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Washington State
Hood Canal

Sweden
Mars Wreck

Sinkholes of
Namibia

UW Mirrorless
Wide-Angle

Profile
Gary Gentile

Conservation
Ghost Fishing

SARDINE RUN & CAGE DIVING

South Africa

DIRECTORY

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PUBLISHER & EDITOR-IN-CHIEF
Peter Symes
Editor@xray-mag.com

PUBLISHER, MANAGING EDITOR & CREATIVE DIRECTOR
Gunild Symes
Gunild@xray-mag.com

ASSOCIATE EDITORS
Scott Bennett, Toronto
Scott@xray-mag.com
Catherine GS Lim, Singapore
Cat@xray-mag.com
Michael Menduno, Berkeley
Michael@xray-mag.com
Barb Roy, Vancouver
Barb@xray-mag.com

Russia - Moscow
Andrey Bizyukin, PhD
Andrey@xray-mag.com
Svetlana Murashkina, PhD
Svetlana@xray-mag.com

ASSISTANT EDITORS
Roz Lunn, London
Roz@xray-mag.com
Robert Osborne, Toronto
Robert@xray-mag.com
Don Silcock, Sydney
Don@xray-mag.com

USA
Larry Cohen, New York City
Larry@xray-mag.com
Kelly LaClaire, Portland
Kelly@xray-mag.com
Bonnie McKenna, Houston
Bonnie@xray-mag.com

ADVERTISING
UNITED KINGDOM
Rosemary E Lunn, London
Roz@xray-mag.com

USA & INTERNATIONAL
Susan Kochan, Key West
Susan@xray-mag.com
Matthew Meier, San Diego
Matt@xray-mag.com

SENIOR EDITOR
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CONTRIBUTORS THIS ISSUE
Scott Bennett
Andrey Bizyukin
Kate Clark
Pierre Constant
Carl Douglas
Michael Frank
Heather Hamza
Shingo Ishida
Kelly LaClaire
Steve Lewis
Ingemar Lundgren
Richard Lundgren
Rosemary 'Roz' Lunn
Michael Menduno
Veronica Palm
Simon Pridmore
Barb Roy
Don Silcock
Thomasz Stachura
George Stoyle
Gunild Symes
Peter Symes
Mattias Vendlegård
Lawson Wood

Contacts page: Xray-Mag.com

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COVER PHOTO: School of Glass Fish, Taba, Egypt
Photo by Peter Symes

Wild dolphins hunting at Sardine Run, South Africa. Photo by Andrey Bizyukin



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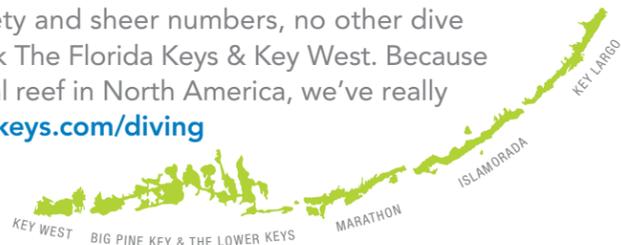
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The commonality of aviation and diving keeps intriguing me.

It is not so much that these technologies have allowed us humans who evolved firmly planted on terra firma to also conquer the skies and move underwater, but that we are able to do so with such high levels of safety.

Commercial aviation has in particular become commonly known for its stringent emphasis on safety issues. Not only is the hardware being held to the highest standards in manufacturing and subjected to rigorous testing, but accidents and incidents are scrupulously investigated in order to learn and make air travel better and safer.

This includes looking into where and why the interface between machine, methodology, man and system breaks down: a.k.a. the human factors. Or putting it more plainly, finding out what caused, for example, a crewmember to forget important steps or actions, get distracted or whether it was unclear whose responsibility or role it was to undertake a task. Importantly, this process is not just limited to the pilot in the cockpit, but the dispatch team, the roster manager, the training system, the airline management and their culture.

Hence the aviation industry has come up with concepts such as cockpit resource management to better deal with roles in complex scenarios, and enacted guidelines forbidding airline pilots to talk about anything in the cockpit unrelated to fly-

ing the plane while being below 3,000m. And that is on top of using and adhering to checklists in every phase of the flight—not just reading them, but using a challenge and response methodology.

In diving, buddy check procedures are taught by the various training agencies aided by mnemonics such as BWRAF ('Begin With Review And Friend') for Bcd, Weights, Releases, Air and Final check. But other than that we don't see much, if any, use of checklists or procedures until we get into technical diving, and unfortunately their use often falls by the way side once we move past entry level diving.

But who hasn't at some point become distracted, sidetracked or just forgot to turn something off or tighten a knob or a strap? Or felt compelled to go into the water because you have made it all the way out to the dive site or because of social pressure or rushed because other people are waiting?

This is why things go awry. In most cases matters can be corrected without any further ado or interruptions, but sometimes the consequences are dire. Accidents happen for a reason. But many more scenarios don't end up with a bad outcome because 'the chain' wasn't

complete; this can lead to a false sense of security about our own decision making.

Aviation has shown us how good decision making practices can allow divers to identify and cope with personal attitudes, stresses and external pressures that are hazardous to safe diving. Effective risk management is based on being honest about our own skill levels and proficiency, and it follows suit that we must be able and willing to back out rather than attempt or continue a dive under conditions in which we are not comfortable. This also applies to being honest about your buddy's or peers' skills and proficiencies.

Aviation has also demonstrated that we must recognize that fatigue—which often follows demanding, modern day jobs—constitutes a safety hazard and that we must strive to eliminate or minimize these contributors of stress in our lives.

Only once we fully appreciate all of these factors that are at play, and are able to modify our behavior accordingly, can we effectively use our resources and immerse ourselves in the wondrous experiences with which diving can enrich our lives.

—X-RAY MAG





News edited
by Peter Symes

NEWS

from the deep

Pacific reef thrives in acidic water

Two unexpected discoveries could provide insight into corals' resistance and resilience to ocean acidification.



MATT KIEFFER / CREATIVE COMMONS

Corals living in the bays around Palau are unexpectedly diverse and healthy, despite living in waters that are quite acidic; Coral diversity, cover and calcification rates are maintained under chronically low pH levels. Ocean researchers working on the coral reefs of Palau collected water samples at nine points along a transect that stretched from the open ocean, across the barrier reef, into the lagoon and then into the bays and inlets around the Rock Islands of Palau, in the western Pacific Ocean. With each location they found that the seawater became increasingly acidic as they moved toward land.

Through analysis of the water chemistry in Palau, the scientists found the acidification is primarily caused by the shell building done by the organisms living in the water, called calcification, which removes carbonate ions from seawater. A second reason is the organisms' respiration,

which adds CO₂ to the water when they breathe.

"These things are all happening at every reef," said WHOI biogeochemist Anne Cohen, one of the study's co-authors. "What's really critical here is the residence time of the sea water."

The scientists' next steps are to determine if these corals are genetically adapted to low pH or whether Palau provides a "perfect storm" of environmental conditions that allows these corals to survive the low pH.

"If it's the latter, it means if you took those corals out of that specific environment and put them in another low pH environment that doesn't have the same combination of conditions, they wouldn't be able to survive," said Cohen. "But if they're genetically adapted to low pH, you could put them anywhere and they could survive." ■

Palau bans commercial fishing within its waters

The president of the Republic of Palau has declared the waters of Palau's Exclusive Economic Zone as a marine sanctuary.

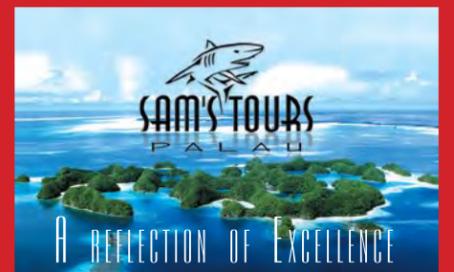
President Remengesau explained this initiative with very distinct words: "Palau's economic potential lies in tourism, not tuna. Tourism, in fact, already provides more than half of our GDP, and it depends upon our pristine marine environment."

The declaration further stressed Palau leading the way in conservation efforts. The country was the first nation in 2009 to declare its EEZ a shark sanctuary, and article 6 of Palau's constitution requires its government to "take positive action" to conserve "a beautiful, healthful and resourceful natural environment".

Dermot Keane, founder of conservation organization Palau Shark

Palau's economic potential lies in tourism, not tuna.

Sanctuary and ardent protector of sharks, commented: "This is another great step in the right direction to protect Palau's pristine environment and its healthy marine ecosystem. Eighty percent of global fish stocks are now fully or overexploited. Strengthening sustainable ecotourism makes perfect sense for Palau and can hopefully be a role model to be studied by other nations in the Pacific region to follow the direction our nation is taking." ■



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BARB ROY

Healthy sunflower starfish off Nanaimo, British Columbia

Mystery disease wipes out scores of sea stars along America's Pacific coast

Sea star wasting syndrome a mysterious illness that first appeared in June in Washington state has now spread from Sitka, Alaska, to San Diego. The disease spread with astonishing speed—a healthy group of starfish can die in just 24 hours.

The progression is predictable: white lesions appear on an animal and become infected. Within hours or days the sea star becomes limp, and its arms may fall off. Necrosis eventually takes over and the animal dies. Predatory species were the first to succumb, but now the mysterious ailment is appearing in species once thought to be resistant to its effects.

Bacterial infection

Researchers believe the sea stars' actual disintegration and death is caused by bacterial infection, but they have no idea what's suddenly making them susceptible. The cause could be a toxin, a virus, bacteria, man-made chemicals, ocean acidification, wastewater discharge or warming oceans.

Unknown reasons

Whatever is killing the sea stars is highly lethal. "We've had populations go locally extinct overnight. Literally. Some species go from

completely fine to a mush ball in 24 hours," said Benjamin Miner, a professor of marine biology at Western Washington University in Bellingham, Washington, who's organizing the mapping project.

The fact that the ailment is so widespread is what's most troubling, Miner said "Every time you come up with what seems like a reasonable hypothesis, it's challenged because other affected places don't match." ■

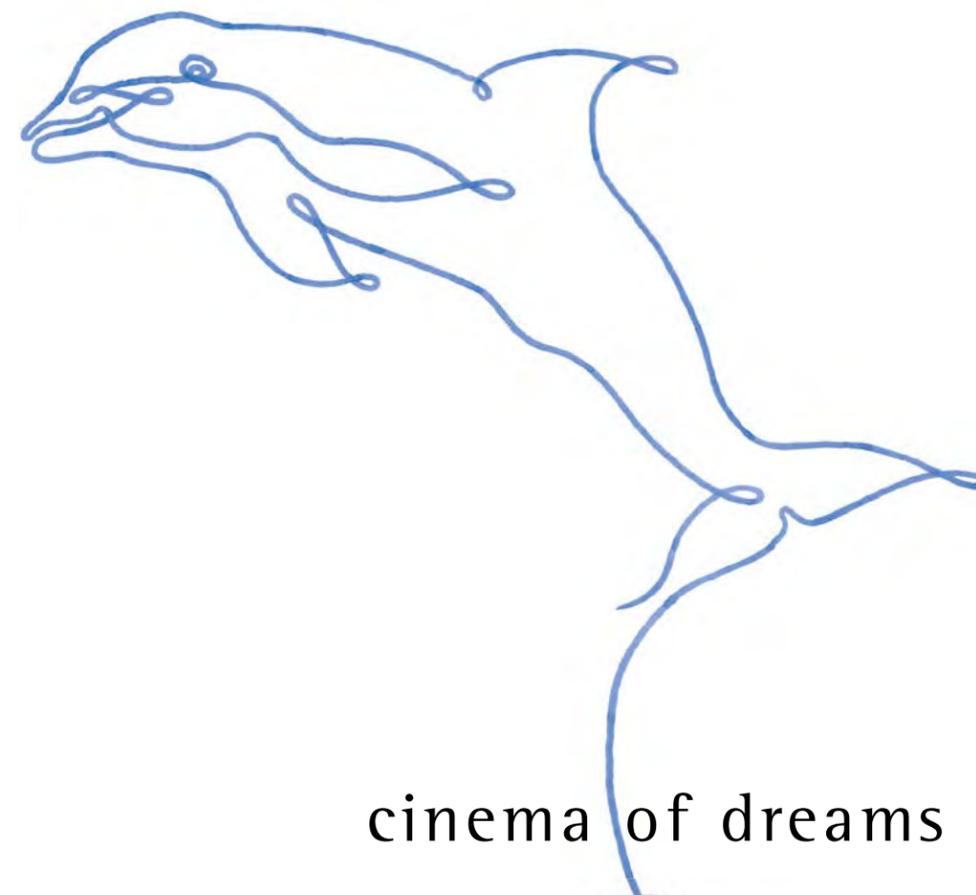
These kinds of events are sentinels of change. When you get an event like this, I think everybody will say it's an extreme event and it's pretty important to figure out what's going on

—Drew Harvell
Professor
Cornell University

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Bald reef gets seaweed transplant

Marine ecologists in Sydney manage to restore the missing crayweed onto two barren reef sites where it once grew abundantly.

Macroalgae, or seaweed, are the dominant habitat-forming organisms on temperate coastlines, providing habitat and food to entire communities. In recent decades, however, there has been a decline in macroalgal cover along many urbanised shorelines, leading to a shift from diverse algal forests to more simple turf algae or barren habitats.

Along the urban shores of Sydney, its disappearance coincided with heavy sewage outfall discharges along the metropolitan coast during 1970s and 1980s. Despite significant improvements in water-quality since that time, *Phyllospora* did not re-establish in the area.

Restoration appears successful

Early reports on the initial efforts at the restoration of *Phyllospora* in Sydney are encouraging and suggest that restora-

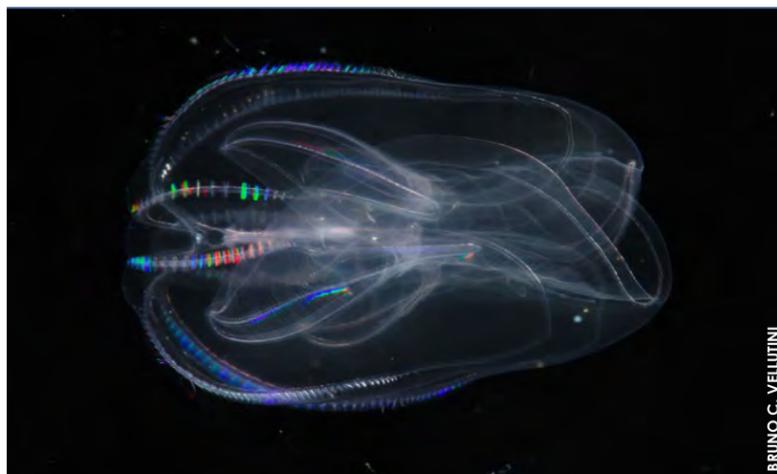
tion via transplantation, using the methods described by the researchers, is possible and also relatively cost-effective. ■



Transplanted seaweed is attached to a reef by a team member

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The battle of the comb jellies



Sea walnut (*Mnemiopsis leidyi*)

The warty comb jelly or sea walnut (*Mnemiopsis leidyi*), a creature related to jellyfish, is a native of the waters on the eastern shores of the United States to the

West Indies. While it is not a problem in its native waters, it has caused enormous economic damage in some European waters, which it has invaded. As a general-

ized feeder, which eats fish eggs and larva, kilka (a collective name for sardine-like fish), anchovies, zooplankton and horse mackerel, it led to a collapse of

the food web and fisheries in the Black Sea in the 1980s. The comb jelly eradicated the zooplankton. Anchovies and brisling sardines were deprived of their food source, and once they disappeared, other species such mackerel and tuna followed.

Counter strike

It was not until another invasive and predatory comb-jelly, the American melon jellyfish (*Beroe ovata*) which feeds on the sea walnut also turned up in the Black Sea that the ecological balance became somewhat restored.

The melon jellyfish *Beroe ovata* does not eat crustacean zooplankton, but prefers dining on other ctenophores. The primary food source for *Beroe ovata* is *Mnemiopsis ledyi*

Now the melon jellyfish has been spotted in Danish waters at the entrance to the Baltic, presumably having hitched a ride in the ballast tanks of ships. It was only in 2007 that massive populations of sea walnut were reproducing in Danish fjords and invading the inland seas clogging fishing gear with jellyfish rather than fish. ■



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YURI HOOKER

New species of red coral discovered

Psammogorgia hookeri, was discovered along rocky ledges by scuba divers at depths of 25 meters (82 feet) in Peru's Paracas National Reserve.

This new species may be an endemic—found nowhere else in the world. But coral reefs and coral communities in Peru have never been systematically studied. "We expect more surprises as we look at new collections," said Hector M. Guzman, marine biologist at the Smithsonian Tropical Research Institute.

25 new species

Guzman and Odalisca Breedy, lead authors of the new species report have discovered nearly 25 new species of soft coral in the Pacific. Their new species was identified based on colony

characteristics and examinations of the coral using both light and scanning-electron microscopy. Some comparisons were based on museum specimens that were more than 90 years old, because no one has collected in this area in recent times.

Knowledge still poor

"As we move across the eastern Pacific, we realize that our knowledge about soft corals still is poor," said Breedy. Both scientists agree that, "We need to continue exploring new shallow and deep water sites but funding is always a limiting factor." ■

Coral reef found off Greenland, a first

By chance, scientists found a live cold-water coral reef in southern Greenland. Located off Cape Desolation, or Cape Brill, the reef lies at 900m with strong currents. A team of marine scientists aboard the Canadian research vessel, CCGS Henry Larsen, made the discovery when they retrieved an oceanography instrument with a large piece of live coral caught in it.

"It's been known for many years that coral reefs have existed in Norway and Iceland and there is a lot of research on the Norwegian reefs, but not a great deal is known about Greenland," said fellow researcher, Helle Jørgensbye,

a doctoral student from DTU Aqua, Denmark. "In Norway, the reefs grow up to 30m high and several kilometers long. The great Norwegian reefs are over 8,000 years old, which means that they probably started to grow after the ice disappeared after the last Ice Age. The Greenlandic reef is probably smaller, and we still don't know how old it is."

Eye-coral, or *Lophelia pertusa*, makes up this cold-water reef. It is home to various marine species including hydroids, sponges, crustaceans, polychaetes, echinoderms and bryozoans.

While the discovery is new, it was not totally surprising,

according to the researchers. Jørgensbye, co-author of the article published in the journal ICES Insight said,

"There are coral reefs in the countries around Greenland and the effect of the Gulf Stream, which reaches the west coast, means that the sea temperature get up to about 4°C, which is warm enough for corals to thrive. In addition to the comparatively warm temperature, a coral reef also needs strong currents. Both these conditions can be found in southern Greenland." ■

SOURCE: SCI-NEWS.COM



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The reef is formed by a species of cold-water coral called the eye-coral (*Lophelia pertusa*)

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Jennifer O'Neil

Success: First species listed as threatened to go off the list

The Oregon chub, a tiny minnow that lives only in Oregon backwaters is the first fish ever taken off U.S. Endangered Species Act protection because it is no longer threatened with extinction.

Fewer than 1,000 remained in just eight wetlands in 1993 when the Oregon chub gained protection under the U.S. Endangered Species Act and the U.S. Fish and Wildlife Service published a recovery plan for the species.

Protecting habitats

The goal of this plan was to reverse the decline of the Oregon chub by protecting existing wild populations, re-introducing chub into suitable habitats throughout its historic range and increasing public awareness and involvement.

The recovery plan focused on establishing partnerships with landowners to restore key habitats, breeding and transplanting fish to those places, and getting the U.S. Army Corps of Engineers to alter dam releases to more closely resemble natural river flows. Private landowners who agreed to have chubs introduced on their property and to follow some guidelines were given safe harbor agreements guaranteeing the presence of the endangered fish would not interfere with their use of the land. The species' status has recently improved. ■



OREGON FISH AND WILDLIFE OFFICE

The Oregon chub was listed as endangered in 1993. The species' status has recently improved. It lives off aquatic insects like mosquitoes and has a lifespan of up to ten years

This is an excellent example of how the Endangered Species Act is intended to function: partners working together to recover an endangered species.

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Alabama's ancient underwater forest could become marine sanctuary

Ten miles off the coast of Baldwin County in 60 feet of water, an ancient cypress forest was uncovered by the waves of Hurricane Ivan. The cypress stumps are believed to be at least 50 thousand years old.

The Bald Cypress forest was buried under ocean sediments, protected in an oxygen-free environment for more than 50,000

years, but was likely uncovered by Hurricane Katrina in 2005, said Ben Raines, one of the first divers to explore the underwater forest and the executive director of the nonprofit Weeks Bay Foundation, which researches estuaries.

With the Gulf of Mexico Fishery Management Council already being in support of designating the forest, located in 60 feet of water ten miles off Alabama's coast, as a marine sanctuary, the next step is getting NOAA's approval.

Currently the forest's exact location is not disclosed in order to protect it from divers and salvage companies wanting to remove the cypress stumps and logs. Until protection is in place, the forest and natural marine ecosystem it now supports could be imperiled if the forest's location were somehow revealed.

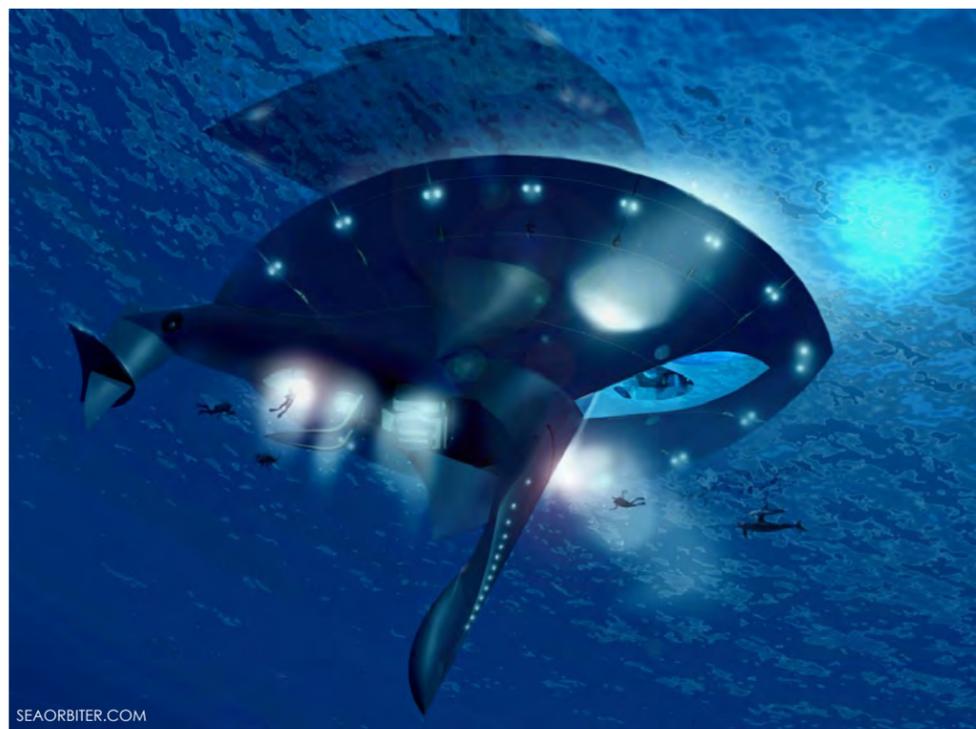
There is only one other marine sanctuary in the Gulf of Mexico. The Flower Garden Banks sits 115 miles off the coast of Texas and Louisiana. ■

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So far, some 240,000 marine species have been recorded, but scientists say there are most likely millions more that have yet to be observed in the ocean depths.

When not underwater, visitors on the 190-foot (58-meter) SeaOrbiter can relax in open air in areas of the structure above the surface of the sea, including a

dining room and lookout posts. In addition to scientific research, the SeaOrbiter has facilities for astronauts to train for space exploration in a pressurised space simulator below water.

However, the SeaOrbiter is not just for scientists and astronauts. The vessel will be open to other adventurous individuals who wish to travel the seas and seek new experiences in the depths of the planet's oceans. ■

SOURCE: THE TELEGRAPH

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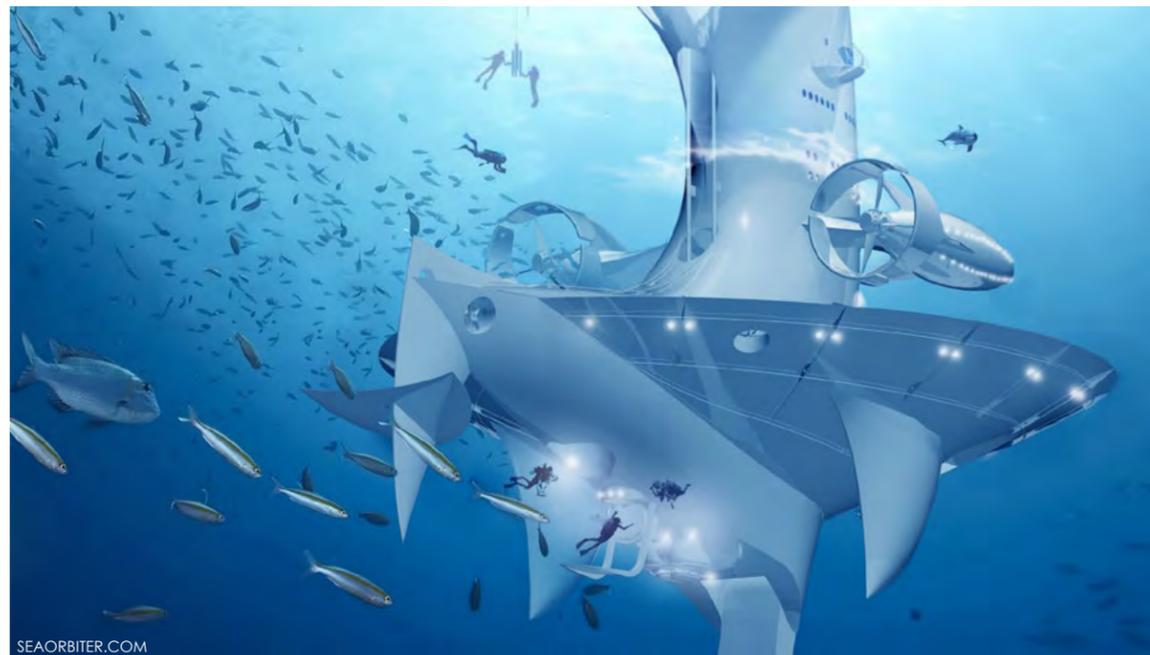
The SeaOrbiter

French architect Jacques Rougerie has acquired funding through crowd-funding for the development of the oceanic observation vessel, SeaOrbiter, which will sail around the world exploring uncharted seas and the depths of the oceans where few have gone before.

It is said that fewer people have explored the deepest part of our ocean, the Mariana Trench, than have launched into space. Soon adventurers who want to explore the unknown

depths of our oceans will be one step closer in doing so, as construction of the towering structure of the SeaOrbiter is scheduled to be completed in around two year's time.

Financial support for the project came from hundreds of people who responded to the architect's call for funding. The top 600 donors are invited aboard the vessel once it is completed. When it is on scientific missions, the SeaOrbiter can accommodate a team of 22 researchers, who will have



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Coral bleaching turns juvenile fish reckless

Instead of staying hidden at home, they stray out, making them easy prey for predators.

In an experiment juvenile damselfish in dead corals displayed risk-prone behaviours, sitting further away and higher up on the reef patch, and failed to respond to predation cues, compared to those on live coral patches.

Oona Lönnstedt of the Australian Research Council's centre for coral reef studies

who studied the behaviour of pallid damselfish (*Pomacentrus amboinensis*) on the Great Barrier Reef suggests dead coral masks key chemical signals, so the fish move away to access them. The results highlight a mechanism through which habitat degradation can impact the relationship between prey and predators in the coral reef ecosystem. As the proportion of dead coral increases, the recruitment and

replenishment of coral reef fishes will be threatened, and so will the level of diversity in these biodiversity hotspots.

"I don't think that dead corals have to mask cues per se, but the lack of live coral cues clearly affects their orientation and behaviour," Aaron MacNeil of the Australian Institute of Marine Science, told *New Scientist*. "The larger question is whether the rate of reef distur-

bance has increased to the point that they never fully recover. If hard corals were to be lost, then much of the diversity of reef fish would be lost too. Many reef fish need specific habitats that only coral reefs can provide." ■

Juvenile damselfish on dead coral habitats had a 75% increase in predation-related mortality, compared to fish released on live, healthy coral habitats.

Salmon use the Earth's magnetic field to navigate

A study suggests that Pacific salmon are born with an in-built "magnetic map" that helps them to migrate over thousands of kilometres.

A particular challenge is explaining how juvenile salmon with no prior migratory experience are able to locate specific oceanic feeding habitats that are hundreds or thousands of kilometers from where they hatched.

Although adults reproducing in the vicinity of favorable ocean currents can facilitate transport of their offspring to these habitats, variation in ocean circulation makes passive transport unreliable, and young animals probably take an

active role in controlling their migratory trajectories.

Magnetic sense

A U.S. team of researchers led by Dr Nathan Putnam, from Oregon State University believes the fish are sensing changes in the intensity and angle of the Earth's magnetic field to establish

We put the fish in buckets, we change the magnetic field around them, and the fish change direction in response to the field.

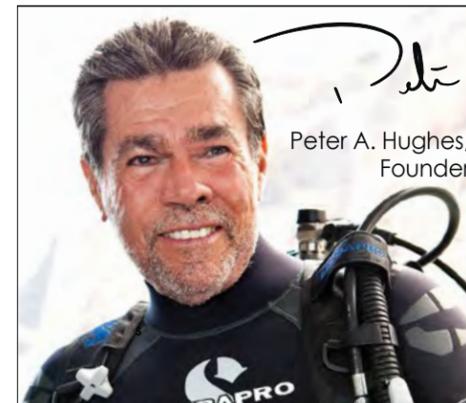
their position in the ocean. "The migration is a lot of effort and it is definitely challenging, and looking at it from the outside, it doesn't seem necessarily intuitive how they could manage that," Dr Putnam told BBC news.

Turned around

In an experiment it was shown that juvenile Chinook salmon (*Oncorhynchus tshawytscha*) respond to magnetic fields like those at the latitudinal extremes of their ocean range by orienting in directions that would, in each case, lead toward their marine feeding grounds.

It was also shown that the fish use the combination of magnetic intensity and inclination angle to assess their geographic location. The "magnetic map" of salmon appears to be inherited, as the fish had no prior migratory experience. ■

SOURCE: CURRENT BIOLOGY



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wreck rap



Diver on the wreck of the *Dyle* at Scapa Flow; Registry of 1909, with no *Doyle* (lower right)



Scapa Flow Discoveries

Text and photos by Lawson Wood

As the author of the *Scapa Flow Dive Guide* by Aquapress, the work never actually stops after the book has been published as there are always new and exciting discoveries to be made. Now gearing up for the third edition, new and important information has come to light by the extensive research of Kevin Heath and through both of us painstakingly going through all of the archival photographs during WWI and WWII and War Department records.

Heath, in particular, discovered in one instance that back in 1914 when the Admiralty were sinking some of the first blockships in Burra Sound, they made a dreadful spelling error! This is not the first time that such mistakes have happened, as I found out doing my research on the book *Shipwrecks of The Cayman Islands*.

Doyle or Moyle to Dyle

But let's get back to Scapa Flow and trawling through the National Archives in Kew and the Maritime Museum in Greenwich in England. We have discovered that there was no such ship as the *Doyle*. Sometimes confused with the *Moyle*, which was a 1,761-ton steel,

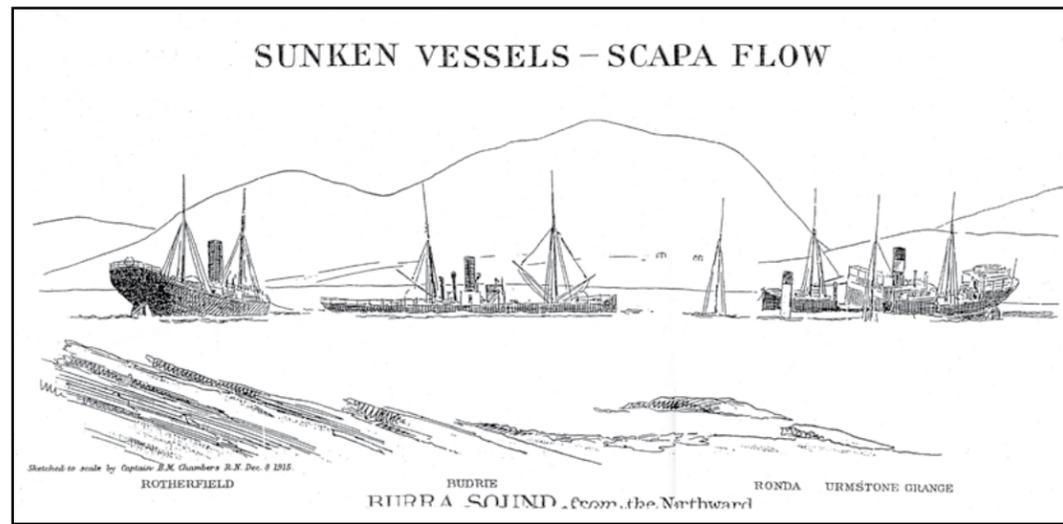
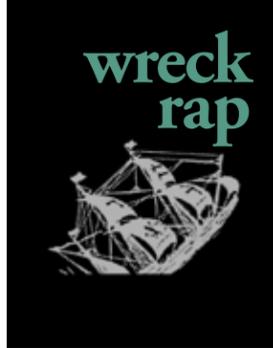
79.3m(260ft)-long, single screw coastal steamer built in Troon, Ayrshire, registered in Belfast and was used as a Blockship, but not in Scapa Flow; she was sunk in the approaches to Dunkirk on 4 June 1940. Ian Whittaker who compiled the excellent wreck resource book, *Off Scotland*, confirmed these details for me.

That spelling error has contributed to the wrong name being used from the date of her sinking in 1915. The ship that was actually sunk in Scapa Flow on 7 October 1914 is now to be known as the *Dyle*.

Built in Newcastle by A. Leslie & Co. Engineers in 1879 for W. Johnson in yard No.209, she was sold to Turner Brightman

& Co in 1886 and finally became the *Dyle* when she was subsequently sold to De Clerck & Van Helmeryk in 1902 and registered in Antwerp, Belgium. She was eventually sold to a British shipbreakers in

308...	Dovre	Bk	Nor	Tvedstrand	409	'85	Tvede-	A. B. Olsen	P.O.Y.P;Gief;ek b,	...	Lvpl	4, '97
UTDM	<i>Dovre</i>				190.8	88.8	18.8					
309...	Dovre	Bk	Nor	Flekk'fjrd	304	'75	Arandal,	A. Jakobs-	F.K.O.H;	5	Exp	Gtbg
HTSL	<i>Dovre</i>				107.8	97.8	10.0					8,1900
310...	Dowan Hill	Bk	Br	Glasgow	1975	'93	Pt. Glac-	J. M. Camp-	St;1BH	...	San F	4, 1900
108,000	<i>Dowan Hill</i>				100.8	40.8	10.8					
311...	Dowgate	Sow	Br	London	1988	'94	Stockton,	H. W. Dillon	1111234,39,84x42;	...	Pacta	8, '98
116,000	<i>Dowgate</i>				111.8	47.8	12.8					
312...	Doyo Maru	Sow	Jap	Tokio	1843	'80	Glasgow,	I. Kubo	2Cyl(234,82x45;	...	PtdO	8, '93
1,417	<i>Doyo Maru</i>				100.8	30.8	10.8					
313...	Drachenfels	Sow	Ger	Bremen	4704	'99	Newcastle,	Deutsche	1111234,36,56,81x54;	...	N Y	1, '98
108,000	<i>Drachenfels</i>				100.8	40.8	10.8					
314...	Dragoman	Sow	Br	Liverpool	2215	'68	Newcastle,	W. & R.	3Cyl(224,40,64x40	...	N Y	10, '70
108,000	<i>Dragoman</i>				100.8	40.8	10.8					
315...	Drammenseren	Bk	Nor	Drammen	899	'77	Sunderland	E. B. Aaby	1;1BH	...	Lvpl	4, '97
108,000	<i>Drammenseren</i>				100.8	32.8	10.8					



Burra Sound sketch, 1915

1914, who resold her to the Admiralty for use as a Blockship. Of iron construction with five bulkheads and a 177NHP 2-Cylinder engine and one propeller; she weighed 954 tons and

was 260ft (79.25m) long.

Many regard the *Dyle* as being the best of the diveable blockships in Burra Sound. As the smallest of the three most intact blockships (The

Gobernador Boreis and the *Tabarka* being the other two), the *Dyle* is completely open in aspect. Lying on her port side and fairly well embedded in the gravel seabed, her



Interior view of the stern on the *Dyle*

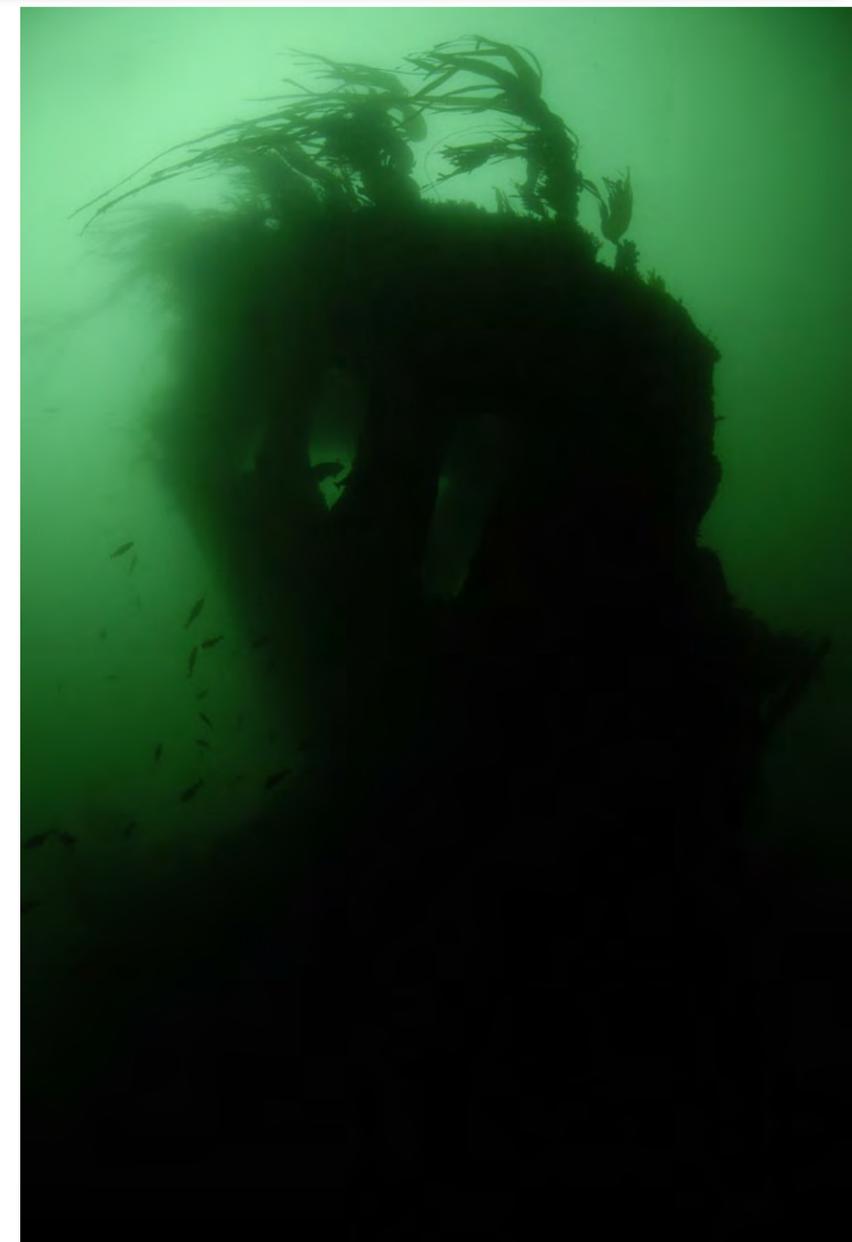
propeller is very distinctive, covered in miniature plumose anemones. Her wooden decks are long gone, creating easily managed swim-throughs between the supporting iron ribs. Both the bows and stern are relatively intact and topped with kelp making for some excellent photographic opportunities.

Clio I and Clio II

Other discrepancies have also occurred in the descriptions of the *Clio (I)* and the *Clio (II)* over at the opposite side of Scapa Flow at the Churchill Barriers. Both ships were thought to be steamers, identical in size at 2,733 tonnes, 70m (230ft) long, built in Hartlepool in 1889, but sunk ten months apart.

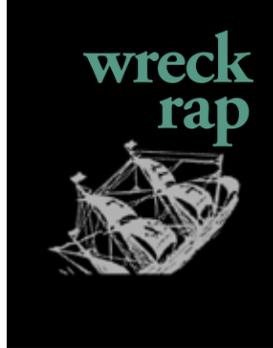
The records should now show the following. *Clio (I)* is a 2,733-ton steamer, at 90m (300ft) long, built in West Hartlepool in 1889 and sunk in Water Sound on 29 April 1914. (She was scrapped prior to the construction of Barrier IV. Confused with the identically named S.S. *Clio* that was sunk ten months later at Barrier III on 27 February 1915).

S.S. *Clio (II)* was a 793-ton steamer at 70.1m (230ft) long. She was built in Kinghorn in 1873 and sunk in Weddell Sound on 27 February 1915. (The firing circuit failed and the *Clio* was swept out to sea. A wreck out to the east of Glimps Holm may be this ship.



Gobernador Boreis stern





wreck rap

Historical image of the TS37 (right); Diver on the wreck of the Karlsruhe (far right)



dunes have covered virtually all of the ships, excepting for the bridge of the Collingdoc and a small part of the steel mast of the Carron.

Warwick aircraft

The Warwick aircraft which ditched after engine trouble on the 10 of June 1944 was always a mystery, and we searched for her relentlessly over several seasons. Over near Lyness on the Isle of Hoy she has finally been found, or what is left of her remains. She actually ended up on the shore and parts of her bomb bay are still underwater, but what was left on the shoreline was all salvaged.

TS37

Finally, a more contemporary shipwreck is located near Houton to the north west of Scapa Flow. A small fibreglass cabin cruiser with the registration numbers TS37 sunk apparently in 1995, however, the photograph that we have managed to get from the Orkney Image Library was taken in December 1995.

She once belonged to the late Kenny Bain

and was driven ashore in bad weather. Subsequently towed off from the shore by a local pilot boat, she was so badly damaged that she sank on her way back to Scapa Pier. She's now lying on the bottom of the flow just off Greenigoe in 29m (97ft) of water, relatively intact and upright on the seabed.

Final thoughts

Undeniably, some of the ancient High Seas | Battle Fleet are seriously deteriorating, but with due care and caution, there is no reason why we cannot continue to enjoy these superb shipwrecks in an area

which can be dived all year round and suitable for all levels of diver.

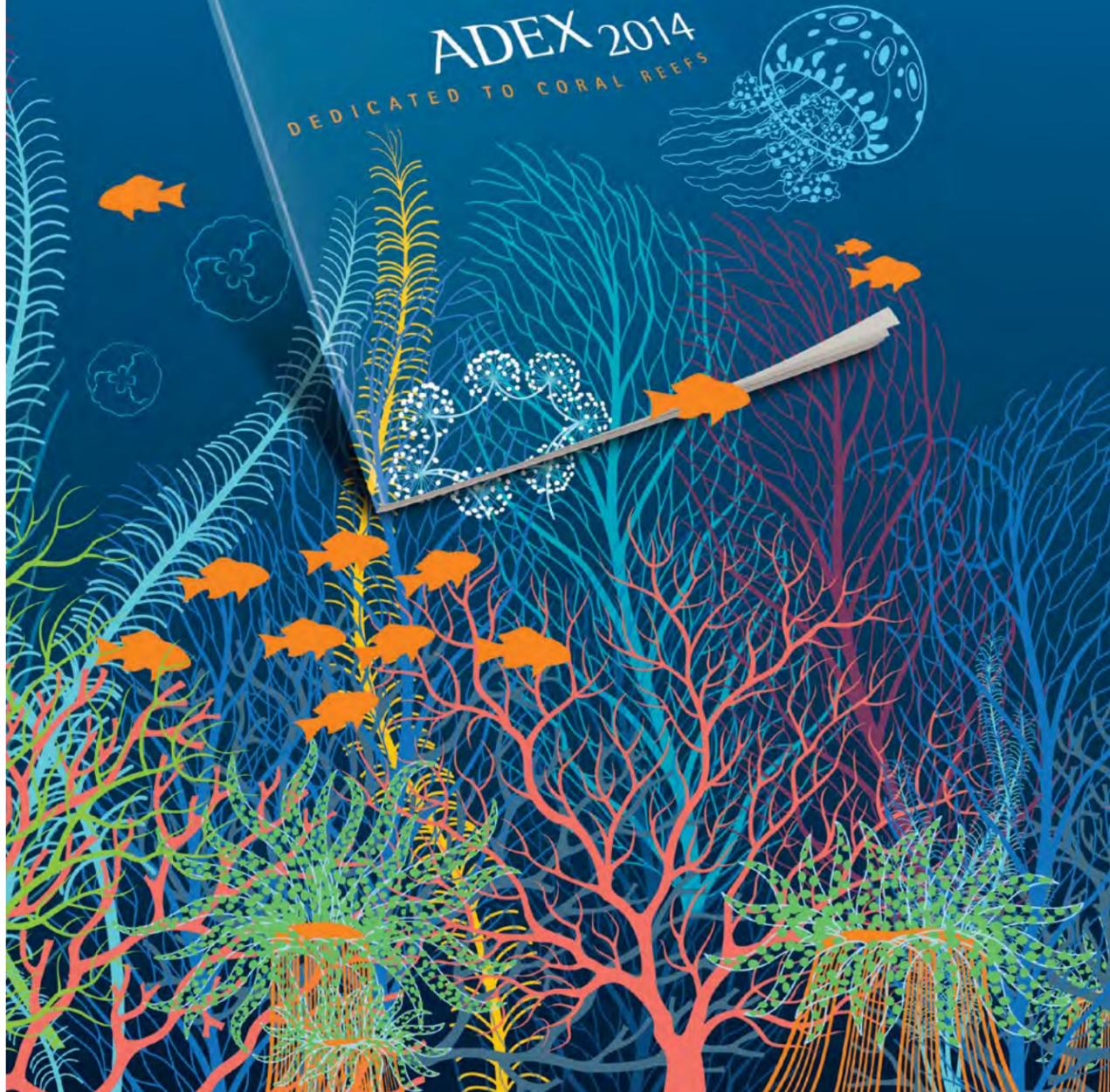
The shipwrecks of Scapa Flow are some of the most important historical shipwrecks accessible to divers in the whole of northern Europe, and the fact that we are still discovering information on their history is fascinating enough to make you want to go back and dive them all again. ■

Author Lawson Wood diving Scapa Flow



Divers check out the anchor at the stern of the wreck of the Dresden





GARETH LOCK

Proving the obvious — How hard can it be?

It is recognised across a number of industries, including diving, that we need to understand what happened during an accident, incident or near-miss if we are to improve safety. However, more importantly we need understand why they happen. If you don't solve the 'why', then it is like treating the effects of venomous poison but not removing the snake.

Text by Gareth Lock

This is what my PhD research programme is about. Understanding the 'why' behind the incident and provides structured, robust and defensible arguments for the work which I started through Cognitas. When I speak with those in the industry about this research, they support it but say the causality is obvious—complacency, not following training, poor equipment and maintenance. I say, where is the proof about why this is the case?

Survey

The research has been going on for two years now, and one of the two major data collects is underway through a survey at https://cranfielduniversity.eu.qualtrics.com/SE/?SID=SV_aVl0quHU6pdJ69n. If you haven't taken part, please visit the link. It will take about 15 minutes to com-

plete and looks at the issues faced by the individual diver when near-misses or incidents are encountered, not just the *what* but the *why*. The more respondents, the easier it is to make robust arguments to prove the obvious. The second data collect will look at organisational or supervisory problems faced and will be a little more challenging in ensuring honest answers are provided. A very first cut of the data collected from 318 of the 1,000 respondents needed can be found at <https://experiment.com/u/wwQ9vw>

More funding needed

This five-year part-time PhD research programme is being conducted under the supervision of Cranfield University and is currently wholly self-funded at a cost of GB£3,500k per year. To help

The more respondents, the easier it is to make robust arguments to prove the obvious.

part-fund the next two-year's research, I approached the SciFund, which aims to fund academic research projects through crowd-sourcing. This is the second request of this article. If you are interested in improving diving safety, please consider donating a small amount to the project at <https://experiment.com/projects/the-role-of-human-factors-in-scuba-diving-incidents-and-accidents>.

Ten to 20 dollars isn't much at an individual level, but if 200 people donate US\$20, that would meet my \$4,000 target. (More would always be welcome, which some backers have already done, thank you). This project has the endorsement of individuals like Dan Orr, Dr Simon Mitchell and Phil Short. Backers get a small gift as a token of my thanks. ■



Edited by
Scott Bennett



Taiwan launches free WiFi for tourists

Local free Wifi program in Taiwan being expanded to give tourists equal online access.

In a bid to curtail sky-high costs for foreign visitors, Taiwan has become the latest country to roll out free Wifi. The improvements, announced by the Taiwan Tourist Board, allow visitors to register online before arriving in the country, making it easier for them to utilize the island nation's wireless network. To enroll, tourists can present their passport at Travel Service Centers at major airports, train stations and mass rapid transit (MRT) stations across the country. Visitors are initially granted 30 days of free WiFi access, although this can be extended to 90 days upon application. ■

Travel services too good to be legal?

Popular community marketplaces fight back at allegations of illegations of running illegal services.

For the budget conscientious travellers, sites such as Airbnb, which lets people find, list and book accommodations at private homes and Uber that connects passengers with drivers of vehicles for hire and ridesharing services and their likes have revolutionised tourism, allowing travellers to stay with locals in cities around the world for a fraction of the price they would pay for a hotel. Airbnb which was founded in 2008, now boasts 500,000 listings in 33,000 and 192 countries.

But officials in a number of cities

such as New York City and Sydney have been seen cracking down on short-term sub-letting, arguing that the practice is illegal, undermines the hotel industry, evades occupancy tax and could endanger visitors. In the same manner Uber has been accused in several jurisdictions of operating an illegal taxicab service or unlicensed limousine dispatch but have also reached agreements and licenses in a number of cities.

Airbnb which remains embroiled in a dispute with New York state regulators over a subpoena for information on thousands of "hosts" in the city, says that 87 per cent of its users stay at home while hosting paying guests, and describes the subpoena of customer information as an 'unfounded fishing expedition'.

European Union strengthens air passengers' rights

A new set of rules has been implemented to better protect the rights of travellers while on holiday abroad. Under the new rules, travellers should be guaranteed assistance getting home if their travel agency goes bankrupt while on holiday. They also stressed that organizers should not be able to change flight times or prices significantly after a sale is concluded. However, if possible, they should have the option of continuing their trip.

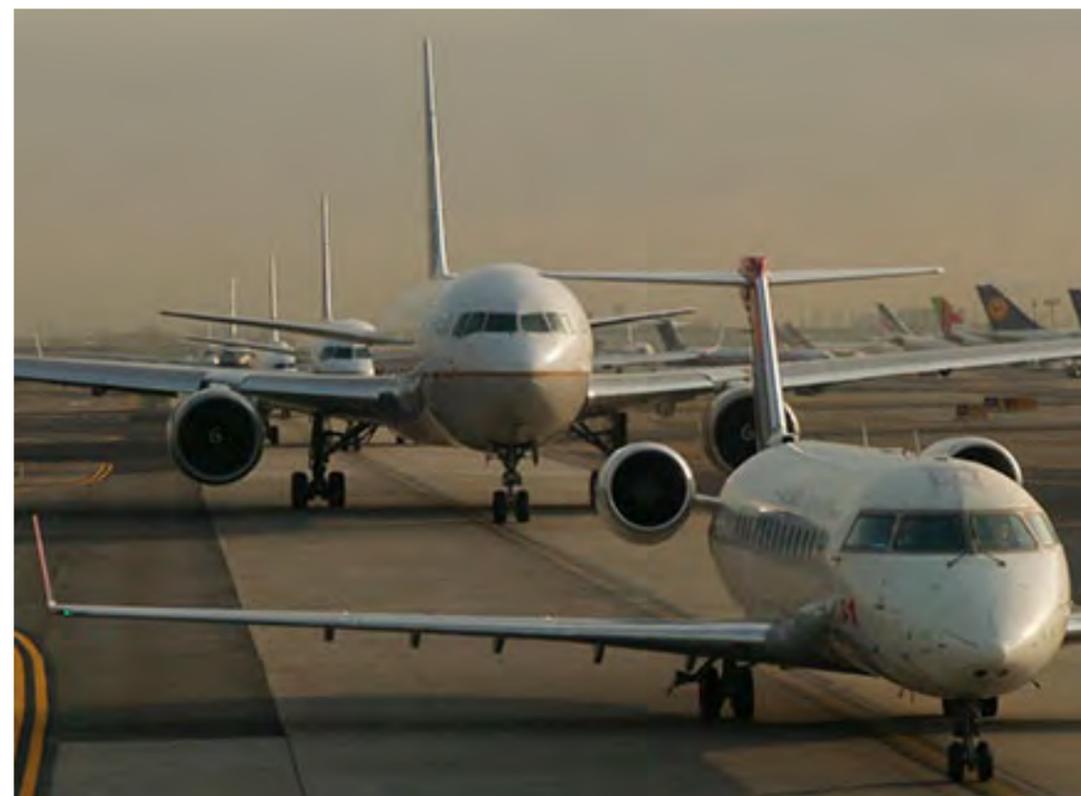
Amended definitions

"With the amended definitions on package travel and linked travel it is now clear what package travel is," stated rapporteur Hans-Peter Mayer (EPP, DE). "Travellers need to be informed about their rights and how they are covered. The whole package foresees a high level of consumer protection and information," he added.

In addition, travellers in difficulty should get help during their holiday even if the travel organizer is not at fault. Assistance should include information on health services, consular assistance or making alternative travel arrangements.

Reimbursements

Prices can only be raised after the sales contract has been concluded if fuel prices, taxes or airport fees go up. If the price increases by more than 8%, travellers should have the option to be reimbursed. In case the traveller is not able to return home due "unavoidable" and "unforeseeable" circumstances, the organizer must arrange accommodation at a similar level to the originally booked accommodation. Alternatively, they must pay for a five-night stay of up to €125 per night where the organizer is unable or unwilling to make a booking. ■



Under the new rules in the European Union, travellers should be guaranteed assistance getting home if their travel agency goes bankrupt while on holiday

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Products that humans use to protect their skin, or toiletries, can reach the sea from wastewater discharges, and shut down coral reproduction

Beware of your soap, shampoo and cosmetics; They may kill the reef

A chemical used to manufacture many soaps, shampoos and other products, is killing young coral reefs at concentrations commonly found in the environment.

New research shows that something humans use to protect their skin, or toiletries, can reach the sea from wastewater discharges, and shut down coral reproduction.

Benzophenone-2 (BP-2) is an additive to personal-care products and commercial solutions that protects against the damaging effects of ultraviolet light. The chemical is used to protect bath salts, body fragrances, lotions, shampoos, soaps and laundry detergents from ultraviolet light, which make products lose their colour. The levels of BP-2 used in a new international study—ranging from 24 parts per billion to 246 parts per million—are within what

has been found in U.S. wastewater effluent.

Killing juvenile corals

Once in the environment, BP-2 can quickly “kill juvenile corals at very low concentrations—parts per billion,” the authors wrote.

“What’s worrying is that if this chemical harms young coral, we won’t get coral recruitment around the world. This will create coral zombies—where there’s adults but not recruited young, so the reef will eventually go away,” said Craig Downs, a researcher at Haereticus Environmental Laboratory in Virginia who led the study. ■

Japanese whaling a threat to Kaikoura tourism

Humpback whales frequenting New Zealand’s Kaikoura coast at risk in Southern Ocean. Hunt poses economic threat to whale watching tour operators

Up to 50 humpback whales observed off New Zealand’s Kaikoura coast could soon be killed in the Southern Ocean. Migrating to the region for food, the whales face an immediate threat from Japanese whaling vessels.

Tour operators at risk

The result could pose an economic risk to whale watching tour operators such as Ngai Tahu, which made nearly US\$16 million last year. The concern is

not just for Ngai Tahu alone but for all whale tourism ventures.

Labour Party Maori Development spokeswoman Nanaia Mahuta questions what the Japanese have yet to learn about whales after killing so many already. “It’s been a very successful tourism initiative down there, not just for, but on behalf of New Zealand,” she added. An expanding tourist industry worldwide, whale watching grosses over \$700 million annu-

ally. In New Zealand, sperm and other whale species make regular visits to the deep waters off the Kaikoura coast. Japanese whalers target the species as part of their annual hunt in the name of research. ■

We’ve got to question what’s being done under the guise of scientific research.
—Nanaia Mahuta

Shark cull in Western Australia will put off tourists, Richard Branson says



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In a radio interview, British billionaire entrepreneur Branson said WA’s Premier Colin Barnett’s decision to cull sharks will backfire, driving tourists away from the area rather than enticing them back to it.

“I’m sure one of the reasons

he did it was because he was thinking it would encourage tourism. It’s going to do quite the reverse, I think,” said Branson on Fairfax radio. “You’re advertising a problem that doesn’t exist in a major way and you’re deterring people from wanting to come to Perth and your beautiful countryside around it. All you’re going to achieve, I think, is to worry people unnecessarily.”

In addition to deterring tourists, Branson who is active in the

campaign against shark finning in Asia, remarked on the bad press that the state is garnering internationally.

“Last year Australia was praised all over the world for creating the biggest marine reserves. This year, the world is looking at Australia—and particularly Western Australia—and wondering what on earth is going on,” said Branson.

Meanwhile in the waters off Perth, WA state Fisheries Department has placed baited drum lines. The state government claims that a sharp rise in shark attacks that are frequently fatal have negatively affected tourism. According to dive operators in the area, there has been a decline of 90 percent in people who want to learn how to dive. ■ SOURCE: THE GUARDIAN



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Join Rod Roddenberry, the Roddenberry Dive Team, and X-Ray Mag for an eight-night tropical escape to Volivoli Beach Resort. We will explore some of Fiji's most famous and exhilarating dive sites in Fiji's Bligh Waters and the famous Vatu-I-Ra Passage. Divers will see first hand why Fiji is known as the "soft coral capital" of the world!

Professional photographer and X-Ray Mag's contributing photographer and editor Matthew Meier will also be on hand offering underwater photo workshops and image critiques to help improve your underwater photographs.

Divers will have the option of adding a day trip to Beqa Lagoon for their world famous shark dive (at an additional cost).

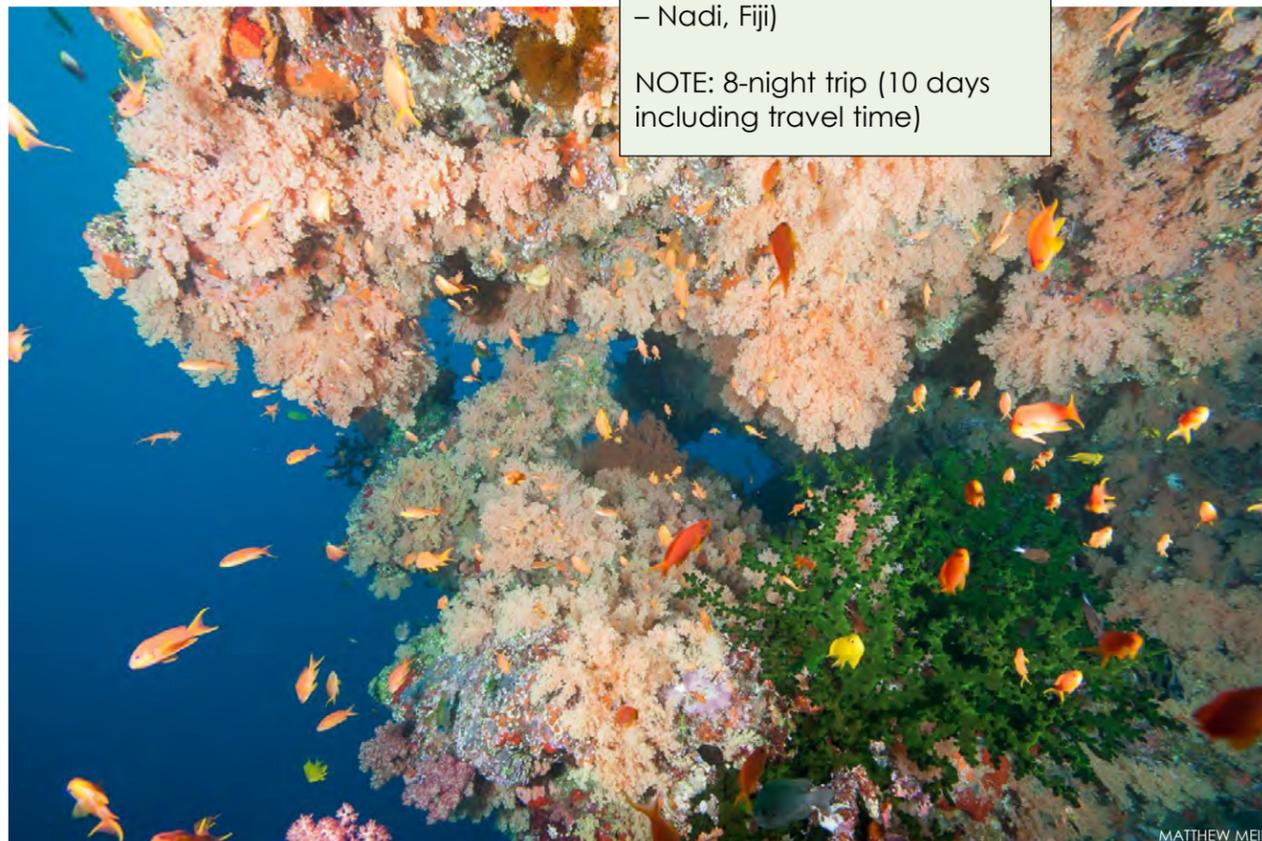
This wonderfully relaxed and remote

beach resort is located in a truly unspoiled and spectacular corner of Fiji. The white sandy beaches, turquoise water, mangroves and coral reefs are just waiting to be explored. Divers and non-divers will enjoy this coastal escape with the perfect blend of relaxation, water sports, cultural activities, village tours, spa appointments and sunbathing on the beach and by the pool.

The trip is escorted by Jennifer Black of the Roddenberry Dive Team and Matthew Meier of X-Ray Mag. ■

For full trip details, please visit the RDT Events page at: <http://roddenberry-diveteam.com/>.

Contact RDT at: diveteam@roddenberry.com



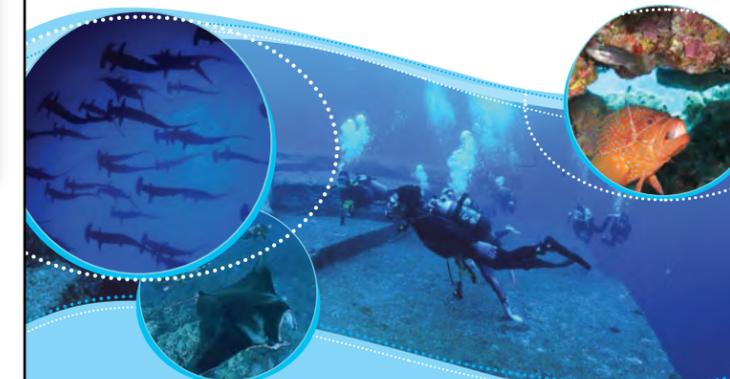
THIS PAGE: Scenes from Fiji's lush coral reefs; Rod Roddenberry of RDT (top center inset)

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