

Cornish Reefs

Global diving travel has become increasingly easy over the last decade or so, providing easy access to a growing number of tropical and exotic destinations. So, for many divers residing in cooler climates or new to the sport, it is tempting to look only towards these warm distant destinations and perhaps ignore the wealth of marine life on their own doorstep.

Text and photos by Mark Webster

St. Michael's Mount is the most striking land mark of Mount's Bay with its prominent medieval castle. Only accessible at low water on foot via a cobbled causeway or by boat, it is the home of St. Aubyn family and is now managed by the National Trust.
RIGHT: Detail of Strawberry anemone (*Actina fragacea*)



RIGHT TO LEFT: *Limacia clavigera* nudibranch feeding on red sea lettuce sea weed; Plumose anemones (*Metridium senile*) carpet a reef wall near Land's End; A diver explores a deep gulley decorated with soft corals (*Alcyonium digitatum*) at Logan's Rock





Although I have the opportunity to travel regularly to warmer climates, this never discourages me from diving as often as I can in my cooler, but no less spectacular, home waters around the south west peninsula of Cornwall in the United Kingdom. The south west peninsula and county of Cornwall is physically remote from the remainder of the British Isles and also has a rich history full of myth, legend, smuggling and illicit ship wrecking. Industry is sparse in this area, which boasts spectacular countryside, and as a consequence, it is one of the UK's most popular tourist destinations offering both a slower pace of life, a mild climate and miles of unspoiled coast line and secluded beaches.

The rugged granite of the peninsula juts out into the Atlantic and has a striking contrast between its two coasts. There are calm sleepy inlets, coves and fishing villages on the south coast, while there are dramatic towering cliffs and the

power of the Atlantic on the north coast. The rugged topography of the peninsula extends far out to sea, forming reefs, pinnacles and shoals teeming with life.

You can dive a deep wreck in the morning, a spectacular sheer drop-off in the afternoon, and explore shoreline gullies and tunnels in the evening, or after dark. All this makes the area popular with both diving and marine life enthusiasts seeking the variety this coastline provides. It is also popular with the family diver who wishes to mix his or her sport with exploring the attractions on land, some lazy days on the beaches, and the occasional foray under the waves.

The Gulf Stream

The Gulf Stream divides round the



CLOCKWISE FROM TOP LEFT: There is excellent snorkeling all around the coast – here a snorkeller explores the reef at Pendennis Point, Falmouth Bay; Yachts at anchor in the harbour at Penzance; Juvenile cuttle fish (*Sepia officinalis*) are commonly found in late summer in the shallow water eel grass beds; The plankton blooms of late spring bring the basking sharks (*Cetorhinus maximus*) which can reach 8-10m in length; Springtime sees the arrival of many spe-

cies of nudibranchs (this *Polycera quadrilineata*) that congregate to breed; Kelp (*Laminaria sp*) covers the tops of many of the shallow water reefs and provides a habitat for numerous marine species



New Cornish basking shark surveys

Cornwall Wildlife Trust (CWT) is calling for volunteers to help them survey basking sharks off Cornwall this summer as part of their new BBC Wildlife Fund-supported Seaquest Basking Shark Project. CWT is joining forces with SeaWatch SW to carry out surveys from the coast in order to collect vital data on basking sharks and other marine wildlife.

During 2007, SeaWatch SW surveys recorded an astonishing 656 basking sharks from mid-July to the beginning of October from Gwennap Head, West Cornwall. Russell Wynn, SeaWatch SW co-ordinator says: "The results of this survey are starting to help us understand a lot more about basking sharks off Cornwall and identify the areas that are important for them. This data will be useful in influencing the development of a network of Marine Protected Areas around Cornwall, which the Finding Sanctuary project is currently working towards."

During the Seawatch SW survey last year, six species of cetacean (whale, dolphin and porpoise) were seen, including a fin whale, the second biggest whale next to the blue whale. Huge pods of up to 400 common dolphins were encountered and a massive 460 basking sharks were recorded during one day alone! This survey highlights the importance of Cornish waters for supporting an abundance of marine wildlife.

Basking sharks were recorded almost daily off Gwennap Head during last year's survey.

These gentle giants are regular visitors to the Cornish coast, but very little is understood about the status of their population or about their behaviour. The basking shark is the UK's biggest wild visitor and the second largest fish in the world. Harmless to humans, eating only plankton sifted from the ocean, they can grow up to 12 metres

in length and weigh up to seven tonnes. They remain rare in UK waters and despite being a protected species are consistently under threat from human activities in the marine environment.

Lauren Davis, Seaquest Basking Shark Project volunteer says: "Our seas are so poorly protected compared to the land; hopefully these surveys will provide decision makers with the data necessary to give basking sharks and other marine wildlife the protection that is urgently needed."

Lauren continues: "Seeing a basking shark moving majestically through the calm water is truly a wonderful sight, and one which you will never forget. If you are over 16 and interested in spending some time sitting on the cliffs recording basking sharks and other marine life, join Cornwall Wildlife Trust and SeaWatch SW this summer." Previous experience is useful but not essential as training can be provided. For more information on how to get involved, contact Lauren Davis on 07979736661.

Go to www.seawatch-sw.org and 2007 annual report for more information. ■





John Dory (*Zeus faber*)

Zues faber

John Dory (*Zeus faber*) is also known as St Pierre. Easily identified by its large dark spot on its flank used to warn off predators, the John Dory is an edible deep-sea fish with a laterally compressed olive-yellow body -- which makes it a poor swimmer -- with microscopic, sharp scales and long spines on the dorsal fin. The fish can grow up to a maximum size of 65cm and 3kg in weight.

John Dory live in the Mediterranean Sea, the Indian Ocean, and the Atlantic Ocean. They can be found on the coast of Australia, South East Asia, the coasts of Japan, South West Africa, and off the coasts of Europe. Normally solitary creatures, they live near the seabed, in depths of 5 to 360 meters. They live about 12 years and reproduce at around 3

or 4 years old by releasing sperm and eggs into the water usually during the winter months.

The top predator in its habitat, the John Dory usually stalks its prey, then shoots out a tube in its mouth to capture food such as sardines, squid and cuttlefish. They are preyed upon by sharks such as the dusky shark.

It is thought that the name John Dory stems from the French *dorée* for gilded, or the French *jaune* for yellow, or is associated with the hero of an old ballad of the same name. Jules Verne said that the name came from an allusion to St. Peter, *Janitore*, the door-keeper or gate-keeper of Heaven, who brought the fish at God's command and that the dark spot on the back of the fish is St. Peter's thumbprint. ■ SOURCE: WIKIPEDIA.ORG



CLOCKWISE FROM ABOVE: There are numerous species of colourful sponges like this breadcrumb sponge (*Halichondria panacea*) that give the reefs a tropical feel; Local fishermen are great characters - there are many small coves and harbours around the coast that support traditional fishing methods from tiny cove boats; One of the most colourful reef fish to be seen in the inquisitive male Cuckoo wrasse (*Labrus bimiculatus*); Colourful sea urchins (*Echinus esculentus*) make great abstract macro subjects

peninsula on its path north. The warmer, clearer waters it carries propagates a diversity of indigenous and visiting marine life not generally found elsewhere around the UK's coastline.

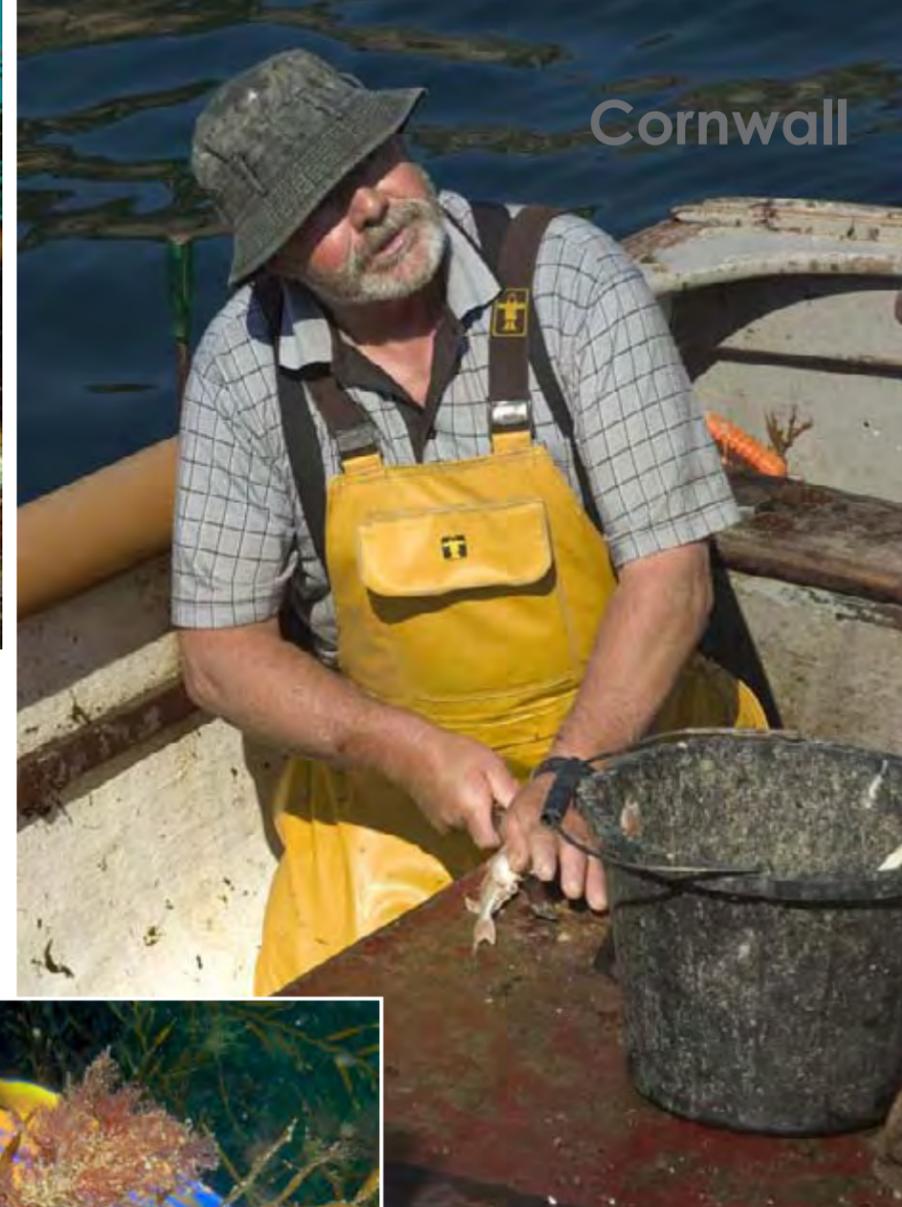
The headlands and offshore reefs are bombarded by nutrients born by the strong tides on both coasts feeding a multitude of species of anemones, soft and stony corals and invertebrate life. These organisms are surprisingly colourful and can give an almost tropical feel to many dives as one swims among gorgonian fan corals, Ross coral, cup corals and walls of brilliantly hued plumose and jewel anemones.

Fish life is profuse with shoals of bass and mackerel, reef dwelling wrasse, flatfish, blennies, scorpion fish, tope, sharks and occasional foreign visitors from warmer southern waters. Spring and early summer brings the basking sharks, which have been increasing number year by year, and in late summer groups of grey Atlantic trigger fish are common. If one is lucky, sun fish and even leather back turtles can be seen. The variety is almost endless and will keep a photographer or marine

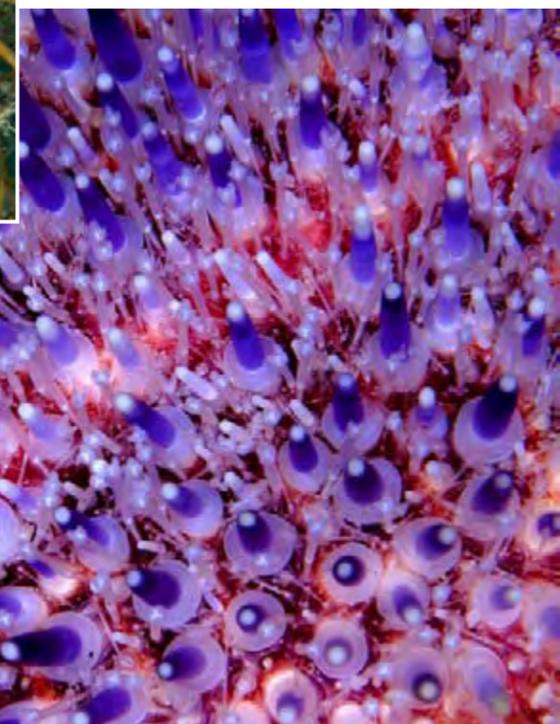
life enthusiast busy for months!

The South Western Approaches have been one of the world's busiest shipping lanes for hundreds of years, and Cornwall has been the first land-fall and the site of tragedy for many mariners. Armada ships, East Indiamen, liners, merchant convoy shipping from both World Wars have all met their fate along this coastline.

The two most infamous reefs, the Manacles and the Runnel Stone, located on the south coast are responsible for more than 200 recorded losses between them. There are literally hundreds of documented losses, with many still awaiting discovery either by chance or through dedicated research. Recent years have seen no less than three expeditions seeking the infamous *Merchant Royal*, the richest wreck in UK waters, lost in the deep somewhere between Lands End and the Scilly Isles.



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The area is a wreck diver's paradise. There are many classic dives, which can be easily located with the help of many publications, or guidance from the local diving centres and clubs.

Habitat variety

There are a variety of marine habitats to explore around this coastline, each of which has unique features to offer. On the south coast of the peninsula are the three lush river valleys of the Helford, Fowey and the Fal, which form the third largest natural deep water anchorage in the

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These river systems were 'drowned' at the end of the last ice age by a combination of sinking land and rising sea levels.

The Fal in particular offers quite dramatic profiles underwater from the shallow drowned flood plains to the remnants of the original river valley, which penetrates far inland and retains depths of up to 35m (110ft).

The industrial revolution and expansion early this century once threatened these habitats with careless waste disposal from copper and tin mining and china clay extraction. Fortunately, recent decades have propagated a more educated and enlightened appreciation of the damage caused by pollution. Now, strict controls and marine reserves have returned many areas to their former glory.

In the shallow waters of the Fal, Helford and Mounts Bay are the most northern concentrations of eel grass that is so common in Mediterranean. This habitat is an attractive breeding ground for all manner of marine life.

During the spring months, clusters of eggs will often be found at the base of the eel grass leaves left by fish, nudibranchs, squid and cuttlefish. In slightly deeper



waters, there are sweeping beds of maerl, a form of encrusting algae that forms little coral-like clusters.

The fauna of these maerl beds is very rich with many species of fish, crustaceans, worms and molluscs hiding amongst the delicate branches. In the upper reaches of the Fal estuary are thriving beds of wild oysters, which now can only be fished commercially by hand from licensed punts.

Inshore reefs

The coastal topography varies dramatically from sheltered bays and coves to sheer cliffs that plunge straight into the sea. They have in common the same rich marine life, which inhabits both the littoral zone and the shallow reefs,

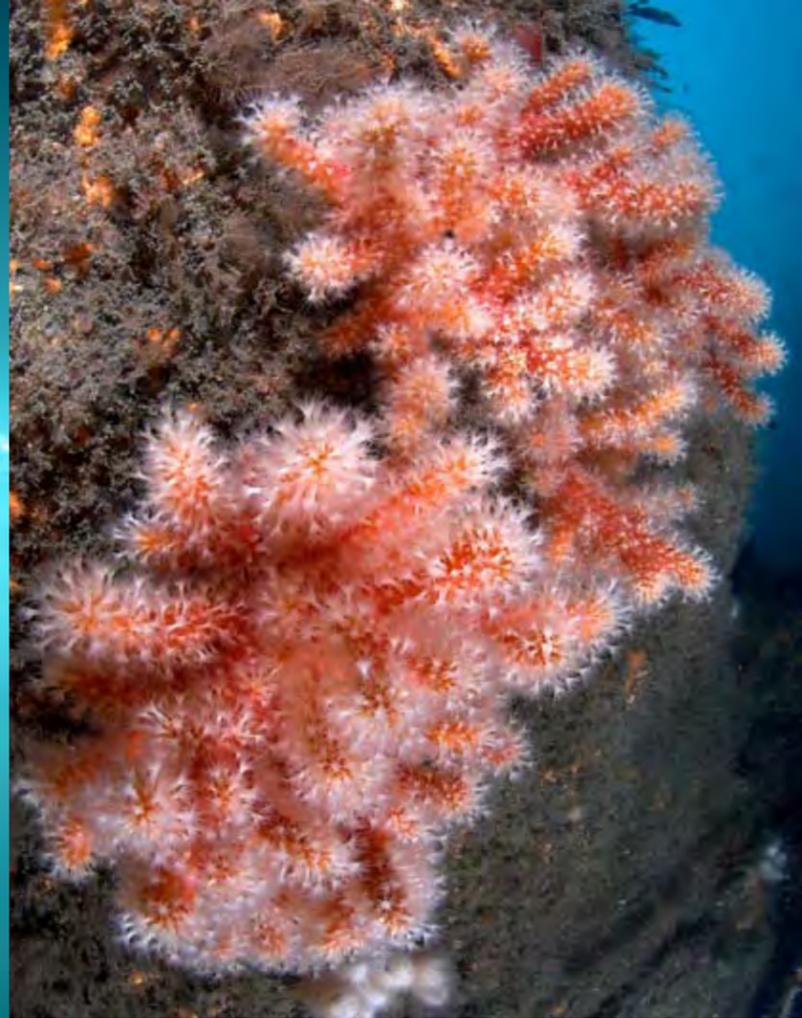


world. The tidal estuaries of these rivers are rich in marine life and are often teeming with juvenile fish.



CLOCKWISE FROM ABOVE: A diver jumps from a local dive boat; Traditional gaff rigged sailing boats are regularly seen around the coast; A topknot flat fish (*Zeugopterus punctatus*) is one of the stranger looking reef residents; The largest jellyfish found in Cornish waters is the Rhizostoma jellyfish (*Rhizostoma octopus*) which can appear in large numbers during the summer months; A diver gazes at a dense bed of jewels anemones (*Corynactis viridis*) on the Raglan's pinnacle in the Manacles Reef; A thornback ray (*Raja clavata*) rests on a gravel seabed





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dwells in deep water.

The surrounding shallow seabed is home to all sorts of bottom dwelling fish, crus-

are many coves where squadrons of juvenile and adult cuttlefish can be found shoaling together ranging in size from 5cm to 30cm all displaying their amazing camouflage skills.

Offshore reefs

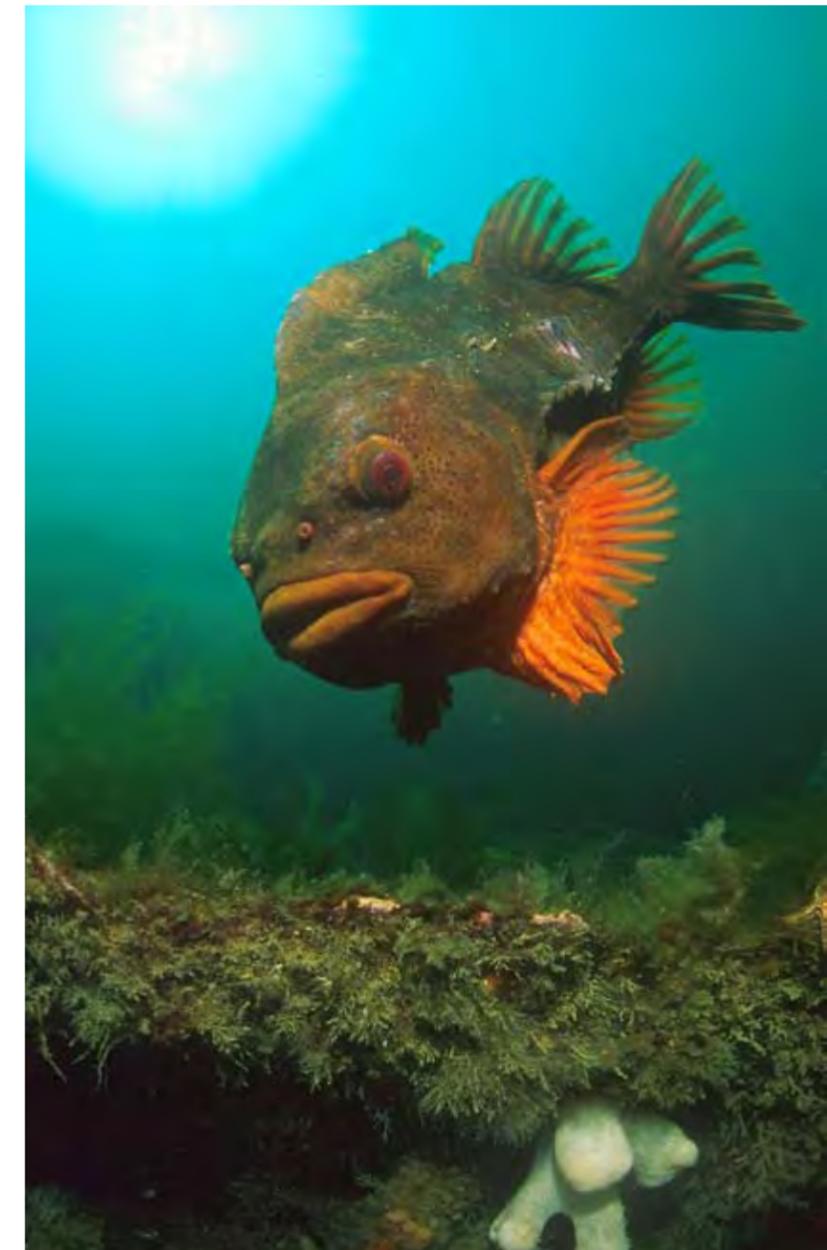
The geology of this area has produced many spectacular offshore reefs that rise steeply from the seabed, each one slightly different and offering often

and gullies to a depth of 10m. Whereas, on deeper reefs further offshore where waters are clearer, kelp can be found growing as deep as 18m (60ft).

The reefs are often dissected by deep cuts and gullies and steps and ledges, which are exciting to explore. Even in the shallows, where many rock faces are exposed to tidal current, filter feeding soft coral *Alcyonium digitatum* (locally known as Dead Men's Fingers), jewel anemones and sponges will all thrive.

These areas are home to many varieties of fish including Pollack, bass, ballan and corkwing wrasse, cheeky cuckoo wrasse, who peer right into your mask or camera port, and more unusual species such as red gurnard and red mullet. In late spring and early summer, you will find many species of fish tending their egg clusters. These are normally the males guarding the nursery for perhaps 3-4 weeks and include butter fish, shannies, tom pot blennies, corkwing wrasse and the weird looking lump-sucker, which normally

taceans, tube worms and anemones. In the spring and summer months, there



gullies and caves.

During the winter months, these inshore areas are often lashed by severe storms swept in from the Atlantic. But as spring arrives, the waters become calmer, and the annual cycle of life commences once more.

During the summer, the shallows are full of beds of boot lace, Jap weed

and lettuce sea weeds, which offer protection to juveniles, and so are a favourite hunting ground for small shoals of Pollack, grey mullet, and lone John Dory that prey on the newly hatched fish and plankton.

As with many other temperate sea areas, there are kelp forests to explore inshore. The kelp here does not reach the proportions of the giant species of the Californian coast, but it is equally prolific and provides a wide range of habitats amongst its fronds, stipes and hold-fasts.

The depth to which the kelp extends will vary with topography and water clarity. Generally, it clings to the top of the rocks



CLOCKWISE FROM ABOVE: The largest anemone is the Plumose (*Metridium senile*) which is found on exposed reefs where they feed in the strong currents; There are two species of soft coral in Cornish waters – these are 'Red Fingers' (*Alcyonium glomeratum*) that grow in large colonies wherever there is a tidal flow; The male cuckoo wrasse is perhaps the boldest on the reef. He will often approach within a few centimetres to challenge his reflection in your mask or camera port; The striking looking male Lumsucker (*Cyclopterus lumpus*) appears from deep water in early spring for a short time to tend his mate's eggs until they hatch; There are numerous quaint seaside cottages with equally quaint names to be found in the coastal villages



LEFT: The Tompot blenny (*Parablennius gattorugine*) has to be the cutest looking reef resident found on almost every shallow coastal reef; INSET CENTER: There are several species of plume and fan worms to be found on the reef. The detail of *Bispira volutacornis* makes an interesting macro shot

south, in an area that is open to Atlantic oceanic conditions, and so, there is often a deep and powerful swell running here (locally known as ground sea).

Planning to dive here means waiting for the best tides and weather conditions as even in good weather there can be a swell of 1-2m

to contend with, which can be felt as deep as 20m. Local knowledge is essential as the tides are vicious and sometimes unpredictable, and the weather can

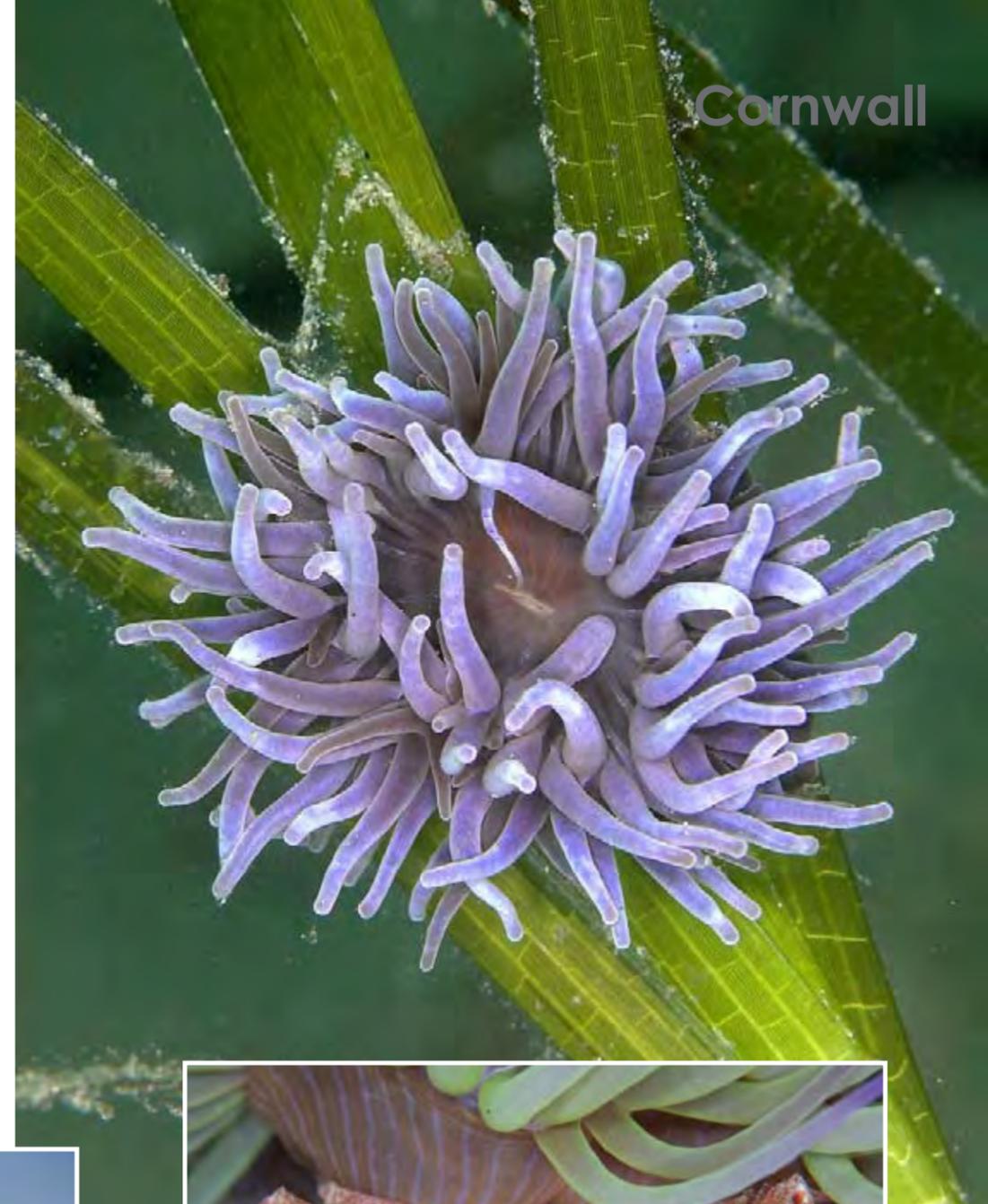
change very quickly. But under the right conditions, the Stone is one of the most spectacular dives in the area.

In this area close to Land's End, there are no river out-falls to upset the visibility, and the bright yellow heavy granite sand settles quickly after stormy

conditions. These ingredients and the swift currents are perfect for a dense proliferation of invertebrate marine life, which in turn attracts fish who enjoy the shelter the reef provides, whilst others are tidal feeders, or perhaps dwell in the sand.

Kelp sea weed is able to withstand the strong currents with their sturdy holdfast roots and growth can extend down to between 15 and 18 metres in places, due to the water

clarity, and in turn provides shelter and habitat for more sedentary marine life. Cowries, topshells, and clingfish are common on the kelp holdfasts, and there is normally an abundance of spider crabs and pipe fish picking their way amongst the kelp stypes. Several varie-



TOP RIGHT: Snakelock anemones (*Anemonia viridis*) will settle almost anywhere – here this juvenile clings to the blades of eel grass. ABOVE INSET: The tiny Leach's spider crab lives in symbiosis with the Snakelock anemone (*Anemonia viridis*) just like many tropical species. LEFT: The Cornish coastline is distinguished by the numerous deserted bays and coves with clear water – a great temptation to explore with a snorkel or SCUBA

challenging diving.

Close to the end of the peninsula, where Lands End reaches out into the often wild waters of the Atlantic, is the infamous Runnel Stone, which is reputed to have wrecked more than 27 ships. The Runnel Stone

used to break the surface until the last vessel to be wrecked here, the City of Westminster in 1923, struck and broke it away. The edge of the reef area is now marked by a buoy, within sight of Lands End and the Longships reef lighthouse to the



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LEFT TO RIGHT: The common lobster (*Homarus gammarus*) is unmistakable with its bright blue livery; The tiny squat lobster (*Galathea strigosa*) has a dazzling blue and orange colour pattern; The common prawn (*Palaemon serratus*) is almost completely transparent and is often found in large groups in cracks and crevices on the reef; The spider crab (*Maja squinado*) is found in a number of different habitats and will often climb the reef in search of food

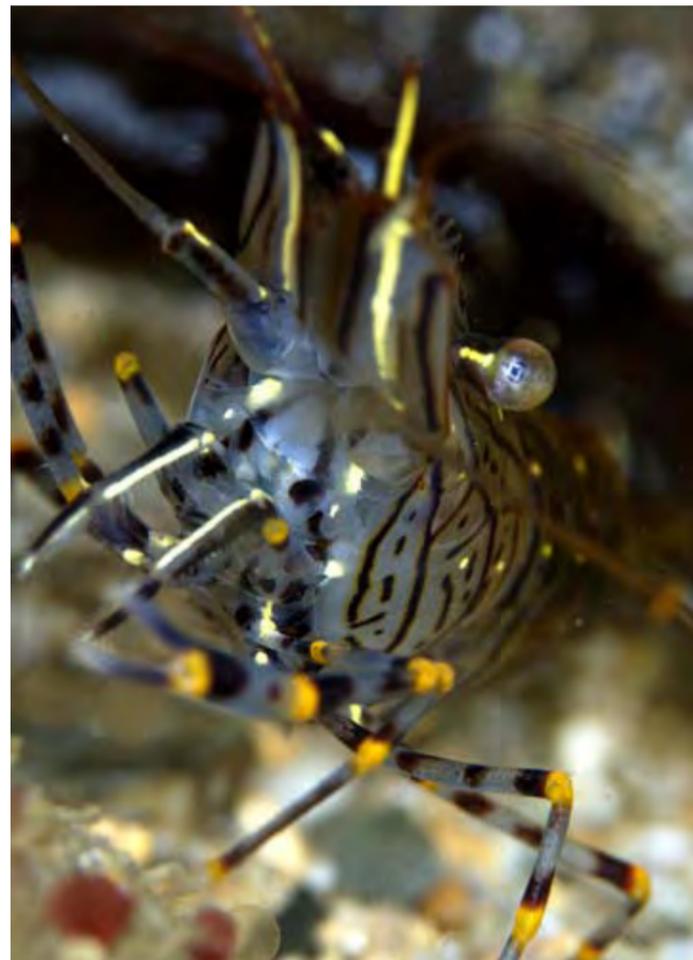
on them, particularly in late spring, when they are reproducing. Remaining space on the rock surface is mostly occupied by soft corals (*Alcyonium digitatum* or Dead Men's Fingers), tunicates and masses of feather stars and brittle

shoals of mackerel, bass and pollock, which show little fear of divers.

In amongst the rocks of the Runnel Stone are the remains of the numerous wrecks, which, in some cases, are so close or overlapping, that it is difficult to tell when one is swimming from one wreck to another.

Finds include ship's fittings, cargo items and munitions—although these should be left well alone. British law dictates that any recovered items must be declared to the Receiver of Wrecks.

The visibility here is generally very good, with 20m not uncommon, and up to 30m on calm cold winter days. The plankton bloom in late spring/early summer will reduce this but will also bring



the possibility of an encounter with a massive basking shark or squadrons of huge *Rhysostoma* jelly fish.

Snorkelling with a huge basking shark is an awesome experience not to be missed, but divers need to get into training, as keeping up, particularly with a camera,



can be very hard work!

Diving is possible all year round, but naturally, winter diving can be more of a lottery due to the frequently stormy conditions. Summertime is therefore the best time to plan a diving expedition when the weather is more predictable, but winter diving can

produce some amazing visibility and balmy conditions between the storms. The season also has an effect on the water temperature, with the coldest months being February and March after the sea has cooled during the autumn and winter. Underwater temperatures can range from 14-16°C

ties of sponge are common, and the first signs of jewel and daisy anemones can be found in as little as three metres of depth.

Below the kelp line, there are swathes of pastel-hued plumose anemones extended to sift nutrients from the current. In amongst them are daisy and dahlia anemones and fields of jewel anemones in almost every colour one can imagine—from vivid yellows to deep purples, reds and oranges. These are interspersed with clusters of delicate pink oaten pipe hydroids reaching out to grasp nutrients from the current.

Inspecting these hydroids closely often reveals two or three species of nudibranch feeding

stars.

Exploring the shallow walls at the reef top reveals numerous nooks, crannies and ledges that are home to crabs, squat lobsters, prawns blennies and shannies, most of which are both inquisitive and co-operative for the camera. It is sometimes difficult to pick the best photographic tool, as there are so many macro and wide angle subjects—the image opportunities are endless. Inshore reef species are also seen in the shallows—scorpion fish and the Corkwing wrasse, which can be found busy building its nest in the kelp early in the summer. It is common to encounter large



ABOVE: When you are not diving make sure to take some time to explore the attractive coastal villages and hamlets. BELOW: There are several species of scorpion fish to be found on the reefs. This one is the long spined sea scorpion (*Taurulus bubalis*)

Almost every beach has a fringing reef which is easily explored with basic snorkeling equipment. LEFT: The tiny jewel anemone (*Corynactis viridis*) is one of the most colourful species on the reef and a great macro subject. RIGHT INSET: The spiny starfish (*Marthasterias glacialis*) has an intricate pattern and texture when viewed in close up

during the summer, although surface temperatures often reach 20-22°C, to a chillier 8-10°C during the coldest winter months.

Be safe, get local advice

Cornwall's waters offer so much to the visiting diver but should be treated with respect even on high summer days when the water may resemble a sheet of

can change quickly, especially on the north coast and towards Land's End. Dives should not be planned without complete details of tides and weather forecasts and the benefit of local advice, which is freely available from the Coast Guard and the diving centres, in order to keep one's visit memorable for the right reasons. Alternatively, you can choose to dive with one of the many day boats, or live aboard boats, which operate within this area, and leave the planning to a skipper who deals with these waters on a daily basis.

around 1000 BC, and its use gradually declined until the late 1890s, when English became the dominant language. There are various groups who strive to preserve the language for future generations.

Although referred to as a county in England, Cornwall is in fact a Duchy, which is a territory ruled by a Duke. The first Duke of Cornwall was Edward, the Black Prince, son of Edward III. The current Duke of Cornwall is Prince Charles. During the Middle Ages there was a succession of rebellions and even an invasion by the Spanish at Mounts Bay in 1595. During the Civil War of the 1600s, there were several major battles fought in Cornwall. Thereafter, life became relatively peaceful.

The area was largely agricul-



LEFT: This species of cowrie (*Simnia patula*) is only found on the gorgonian *Enicella verrucosa* on deep water reefs and is very difficult to find due to its camouflage; RIGHT INSET: This tiny juvenile hermit crab (*Pagurus bernhardus*) is walking the tightrope of a single blade of eel grass



glass. Sadly, there have been a number of diver fatalities here, and many could have been avoided with a little forward planning and local knowledge.

The tides can be very strong in many areas, and the weather

History

The name "Cornwall" originates from two words in the Cornish language: *Cornovii*, meaning hill dwellers, and *Waelas*, meaning strangers. This language arrived with the Celts from Europe



ABOVE: A diver photographs a group of snakelock anemones (*Anemonia viridis*) on a reef in Falmouth Bay. RIGHT: Map of the county of Cornwall, United Kingdom. TOP RIGHT: Some villages and hamlets are right on the water's edge and still support communities of fishermen, although tourism is now the mainstay of the Cornish economy

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tural, with some mining for copper and tin dating back to ancient Roman times. Cornwall played a big part in the industrial revolution in the 1700s and 1800s. Several revolutionary steam engines were developed for the mining industry by Cornishmen. This led to Cornwall being one of the world's largest suppliers of tin world wide for more than 100 years.

Mining began a decline by the middle of the 20th century and virtually stopped in the 1980s, although there are still attempts to revive some mines as the price of tin and copper increase on world markets.

Myth & legend

There are many myths and legends interwoven into the history of the area. Certainly, the Cornish believe that King Arthur and his knights of the round table were Cornishmen. This story is centred on the remains of the castle at Tintagel, and all the places in the legend of King Arthur are to be found here, from where he was



Some parts of the rugged coastline are only accessible by boat for diving but make spectacular views on coastal walks. The Cornish coastline is littered with numerous shipwrecks driven ashore during winter gales. The Tater Du light house warns shipping of the treacherous Bucks Reef close to Lamorna Cove

born to where he had his last battle, and even where he obtained the sword, Excalibur, from the anvil to the lake where it was returned.

One of the remaining industries

of Cornwall has been commercial fishing, but this is now also in decline due to over fishing throughout Europe and the strict EU catch quotas. So now Cornwall has little industry,

but it has its spectacular scenery and the best climate in the UK. Therefore, tourism is now the mainstay of the Cornish economy. ■



Pascal Bernabé

A conversation with technical diver and depth record breaker, Pascal Bernabé.

Pascal Bernabé has just held a press conference at the Moscow dive show answering questions from an enthusiastic audience about his 330 meter record dive. The soft spoken Frenchman seems relieved to slip out of the uncomfortable limelight on the stage. Having escaped the massive attention for a while, he grabs a chair beside me, and we begin to converse about the meaning of it all.

Why do you dive so deep? Is it for seeking adventure, exploration, or developing equipment?

Actually, it is about all of those good reasons. Above all, I am a cave and wreck explorer, and it was because of the caves that I started diving deeper and deeper. I also happened to work as a safety

diver for the free dive champions, Pipin Ferraras and Audrey Mestre, so there are several factors behind it. It was also a matter of pushing the frontiers. It was exciting to go places where nobody had ever been before. It wasn't out of competitive reasons, in order to be the best, go the deepest, or anything like that. I did it just for my own sake.

For the exploration?
Yes, and for fun—although that record dive did not leave all that much room for having fun—and to be the only one, besides commercial or military divers, that has ventured that deep on scuba.

But working as a safety diver for Pipin Ferraras and Audrey Mestre is something completely different.

This goes back a while. The deepest free dives at that time were Pipin's and Mestre's dives to 170m. It took place off Cabo san Lucas in Mexico. But

even before that event, we were working together while they trained for the record attempt. For a cave diver like me, it was something very new and different and also kind of a dream coming true because of the cult movie, *The Big Blue*. Before I went to see that movie, I had never dived. But after I watched it, I wanted to experience the same sensations and kinds of challenges. I then got to meet Pipin, and we developed a very good relationship that has lasted to this day.

So, it was a mix of sport and challenge?

You can say that, and it was very different from cave diving. Once, I was also a coal diver in Tunisia. So, I have had a lot of different experiences. But a core issue has always been that I never wanted to be a Kamikaze diver either. I tried to make the deepest parts, where the diver is subjected to HPNS and everything, the safest

A *talk with* Cool Teacher

Text edited by Peter Symes
Photos courtesy of Pascal Bernabé
Peter Symes and Andrey Bizyukin

profile



possible. I brought lots of gas, much more than was really necessary. I did rapid descents, but very slow ascents. For my first deep dives, I brought an incredible amount of tanks.

What do you perceive when you are down there? Do you feel clear in your head? Do you perceive that you are 330 meters down and go, "Oh,

there is like a third of a kilometre back to the surface"?

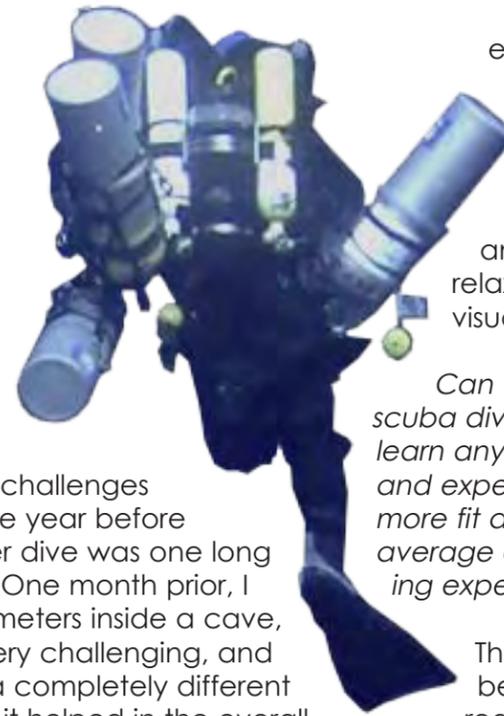
My first sensation was fear. This is normal experience also on cave dives. I naturally also had some stress before the dive, but soon all these emotions get replaced by concentration. However, when, on the bottom, one of my instruments, imploded, the fear came rushing back, because I became afraid that I was about to suffer an accident. Aside from that, you become very focused on what is at stake. I did have a few tremors during the dive, but it wasn't much.

How do you mentally prepare to go so deep?

It depends on the type of dive and what kind of challenges lie ahead. The year before the 330 meter dive was one long preparation. One month prior, I went to 150 meters inside a cave, which was very challenging, and while it was a completely different type of dive, it helped in the overall mental training.

So, it is essentially all your training and getting acquainted with your equipment that instills confidence before a deep dive?

I also try to get the best possible



equipment and plenty of tanks. It should also be mentioned that I keep fit through a lot of physical exercising like running, biking and swimming. I also use relaxation techniques and visualisations.

Can 'normal' recreational scuba divers and holiday makers learn anything from your insights and experiences. Would being more fit and eating right give the average diver a much better diving experience do you think?

The idea should always be to make every dive, regardless of depth, the safest and best possible experience by all possible means. Every dive comes with some level of risk. So, be fit and use the best possible equipment you can afford. In my case, I applied these principles to move my limits. But, in essence, there is no difference.



X-RAY MAG's Russian editor, Andrey Byzuikin, assists Pascal Bernabe with translations during the Russian dive expo



Bernabé

Who are Francisco "Pipin" Ferreras & Andrey Mestre?

Ferreras was born on the northern coast of Cuba, and began to practice free-diving at the age of five. "Pipin" was his nickname from childhood. Little is known about Ferreras' life in Cuba before his freediving career. From the late 1980s and onward, he made a name for himself in the so-called "no-limits" discipline of freediving where he established his first known world record of 112 meters (367 feet) depth in November 1989. Shortly hereafter, he defected to Italy and later migrated to Florida, United States. Through the 1990s, he established a long series of world records, often in close rivalry with Italian Umberto Pelizzari.

In 1996, he met French-born Mexican-national Audrey Mestre who turned out to be a natural freediver herself. In 1999, they married, and quickly the two became a regular record-breaking couple in the sport of freediving, dividing men and women's records between them.

On 12 October 2002, Mestre died in an attempt to break the no-limits world record (this attempt was a bid to break both the men's and women's record) in a setup that was widely criticized within freediving circles. Much of the criticism went to Ferreras who had organized all of his and Mestre's record attempts for years. ■

SOURCE: WIKIPEDIA



X-RAY MAG's publisher Peter Symes with Pascal Bernabe



profile

All dives should be made as safe as possible.

What other knowledge do we gain from deep dives? Do we learn something new about physiology or technology?

The circumstances of a dive seem to change significantly around the 250 meter mark. Down to this, everything usually feels okay to me.

Is there something like a barrier at that particular depth? And why 250m?

At this point, there is a huge increase in the amount of equipment needed. Even if you dive rebreathers, also if you have a double rebreather, it is my opinion that you also need open circuit. At these extreme depths, the breathing performance of rebreathers can be quite poor.

They get hard to breathe?

You might recall the sad accident that happened to David Shaw in the cave of Boesmangat in South Africa a couple of years ago (see X-RAY MAG issue and the YouTube video on our X-RAY MAG website). This was a tragic example,



but we really don't have so many options to choose from. At a certain depth, you just need so many tanks. Also HPNS starts to become an issue, which you will then have to find ways to manage. I have also taken a closer look into dive profiles and experiences of other deep divers such as the late John Bennett, Jim Bowden, etc., and from the logged stats. It seemed to me, once dives went past the 250m mark, the

Bernabé

occurrences of problems and cases of DCI seemed to spike.

So, pretty much all the factors, from equipment, physiology, mental aspects, seem to change at that same point?

Yes. It does not feel extreme until 220-230 meters. But after that, you have the sensation of pushing limits in every aspect and being in a game of Russian Roulette.

How do you feel after such an experience? Do you get the sense of having achieved or conquered something? It is funny, because after all my biggest cave dives, I just felt happy. During the decompression stages, I felt elated and relieved of stress. However, after the getting out of the water, I would also feel exhausted, have headaches and feel a bit empty. As a cave explorer, your purpose is not to break records, so when someone tells me that the record dive was sort of a stupid thing to do, I can understand where that comes from. I am actu-

ally not quite sure myself as to why I wanted to make that dive. It was only much later that I started appreciating the dive more, and that was for a number of other reasons, too. It helped in getting sponsors, which is not very easy to get when you are a cave diver, as many sponsors do not want to get into that area. Having set that record has given me new opportunities, for example, to do master classes and get equipment for my next projects.

What would you want to do with fame, now that you got the recognition?

Pretty much the same. Explore caves and wrecks. There are some



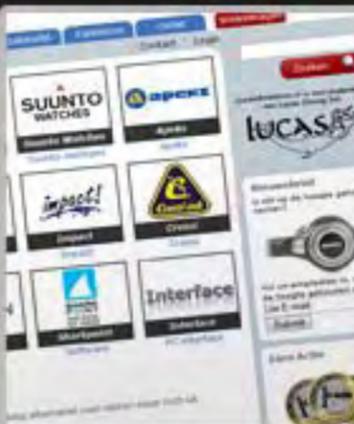
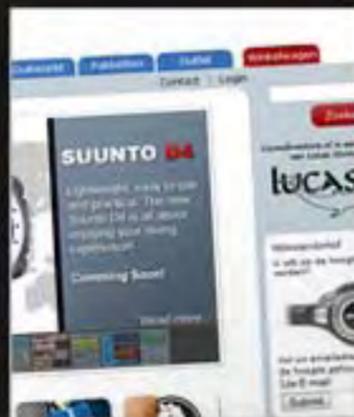
What's HPNS?

High pressure nervous syndrome (HPNS) is a neurological disturbance that may result from breathing a high-pressure mixture of helium and oxygen—such as trimix or heliox—under high pressure for an extended amount of time, putting a physiological limit on deep technical dives.

"Helium tremors" were first described in the early 1960's by among others, Royal Navy physiologist, Peter B. Bennett, who later founded the Divers Alert Network. The term high pressure nervous syndrome was first used by Brauer to describe the combined symptoms of tremors, electroencephalography (EEG) changes, and somnolence that appeared during a 1,189 foot chamber dive in Marseilles.

Symptoms of HPNS include tremors, visual disturbances, nausea and dizziness, and decreased mental performance. It is not likely that HPNS can be prevented entirely, but there are effective methods to delay or change the development of the symptoms. Slow rates of compression, or adding stops on the ascent, have been found to prevent large initial decrements in performance. Also, the levels of nitrogen or hydrogen in the gas mix seem to play a role in preventing the onset of HPNS. The susceptibility of divers to HPNS depends on the individual. ■





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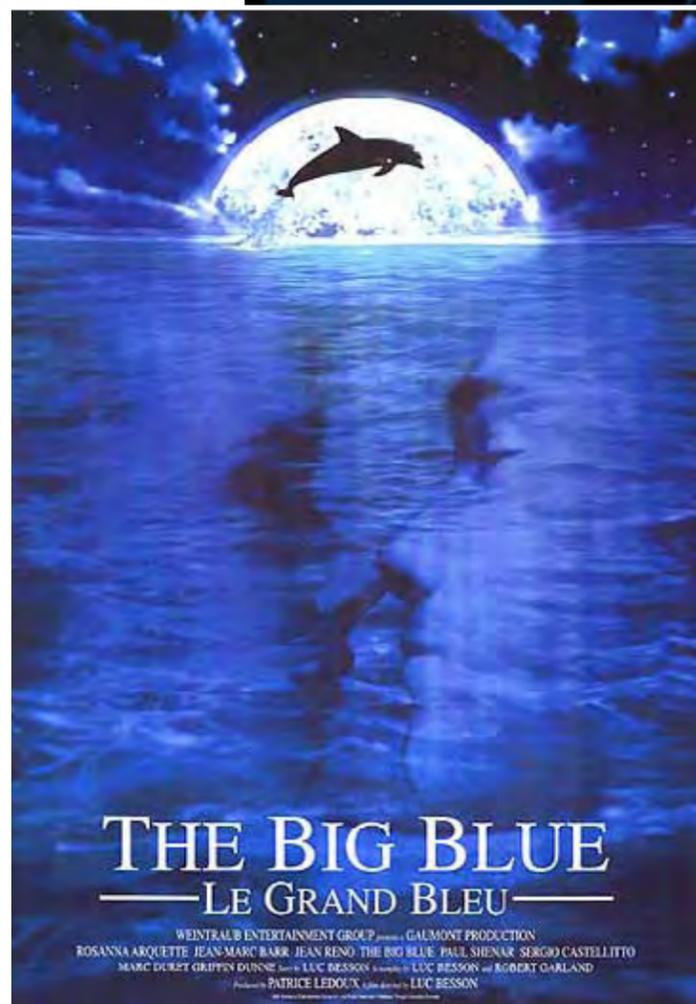
www.lucasdivestore.com

Bernabé

good wrecks in the Mediterranean that I can now explore, since I have now found a sponsor for a rebreather and other equipment. I like caves the most, but I would also like to explore the wreck of *Kirk Pride* that rests at a depth 238 meters off Grand Cayman. It is deep, but the conditions there a good. It will, however, require a lot of equipment. I also want to do a number of projects with Jim Bowden, the deepest cave diver and dive legend.

How do you define which risk levels are acceptable, and how do you manage risks?

I am not sure, that just because you dive deeper or penetrate further into a cave, that your risks are necessarily greater, or you are forced to accept higher risks. I have had friends that died unnecessarily, because they did quite stupid dives. They didn't have to die. If you take a closer look at some of the decompression software that is around, you will see that you can choose conservatism and risk levels for i.e DCI. You can't completely remove all risk, but you can minimize it to an acceptably low level. So, you have to put some thought



The movie, *Big Blue* (1988) by French director Luc Besson, has inspired a lot of divers. While it became a cult movie Europe, the film was a commercial failure in North America

bringing backups. Experience, good planning, and organisation are also essential contributions towards reducing risk.

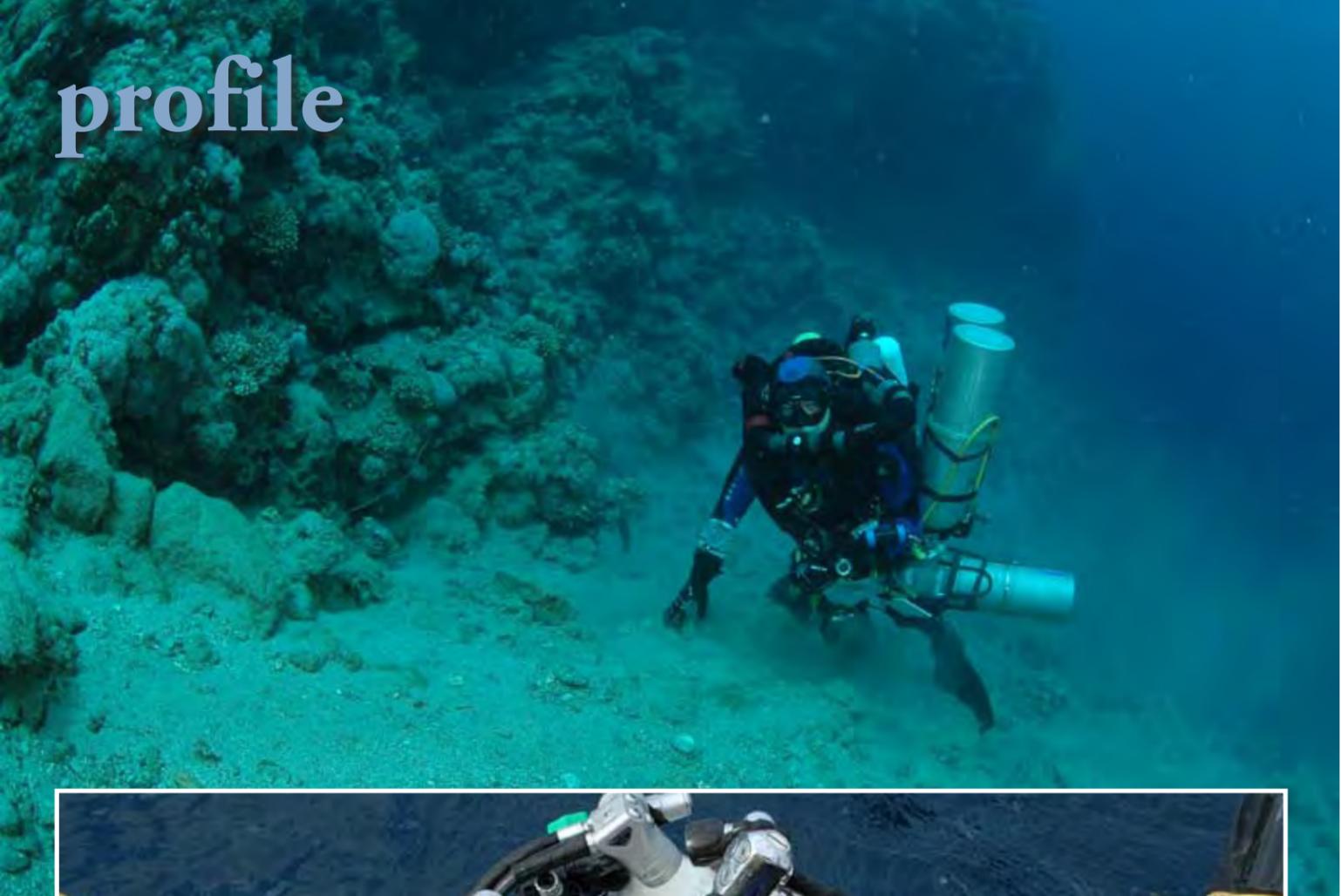
Make sure that you exercise enough. That does not necessarily mean twice a day, but at least make sure you have the sufficient fitness for the dives you plan to do.

What are the best experiences diving has given you?

I have many good ones, in many different areas—especially with cave diving. It is not the biggest dive projects, but the ones where everything just works perfectly. Discovering a 50 or 100 meter gallery in a virgin cave ranks up there. After such an experience, I

into it and make some choices. You can go on an extreme dive and experience no problems, and then have an accident on a shallow dive just because you didn't think.

As regards to equipment, it can fail, but you reduce risk by



can walk on clouds for a couple of months. I also appreciate all the great people that I have met through diving, and the friendships I have made. I value the conversations we have had and the opinions I have heard. The coral diving I did in Tunisia was in a place where there was nobody else around, and the underwater mountains there were of magnificent beauty. Diving with Pipin and Audrey was also special. I like people.

is not a sport where one should push at all. It is about enjoyment and having a good time.

mal recreational dives not going under 40m. We had a marvellous time, where we relaxed and were able to enjoy a couple of beers in the company of good friends after the dives.

My general advice to all divers is to enjoy the experiences that diving can give you and don't make matters too complicated or serious. Last year, I spent time with my team doing a series of nor-

Enjoy it! ■

Pascal Bernabés latest title—so far, just in French

So, you like teaching, too?

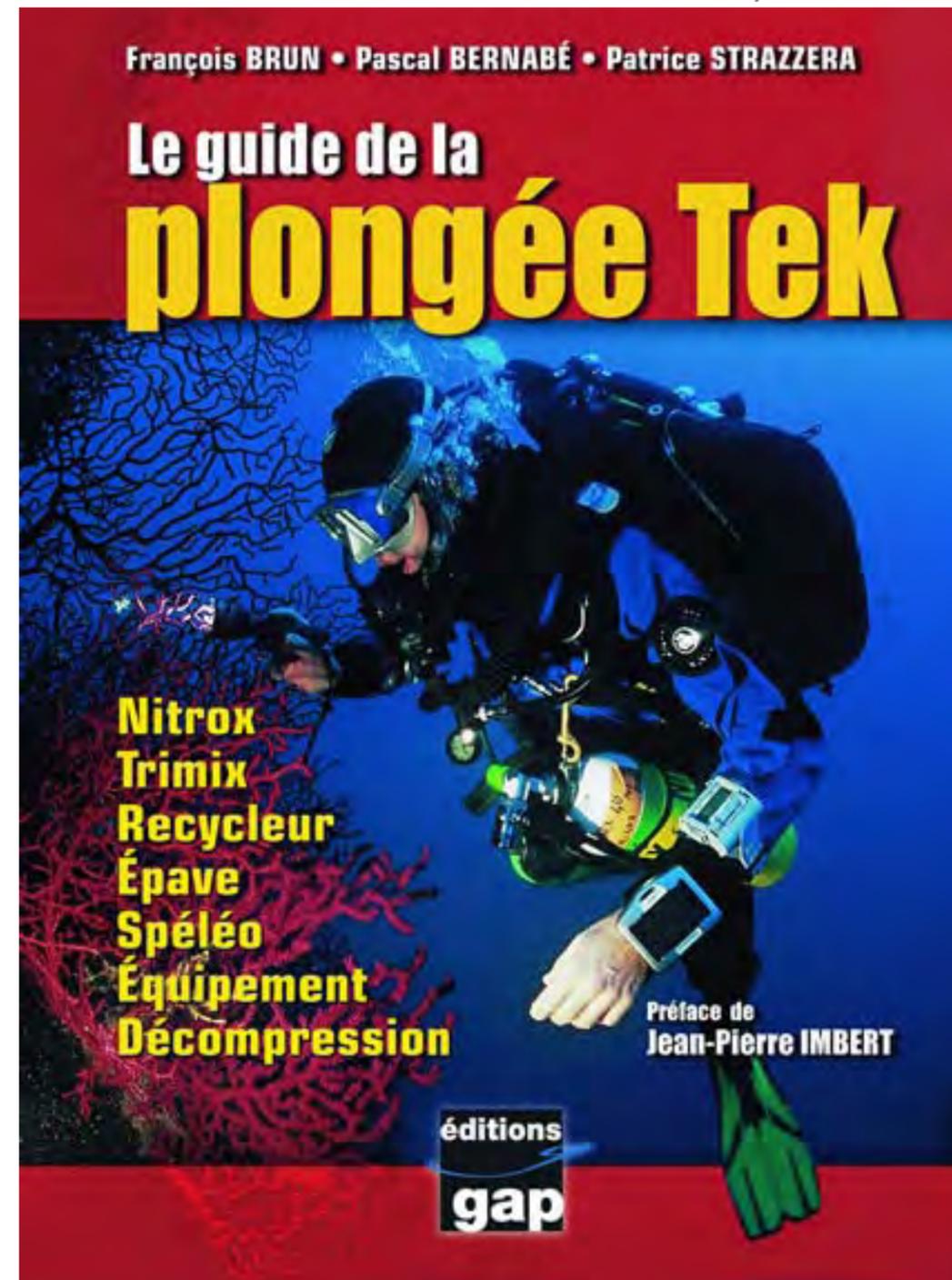
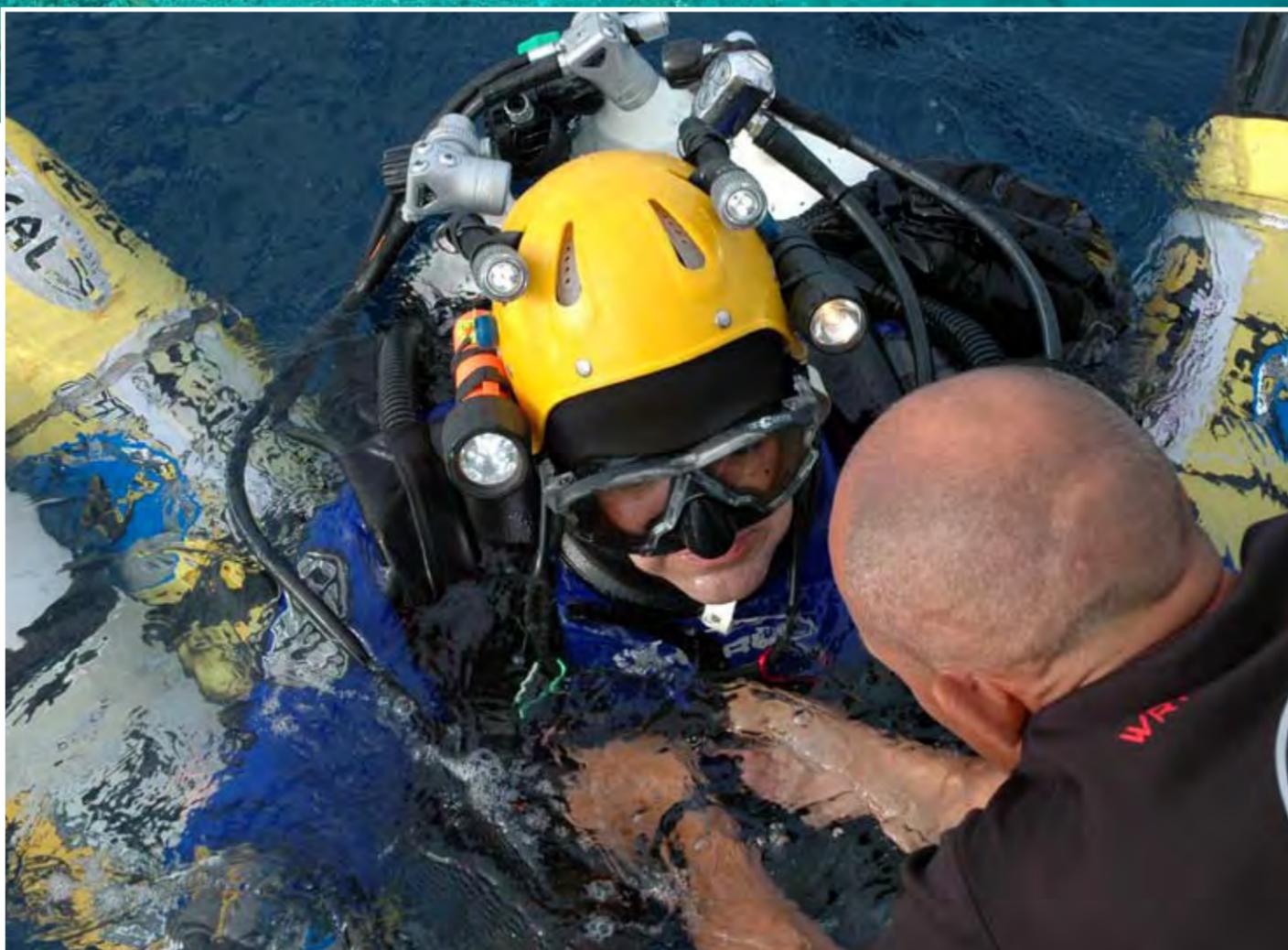
My main profession is actually being a primary school teacher. So, yes, I like it. I like teaching cave diving, too. There is nothing like seeing the happy expressions on the faces of your students after they have completed a cave dive.

What do you tell your pupils in the school where you teach? Do you tell them about all your exploits and adventures?

They know already. They bring me magazine articles about it. But they are very natural about it. I can sense a little admiration, but they also make jokes about it.

It must be a cool thing to have a teacher who is a famous diver and record breaker. Do you encourage the kids to take up diving?

Not at all. They are too young and will have to arrive at making their own decision and only much later. I have an 11-year-old daughter myself. She has tried diving a couple of times, and if she wants to pursue it, it's up to her. I don't want to push her. It



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POINT & CLICK
ON BOLD LINKS



Equipment

Fresheezze



Edited by
Arnold Weisz

Pinnacle Aquatics Evolution 2 drysuit



Pinnacle Aquatics front-entry Evolution 2 drysuit is now available in both male and female sizes. Previously only available in unisex sizes, the "Evo 2" now comes in stock sizes. Pinnacle also continues to build all of its drysuits in custom sizes for those who do not fit into one of the 29 standard sizes. Standard features are 220-gram German Cordura, heavy-duty latex wrist and neck seals, a neoprene beak warmer, protective zipper flap, two thigh pockets with elastic lanyards, a drysuit bag, a 7 mm drysuit hood, suspenders, an inflator hose, and the diver's choice of neoprene socks or vulcanized rubber boots. Additional options are also available.

www.pinnacleaquatics.com

IST ProEar Mask

Difficulty in equalizing and ear infection are problems that can happen to anyone regardless of their diving experience and may potentially stop one from diving. IST ProEar Mask has designed a mask to counter the terrible effects pressure and water have on your ears and bring you more enjoyment underwater. www.istsports.com



Dive Containers

The Kiwi product, the Dive Container, has been designed to enable divers to carry communications equipment with them on the dive, so if they drift away from the boat, or there is some other emergency, they can contact help.

www.divecontainers.com



Technisub Marina mask

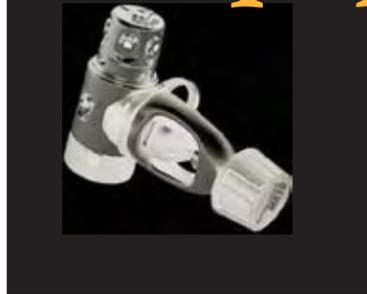
The Marina is characterised by a structure that makes it possible to insert the mask lenses into the ocular orbit thereby obtaining a compact internal volume. The "double joint" buckles (cardan joint buckles) rotate up and down, inwards and outwards. A quick counterposed push button activation allows for simple and easy use even when wearing gloves. www.technisub.com

Frog Colbalt BCD

This South African manufacturer has a variety of diving equipment. Their Colbalt BCD as made of heavy duty 1000 denier bladder material and 1680 denier nylon non-fade outer. The BCD also features; two 2.3 kg / 5 lbs rear pockets, two integrated dumpable weight pockets holding up to 4.5 kg / 11 lbs each, two large, self-draining expandable side pockets, fully adjustable cummerbund, reinforced integral backplate with comfort padding on the inside and three dump valves. To see more details, visit: www.frog.fm



equipment



H2Odyssey Pulsar

The Pulsar is an environmentally sealed, balanced diaphragm first stage that is made to thread into any standard tank, from 4 cu ft to 120 cu ft. This design eliminates the need for a tank valve, thus reducing the bulk, weight, and one possible point of failure for your redundant air system. The Pulsar features 2 HP ports and 4LP ports and an easy grip on/off valve. It is used in their EAS3 hand off system with a 6 cu ft bottle, or mounted RAS 3 system that utilizes any size tank you desire. Options include an easily seen mini pressure gauge, with or w/out mini SPG hose; quick disconnect hoses for LP and HP, and it can be filled via YOKE, DIN, or STATION fillers.

www.h2odyssey.com



Dive Rite Thigh Pocket



These pockets include daisy chain webbing on the external pocket for clipping Z-knives, trauma shears or any tool that you need in easy reach.

The Thigh Pocket includes a leg band made of a proprietary material used in bandages. The material holds up to salt water and dries quickly, plus silicone strips placed on the inside of the band grip your exposure suit and keep the leg band in place. At 4-inches in width (10 cm), the new leg band will be comfortable and secure. The pocket is attached via a buckle on the waist belt, allowing a diver to don or doff the thigh pocket without having to unbuckle the waist belt and slide the pocket off.

www.diverite.com



Mares Pegasus

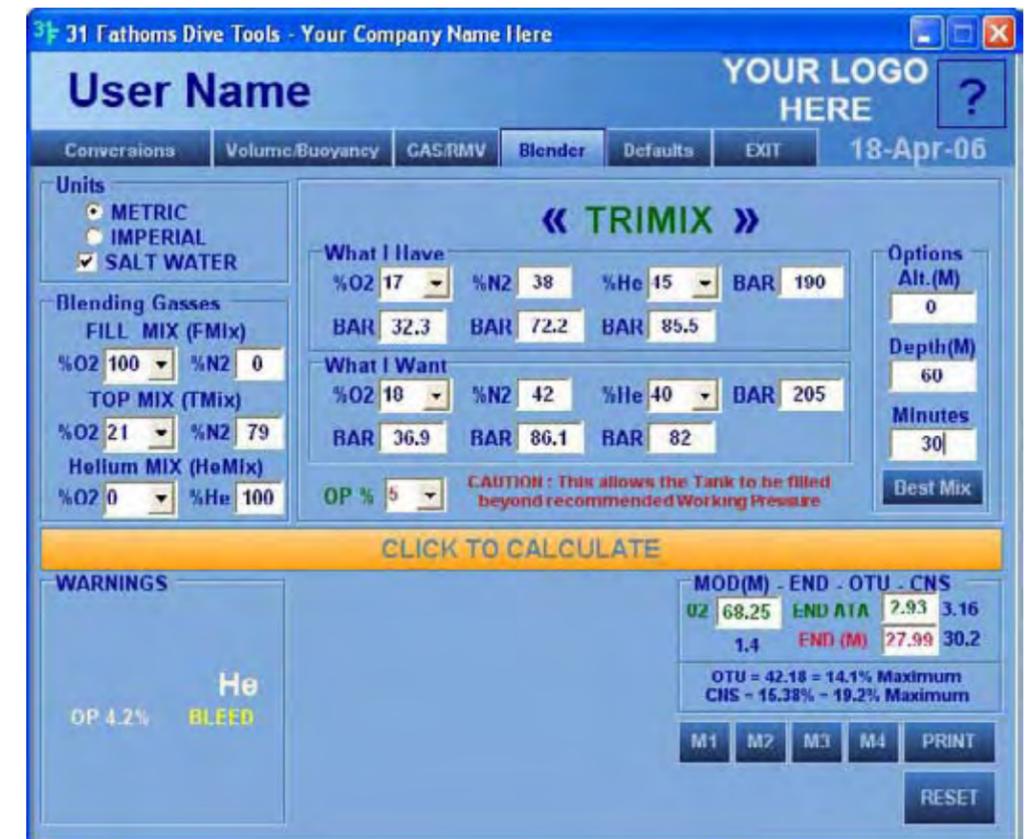
The new Mares Pegasus is a light-weight, (7lbs, 7oz) durable, full feature BCD. The Pegasus back mounted bladder offers a lift capacity of (45 lbs). Additional features include Mares MRS Plus weight release system, pre-shaped shoulder straps and dual position adjustable chest straps, removable double crotch strap for added stability, knife attachment grommets, roll-up zippered pocket, two heavy duty techno polymer D-rings, and a dual position hose clip, to secure equipment and accessories.

www.mares.com

31 Fathoms Dive Tools

Dive Tools is a utility software program for new and experienced divers. It provides a basic set of mathematical dive tools. Planning a dive will be easier with tools for Unit Conversions, Volume/Buoyancy calculations, GAS/RMV Calculations and a binary/trimix GAS Blender. 31 Fathoms will not be selling or distributing Dive Tools directly to the consumer. Instead, 31 Fathoms will private label the product to qualified individual dive shops for free distribution to the consumer.

www.31fathoms.com





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one site for all your divefun