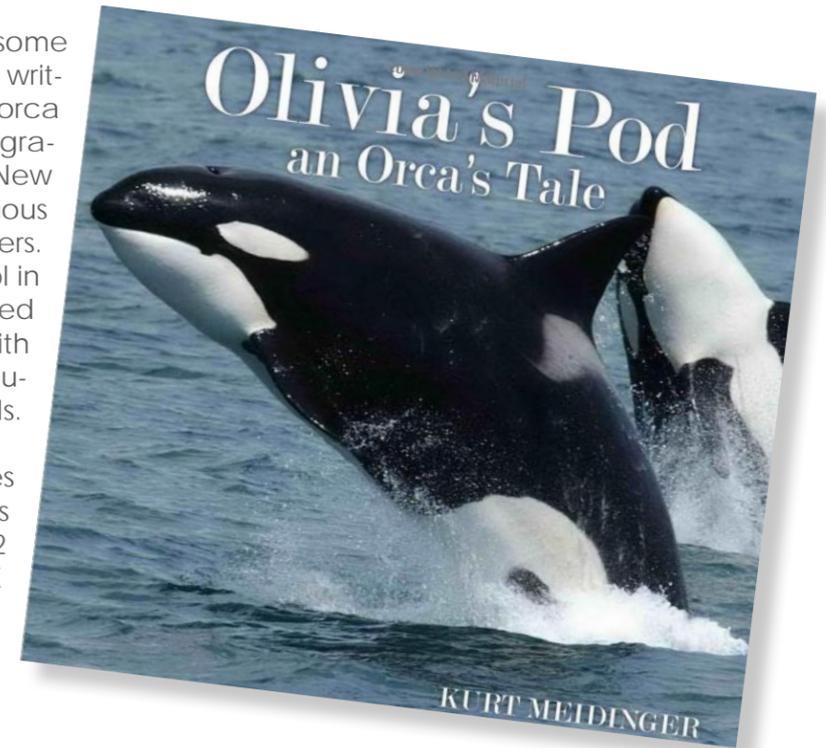
Imagine you're a fish or a sea turtle or a shark or an octopus, maybe a pelican or a manatee. Well, that's what a dolphin named Delfina does in this book. Kids will be found laughing at the incredible morphing illustrations by Laurie Allen Klein while they learn about the actual differences between these sea creatures and the species classes from which they come. So good is this book, it won a Foreign Press Association President's Book Award. The author, Florida-based science writer Loran Wlodarski, has written six books for SeaWorld and has been published in sources like *Grolier's Encyclopedia for Children* and *The Marine Mammal Encyclopedia*. At SeaWorld's Education Department, Wlodarski had the chance to raise some of the animals including newly hatched sharks, turtles, macaws, iguanas and tropical fish, so we can assume he has a green thumb when it comes to weird and wonderful critters—and lived to tell the tale.

Paperback: 32 pages
 Publisher: Sylvan Dell Publishing
 Date: 10 February 2013
 ISBN-10: 1607188619
 ISBN-13: 978-1607188612

Learn About Orcas

Teach your kids about these awesome cetaceans with this delightful book written from the perspective of a young orca named Olivia. With excellent photography, American author and native New Yorker, Kurt Meidinger, weaves a curious tale sure to captivate young readers. Currently teaching elementary school in Yucaipa, California, Meidinger started writing books to help his students with science ideas and academic vocabulary, which met the state standards.

Paperback: 38 pages
 Publisher: G8Press
 Date: 14 December 2012
 ISBN-10: 061572261X
 ISBN-13: 978-0615722610



Humpbacks!

Written by April Pulley Sayre and illustrated by Jamie Hogan, this colorful book with sumptuous drawings follows a mother humpback whale and her calf while they travel. Follow their great migration and learn how they face dangers along the way. Award-winning author, Sayre, has written over 55 natural history books for children and adults, many of which have been translated into French, Dutch, Japanese and Korean.

Hardcover: 272 pages
 Publisher: Beacon Press
 Date: 15 January 2013
 ISBN-10: 0807014354
 ISBN-13: 978-0807014356



Offshore wind farms to mind the whales

Offshore wind developers and environmental groups in the United States have agreed on a plan to protect one of the world's most endangered species. The companies will observe stricter rules to protect the North Atlantic right whale, which regularly migrates south along the Atlantic coast.

The agreement "helps ensure these Atlantic offshore wind industry leaders can develop while protecting critically endangered right whales", said Justin Allegro of the National Wildlife Federation. Limiting work during certain seasons, slowing down boats, reducing sound disturbances in the ocean, and having spotters look for whales are part of agreed-upon mitigation measures.

With less than 400 in existence, North Atlantic right whales are among the most endangered whales in the world. They are protected under the U.S. Endangered Species Act of 1973 and the Marine Mammal Protection Act of 1972. Vessel strikes and entanglement in fixed fishing gear are the two greatest threats

to the whales' recovery.

An estimated 300 right whales live in the North Atlantic Ocean. They migrate between feeding grounds in the Gulf of Maine and their winter calving areas off Georgia and Florida, an ocean area with heavy shipping traffic.

Orcas at risk too

In British Columbia, Canada, scientists are also concerned proposed tidal turbines in Blackney Passage near the entrance to Johnstone Strait would put killer whales at risk.

At issue is not just the possibility of slow-moving turbines in the narrow passage used by whales to travel through to Johnstone Strait, but the investigative stage, said Paul Spong, director of the OrcaLab, a Hanson Island whale research station.

"One of the devices which might be used is like sonar with high-frequency noise," he said. ■

SOURCE: NEW JERSEY ONLINE



(File photo) Offshore wind turbines near Copenhagen



Whales roll 360 degrees in order to orientate themselves for a surprise attack. Extra turning effort rewards whales with enormous meals

Blue whales utilize underwater acrobatics to attack prey from below

Results of a study published in the Royal Society journal, *Biology Letters*, revealed blue whales execute extraordinary spins beneath the waves to access large patches of krill. They discovered the whales roll 360 degrees to orientate themselves for a surprise attack.

Dr Jeremy Goldbogen and colleagues from the Cascadia Research Collective in the U.S. state of Washington recorded the whales' surprising maneuverability, suggesting the extra effort of turning rewarded the mammals with enormous meals.

"Despite being the largest animals to have ever lived, blue whales still show an impressive capacity to perform complex maneuvers that are required to efficiently exploit patches of krill," said Goldbogen.

To understand how the whales capture prey, Goldbogen and his team tagged a group of animals off the coast of southern California. Using suction cups to safely attach acoustic recording tags without harming the animals, the team

were able to track the whales' movements with underwater microphones.

"As the blue whale approaches the krill patch, the whale uses its flippers and flukes to spin 180 degrees so that the body and jaws are just beneath the krill patch," explained Goldbogen. "At about 180 degrees, the mouth just begins to open so that the blue whale can engulf the krill patch from below," he added.

As the blue whale engulfs the prey-laden water, it continues to roll in the same direction and completes a full 360 roll and becomes horizontal again ready to target and attack the next krill patch.

The researchers recorded video footage of the acrobatics utilizing a video camera worn by another animal to capture natural behaviour.

"We did not expect to see these types of maneuvers in blue whales and it was truly extraordinary to discover," said Goldbogen.

Previous research identified similar behaviour in other rorqual whale species

such as humpbacks, but these animals rarely exceeded 150-degree turns. In the smaller whale species, the ability to twist and turn was attributed to long fins and tail flukes.

In addition, it is theorized this behaviour also optimizes the animals' vision. "As in all cetaceans, [blue whales'] eyes are positioned laterally, and thus rolling the body should enhance panoramic vision in multiple dimensions," the study reported.

Goldbogen said that the results would fuel further research into the complex behaviour of whales, especially regarding predator-prey interactions.

"This extraordinary ability is only a glimpse into the diverse repertoire of maneuvering behaviours performed by foraging animals," he said. "Future tagging work has the potential to reveal many more unique insights into the daily lives of animals in their natural environment." ■

Edited by
Scott Bennett



FILE PHOTO: SCOTT BENNETT

Legal group challenges manatee's endangered status

A Conservative legal group is asking the U.S. federal government to strip the manatee of endangered species status. California-based Pacific Legal Foundation has filed a petition with the U.S. Fish and Wildlife Service stating federal boat speed restrictions harm fishing and tourism industries on King's Bay where manatees assemble for the winter.

Federal officials have been considering downgrading the manatee's status for some time. According to the petition, a 2007 federal review concluded manatee population numbers had increased sufficiently to downgrade the species from endangered to threatened. As no action was taken, the petition states a change in the manatees' status is necessary to maintain regulatory credibility.

"We believe in protecting a sound and healthy environment, and we also believe that the federal government must follow its own rules," said Steve Lamb, vice president of Save Crystal River. "That's why we're petitioning the government to abide by its findings on the manatee."

Alan DeSerio, the Pacific Legal Foundation's managing attorney would like to eliminate the manatee from the protected species list altogether. "Given the rebound of the manatee in Florida, eventually the population could no longer qualify for being threatened," he said.

The downgrading process is expected to commence in late spring or early summer of 2013, according to. "The whole reason why we would reclassify manatees is because these conservation meas-

ures are working," Underwood said. Still, any action would not roll back any of the restrictions opposed by Save Crystal River, the group of Citrus County business owners.

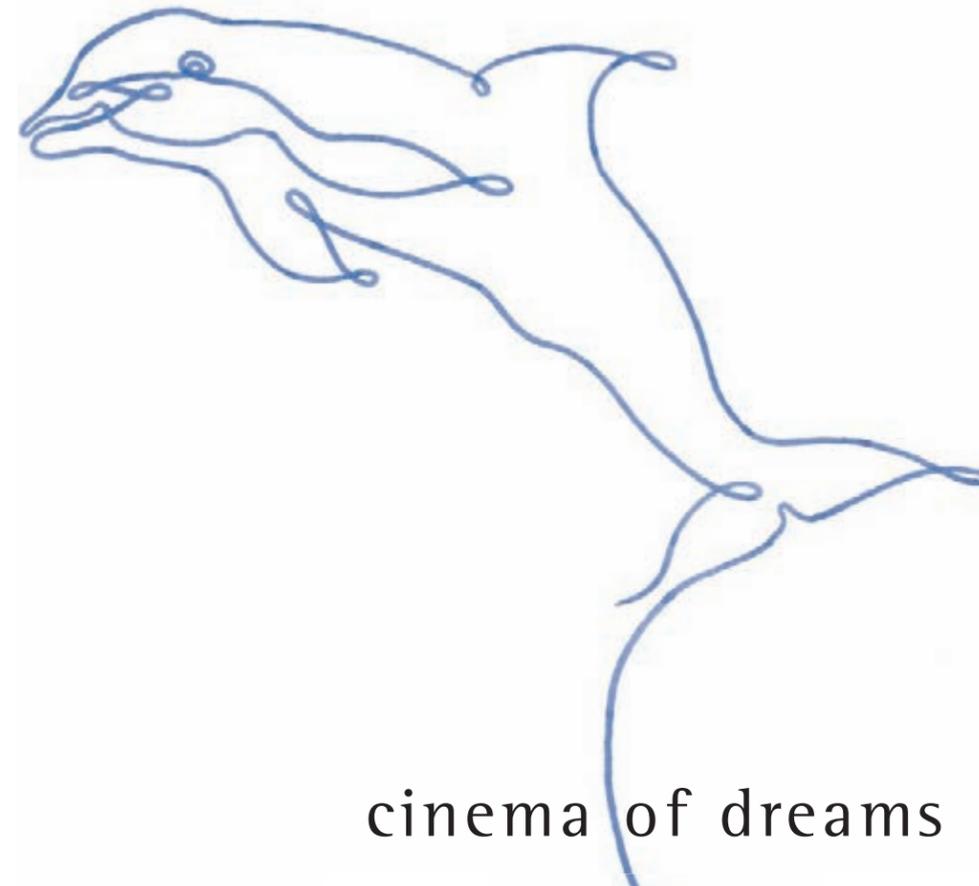
In January 2011, aerial surveys conducted by state wildlife officials counted 4,835 manatees, compared to 5,076 in 2010 and 3,802 in 2009. Despite increasing numbers, manatee advocates argue threats to the marine mammal's survival continue.

"Watercraft deaths are staying at the highest levels," said Pat Rose, a manatee biologist who is executive director of the Save the Manatee Club. In 2011, state wildlife officials blamed extreme cold and boat collisions for the majority of that year's 440 confirmed manatee deaths. ■

SOURCE: ASSOCIATED PRESS



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