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POINT & CLICK
ON BOLD LINKS



Edited by
Rosemary 'Roz' Lunn

Equipment

Too Hot to Trot'

Quick Cuff System

SI Tech's popular Cuff System has been around for over a decade. They have now worked in concert with Waterproof, who were keen to fit a ring seal system to their new D1 hybrid drysuit.



As a result the Quick Cuff System (QCS) was born. Waterproof wanted an 'easy to take apart and put back together in the field', ergonomic, low profile, light, practical, 'small as possible' ring system.

In addition the QCS needed to accommodate a large variety of diver's hands without impacting on their movement and dexterity. To achieve this Si Tech designed a two piece elliptical or oval ring system using a combination of polyurethane and microblend. The weldable polyurethane is soft and easily adheres to the drysuit cuff material, whilst the microblend is a good thermal plastic that works well in all marine environments. What is so nice about this material is that it doesn't get affected by different temperatures.

www.sitech.se

Xtreme Diving Hoses

Miflex have extended their range of Xtreme LP regulator and inflator hoses with the recent launch of two new eye-catching cool colours, a vivid red and a bright white. Both colours were added following customer requests and have already snapped up by divers across the world. The red colour has proved especially popular with drysuited divers. Perhaps it is because it's so much easier to see a Miflex Xtreme red hose during vital buddy checks, as well as being a more obvious way to locate a red drysuit inflator hose in a surface rescue situation.

www.miflexhoses.co.uk



Fourth Element Halo 3D



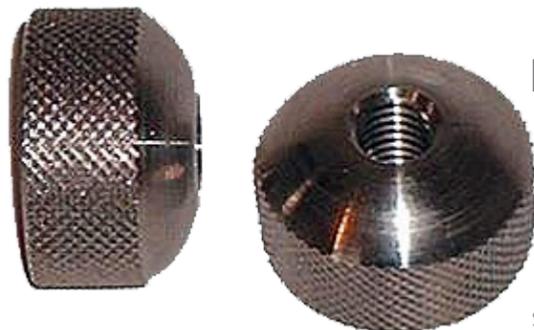
The HALO 3D is Fourth Element's most technically advanced undersuit for drysuit diving. Utilising body mapping to locate state of the art compression resistant materials and high density fleece panels, the design takes account of the usual horizontal position of a diver in the water to provide optimised thermal protection. The design of the HALO 3D means that it is lower in bulk and buoyancy than comparable traditional drysuit underwear. The HALO 3D had been tested as part of a layer system with a Xerothem base layer by IANTD's Technical Director, Phill Short, in temperatures down to four degrees for dive times of over 60 minutes. His conclusion: "low bulk, low buoyancy. Outstanding thermal protection." Available from April 1.

www.fourthelement.com

Knurled Nuts

As your diving gets more adventurous, your hands and more specifically your fingers can take a bit of a pounding when it comes to setting up and donning equipment. One particular nut—the Wing nut—used for mounting a backplate to a single or twinset can really scratch and catch fingers, especially when you're not concentrating on the task at hand.

Enter stage left, Kent Tooling's £15.00 Dome Nuts. These low profile knurled nuts are a much better solution. They're easier to hold, simpler to tighten (and subsequently undo) and they don't require a washer either. divingproducts.co.uk



Oceanic's BioLite

Oceanic has launched a multi purpose ultra light BCD that doesn't greedily gobble up divers luggage allowance. Weighting in at a meagre 5.5lbs (size Large) the Oceanic BioLite benefits from a clean straightforward design that focuses on providing the diver with comfort and convenience. Whilst the BioLite is one of the lightest BC's in the world, it certainly is no 'lightweight'. Today's modern diver demands high-quality durable materials, and Oceanic's patented low profile BioFlex bladder and Cordura construction delivers that. Weight integration and trimming has also been considered with the streamlined 'Quick Drop' Weight System accommodating up to 14 lbs, whilst dual 5 lb trim weights can be added to the tank band. oceanicworldwide.com





Cathx Ocean

The Euphos widebeam dive light from Cathx Ocean is designed as a compact underwater video light with an integrated battery and lighting head “all in one” package. The rough clear anodized and acetal body and through case charging ensures no seal failures. The output is rated at 4,000 lumens with 75 minutes of burn time at full power, but the Euphos will last up to 12 hours in saving mode. The compact unit weighs under 400g in water.

cathxocean.com

Commando Escape

The Commando Escape is a light-weight travel BCD that utilises bespoke new materials to deliver heavy-duty quality, comfort and performance—all under 3kg. The Escape is a single bladder construction made from a unique material specially commissioned by AP Valves to provide the best possible balance between quality and weight. The resulting fabric—OceanSeal 800—is a tough and unique material, high-frequency welded and double-stitched at the seams which offers an extremely rugged yet light-in-weight BCD. Available in five sizes: S, M, L, XL and XXL

apvalves.com



Sidemount the Hollis Way

Cave divers have been sidemount diving for more than half a century, partially because it gave them a sleeker streamlined profile, and therefore, the access to explore confined spaces. However, this configuration has been largely overlooked until recently. When Hollis launched their SMS100 Sidemount System there was an immediate renaissance—probably because it’s so easy! Sidemount diving enables divers to achieve spot on buoyancy within minutes, and as a result they attain a more streamline profile (when compared to a traditional BCD and cylinder). In addition, the diver benefits from a safe alternative for gas management allowing them to see and easily reach their cylinder valves and regulators. Finally, it makes diving off RIBs and donning/doffing cylinders a dream.

www.hollisgear.com



Ri 1-100ccn

After two and half years of research, development and testing, O’Three is proud to launch the Ri 1-100ccn drysuit with resin impregnated, 1.1mm thick, constant compression neoprene. This combination should appeal to both neoprene and membrane users who seek a durable flexible suit that maintains warmth and has minimal buoyancy changes at depth. Fans of O’Three will be pleased to hear that the outer lining is still resin impregnated. This treatment improves the suits drying capabilities thereby reducing wind chill and keeping the diver warmer. The inside of the suit has also been laminated with O’Three’s new Contained Core Laminate (CCL) to give support and strengthen the 1.1mm thick material. As a result, the Ri 1-100ccn is not a travel suit—it’s been specifically engineered for extreme diving. othree.co.uk



Mini Manta

We found this new finger spool from Manta Industries, which was just spotted at a dive expo, is very compact and can be stowed in pretty much any pocket. Comes with white or yellow line in lengths of 75, 100 or 150ft. It is also available with crank.

Manta Industries



Recreational DPV

With a dry weight of less than 12 pounds and a five pound negative buoyancy, this unit is said to have the highest thrust to weight ratio in its class. By simply moving your head and body, the Pegasus provides divers with a comfortable and easy option for underwater maneuvering. The unit, which is submersible to 100m (325 ft), is propelled by a 12-volt DC motor and has a 35-45 minute continuous run time. pegasusthruster.com

SMS underwater

The UDI device from Underwater Technologies Center (UTC) combines two-way digital messaging technology, SOS and homing capabilities, a state-of-the-art dive computer and 3D compass. The technology is based on a system of networks. Each network links up to 14 divers via individual units worn on the lower arm with an elastic strap or attached on the inflator. A boat unit supports up to four networks using four different frequency ranges. utc-digital.com



Sola 600

Light and Motion's Sola dive lights have a factory sealed body, so you never need to worry about flooding. Control is accomplished through a magnetic coupled slider on the top of the body. Slide forward or back to turn on. Hold forward or back to turn off. Three indicator lights behind the bezel report the power (high=3 lights, medium=2 lights, low = 1 light). Indexing back changes mode between 'spot' and 'flood'. Indexing forward increments the power levels. lightandmotion.com



Seac Ice

Seac's latest regular offering, the X-10 Ice, has been specifically designed for cold water diving. The first stage comes complete with 2 HP and 4 LP ports and has been finished in shiny chrome. It looks as though this first stage will allow for elegant hose routing. seacsub.com



SportRebreather

Due for release summer 2011, VR's SportRebreather has been specifically designed for the upcoming recreational rebreather diving courses from PADI and SSI. The design is a unique hybrid allowing the use of a single nitrox gas without the historic complications of semiclosed rebreathers. The pre-dive sequence is automated and a simple plug and play CO2 filter makes it easy to use. The unit, which is depth limited to 40m (130ft), comes complete with cylinder, regulator, BCD and an on-board decompression computer. The expected retail price is approximately GB£3,000.00 technologyindepth.com



Stretchy Bare

The SB SYSTEM drysuit is a revolutionary performance inspired trilaminate constructed from a proprietary blend of fabrics exclusive to Bare. This unique trilaminate drysuit uses a special blend of fabrics. They deliver a four-way stretch for that "next-to-skin" fit and breathability for a balanced body temperature on the surface before and after your dive. baresports.com

Team Diving

Text and photos by Mark Powell

—Technical diving instructor, Mark Powell, discusses the idea of team diving and explains why good buddy divers make good team divers.

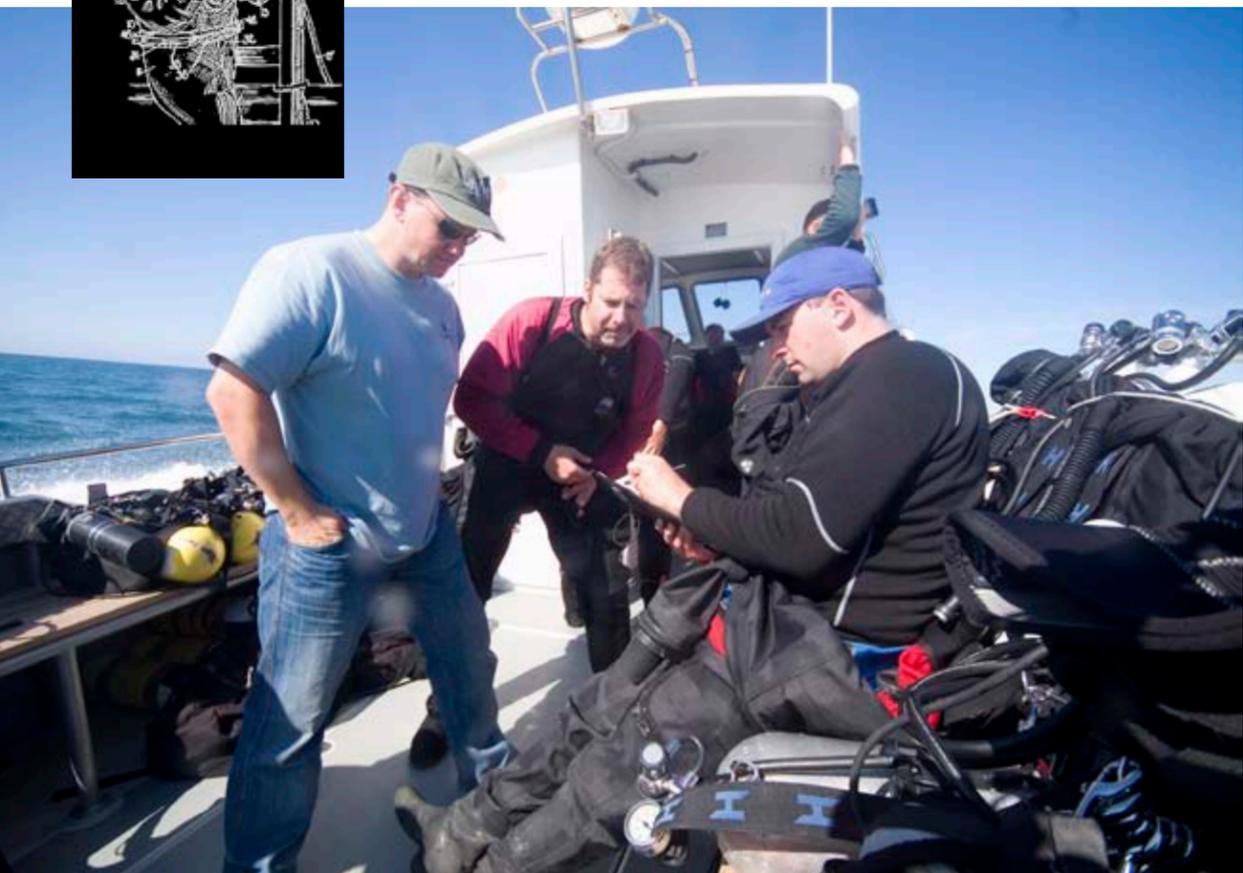
Recreational diver training agencies have always encouraged divers to adopt the buddy system and always dive in buddy pairs. Diving in a group made up of more than two people has been described as undesirable, while most agencies explicitly ban solo diving. The 2005 BSAC incident report explicitly raises the risks of diving in a trio, and one of its four main conclusions is that “fatal incidents associated with solo and trio diving continue to feature”.

This view must be balanced against the teachings of the technical diver training agencies who encourage divers to dive as a team and often cite three as the optimum team size. Technical divers carry out a large number of challenging dives to depths well in excess of the recreational limit in this team format with obvious success. What makes them choose this style of diving if the recreational industry is so set against it?

There are a number of reasons for the apparent contradiction between recreational and technical training agencies. By examining these reasons we may be able to adopt some of the best practices from

Good lights make communication
between team members easier

A team of technical divers discuss their dive plan



One diver in front of the other works well when swimming through a wreck



be teamed up with whom, and there is no preparation, planning or practice. In this case, we end up with a haphazard trio, which is certainly going to cause more problems than a traditional buddy pair. If an incident occurs, then the third person adds confusion to the situation rather than helping to resolve it, and there have been a number of cases where two divers become involved in a situation and subsequently become separated from the third. In these cases, the divers are not following a team diving approach but are simply jumping in as a trio.

The buddy system also has its disadvantages. It can lead to buddy dependence where we always assume our buddy is there to get us out of trouble. This is not always the case. In the case of a problem, underwater buddies are often too far apart to be able to help each other or do not pay sufficient attention to their

team diving for use in recreational diving. We will also see that many of the concepts of good buddy diving are the same as those of good team diving.

Pros and cons

Team diving has a number of disadvantages if you are not familiar with diving in this way. Most recreational divers have little experience of this type of diving and usually express a dislike of diving in a three. This is not surprising as all recreational training focuses on diving in buddy pairs, and for most divers, their subsequent diving has all been focused on buddy pairs. So, it's no wonder that diving in a trio is uncomfortable, as you have never been trained to or practiced diving in this way.

In the recreational world, a trio is often put together at the last minute due to odd numbers. Very little thought is put into who should



Preparing for a decompression dive

buddy to notice that they have got tangled up in fishing line or have experienced some other problem.

The buddy system is often followed in name only with so called "same ocean buddies" who jump in together and will spend time somewhere in the vicinity of each other without really expecting to stay together. These divers are effectively solo diving but without the equipment, training and experience to deal with a problem on their own.

Poor buddy skills often go unnoticed on recreational dives, but for technical dives or on dives with three divers, these buddy or team skills become much more important. It is possible to get away with poor buddy skills when there are only two divers, but this becomes less feasible as the number of divers increases or the complexity of the dive increases. In this

case, additional techniques and training are required to ensure things go to plan.

Team style

Effective team diving clearly involves more than just diving with more than two divers. Team diving involves a style of diving where diving in a trio or larger group is a conscious decision, which is planned in advance and where adequate training, practice and preparation has already been carried out.

In a buddy pair you only have one other person to keep track of, this makes things fairly straightforward. When diving in a trio you now have two others to keep track of, and so you spend more time looking for the third person. As you are unfamiliar with diving in a trio, all three of you are likely to be moving around and looking for the other two,



Diving in a team
can be a very safe
and enjoyable
way to dive

which makes the task even more difficult.

If you are diving in a four, then you now have three other divers to look for, and now you spend more time looking for the other divers than looking at the wreck. It's no surprise that your first experience of diving in a four is likely to put you off ever doing it again.

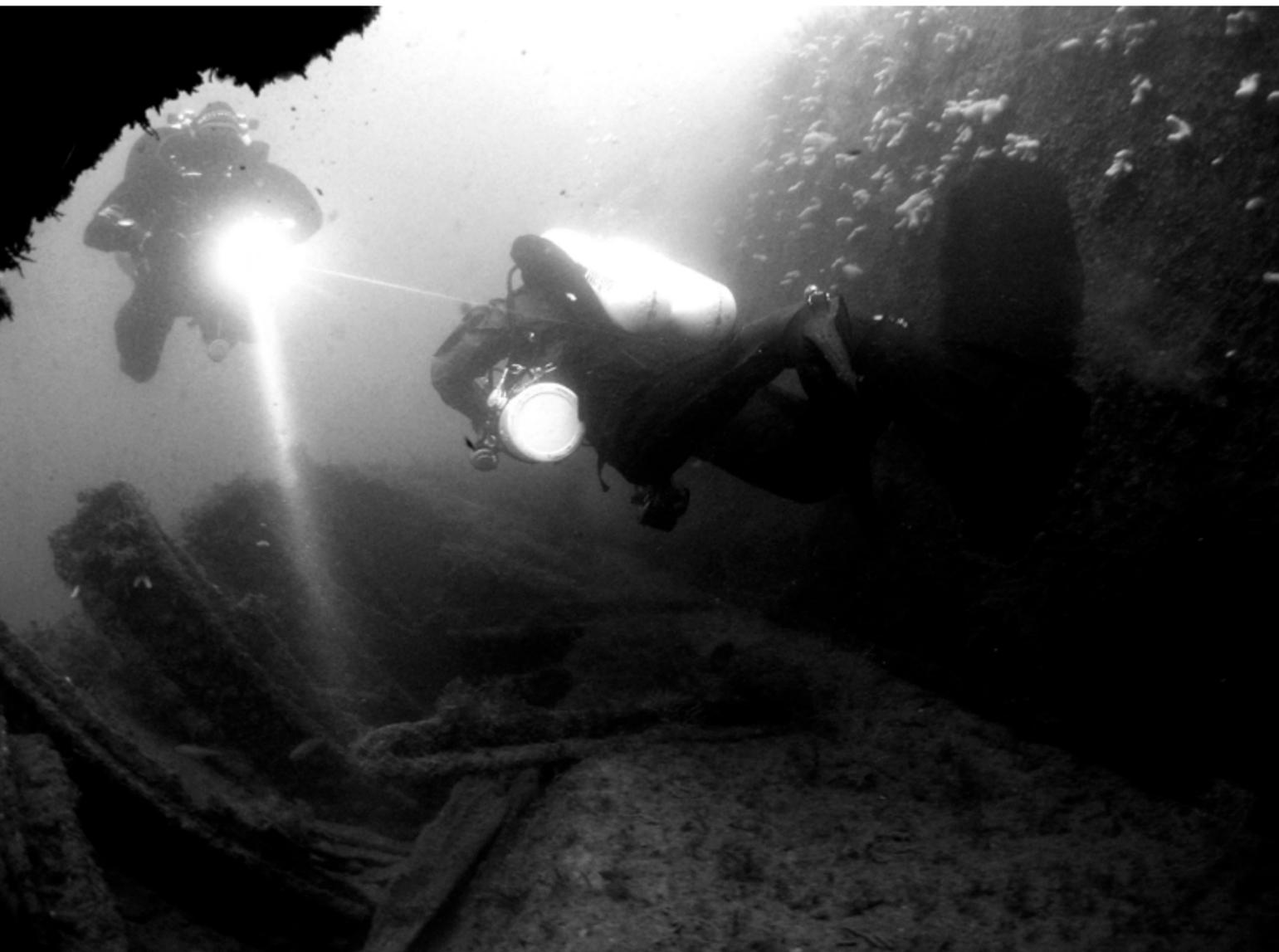
Positioning

This problem occurs because divers don't usually know where to look for the other divers, especially in a trio or more. One of the key principles of team diving is having agreed positions. This simplifies things immensely as, if you know exactly where the other two divers should be, it's very easy to confirm that they are indeed

in the spot you expected without having to look 360 degrees around and then above and below to find them.

Common positions when diving in a three are to dive in a line, either one in front of the other or side by side, or alternatively in an arrow head position.

Swimming side by side works well for drift dives or well broken



Team Diving

up wrecks where you are swimming over the top of the wreckage. In this case, the person on the left only has to keep track of the person in the middle—no different to a buddy pair. The person in the middle has to keep an eye on the person to their left and right but equally has two people keeping an eye on them. The person on the right just has to keep an eye on the person in the middle.

On the other hand, one in front of the other works well for swimming along the side of wrecks, reefs, through restricted areas or on wall dives. In this case, the person in front only has to keep track of the person immediately behind them—again no different to a buddy pair. The person in the middle has to keep an eye on the person in front and the person behind. This is more work, but again, they have two people keeping an eye on them.

The person at the back just has to keep an eye on the person in the middle, however, this is the most exposed position, as there is no one looking at them unless the person in the middle looks back to monitor them. Of course, this is no worse than a buddy pair where one buddy is in front of the other.

An arrow head position can work in a number of situations. In this case one person is in front at the tip of the arrow head and the other two are side by side behind the lead diver. This is more like a buddy pair with one person in front and so may be more comfortable for divers used to buddy diving. This is preferable to the single person being behind the other two as in this case it is all too easy for the two in front to concentrate on each other and forget about the diver behind.

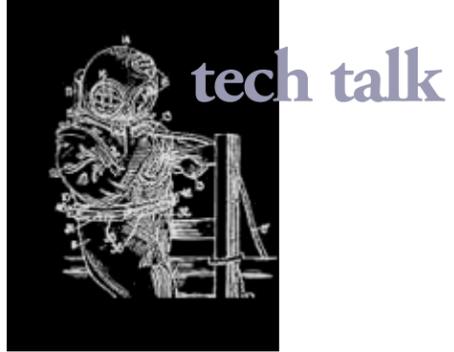
If diving in a four then diving in a line easily scales up to four or

more divers. The first person still only has to keep an eye on the person behind and the similarly the last person also only has to keep an eye on the person in front. The divers in the middle again have to keep an eye on two divers but they also have two divers watching them. The alternative is to have two pairs diving in a box formation. Again this may be more familiar to divers used to diving in a buddy pair.

In each case, it is essential that each diver is monitoring the relevant member(s) of the team closely enough to stay in contact and to be close enough to assist should they get into trouble. A high level of awareness is required in order to achieve this. If this awareness is present then the team can easily become separated leading to many of the problems associated with trios. The use of powerful torches for signaling can make keeping track of

Team diving requires good buddy awareness





other members of the team much easier. If you can see the torch beam of the diver behind then you don't need to turn around in order to check that they are still there. In addition the diver behind can use their torch to signal the diver in front if they need to get their attention.

Practice makes perfect

The strongest teams usually consist of experienced individual divers with good self sufficiency and self awareness skills that have practiced working together in a team. Training and practice are essential in order for team diving to work successfully. Each member of the team should have similar views, so they are following the same general approach. In addition, good teamwork only comes with practice. You can see this with national sports teams. Each player is amongst the best player in the country, yet unless they train together as a team, they will not be able to perform well as an effective team.

When team diving is carried out by experienced, trained divers, then it is a very safe way of diving. In the case of a problem, you have more options available to help out, more gas available, more chance of spotting the problem and more ideas on how to solve it.

In the case of an incident, one member of the team can be initiating a rescue while the other sends up a delayed SMB and another provides a visual reference to ensure the rest of



the team can maintain depth. It is when problems occur that the benefits of diving in a team become apparent.

Standardisation

Diving in a team becomes much easier if each member of the team standardises certain aspects of their diving practice. Communication is much easier if all signals are standardised, and it is common to expand the standard signals to include others that may be relevant to the type of diving you are doing.

Standardising gases is also common, if one of you is on air and the other is on nitrox then no stop times are going to vary. The diver using nitrox will be unable to take advantage of extended no-stop times, as they have to take into

account the other members of the team.

At a very minimum each member of the team should be on the same gas mixture, and many teams standardise on set gas mixes for pre-defined depth ranges. Some teams even go so far as to completely standardise all of their equipment. Even if you don't go for identical kit, then it is still worth standardising on certain aspects, such as low pressure inflator fittings so that spares can be shared.

The idea of team diving can be further extended to all the divers on the boat so that all dive teams work together in terms of dive planning and surface support. For this type of diving, the boat skipper and crew would also become an integral part of the team.

The lead diver knows can keep track of his buddy if he can see his torch beam

Team Diving

Skill set

The skills required to be a good buddy are the same as those required to be a good team diver and vice-versa. By adopting some of the team diving methods used by technical divers we can become better buddies even if we are carrying our a recreational dive no-stop dive.

Recreational dives with three divers can be made easier by adopting a fixed position and using torches for signalling. The other aspects of team diving can

still be adopted even if diving in a traditional buddy pair. Each buddy should be self sufficient but at the same time fully aware of their buddy and ready to help out should it be needed.

Effective communication between buddies will help them stay together and avoid any potential problems. In this way, we can take some of the aspects of team diving and increase our safety on all of our dives.

Next Month: Mark looks at the risks of nitrogen narcosis and how technical divers avoid this dangerous condition. ■



Buddy skills should be practiced regularly

Improve your personal diving at TEKCamp 2011

Text by Rosemary "Roz" Lunn
Photo by Jason Brown

Sponsored by Fourth Element, the inaugural TEKCamp will be held 25-29 July 2011. Join ten of the United Kingdom's top technical diving instructors for five days of solid diving, lectures, presentations and of course fun at Vobster Quay, Somerset, United Kingdom.

"Time and again when a diver is considering going down the technical route, they always ask the same question, 'who should I train with?'" said Martin Stanton, owner of Vobster Quay. "The consistent, sensible answer given is that it's not a specific training agency but down to the quality and ethos of the individual instructor.

"Until now it was a bit of a catch-22 situation. The only way to find out if a specific instructor's teaching style was for you was to physically book into and take a course. At Vobster, we therefore decided that an opportunity to 'speed date' some of the United Kingdom's foremost tech instructors from the leading agencies would be the way forward, with the emphasis focused on a week's personal improvement diving.

"Every TEKCamp student gets to take part in a daily in-water workshop with three of their TEKCamp peers covering everything from



Dive Training



“Rich has a relaxed, progressive, effective teaching style which enables him to thoroughly prepare divers for the rigours of ‘real life’ diving”



Rich Walker

High quality training using the best curriculum available

www.wreckandcave.co.uk

or further their technical diving training. And it helps them decide if this type of diving and certain teaching styles are appropriate for them. Some divers benefit from a more military approach adopted by some instructors, whereas others respond to a more pragmatic, down-to-earth instructor.

“We are delighted to say that for TEKCamp 2011, we’ve secured the services of the *crème de la crème* of U.K. technical diver education—ten really experienced instructors from the four top training agencies. We’ll be announcing the full dream team shortly, although we’re proud to announce that names already signed up include Phillip Short (IANTD UK Training Director), Rich Walker (GUE UK Training Director), Martin Robson (IANTD, NSS-CDS and NACD) and Richard Stevenson (TDI and IANTD) — luminary figures not only involved in teaching but also known for diving at the very cutting edge of expedition-level tech.

“Whether you’re a recreational diver looking to take on a whole new challenge or an experienced technical diver looking to broaden your diving horizons, this is an unique opportunity to learn from and dive with some of the biggest names in technical diving.”

Rich Walker of GUE UK said, “The opportunity to work alongside the UK’s best tech instructors was too good to miss. The way in which the event is structured will allow divers interested in moving to tech diving to get a real picture of the different approaches and styles of teaching available. I can’t wait!”

During the week, TEKCampees will also benefit from a five day guest pass to Vobster Quay including unlimited day diving, two half hour lectures every lunchtime (each Instructor will deliver one lecture), a guest speaker every evening, the ability to dive equipment from key manufactures, six days onsite camping, and a BBQ every evening where divers can spend time and chat with the instructors informally. TEKCamp 2011 will culminate in a celebratory Hog Roast on the Friday night.

Places are limited at TEKCamp 2011. To book your place simply log onto www.tekcamp.co.uk. Divers should have, at minimum, a Sport Diver or Rescue Diver certification with 50 logged dives, preferably with a Nitrox Qualification. For those who are not nitrox certified, Vobster will run a special course on Sunday, July 24. ■

go quietly, amid the noise and haste...



[3 hours @ 20m - no deco]



the rebreathers of choice from 6m to 160m



Image by Ray van Eeden of Prodivers, Kuredu, Maldives

- third party test-house approved
- patented dual oxygen controllers with independent displays and power sources
- optional open circuit bailout mouthpiece
- high performance scrubber proven to 160m
- trimix or nitrox decompression with user variable gradient factors and multiple gasses
- polyethylene fibre-optic dual head up displays
- future proofed software upgradeable by user uploads & hardware upgradeable with plug and play versatility
- pc log download
- 9 language options
- crystal clear primary display
- hard memory storage - gas, options and history retained even when the batteries are removed
- patented scrubber monitor with effective warnings
- full customer support and aftersales - spares & service
- the equipment of choice for underwater photographers, film-makers, marine biologists, cavers, under-ice explorers, deep dive specialists, deep support teams, expedition divers and sport & technical diving enthusiasts worldwide - all achieving time and depth profiles previously unthinkable

You're invited to the PADI TecRec Xplor Day!

On Monday, 28 March 2011, PADI Americas will host a TecRec Xplor Day at the Seacaucus Recreation Center the day after the Beneath the Sea consumer show. The day's events will include presentations from some of the biggest names in the tec industry as well as demonstrations from different equipment manufacturers. You will also have the opportunity to jump in the pool and try the equipment out first hand. ■

To register for the event, visit: tecexplordaysecaucus-tecrecblog.eventbrite.com



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Edited by
Gunild Symes

CLOCKWISE
FROM RIGHT:
Fishermen face
rough seas
at dawn in
small wooden
boat; A bull
shark is hauled
onboard the
fishing vessel; A
giant guitarfish
caught on
longline

Shiver—A Finning Crisis in Mozambique

Text by Aaron Gekoski (www.aarongekoski.com)
Photos by Aaron Gekoski and CJ Coetzee
Watch the full documentary film here:
<http://aarongekoski.com/documentary-videos.html>

Over recent years the Mozambican waters have become a haven for shark fishermen, capitalising on the escalating demand for fins from increasingly influential Asian nations. But in the process, they risk wiping out one of the ocean's apex predators, endangering marine ecosystems and poisoning their own people. Aaron Gekoski was behind the scenes during the filming of SHIVER, the first documentary to focus on Mozambique's shark finning crisis. Here he gives us a glimpse into this brutal world and in the process sheds a little light on the fascinating world of filming shark documentaries.

On just another dozy sunny morning in Tofo, Mozambique, Dave Charley and his business partner, Chris Scarffe, received a tip-off that was to change their lives and alter the future of Mozambique's marine realm. Whilst their source was vague on the details, the claim was definitive: just north of Tofo lay a remote fishing community who were actively targeting sharks for their fins.

Dave, a cheeky, effervescent 31-year-old with long blonde surfer locks that belie his upbringing in the Malvern Hills of England had been based in Tofo for the past six years, where he set up Mozambique's first underwater film company, Sangue Bom/



CJ COETZEE / MOZ IMAGES



AARON GEKOSKI



CJ COETZEE / MOZ IMAGES

Moz Images. Sangue bom means *good blood* in Portuguese.

Over this period, he witnessed a steep decline in shark populations. "On a double tank, you used to see hammerheads, bull sharks, nurse sharks, white tips and black tips," said Dave. "Now shark sightings are becoming increasingly rare. People are aware that sharks are being targeted, but know little of the details—where shark finning is occurring, which species are being targeted and where the fins are headed."

Armed with cameras, Dave and Chris—a fiercely ambitious and passionate cameraman and filmmaker who at 6ft 3in and a skinhead cuts an imposing figure—began their journey north.





CJ COETZEE / MOZ IMAGES

CLOCKWISE FROM FAR LEFT: Presenter Carlos Macuacua examines a giant guitarfish; A finned bull shark's carcass is thrown overboard; Flim crew at work filming at dawn; Fins cut from shark catch

What they found was, it turned out, a camp like so many in Mozambique: a small fishing community that uses longlines—stretches of line attached with a multitude of baited hooks—to catch the sharks. Braving often perilous conditions and armed with only small wooden boats, the fishermen set the lines, leave them overnight and return at the crack of dawn to pull in their catch.

Longlines do not discriminate between species; spotted eagle rays, guitar fish, reticulated rays, baby tiger sharks, bull sharks are all caught on them, many of which have perished

by the time the fishermen return. In order to breathe, most sharks must continue pumping water through their gills. Once caught on a line, many quickly entangle themselves and either suffocate or become stressed and die. Certain sharks, such as hammerheads are known to become distressed quickly and death may occur more rapidly than in other species.

Any survivors left on the line are hauled onto the boat where they are crudely butchered and left to suffocate to death, the carcass brought back to shore where the fishermen are met by the local



CJ COETZEE / MOZ IMAGES

community, their wives and children.

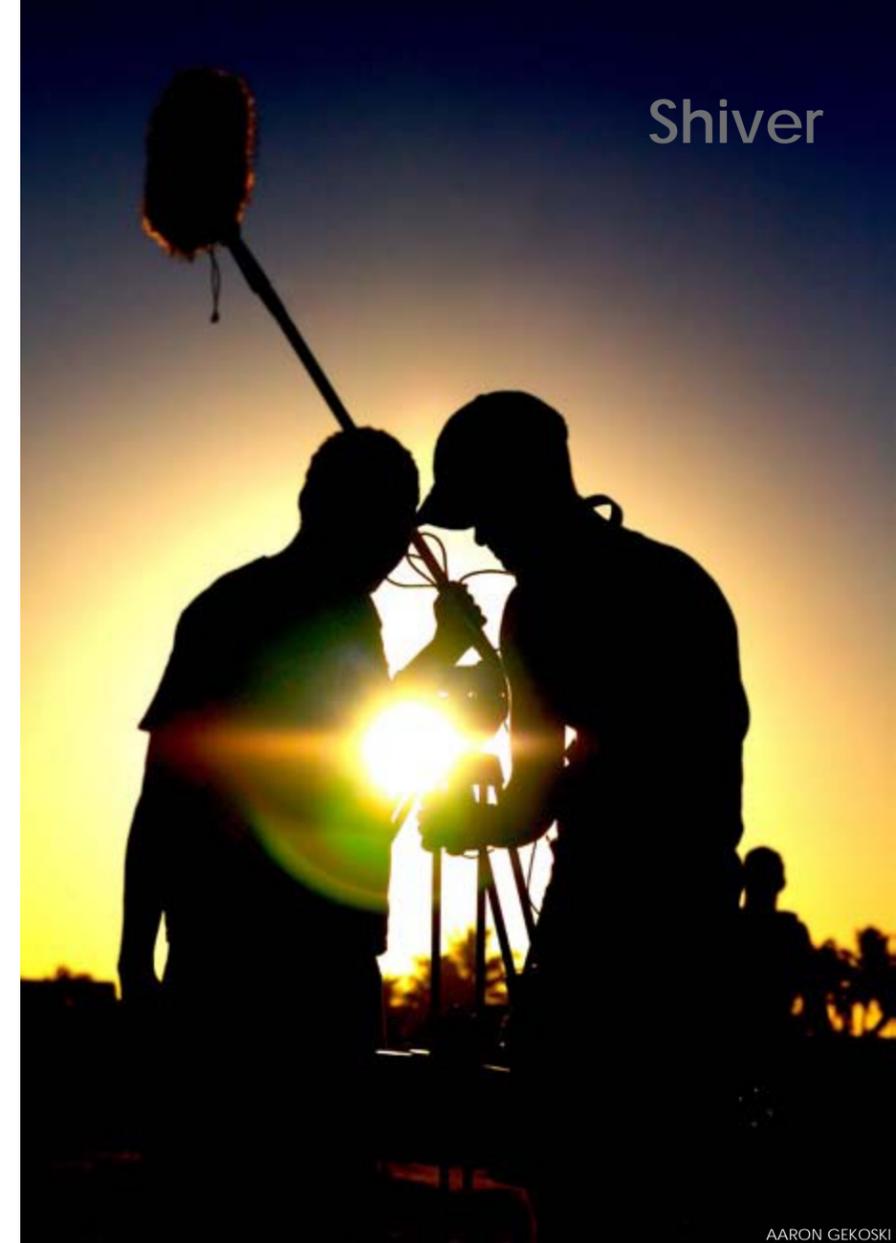
On the beach the fins are removed and taken away to be dried, before being sent on to a middleman. The fishermen remain blissfully unaware of where the fins end up, many mistakenly believing that the fibres in the fins are used to create the metallic

strip in banknotes, or to line the decks of boats. As for the remainder of the shark, its body is cut up and distributed amongst the women and then either sold at local markets, or used to feed their families.

"The remote settings, the conditions the fishermen braved day in day out, the ruthless efficiency of the longlines, the vast array of species being caught, the scenes as the women argued and wrestled for the resulting catch. This was powerful stuff. We came away with breathtaking and deeply moving imagery," remembered Chris.

Pilot

Back in Tofo, this footage was turned into a short film and formed the basis



AARON GEKOSKI

shark tales



Implements used to butcher sharks, found onboard the *Antillas Reefer*



AARON GEKOSKI

Presenter Carlos Macuacua (left) holds up a dried shark fin and another fin, ready for cooking; A fishing hook (below) used to catch sharks, found onboard the *Antillas Reefer*

their fins that have become the prized possession, one kilogram fetching as much as US\$700 per kilogram on the Hong Kong market. This trade, coinciding with an increase in the numbers of fishing fleets, plus ever sophisticated machinery and fishing methods has ensured that approximately 30 percent of shark species are listed as threatened—many of them critically. A startling 90 percent of large predatory fish have been eradicated in the last 50 years.

In Asia, shark fin soup is viewed as a delicacy (to others it's actually a nasty, gelatinous concoction, the gristly needles in the fins merely ruining what would otherwise be a perfectly good broth) and is served up at weddings, banquets and business functions, its consumption used as a tool to demonstrate wealth and social status. Along with China's rising

power and influence on the world's economic stage and the subsequent growth of affluence amongst its citizens, shark fin soup has increasingly become desired by the growing middle class. This has ensured demand for shark fin soup has escalated to uncontrollable levels.

In order to meet this demand, the trade has been spreading across African waters, countries trading their fishing rights in return for roads, hospitals and



AARON GEKOSKI



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Shiver

LEFT: The owner of a Chinese restaurant in Maputo, Mozambique's capital, prepares a shark fin for cooking

CENTER IMAGE: A shark fin as it is prepared for shark fin soup

schools. Many of these are poor nations, desperate for the infrastructures that are being put in place for them. And now, with its endless coastline and vast array of marine life, it would appear that Mozambique is very much on Asia's radar, with local fishermen for the first time in their lives beginning to target sharks for their fins.

Touching on these sensitive issues, Dave and Chris's documentary pitch was snapped up by the World Wildlife Fund (WWF) in Maputo, Alice Costa WWF's National Director and keen marine conservationist recognising at once the critical nature of the subject matter. With funding in place, all Sangue Bom/Moz Images needed was a charismatic presenter, someone who could tie the documentary together.

Filming

Towering five inches over Chris, Mozambique's first ever scuba instructor and local hero Carlos Macuacua's hands, shoes, laugh and

personality are all gigantic. Whilst undertaking his instructor's course, he resided in a tiny, rusty caravan that had been left abandoned for years. For a man of Carlos's dimensions, life in a caravan must have been far from easy, but in his typically optimistic, easy-going way, Carlos refers to this period as one of the happiest of his life. With a passion

for the ocean as large as his stature, in Carlos, Sangue Bom/Moz Images had their presenter.

I was lucky enough to arrive in Tofo just as Sangue Bom/Moz Images were assembling their team and was happy to lend my experience in filming underwater and help in anyway possible. Chris was upfront about the dangers. Sharks



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of a pitch to shoot a larger documentary, entitled, *Shiver*—which is the collective noun for sharks in Mozambique.

"Clearly, Mozambicans were catching on that shark finning could be big business. We wanted to find out the extent of the problem, but without pointing fingers," explained Dave. "Many people rely on the protein-rich meat to feed their families, and the income generated by selling the fins far exceeds the average national monthly wage (estimated at R700), so can we really blame them?"

Sharks endangered

Worldwide, sharks are being targeted by fishermen for the oil in their livers, their cartilage, teeth, skin and flesh. But due to the demand from South East Asia, it is



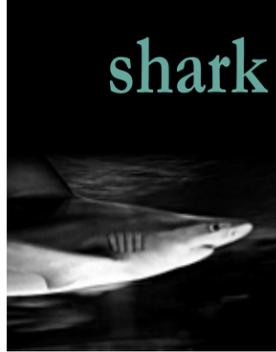
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Crew films presenter Carlos Macuacua and Dr Simon Pierce examine stingray catch on a beach in a remote village





IMAGES AT RIGHT: Cameraman Chris Scarffe and a giant guitarfish caught on a line

BELOW: Presenter Carlos Macuacua (far left) interviews the fishermen, with Dr Simon Pierce (far right)

caught on longlines are understandably a little unpredictable and don't always appreciate having a camera stuck in their snout. Mozambique's waters are also notoriously volatile, with ripping currents and poor visibility common place. And as for the shark camps themselves? "Well, there was this one incident involving a film crew and machetes," insinuated Chris, asking me in the next breath, deadpan: "Are you in?"

From January to March 2010, we embarked upon filming, our visits to shark camps studded with incident and drama. Doing almost anything in Mozambique is infinitely more difficult than it should be, red tape and overzealous officials make filming an arduous task. You need a permit for this, a document for that, and a permit for that document. On multiple occasions

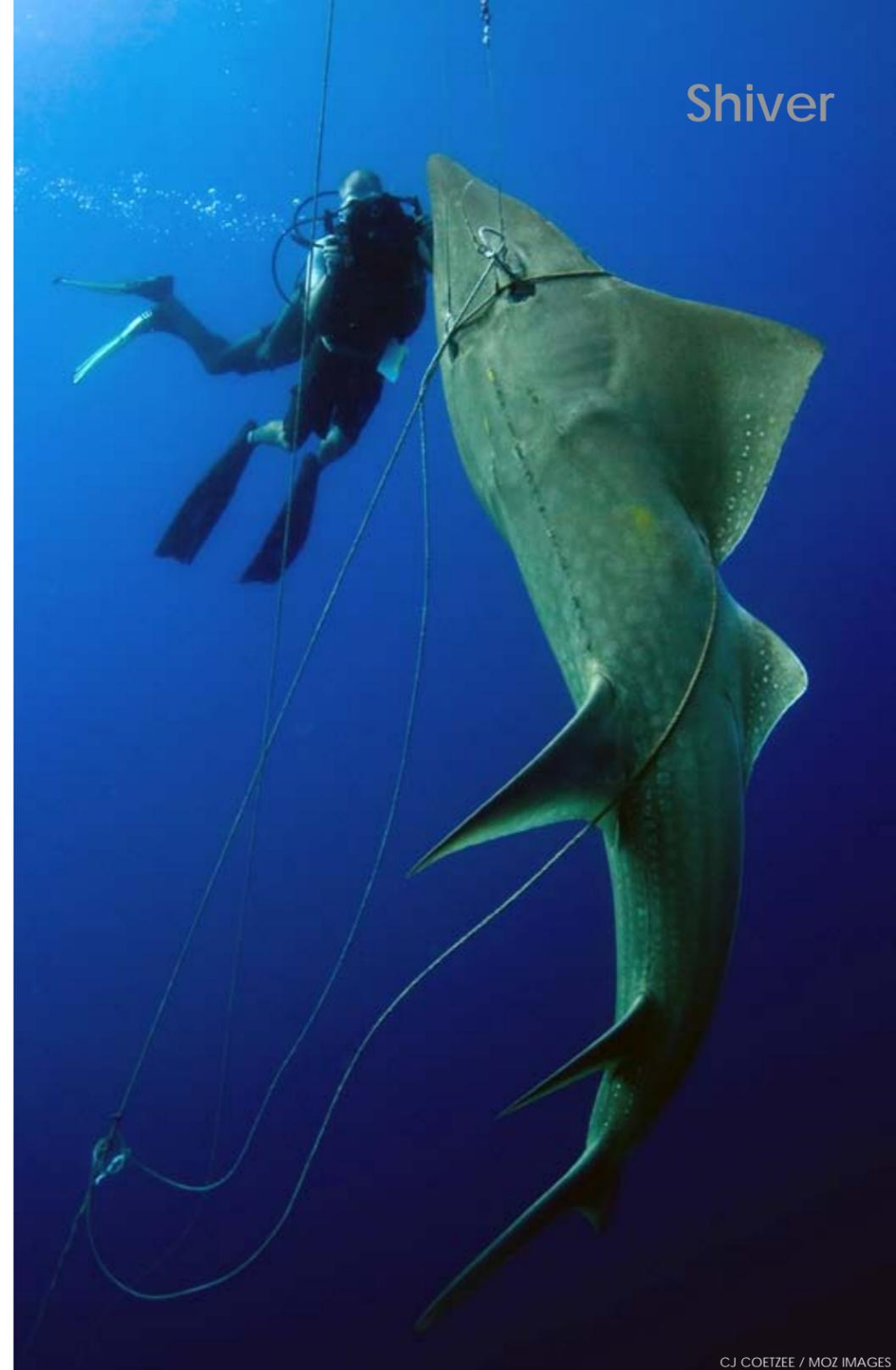
we were to see Dave's self-styled 'Charley Charms' working overtime, arm around one uniformed inspector or official, utilising his admirable grasp of the local dialects.

It was shattering work, conducted in 40°C and 70-80 percent humidity. Filming frequently involved 16-hour days, with 3:00am wake up calls to ensure we could film the fishermen launching their boats. The sea air, salt, sand and sun battered our equipment.

During our gruelling shooting schedule, reports began to surface of manta rays being caught in large numbers in another remote fishing village. Pictures started to circulate via email of the rays caught in fishing nets and being cut up on the beach. It was rumoured that the photographer's dog had been mutilated and his wife threatened in response



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to the photos being sent out. These particular fishermen, we pondered may be slightly tougher opposition. So once again we loaded our equipment and rather nervously headed to the camp.

The fishermen turned out to be a far cry from the wild-eyed butchers we'd been anticipating, and in fact, were reasonably accommodating to our needs. They were also in a hurry, so if we wanted to film them bringing in the nets, we had to be fast. They made it abundantly clear that there would be no second takes—"If you could just fin that shark again for me please sir? Sir?"

Fishing trip

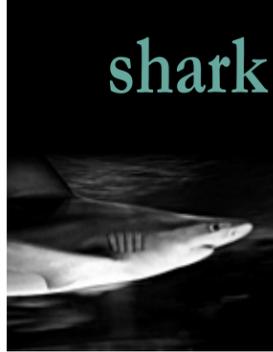
No sooner had Carlos and I kitted up and been dropped off, than the fishermen began to haul in their nets from all

around us. Fins, camera, regulators—anything that stuck out was caught.

This was the ultimate fish-eye view, and it became abundantly clear that once caught up in the nets, there was no escape. More than two hundred metres of the stuff was dotted with various species of marine life, their bodies glistening, caught by sporadic beams of sun that traversed the water. Some, a Spanish mackerel, a small school of king fish, a couple of trevallies were

dead, their bodies twisted, tangled in the ruthless barrier. Others, like a devil ray were still alive, its desperate flaps in vain as the fishermen pulled it towards the deathly suffocating vessel.

One specimen in particular caught Carlos's eye, and he dived down to inspect an unfamiliar shark caught in



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Close-up (above) of the teeth of the rare snaggletooth weasel shark (right) caught by fishermen; Fishermen carrying nets; Dr Simon Pierce and presenter Carlos Macuacua take meat samples to be tested for Methylmercury (below); Presenter Carlos Macuacua measures the dorsal fin of a giant guitarfish (left)

the net. It was unlike any shark I had seen before, streamlined, with larger than average fins, its bottom teeth protruded much like that of the ragged tooth shark.

Back onboard the safety of the boat, the rest of the crew seemed equally bemused by the unusual shark. The fishermen appeared particularly excited, though their motives clearly differed to ours. "Muito grande!" they exclaimed, pointing at the shark's dorsal fin.

The crew discussed the possibility that the shark onboard might be from the same species that had been filmed for the first time, just weeks before at a dive site off Tofo beach. That shark

had been identified as a fossil shark, commonly referred to as a snaggle tooth weasel shark.

The shark onboard the boat certainly was a little weaselly looking. It also had snaggly teeth that jutted out in all directions. Intrigued with our find, we agreed a price of 1,000 meticaís (about R200) with the fishermen, strapped the increasingly stinky shark to the roof and

set back on our way to Tofo, informing marine biologist, Dr Andrea Marshall, to get her dissection kit ready.

"When the guys brought the shark to me, I was left in no doubt that it was a snaggle tooth," recalled Marshall. "It's quite a distinctive looking species, specifically because of the long dorsal fin and teeth. This represented a once-in-a-lifetime opportunity to learn more about a very rare shark. It blows my mind to think of what species the fishermen are bringing in on a daily basis that could be of great important to science."

Toxic meat

We were beginning to bear the fruits of our endeavours. Now to address one crucial question: by targeting sharks and eating the meat, thought to be laden with dangerous levels of toxic heavy metals, were the fishermen poisoning their own families?



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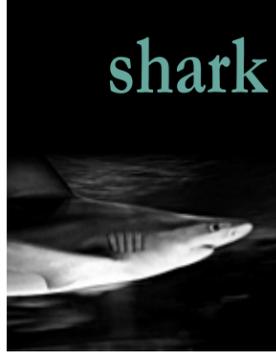


Shiver

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On one of our trips we were joined by eminent shark scientist and amiable Kiwi, Dr Simon Pierce, whose job it would be to take a sample of meat and send it for testing. The meat in question was to be from a large decomposing bull shark that had been left on the line for two days.

At three metres, it barely made it onto the boat. As the new kid on the block, I was instructed by the producer to jump off our pleasant, spacious, specially decked out filming boat and swim out to the rather less appealing tiny wooden fishing vessel filled with a rotting shark. The stench of death on the boat permeated my senses, seeming to seep into my very soul.

With another shark on the line and Chris filming in the water, Dave shouted at me to get out of shot by any means possible. The only option was to squeeze myself into the bottom of the vessel currently occupied by the dead shark, into a foot of shark blood that sloshed violently from side to side, containing piles of dead eels that had been used as bait. I threw up

relentlessly—on my camera, on my shirt, on the shark. The huge, giant guitarfish that had been so valiantly fighting for its life was finally brought up—its throat hacked at with a machete and its body still twitching, was dumped on top of me. Its cavernous eyes blinked at me disbelievingly, as if it wished it possessed the capacity to scream.

Methylmercury

Back on the beach the fishermen were met by the women from the local community. The specimens were unloaded, and before the women could wrestle them off him, Pierce removed some of the bull shark's flesh and placed it in a plastic bag, which was put on ice and shipped to Johannesburg where it would be screened for levels of dangerous heavy metals.

There was one toxin we were particularly interested in, one of the most biologically active and dangerous toxins to humans: Methylmercury.

Being the ocean's top predator, there are very few fish a shark will not consume: tuna, bass, mackerel, sail fish, marlin—they're

all on the menu. But being top of the food chain is not without its disadvantages. Large predatory fish such as tuna absorb significant amounts of heavy metals into their system, including lead and mercury.

The toxin of most significance to humans though is Methylmercury. This particular poison is especially dangerous for pregnant women, as it bypasses the mechanism that separates the mother's bloodstream from the embryo. The result is that Methylmercury accumulates in the embryo's developing brain and other vital organs. This can lead to problems in the nervous system, kidney failure, and in extreme cases severe mutations and brain damage.

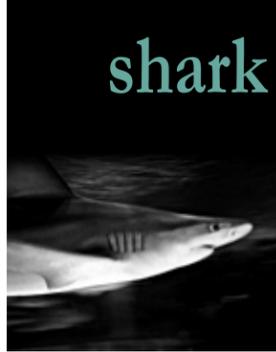
Methylmercury is lethal stuff—and the levels of this toxin found in Mozambique's bull shark were to blow our minds. The test results



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COUNTER-CLOCKWISE FROM ABOVE: A woman from the local community sits with shark meat, which she will sell at the market; Fishermen risk stormy seas in small wooden boats; Women celebrate after seeing the fishermen's haul; Locals assist the fishermen bring their catch ashore; A guitarfish is gutted, before being cut up and distributed

shark tales



Boys (right) playing draughts using pieces of shark vertebrae; Loan fisherman casts net to catch sharks at sunset (far right)



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showed that the 100-gram sample contained almost 20 times more Methylmercury than is recommended for human consumption. If the average serving of shark meat is 300 grams, that meant the meat contained a staggering 5,500 percent more than our daily safe intake.

In short, the targeting of sharks for their fins and consequent consumption of the meat means that Mozambique's fishermen are unknowingly poisoning themselves, their families and future generations. And in turn, they are also disrupting delicately balanced ecosystems.

Ecosystem balance

It isn't possible to remove an apex predator without having dramatic knock-

on effects on an ecosystem. Imagine if you will for a moment, the human race being systematically destroyed over a relatively short space of time and the ecological mayhem that would ensue (we'd be overrun by those methane-producing windbags, cows for a start). The marine world is no different.



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Carlos Macuacua watches as fisherman cuts fins off the carcass of a shark



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Take this case in the North Atlantic, one typical example of how finely balanced marine ecosystems can be tipped. During the 1980s to late 1990s, the region's virtual elimination of sharks resulted in an increase in cownose rays, which the sharks typically preyed on. Cownose rays (demonstrating remarkably good taste) have a penchant for scallops—the resulting feasting decimated scallop populations, putting many local fisheries out of business.

Currently, we find our oceans in a bit of a mess. Sea temperatures are rising due to global warming, causing coral beds to reluctantly dispense of polyps that provide their kaleidoscope of colours. Our oceans are unceremoniously used as dumping grounds for the vast quantities of waste that we produce. And they are being emptied of fish, their life force. The good news is that although it would take decades for our seas to recover, it isn't too late to do something about it.

For Mozambique, Carlos is at the

forefront of campaigns to raise awareness at a local level, regularly travelling the country and giving talks to rural villages about the ocean. "I hope these sessions help people understand a little more about why Mozambique's waters are so special. Most people here have an innate fear of the sea—and in particular sharks. They have no idea of the global importance of these creatures."

Conservation efforts

Local initiatives such as AMAR's (a Mozambican NGO) Day of Diving, when all Mozambicans get the chance to experience the marine realm by going out on dive boats, and other events organised by Eyes on the Horizon, who work tirelessly to help preserve these waters, are having an impact. Dive schools are employing more Mozambicans than ever before and, increasingly, locals are getting involved in diving and are becoming ambassadors

for the ocean, educating friends and family.

However, Carlos is quick to point out that whilst local initiatives will help, it is the bigger industrial vessels that continue to have the most significant impact on the levels of fish in the sea. A few years ago an illegal vessel, the Antilles Reefer, was caught with two tons of shark fins onboard, 47 tons of shark meat and over 500 miles of longlines. It's little wonder divers are seeing fewer sharks. But with nearly 3000 kilometres of coastline to monitor and possessing only one patrol boat, the government faces an unenviable task in monitoring what happens out in the deep blue.

One option at the government's disposal is to create marine parks that will regulate fishing in certain bodies of waters. Unbelievably, presently only the turtle and dugong are protected under Mozambique's maritime law. Though talks are currently underway to protect whale sharks and manta rays, it still isn't illegal





for fishermen to kill these species.

Mozambique could learn much from neighbouring South Africa, one example of a nation successfully using its marine life to its economic advantage. It is estimated that great white tourism brings between US\$10 to 15 million into the economy every year. And while some may criticise cage diving, claiming it contributes to sharks associating humans with food, there can be no doubt that the industry has raised awareness of the shark's plight, the people who do it coming away with the respect of these magnificent creatures and a greater awareness of the threats they face.

To change perceptions, much relies on education and the altering of attitudes that have been formed over many generations. Whilst some countries (such as the Pacific Islands) attach a mythical significance to sharks, the West has typically viewed them with fear.

The media's portrayal of sharks has done



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untold damage to their reputation. Steven Spielberg's 1975 film *Jaws*, which whilst no doubt a profitable endeavour, merely served to sensationalise the shark and whip up unwarranted hysteria. Sharks were (and by many, still are) viewed as the ultimate predator that like nothing more than to snack on a good human.

But as anyone with an interest in sharks will tell you, we are way more likely to be killed by our Christmas tree lights or a toaster than a shark. Despite this reality, the shark has become synonymous with violence, blood—and ultimately—death.

Sharks do not sing soulfully or nurture their young like whales. They do not waddle and bark comically like seals. Nor do they coexist playfully and lark about like dolphins. The shark is solitary, has questionable maternal instincts and sports a fearsome appearance that has been finely honed over the past 400 million years. But nowhere in our deserts, fields, ice plains or vast expanses of ocean does such evolutionary perfection exist.

And whilst we must concede that people may find it difficult to empathise with or anthropomorphise sharks, it is up to us as advocates of the ocean to spread the word—in what would surely go down as one of the greatest tragedies of

the modern era, the shark could very soon be consigned to the history books.

Producing *Shiver* was a genuine labour of love. Sanguie Bom/Moz Images worked tirelessly for years to make a documentary to help abate the slaughter of Mozambique's sharks. In doing so, they risked the backlash of fishing communities and an influential Asian presence. They filmed in dangerous conditions and deprived themselves of sleep for weeks on end.

Our planet, our oceans are lucky to have dedicated marine conservationists such as Chris and Dave who often work in the face of extreme adversity for little financial gain, spurred on by a worthy cause and the passion to make a difference. We need more of them, before our oceans are damaged beyond repair. As for Mozambique, we can only hope their endeavours will instil a sense of pride, for these seas, and all they contain, are truly remarkable.

For more information on *Shiver*, a joint Sanguie Bom and Moz Images (www.mozimages.com) production, please email shiverdocumentary@gmail.com ■



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The Shiver film team



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THIS PAGE: Large crowd of locals and their children watch film screening at a shark-finning camp. A proud moment (above) as the crew watches the film screening in their home town, Tofo