



GLOBAL EDITION
Aug-Sep 2011
Number 44



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Island**

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**Nudibranch
Safari**

Tech
**Deep
Diving**

Wrecks
Audace

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**Tagging
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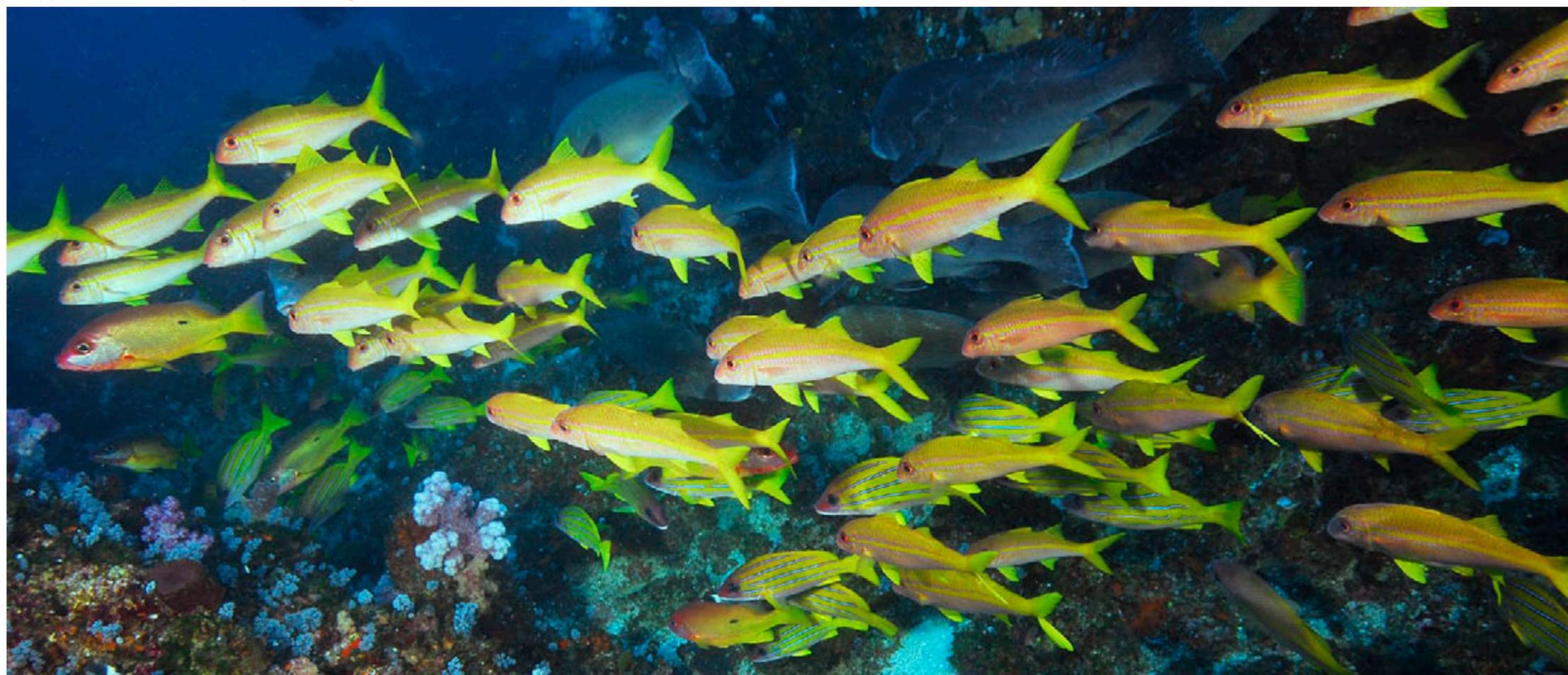
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Snapper school, Mozambique. Photo by Scott Bennett



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— The X-RAY MAG Team



X-ray mag

News edited
by Peter Symes
& Arnold Weisz

NEWS *deep blue*

Major Scientific Discovery on the Mid-Atlantic Ridge

The Irish-led VENTuRE scientific expedition aboard the national research vessel, *RV Celtic Explorer*, has discovered a previously uncharted field of hydrothermal vents along the Mid-Atlantic Ridge—the first to be explored north of the Azores.

The mission, led by Dr Andy Wheeler of University College-Cork (UCC) together with scientists from the National Oceanographic Centre and the University of Southampton in the United Kingdom, the National University of Ireland-Galway (NUI) and the Geological Survey of Ireland, returned to Cork August 4 from an investigation 3,000 metres below the surface of the sea using the Remotely Operated Vehicle (ROV) *Holland 1*.

Hydrothermal vents, which spew

mineral-rich seawater heated to boiling point by volcanic rock in the Earth's crust below, are home to a rich variety of marine life that thrives in complete darkness on bacteria fed by chemicals.

The investigation was supported by the Marine Institute under the 2011 Ship-Time Programme of the National Development Plan and by the National Geographic Society, who filmed the work for inclusion in an upcoming National Geographic Channel series, "Alien Deep", premiering globally in 2012.

"On the first dive, we found the edge of the vent field within two hours of arriving on the seafloor," said Wheeler. "The ROV descended a seemingly bottomless underwater cliff into the abyss. We never reached the bottom, but rising up from below were these chimneys of metal sulphides belching black

plumes of mineral-rich superheated water. Often the search for vents takes much longer, and our success is a testament to the hard work and skill of everyone on board."

Dr Bramley Murton of the National Oceanography Centre in the United Kingdom, who first saw clues for possible vents on an expedition aboard the U.K. research vessel, *RRS James Cook*, in 2008 and who led the mineralisation study on the expedition, said, "Our discovery is the first deep-sea vent field known on the Mid-Atlantic Ridge north of the Azores. Although people have been crossing this ocean for centuries, we are the first to reach this spot beneath the waves and witness this natural wonder. The sense of awe at what we are seeing does not fade, and now we are working hard to understand what our discovery tells us about how our planet works."

Patrick Collins from NUI Galway's Ryan Institute, who led Ireland's marine biological team investigating this unique ecosystem, is working in collaboration with Jon Copley of the University of Southampton to catalogue and characterise the species found at the vents. ■

For the first time ever seen by human eyes—the Moytirra vent field. Picture shows chimneys of metal sulphides (black and rust coloured) at 3,030 metres below sea level



Huge Biomass Gains at Cabo Pulmo National Park

A large Gulf grouper of 1.2m (*Mycteroperca jordani*) waiting for cleaning fish beside the reef

A thriving undersea wildlife park tucked away near the southern tip of Mexico's Baja peninsula has proven to be the world's most robust marine reserve in the world, according to a new study led by researchers at Scripps Institution of Oceanography at UC San Diego in the United States.

Results of a ten-year analysis of Cabo Pulmo National Park (CPNP), published in the Public Library of Science (PLOS) ONE journal, revealed that the total amount of fish in the reserve ecosystem (the "biomass") boomed more than 460 percent from 1999 to 2009. Citizens living around Cabo Pulmo, previously depleted by fishing, established the park in 1995 and have strictly enforced its "no take" restrictions.

"We could have never dreamt of such an extraordinary recovery of marine life at Cabo Pulmo," said National Geographic Explorer-in-Residence Enric Sala, who started the study in 1999. "In

1999, there were only medium-sized fishes, but ten years later, it's full of large parrotfish, groupers, snappers and even sharks."

The most striking result of the paper, the authors said, is that fish communities at a depleted site can recover up to a level comparable to remote, pristine sites that humans have rarely fished.

"The study's results are surprising in several ways," said Octavio Aburto-Oropeza, a Scripps postdoctoral researcher, World Wildlife Fund Kathryn Fuller fellow and lead author of the study. "A biomass increase of 463 percent in a reserve as large as Cabo Pulmo (71 square kilometers)

represents tons of new fish produced every year. No other marine reserve in the world has shown such a fish recovery."

The paper notes that factors such as the protection of spawning areas for large predators have been key to the reserve's robustness. Most importantly, local enforcement, led by the determined action of a few families, has been a major factor in the park's success. Boat captains, dive masters and other locals work to enforce the park's regulations and share surveillance, fauna protection and ocean cleanliness efforts. ■



Huge high seas reef found at almost 400 meters

The finding proves that there are still unexplored areas in this region that may harbor many more surprises.

The international conservation organization, Oceana, announced the discovery

of a deep-sea, white coral reef in the Alboran Sea (Western Mediterranean)



IMAGE COURTESY OF OCEANA

during the Oceana Ranger's 2011 expedition. The international marine conservation organization estimates that the reef's surface area may exceed ten hectares (over 100,000 square meters) and covers a large part of the surface of a seamount whose peak is located between 320 and 400 meters depth. Deep-sea corals area among the most vulnerable ecosystems and the United Nations has called for their protection. Most of these interesting communities have disappeared from large extensions of European waters and the Mediterranean due to bottom trawling, changes in water temperature or natural catastrophic events.

Information about the existence of these corals in the Mediterranean is not complete and usually concerns small colonies or dead reefs. In this case, the reef still maintains important live colonies growing on structures older than the dead corals, reaching a height of over one and a half meters.

Alborean Sea

The discovery was made in the southeast

Coral (*Anthomastus cf. Grandiflorus*) Alboran Sea, Image is from the Oceana Ranger Expedition 2011

Deep-sea corals area among the most vulnerable ecosystems and the United Nations has called for their protection.

Alboran Sea, in international waters. The seamount was inspected by an underwater robot that can descend to 600 meters depth, which also provided spectacular images of other habitats of ecological importance.

Coral forests

"We are not only talking about a large coral reef but also extensive gorgonian gardens, black coral forests and glass sponge fields, all of these important habitats for the health of the Mediterranean," explained Ricardo Aguilar, Director of Research of Oceana Europe. "In addition, we can highlight the presence of rare or little known species, such as ball corals, carnivorous sponges, the bathyal octopus and the sail ray."

Barcelona Convention

Oceana will present this data to the Barcelona Convention so it can act quickly and declare new marine protected areas in the Mediterranean in order to preserve the last coral reefs and the valuable ecosystems that still exist in this sea. ■



"Sometimes a deep breath is all you need to regroup and re-energize."
- Szilvia Gogh



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Supporting Publications



Tool use in fish

Fish, once thought a "simple reflex animal", has cognitive abilities to rival birds, reptiles and mammals.



A sequence of photos taken by marine biologist, Scott Gardner, shows a green wrasse known as a tuskfish picking up a cockle and smacking it against a rock to open it up. While scientists have known for about 50 years that a few dozen species of fish use rocks as tool-like implements, it is the first time that anyone has seen and recorded a fish using tools in the wild.

"The pictures provide fantastic proof of these intelligent fish at work using tools to access prey that they would otherwise miss out on," said Culum Brown of Macquarie University in Sydney. "It is apparent that this particular individual does this on a regular basis judging by the broken shells scattered around the anvil."

What specifically constitutes tool use is a controversial topic. Is a seagull using a tool when it drops a shellfish on a rock? How about when archerfish spray a jet of water to knock prey off of twigs?

Last year, a team of international scientists revealed that freshwater stingrays use water as a "tool" in problem-solving tests. Dr Michael Kuba from the Hebrew University of Jerusalem, Israel, and his team tested the ability of captive South American stingrays (*Potamotrygon castexi*) to solve problems, by setting them a series of underwater tasks.

Using a plastic pipe with one end sealed and containing hidden food, researchers observed how the fish overcame the challenge of getting the meal from the container. They also tested the fish to see if it could discriminate between black and white ends of the tube.

The stingrays not only performed the tasks well but also demonstrated a range of problem-solving strategies, including using water as a "tool" to obtain the hidden reward. ■

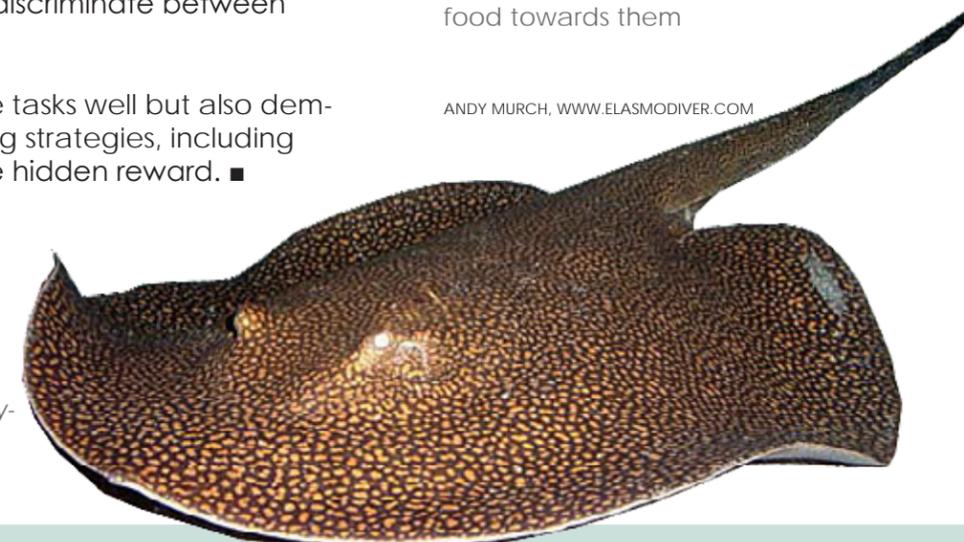
A blackspot tuskfish off Australia has its mouth full as it carries a cockle to a nearby rock, against which the fish was seen repeatedly bashing the shellfish to get at the fleshy bits inside

Tool use is more common in fishes than we realize.

— Culum Brown, Macquarie University

The definition of tool use, using an agent to achieve a goal, was set by cognitive scientist, Dr Benjamin Beck, in 1980. The stingrays meet this definition by using water as a tool, manipulating their bodies to create a flow of water that moves food towards them

ANDY MURCH, WWW.ELASMODIVER.COM



The South American stingray (*Potamotrygon castexi*) is a freshwater species

PHOTOGRAPH COURTESY SCOTT GARDNER

White band disease in corals might be treatable with antibiotics

Antibiotics, the ubiquitous cure for human ills, also may be a treatment for white band disease affecting certain coral species

A recently published study led by a Scripps scientist has pinpointed bacteria as the cause of "white band disease" (WBD)—one of the world's most damaging coral

diseases. The disease contributed to a massive die-off of two of the most common shallow-water coral species in the Caribbean, wiping out up to 90 percent of these species on many reefs. The disease earned its name because its contagious death grip typically starts at the base of coral as a white band of dead tissue and works its way upwards, in certain cases at a couple of centimeters per day.

David Kline of Scripps Institution of Oceanography in La Jolla, California, and research teammate Steven Vollmer applied WBD tissue to healthy coral fragments then compared transmission rates using various filtering measures. Coral tissue with white band disease was broken up by a homogeniser, which is basically a blender. The resultant fluid is known as the homogenate, which is then filtered to



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remove any complete cells and large pieces of debris.

The untreated disease ho-

White band disease has caused unprecedented declines in *Acropora cervicornis* and *Acropora palmata* corals, both now on endangered species lists

mogenate resulted in a 90 percent transmission rate. When the homogenate was filtered but still contained bacteria and viruses the transmission was 80 percent, while a filter that excluded most bacteria and contained mainly viruses resulted in only a ten per-

cent transmission rate. Kline and Vollmer said the findings implicate bacteria as the primary pathogens of one subtype of the disease, and suggest viruses alone aren't likely to be the disease's cause. ■

SOURCE: SCRIPPS INSTITUTION OF OCEANOGRAPHY



Warming oceans causes massive movement of marine species

Global warming is causing the largest movement of marine species seen on Earth in more than two million years, according to scientists.

Marine species, ranging from tiny species of plankton, several fish species and even whales have shifted their range into waters where they either had vanished

from or never been observed ever before.

Melting ice opens passage

After a tiny species of plankton called *Neodenticula seminae* went extinct in the North Atlantic about 800,000 years ago, it has now returned. The microscopic plant has become an Atlantic resident again, having drifted from the Pacific through the Arctic Ocean thanks to dramati-

cally reduced polar ice, scientists report. The melting Arctic has opened a Northwest Passage across the Pole for the tiny algae. And while it's a food source, it isn't being welcomed back by experts, who say any changes at the base of the marine food web could, like an earthquake, shake or even topple the pillars of existing Atlantic ocean life. The discovery represents "the first evidence of a trans-Arctic migration in modern times" related to plankton, according to the U.K.-based Sir Alister Hardy Foundation for Ocean Science, whose researchers warn that "such a geographical shift could transform the biodiversity and functioning of the Arctic and North Atlantic marine ecosystems."

Huge consequences

As the waters of the Atlantic and the North Sea warm, a valuable member of the copepod family known as *Calanus finmarchicus* (zooplankton), a rich and crucial source of oil, is being replaced by varieties that are smaller and less nutritious. The consequences are already evident. The changes in plankton life have "been related to the collapse of some

fish stocks" as well as declines in fish-eating North Sea birds, the researchers report. Harbour porpoises migrated from the northern North Sea when sand eels, a mainstay of their diet, moved poleward with the nutritious copepods.

Overall, studies show that re-arrangements of marine life composition is likely to be mixed—some species could, in fact, thrive and parts of the ocean gain in biodiversity and productivity.

"But most of the impacts are so clearly negative, and the scope of change so potentially huge that, taken together, they constitute brightly flashing warning signals," said Carlo Heip, director general of the Royal Netherlands Institute for Sea Research, which leads the CLAMER project.

Fish on the move

Nearly two-thirds of 36 exploited and non-exploited North Sea fish species studied from 1977 to 2001 have shown shifts in mean latitude and/or depth in response to climatic warming. In 15 of 36 studied species, including Atlantic cod (*Gadus morhua*) and common sole (*Solea solea*), centres of distribution shifted by distances

ranging from 48 to 403km, most of them northward. In the North Sea, several fish species, including sea bass, mullet, solenette and scaldfish, are moving northward and increasing in numbers as the water warms, according to experts at the Royal Netherlands Institute for Sea Research and the Netherlands Institute for Ecology (NIOO).

Pacific whale in the Atlantic The tiny marine plant's migration parallels, near the extreme opposite end of the ecological weigh scale, the arrival last year of a gray whale (*Eschrichtius robustus*) spotted off the coasts of Spain and Israel, a species that vanished from the Atlantic three centuries ago, likely because of overhunting. Scientists believe the ice-reduced Arctic allowed the whale to cross into the North Atlantic, from where it wandered its way to the Mediterranean Sea.

These are among a number of reports about the marine life upheaval underway in the North Atlantic due to climate change, findings being captured and cataloged by project CLAMER, a collaboration of 17 marine institutes in ten European countries. ■






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Multiple ocean stresses threaten “globally significant” marine extinction

An international panel of marine experts warns in a report released recently that the world’s ocean is at high risk of entering a phase of extinction of marine species unprecedented in human history.

The preliminary report arises from the first ever interdisciplinary international workshop to consider the cumulative impact of all stressors affecting the ocean. Considering the latest research across all areas of marine science, the workshop examined the combined effects of pollution, acidification, ocean warming, over-fishing and hypoxia (deoxygenation).

Dramatic decline

Marine scientists from institutions around

the world gathered at Oxford University under the auspices of IPSO and the IUCN. The group reviewed recent research by world ocean experts and found firm evidence that the effects of climate change, coupled with other human induced impacts such as over-fishing and nutrient run-off from farming, have already caused a dramatic decline in ocean health.

“The world’s leading experts on oceans are surprised by the rate and magnitude

of changes we are seeing. The challenges for the future of the ocean are vast, but unlike previous generations we know what now needs to happen. The time to protect the blue heart of our planet is now, today and urgent,” said Dan Laffoley, marine chair of IUCN’s World Commission on Protected Areas and senior advisor on marine science and conservation for IUCN, and co-author of the report.

Main conclusions

The findings underscore the need for more effective management of fisheries and pollution and for strengthening protection of the 64 percent of the ocean that lies beyond the zones of national jurisdiction.

- The combination of stressors on the ocean is creating the conditions associated with every previous major extinction of species in Earth’s history.
- The speed and rate of degeneration in the ocean is far faster than anyone has predicted.
- Many of the negative impacts previously identified are greater than the worst predictions.
- Although difficult to assess because of the unprecedented speed of change, the first steps to globally significant extinction may have begun with a rise in the extinction threat to marine species such as reef-forming corals.



Silt and sand cover a coral reef



Vaccuming menhaden into fishing vessel from purse seine net in Chesapeake Bay. In 2005, a harvest cap was established due to overfishing concerns



Motu Agriculture. Farms cover the motus, small islands formed along the barrier reef, surrounding Huahine, French Polynesia. Agriculture is an important source of food and income on small islands throughout the Pacific, but heavy pesticide use and runoff from industrial farming operations threatens nearby coral reefs

Better governance

Meanwhile one of the primary contributors to the study, Dr Alex Rogers, scientific director of the International Programme on the State of the Ocean (IPSO) said: “This is a very serious situation demanding unequivocal action at every level. We are looking at consequences for humankind that will impact in our lifetime, and worse, our children’s and generations beyond that.”

The report sets out a series of recommendations and calls on states, regional bodies and the United Nations to enact measures to better conserve ocean ecosystems, and in particular demands the urgent adoption of better governance of

the largely unprotected high seas, which make up the majority of the world’s ocean. ■

“The findings are shocking. As we considered the cumulative effect of what humankind does to the ocean the implications became far worse than we had individually realized”.

— Dr Alex Rogers, Scientific Director of the International Programme on the State of the Ocean (IPSO)

Male cleaner fish distinguish between high and low value meals and will punish the female more severely if she drives off a high-value client



Fish weight-watchers

Telling the female to watch her weight doesn't sound like a good strategy for a male in a partnership—unless you are a male cleaner fish, that is.

Cleaner wrasse eat parasites that have attached themselves to the client fish but sometimes the cleaner fish can't resist the temptation to take a bite out of the client's mucus layer. And because it's a painful bite the client fish ends the co-operation, shakes off the cleaner fish and swims away.

Punishment

Females that bite clients will then receive aggressive punishment from their male partners for such greedy behaviour. The female fish will respond to this punishment by providing better service to high value clients in the future.

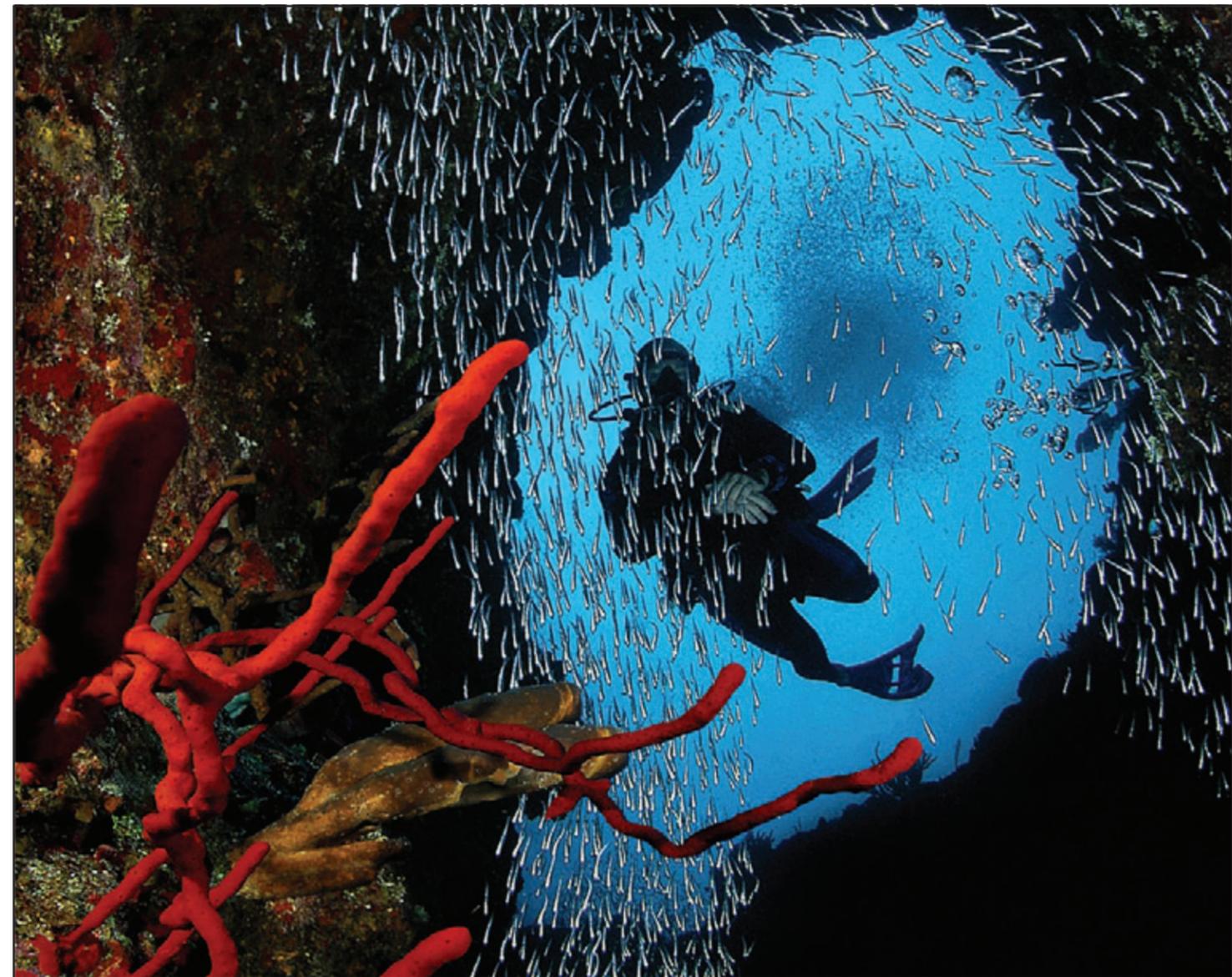
A lot to lose

The male fish lose more than just a meal from their partner's big appetite; they also risk the female becoming so large that she will turn into a rival male. All cleaner fish are born female and turn into males when they become the biggest fish in their group.

Dominance

Cleaner fish live in groups led by one dominant male with a harem of up to 16 females. A male cleaner fish usually partners with the biggest female fish in the harem for cleaning duties.

"Our research shows that male cleaner fish are sensitive to their female partner's size. One reason for keeping a cheating female in check may be to stop her eating too much and then challenging his position as the dominant male on the reef," said Dr Nichola Raihani, lead author from the Zoological Society of London. ■



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Edited by
Peter Symes

PADI endorse VR Sentinel for rec tec courses

The PADI organization will soon issue the 20 millionth diver certification. In recognition of this milestone, PADI Regional Headquarters around the world are giving a dive trip for two to Australia's Great Barrier Reef. PADI has been tracking certifications and will announce the winner after this goal has been reached. A countdown counter has launched on the PADI website that provides daily updates as the organization approaches this achievement, which they expect to reach by late September.

The diver to receive PADI's 20 millionth certification will win an all-expense-paid trip for two to explore a natural wonder of the world, the Great Barrier Reef, and other local attractions such as the World Heritage listed Daintree Rainforest, courtesy of Tourism Queensland. Dive excursions out to the Great Barrier

Reef will be provided by *MV Spirit of Freedom*, which includes a three-day, three-night live-a-board adventure to iconic dive sites such as Cod Hole and the stunning Ribbon Reefs. In addition, the PADI Instructor to issue the 20 millionth diver certification and the affiliated dive center or resort will each receive a trip to Australia.

"It is incredible to see what started as an idea by Ralph Erickson and John Cronin nearly 45 years ago, has grown into *the way the world learns to dive*," said Brian Cronin, chief executive officer for PADI Worldwide.

"The fact that PADI is nearing its 20 millionth certification is a testament to the power and wisdom of their vision, as well as the talent and dedication of PADI Instructors across the globe. We are proud that this organization has been able to introduce people to new life changing experi-

ences through diving, and we look forward to the next 20 million." ■



PADI to award 20 millionth scuba diving certification

VR Technology and PADI have reached an agreement on CCR training on the Sentinel. Kevin Gurr from VR Technology said, "We are very pleased that PADI has accepted our technical level products as some of the first suitable for their training programs. We have also worked closely with PADI to ensure the sport rebreather is ideally suited to their recreational programs. We are excited about the news, and we feel it is a big endorsement of our approach to the technology and rebreather safety in general."

The recreational courses—PADI Rebreather Diver and PADI Advanced Rebreather Diver—will be launched in Third Quarter 2011 with the first of the technical courses—Tec 40 CCR launching around November, followed by the Tec 60 CCR towards the end of 2011 and Tec 100 CCR in the first few months of 2012. The Sentinel and Sentinel Expedition are VR's Technical level units and the new Sport Rebreather is due to launch in November this year for the recreational level course. ■



InnerSpace Explorers partners with Tourism Unlimited to drive international expansion

With the certification of new instructors who now offer courses in countries like Malaysia, the Philippines and Croatia, InnerSpace Explorers (ISE) aims to reach a larger group of divers and has assigned the Munich-based agency, Tourism Unlimited, with public relations and marketing tasks. President and founder of ISE, Achim Schloeffel, has a clear vision in mind: "Diving has become a popular sport for the masses. But many divers do not accept the limits set by traditional dive training organizations. We aim to enable divers to expand their individual limits. Along with this, it is crucial to train safety in combination with the consciousness about potential risks that be linked to the respective dive profile."

ISE is an international dive training organization putting its focus on the exploration of the underwater world as well as on teaching technical diving skills. The challenging trainings and workshops demonstrate the participants their individual limits in diving along with solutions how to overcome those barriers. The

skills and knowledge acquired by the students allows them to participate in exciting exploration projects and to always "stay cool" even in extreme situations.

"We also want to offer exciting projects to our students where they can apply the skills learned. Hence, we will organize exclusive dive trips and research projects. The team of Tourism Unlimited is a strong partner who supports us competently in the strategic positioning as well as in communicating and marketing our offers," said Schloeffel.

For more information about InnerSpace Explorers, please visit: www.is-expl.com ■



BSAC to launch a brand new members' magazine

BSAC is creating an all-new monthly magazine for their members and the diving community. The first issue of *SCUBA* will be launched in November 2011. *SCUBA* will succeed *DIVE* as the official magazine of BSAC. Mary Tetley, Chief Executive of BSAC, said she was looking forward to going into 2012 the Olympic year

—with a brand new magazine for BSAC members and the sport:

"Our magazine is a vital part of the way we communicate with our members and ensures we provide you with the essential information you need to get the best out of your membership. *SCUBA* will be developed in response to the recent BSAC



member survey and to our members." The magazine will include more news, stories and features on United Kingdom and BSAC club diving as well as all the important developments in the sport. In addition, *SCUBA* will ensure:

- The BSAC magazine continues to be innovative, attractive, inter-

esting and relevant to their members

- BSAC has the opportunity to manage and grow their own magazine, providing a clearer voice for their members as well as the diving community as a whole.

For more info: www.bsac.com ■



JAMES W. PORTER, UNIVERSITY OF GEORGIA

Disease-free coral colonies are rare during a White Pox disease outbreak, but some colonies (such as those shown here from Molasses Reef) may have natural resistance to this bacterium and may live to recolonize the reef

Human pathogen killing corals in the Florida Keys

A research team from Rollins College in Florida and the University of Georgia in the United States has identified human sewage as the source of the coral-killing pathogen that causes white pox disease of Caribbean elkhorn coral.

Once the most common coral in the Caribbean, elkhorn coral was listed for protection under the United States Endangered Species Act in 2006, largely due to white pox disease.

"When we identified *Serratia marcescens* as the cause of white pox, we could only speculate that human waste was the source of the pathogen because the bacterium is also found in the waste of other animals," said Kathryn P. Sutherland, associate professor of biology at Rollins College.

In order to determine a source

for the pathogen, the research team collected and analyzed human samples from the wastewater treatment facility in Key West and samples from several other animals, such as Key deer and seagulls. While *Serratia marcescens* was found in these other animals, genetic analyses showed that only the strain from human sewage matched the strain found in white pox diseased corals on the reef. The final piece of the investigative puzzle was to show that this unique strain was pathogenic to corals.

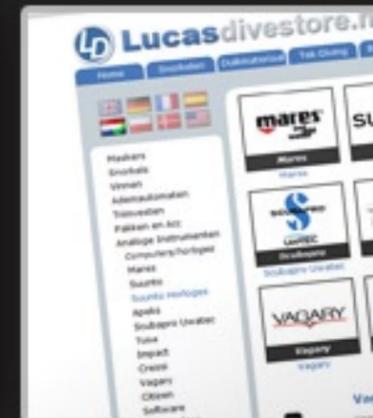
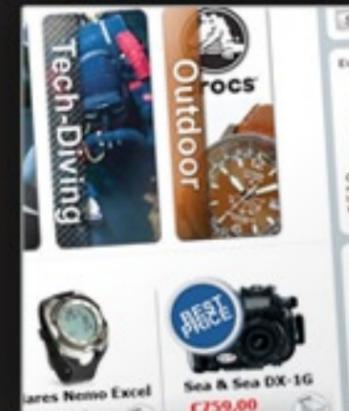
"The strain caused disease in elkhorn coral in five days, so we now have definitive evidence that humans are a source of the pathogen that causes this devastating disease of corals," Sutherland said.

"These bacteria do not come from the ocean, they come from us," said Porter. Water-related activities in the Florida Keys generate more than \$3 billion a year for Florida and the local economy. "We are killing the goose that lays the golden egg, and we've got the smoking gun to prove it," Porter said. ■



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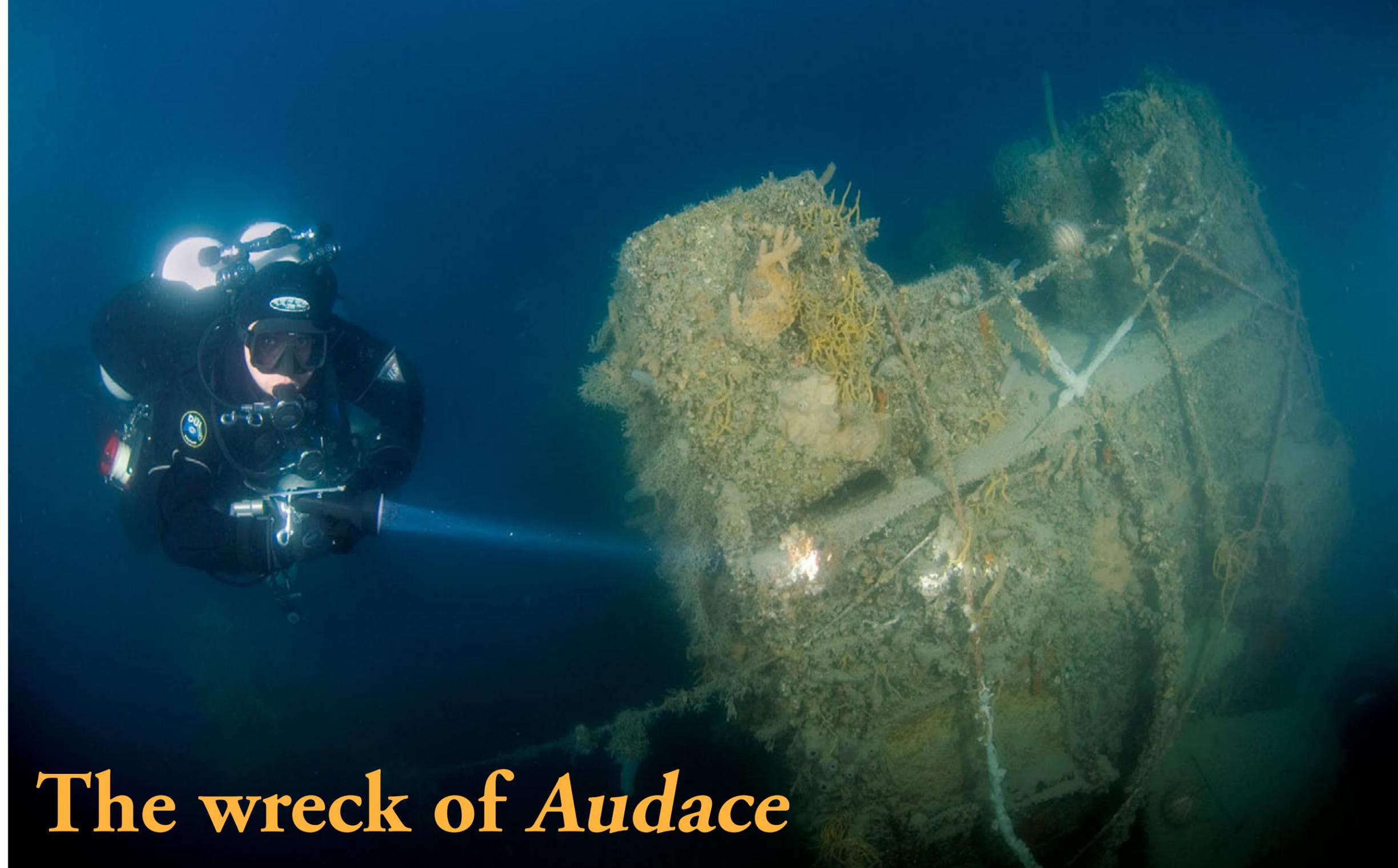
Written by Massimiliano Canossa
Historical consulting by Cesare Balzi
Underwater photos by Federico
Mattiello and Massimiliano Rancan
Translation by Gioele Pesenti

Captured in Venice by the Germans in September 1943 and renamed *TA-20*, the *Audace*—formerly an Italian destroyer—sank in the Adriatic Sea near the north of Zara (now Zadar, Croatia) on November 1 during a battle against British units. During the exploration of the wreck, the Nautica Mare Dive Team (NMDT) acquired a lot of images and important information on this vessel.

Groundwork

It was August 1999 when for the first time I read an article written by Pietro Spirito about “Il piccolo” of Trieste. The article discussed the discovery of a wreck by a group of local divers. It was the Italian destroyer, *Audace*. I stored the page carefully with the intent to look deeper into the story of this ship.

Ten years later in 2008, I was in Croatia to explore some wreck with the project Adriatic Exploration 2008. The target of this mission was the Austro-Hungarian steamships, *Albanian* and *Euterpe*, off Pag Island.



The wreck of *Audace*

Local fisherman told me about a German wreck called *TA 20* that sank in the area and could be found at a depth of 80m. It was not a famous wreck, and it was not a common dive site for the local diving community. But we still had couple of days left, so we started to search for the *TA 20* without success.

On the second day of our search, the echo-sounder showed something. We decided to go down and check it out.

At the bottom, the conditions were very bad—poor visibility and strong current. However, we did see a wreck—crusted over, armed and laid on its left side. It was the *TA 20*. The information we had was correct.

We had just enough time to take a few photos, and after ten minutes, we decided to come back up. The weather conditions continued to not be so good, so we stewed in Italy with a bad taste in

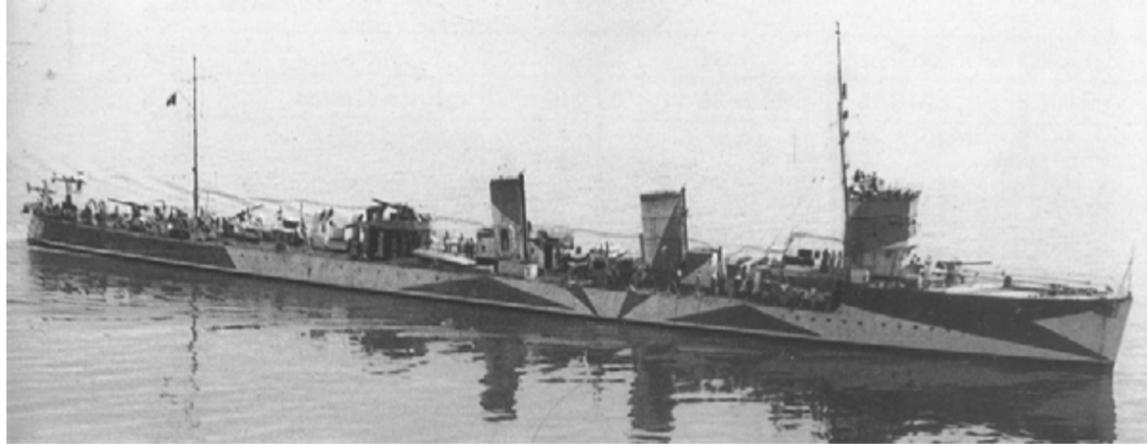
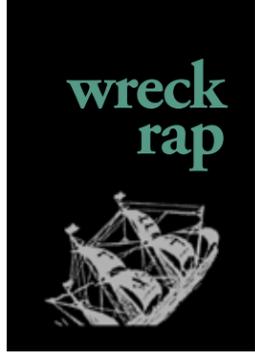
our mouths.

Right away, I decided to do some historical research, which led me to the realization that the *TA 20* was simply the ex-Italian destroyer, *Audace*. The article by Pietro Spirito ten years earlier confirmed my thoughts. There was no underwater image of this wreck, so I alerted the NMDT guys to this, and in a few days, we had a team of eight divers ready for this new adventure.

History

Audace's history is a singular and interesting one. During WWI, the Japanese Navy ordered ships from foreign countries in order to acquire new technologies. With this goal in mind, the Japanese ordered two destroyers, called the *Kawakaze* and the *Urakaze*, from the Yarrow shipyard in Glasgow, United Kingdom.

Construction was delayed due to a



LEFT TO RIGHT: Trieste quay plate *Audace* (left); *Audace* sails with camouflage in 1942 coll. Bagnasco; September 1943 *Audace* in Arsenale in Venice



with 12 of those extending to upper deck.

Unity was equipped with two mine sweepers of the C kind, eight bombs and one tow-torpedo called "Ginocchio" fixed to the stern of the ship. It was a very good ship, with a long cruising range and good nautical quality.

On 9 June 1917, *Audace* was in Naples to finish armament. In March of the next year, it was in Brindisi, when the navigation convoy of the submarines *H1* and *H2* arrived from Canada.

Throughout WWI, *Audace* operated in the Adriatic Sea.

Audace's most important feats were accomplished in November 1918. In fact, it was the first ship to land in Trieste on 3 November 1918, and on November 7 for the landfall in Zara, with the Italian army aboard as well as food for civilians. On November 10, *Audace* landed in Trieste with King Vittorio Emanuele III aboard as well as the field marshals, Armando Diaz and Pietro Badoglio. The quay there is still called *Audace* quay.

In Seberica on 23 December 1918, the unit rescued the British steamship,

Queen Elizabeth, which was damaged by a mine in the area of Punta Maestra. From 1919 to 1921, *Audace* operated in the north Adriatic.

In 1923, it was serviced in Tripoli, and in August, it was deployed on a secret mission with a crew of the

Allied Forces on board.

In 1928, *Audace* came back to Taranto as a flagship and was used for a training exercise in the seas around Greece. During the civil war in Spain, *Audace* was active in some offensive actions. From 1940 to 1943, *Audace* was

designated a school ship in Pola.

During this time, the vessel was also used as an anti-submarine and escort ship, especially in 1942.

At the time of armistice promulgation, *Audace* was in Trieste and left the harbour for Venice. From here, she moved



Diver on main deck



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CLOCKWISE FROM FAR LEFT: Diver on the main deck; Depth bombs on *Audace* wreck; Wreck positions on map; Post dive break; Profile of *Audace* from 1918 to 1943

Audace



TECHNICAL DATA OF TA20 (ex-AUDACE)
 Shipyard: Yarrow of Glasgow, Scotland (United Kingdom)
 Ordered: October 1, 1913
 Launched: September 27, 1916
 Delivered: December 23, 1916
 Displacement: 1250 tons and 1364 tons at full load
 Armament (under Regia Marina): 450 4xLS in plants combined, 7x102/35 single individual 2x 40/39 singular
 Armament (under Kriegsmarine): 2x102mm/45, 2x37mm Breda, 6x20mm/65
 Engine: Yarrow boilers superheated steam 2 turbines Curtiss-Brown - 22000 HP - 2 propellers
 Speed: 27 knots effective (maximum 30 knots)
 Fuel: 252 tons naphtha
 Range: 2180 miles at 15 knots and 630 miles at 30 knots
 Dimensions: Length, 87.59m; width, 8.38m; height, 2.50m at the bow and 2.89m aft
 Crew: 5 officers and 113 sailors

to south Italy, but had to go back due to engine failure. During the German occupation in Venice, she was captured and renamed *TA20*.

Expedition

Our departure was set for the first week of July. Meanwhile, I tried to find out more about the actual condition of the wreck. With no underwater pictures to be found on the Web, I was worried about it, because I knew that in the area of the wreck, there was a lot of trawling activity, which makes visibility very poor—close to zero, I would say.

In addition to myself, the expedition team was composed of three photographers, two video-operators and two safety divers.

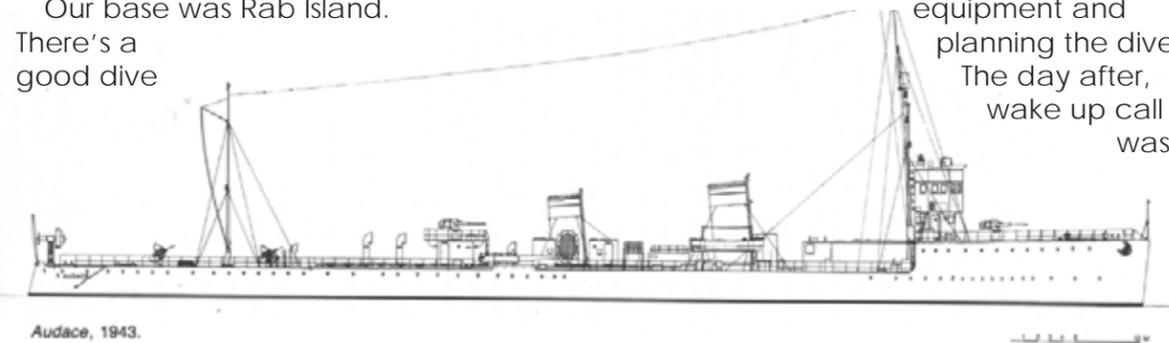
Our base was Rab Island. There's a good dive

center there. We left from Italy with 15 50lt cylinders, helium and oxygen charged, since it's hard get gases on the island. All divers were equipped with 18-liter twin cylinders and three deco bottles. Each diver brought his own equipment.

As a team, we decided to also make our deco station big enough for all divers to use, in case of emergency. It was composed of three bars and four polyform bags, and could accommodate recovery of eight divers simultaneously. Within the set-up, nitrox and oxygen bottles were also placed at 21 and six meters.

On June 28, we arrived in Kompar—a little fishing hamlet on Rab Island. The rest of the day was used to set up the equipment and

planning the dive. The day after, wake up call was



Audace, 1943.



at dawn. We would have only two divers dive with the task of identifying the wreck point, mark it with a buoy and get information about dive conditions such as current, visibility, wreck state, nets, etc.

The boat used for the expedition was very comfortable, and we could set up all our stuff nicely. After a few hours of sailing, we were at the alleged wreck site. The fish finder showed 80m of depth. We dropped a dead weight with the hopes of hitting a ship wreck. Federico and I were the divers on this day.

The current was strong and visibility was less than two meters. The dive mix was a Tx 15/55; deco mixes were Ean 50, O₂ and Tx 20/30 to be used for the ascent

at 57m. We were not lucky. The dead weight landed on the muddy bottom. So, we knotted the reel line to the main string and started to search the site.

After ten minutes, I thought I saw a dark shape. I called Federico who had a large grin which made me realize that he had seen it. The agreement was to lift a yellow buoy if everything on the site was fine, but the conditions were very bad, so I decided not to lift anything. We used the rest of the time to bring the dead

HMS AVON VALE AND HMS WHEATLAND
 Shipyard: Yarrow Shipbuilders Ltd. (Scotstoun, Scotland)
 Kind: Escort destroyer
 Class: Hunt (Kind II)
 Launched: 7 June 1941
 Displacement: 1050 BRT
 Length: 85.3 m
 Crew: 164 men
 Armament: 6 4" AA (3x2) 4 2pdr AA (1x4) 2 20mm AA (2x1)
 Speed: 29 knot
 Power: 19000 HP



TOP TO BOTTOM:
102mm cannon
on the bow; One
of the six lateral
20mm cannons;
Diver and propeller
at 80m depth

weight over and tie it to the wreck. I noticed a large cannon of 102mm, so I also made a line from it to the ship's stern. Federico placed some direction markers for our return and the next few dives. Then, we started our ascent.

Before leaving water, we fixed a big buoy at 5m and at the water's surface—a little bottle, hoping that the weather condition would improve in the next few days.

Destroyer TA20

TA means *Torpedoboote Ausland*, which is a foreign destroyer. The initials, TA, were then followed by an identification number to identify the ship. All these



ships were big or small destroyers, or torpedo-boats, captured by Germany during the war and then incorporated



into the Kriesgarine. Most of them came from the Regia Marina captured after the armistice of 8 September 1943 and used in Adriatic Sea.

Audace was renamed TA20 and was used as coverage ship and minelayer. Until the end of 1944, it performed some missions against Yugoslavian partisans

flanked with *Niobe* (ex-*Dalmazia*) and torpedo boat TA21 *Wildfang* (ex-*Insidioso*) and TA22 (ex-*Giuseppe Missori*). On 26 October 1943, Italian partisans informed the the British commander, Morgan Gilles of Royal Navy, about some German dispatches moving from Zara to Rab Island transporting troops.

On 1 November 1944, two British Hunt class destroyers, *HMS Wheatland* and *HMS Avon Vale*, were patrolling the area off Losjini, when they received information of the enemy presence.

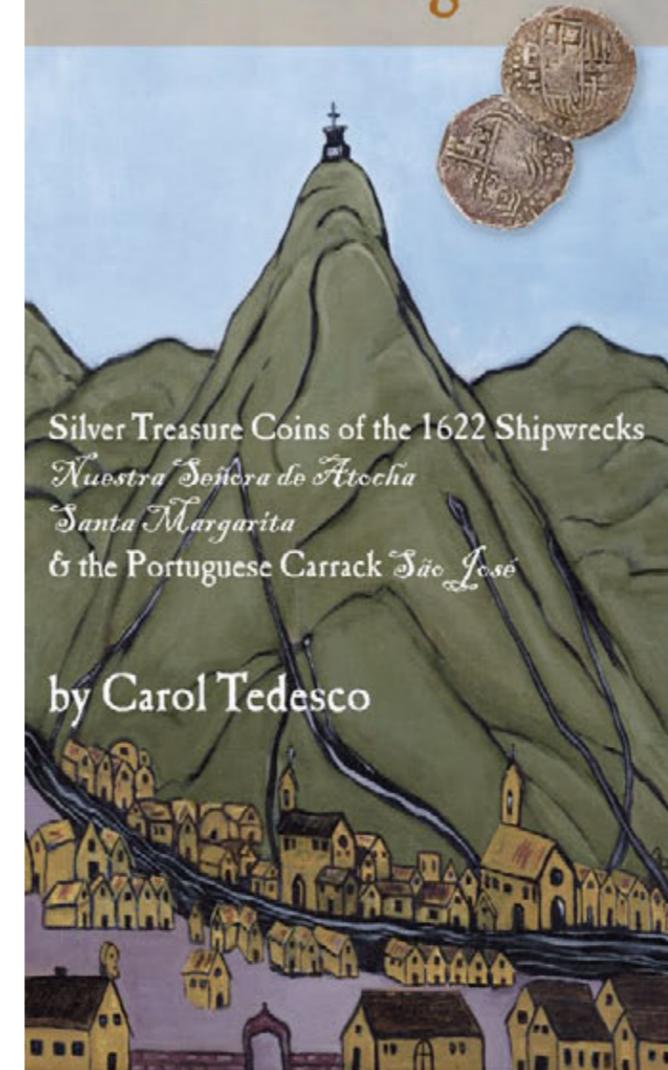
At 19.50, reports came in that two large ships sailing south were the sub-hunters, UJ202 (ex-*Melpomene*) and UJ208 (ex-*Spilgarda*). British destroyers stopped patrolling actions, and instead,

targeted the German convoy. After 20 minutes, German ships were within range, and the British opened fire at a distance of 3,600 meters.

The Germans answered, but in less than ten minutes, were seriously damaged. When the first corvette sank, the *Avon* started to rescue the German

Audace

Pieces of Eight



Silver Treasure Coins of the 1622 Shipwrecks
Nuestra Señera de Atucha
Santa Margarita
& the Portuguese Carrack *São José*

by Carol Tedesco

Fully illustrated with hundreds of finely detailed photographs, *Pieces of Eight* is more than just a reference book. Carol Tedesco not only explains the subtle nuances of the coins themselves, but places them in the context of their moment in history, explaining where they were coming from, where they were going and why.

To be released in 2010 by
SeaStory Press, Key West Florida.
To be on our availability e-mail alert list,
please inquire at lostgalleons@aol.com.



sailors still alive. Suddenly, *TA20* appeared on the battle field and opened fire against the British ship, which quickly returned fire on the Germans.

The *TA20* crew realized their dire situation and decided to retreat, but after only a few minutes of fighting, the German destroyer was seriously damaged and sank.

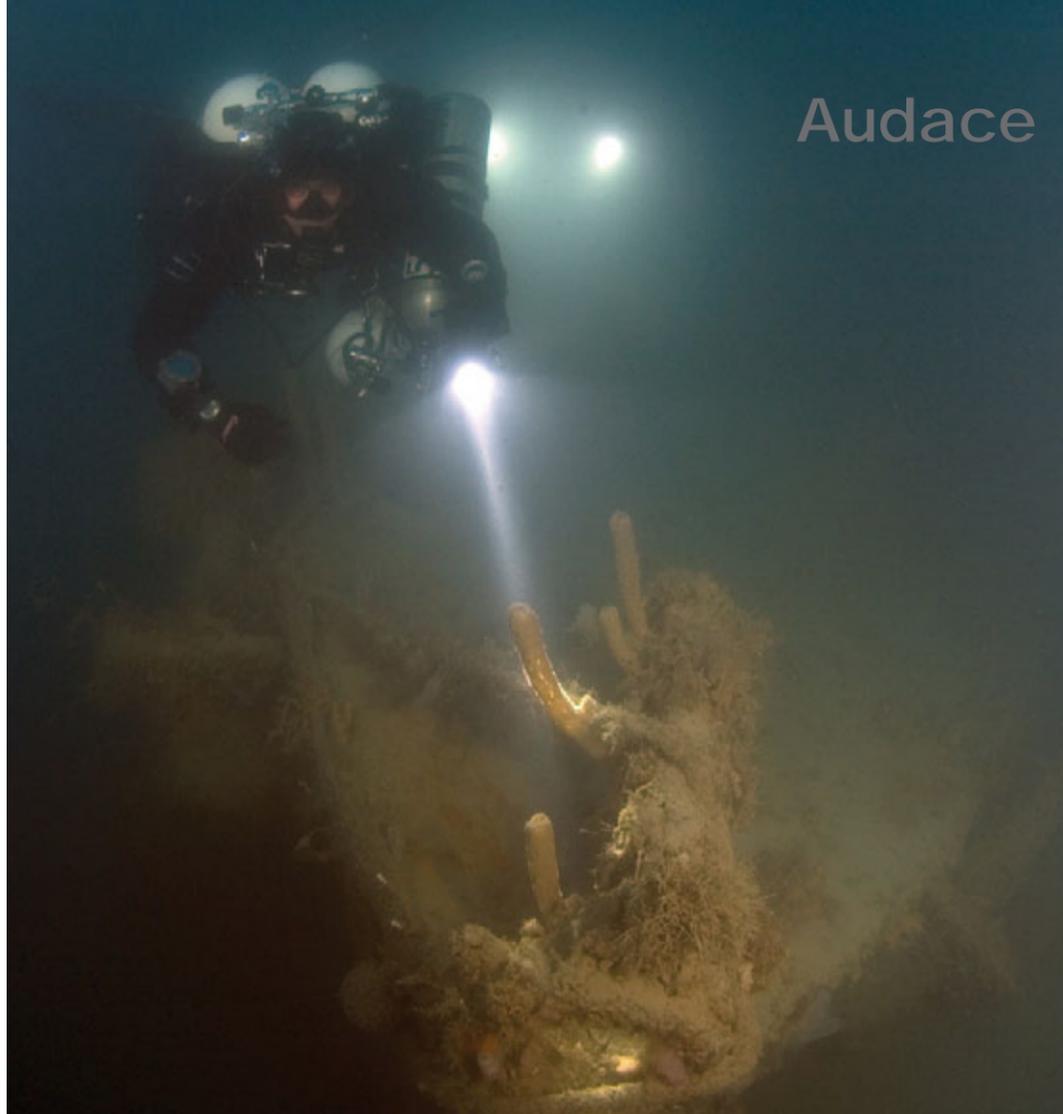
The last hour of *TA20*

Information on the last hour of *TA20* was provided by Michael Brezze, whose father was on *TA20* as chief engineer.

"At the time of the attack, my father was in engine room, so he could not see what was happening. But he realized that shots hit the main deck first killing all the commanders



TOP TO BOTTOM: Divers on 102mm/45 stern cannon; Divers on the bow; Compass basement of the main deck



Audace

and officers. A second blast hit the engine room and hurt my father seriously."

After the sinking, *Britannic* picked up 71 survivors, and the day after, Germans picked up another 20. The last operation of *TA20* before it sank was an action against a liquor factory in Seberico and Zara.

The dive

On the second day, the conditions and the weather were perfect. The deco station was installed correctly by Luca, Leonardo and Nicola. Massimiliano, Federico and Livio donned their equipment and started the dive. Maurizio and I jumped in after the first group.

At the beginning, the conditions seemed good, the vis was good. But after 40 meters, there was turbid water. Upon arrival on the wreck, I

started filming. I noticed the cannon of 102mm, which was lined the day before, and moved out to the starboard side. There were arms still in position and completely rusted; these were the six 20mm canons, for sure.

Descending to the propeller, visibility was poor—about 5m—and the idea of a free ascent with this bad visibility and the current made me pensive. "With this strong current, the boat will have serious problems to board us," I thought.

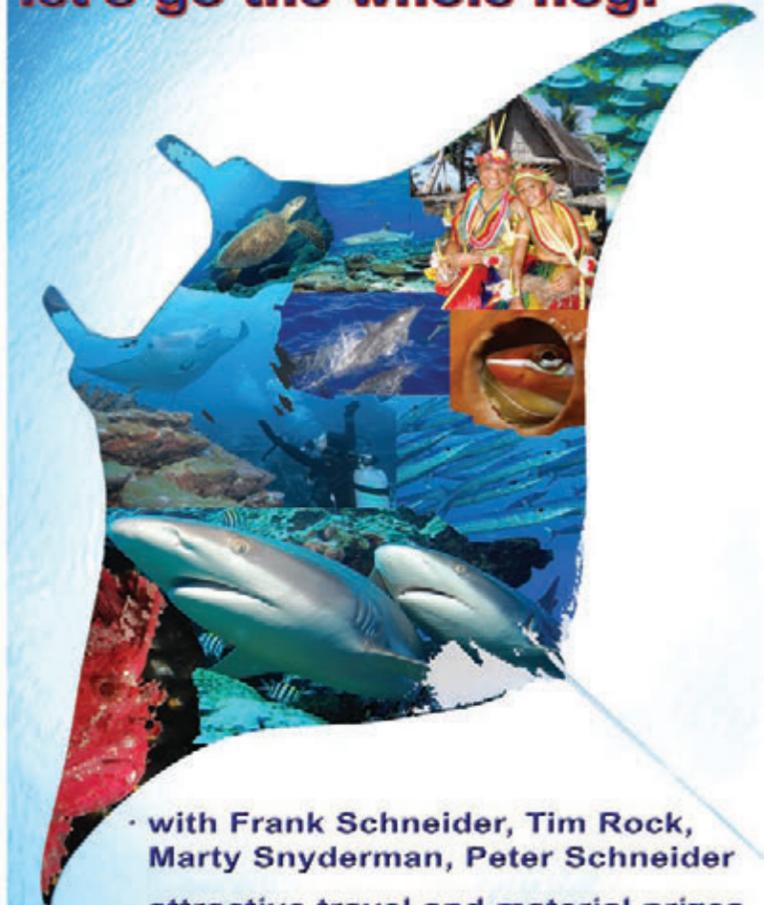
I checked my bottom time and signaled my buddy; it was time to go.

While ascending, I tried to identify and count the lateral arms to confirm our "dry" research. Arriving at the ascent rope, I decided to do a quick exploration of the forward area. There was only one point to go inside. The sub construction on the main deck was fantastic—I could see

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wreck rap



Group photo of Nautica Mare Dive Team



the basement of the compass. Maurizio pointed out to me that time was up; we started ascent. During decompression, we met the other team set to explore the bow area.

At the harbour, the hard job of unloading the boat and refilling the gas tanks was waiting for us. I arrived in my room exhausted but happy to be among the first to document the *Audace* wreck.

The day after ran quickly, and the underwater photographers shot some good images. The night before the last day, I noticed in Livio's video a couple of slides probably used to place mines or depth bombs. We planned the next dive with aim to document this device, which was not mentioned in available books and documents.

The result of the planning was 35 minutes more on the bottom—yes, we were at the limit of safety with the gas supply, but it was necessary to find the ordinances and document them.

My job in this last dive was to find details and evidence helpful to reconstruct the tragic event—the gash which caused the sinking was still not found. I patrolled all around the starboard side of the ship, from bow to stern, but found nothing. Just a little hole was discovered by Leonardo, but it was too small to sink a destroyer like *TA20*. We deduced that the ship was hit on her left side, which now lay on the muddy bottom. Luckily, the other team, led by Massimiliano and

Federico, recognized a shot of the depth bombs, which were almost completely covered on the sea floor.

These bombs were lowered into the sea with the stern slides and a timer which allowed them to explode at the desired depth.

Nicola's team was waiting for me at the ascent line; they were responsible for releasing it. Our connection with the *Audace* was gone. It slipped quickly beneath us—the shape become a shadow and then just an illusion in the blue. This image made me think about all the dead sailors and that, probably, many of them were still in the *Audace*.

Once out, we were glad, aware of the good job done. Neither of us had time to get out of our drysuits before Livio had organized the equipment boxes into a table decked with panbiscotto, soppresata veneta and great bottles of prosecco. ■

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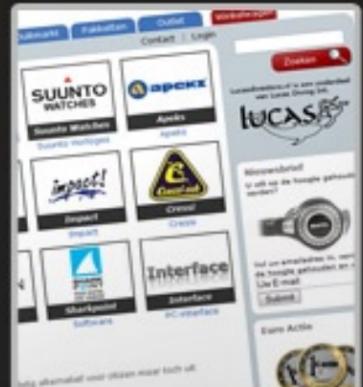
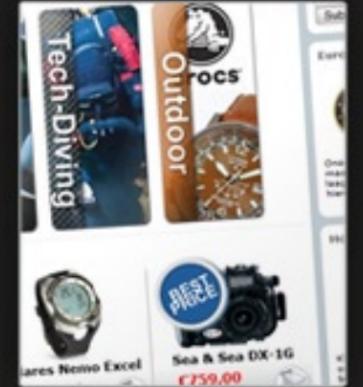
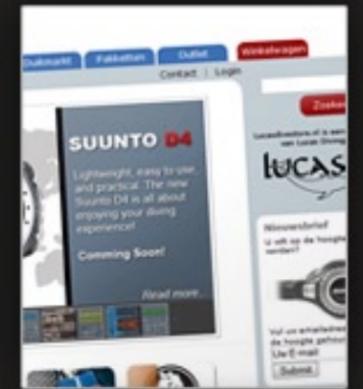
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NAUTICA MARE DIVE TEAM
Expedition organizer, Massimiliano Canossa (IANTD Trimix and Wreck Instructor), took part in the project with photographers, Federico Matiello, Nicola Boninsegna and Massimiliano Racan; video-operators, Leonardo Belloni and Livio Loniti; and safety divers, Maurizio Maiocchi and Luca Preazzolo. Nautica Mare Dive Team (NMDT) is composed of technical divers with a passion for wrecks. The team is head-quartered in Verona and has been working in northeast Italy since 1996. It's also a IANTD Technical Training Facility and instructor training centre, which offers technical courses and cave diving certification. They often organize expeditions to the most important wrecks. For more info, visit: www.nmdt.it ■



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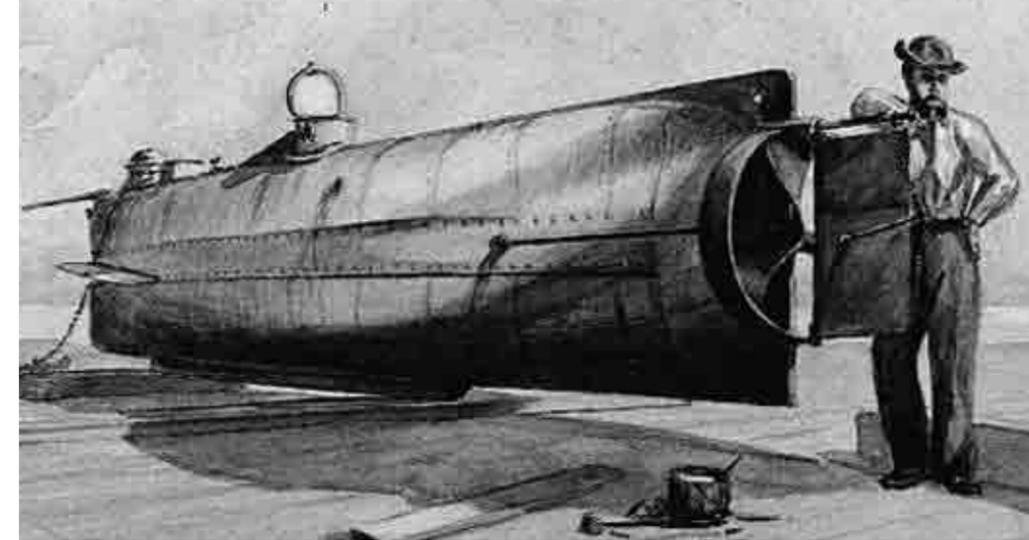


H.L. Hunley is rotated upright—‘stealth-like’ craft now visible

—Confederate submersible was first of its type to sink an enemy ship during warfare.

The Confederate submersible H.L. Hunley has finally been placed into its original upright position in the climate controlled tank at the Warren Lasch Conservation Center in North Charleston, SC. History records the Hunley as the first submersible to sink an enemy ship during warfare. Departing Charleston Harbor late in the evening on February 17, 1864, she stealthily approached the U.S.S. Housatonic, a Union blockade ship preventing ships from entering the harbour. A 135 lb. torpedo attached to a 150' detonation rope was fired into the Housatonic's side, sinking it in less than five minutes. Upon rising to the surface to flash a signal to the crew waiting on shore, the Hunley sank beneath the waves, where she remained for over a century. Before that final voyage, two previous attempts had been made to pilot the Hunley; the first on August 29th, 1863 and the second on October 15th of the same year. Although three men survived the first attempt, all eight were killed in the second, including Horace L. Hunley who had first envisioned the concept of the submersible.

The vessel was discovered in 1995



by Clive Cussler along with the National Underwater and Marine Agency, a private group funded by the adventure writer and marine archaeologist. Since that time, various efforts commenced in order to raise the vessel to the surface and ascertain what happened to the crew. The 39-foot submarine was resting at a 45-degree angle on its starboard side when salvage operations commenced in August 2009. Due to more than 100 years worth of sediment build-up in the interior along with the remains of the eight crewmembers, it was decided that a full examination should be initiated prior to making any attempt to right the seven and one-half ton vessel. Initially held in place by large slings, it took two days to accomplish the craft's shift in position. Moving in micro steps of two millimetres a day, the repositioning was finally accomplished, providing scientists and conservators with the first glimpse of the Hunley's long-hidden hull. With no visible damage in evidence, scientists are continuing their search for the cause of the sinking.

According to Kellen Correia, Executive Director of the Friends of the Hunley organization, "Seeing the Hunley right side up has given us a whole new view of it – it looks stealth-like now. It's hard to realize that over a half million people have come to see the Hunley in the last ten years," she related, "and we

hope that the new positioning will bring even more to our facility." Ms. Correia continued that "within the next two to four weeks, the trusses will be completely removed" from the vessel, although what the ultimate preservation process will be is not known at this time.

When entry was made into the boat upon its raising, the remains of the eight men were found intact, each at his station, in a seated position, with no indication that they had fought to get out or near the opening. It is thought the attack on the Housatonic and its resulting concussive shock wave rendered the Hunley crew unconscious, where they remained as the oxygen was dissipated by their breathing and the lit candle. Another theory is the arrival of a Union vessel coming to aid the Housatonic may have also damaged the vessel. Further examination may reveal the final story, although examination of the crew's remains has given no conclusive results. The little submarine may never sail again, but the contributions of the vessel and its crew will provide scientists and historians with ample food for thought for many years to come.

The Warren Lasch Conservation Center is located at 1250 Supply Street, (old Charleston Navy Base), North Charleston, SC; its number is (843) 743-4865.

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Edited by
Scott Bennett



Flight Seat Guide

A new iTunes application called, Flight Seat Guide, is an application by Christopher Conner that helps air travelers find and select the best airline seats available through various websites such as SeatGuru, Seat Expert, Best Plane Seat and Tagtag.com.

With features such as landscape mode for easy reading, activity indicator display to show pages loading and free updates, users can get quick access to seat information via an iPhone or iPod Touch with Internet connection. Cluttering your desktop is not longer necessary to check travel sites or save multiple links.

Access Seat Guru's tables which compare seats in the fleets of over 100 airlines, rating seats from good to average to bad with color-coding and listing width and pitch as well as in-flight amenities such as loca-

tions of power ports, galley and restrooms. While Seat Expert offers seat information from over 58 airlines around the world with ratings of best and worst, Best Plane Seat offers seat information from 23 airlines listing best rows and seats.

The Flight Seat Guide application also provides quick access to toll free numbers of major airlines through Tagtag.com. Visit: www.quirkphoneproducts.com ■

Grenada to Commemorate the 50th Anniversary of the Sinking of the *Bianca C*

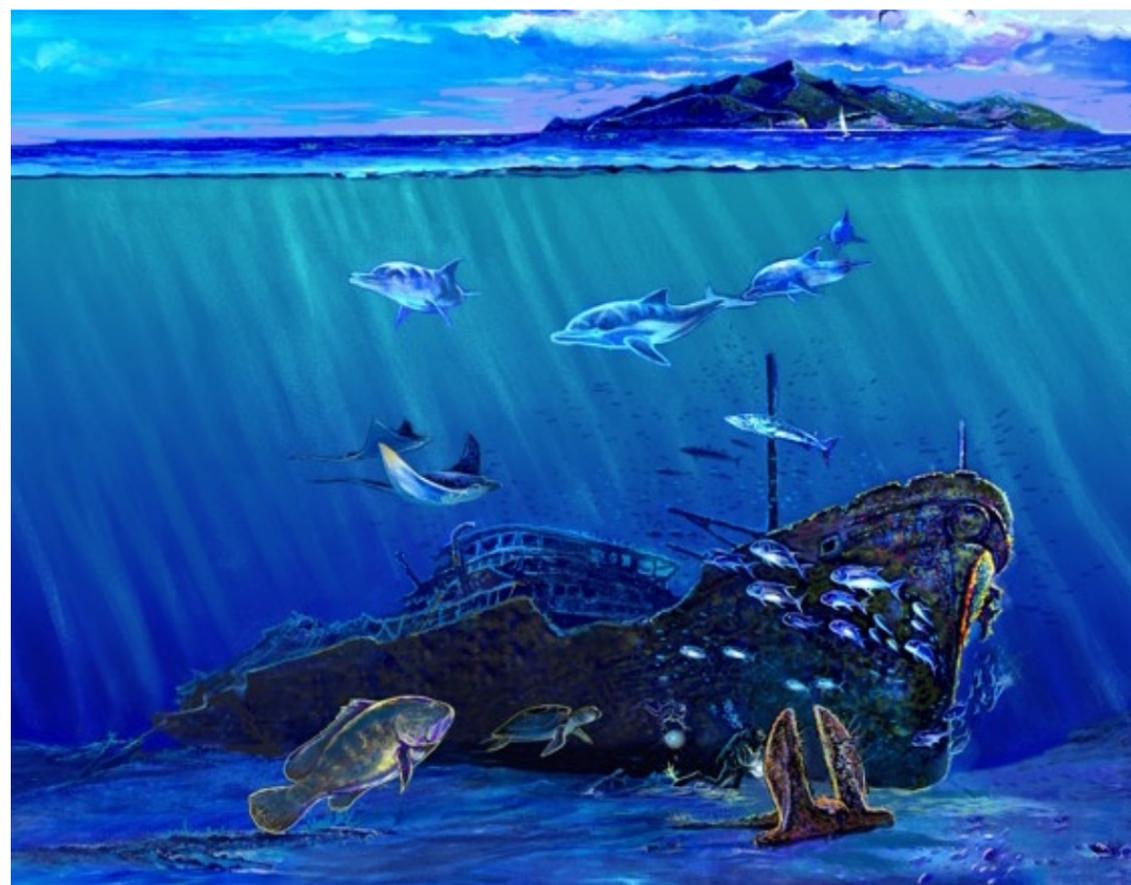
The date, 22 October 2011, will mark the 50th year since the cruise ship *Bianca C* sank in Grenada's waters. Over the years, this sunken treasure has earned the reputation among seasoned divers as the 'Titanic of the Caribbean'. This designation, along with the spectacular marine life that prevails within Grenada's coastal waters, has made this Caribbean island one of the premiere diving destinations in the world.

One of Grenada's most famous dive sites is the *Bianca C*, and it is one of the top-ten wreck sites in the world. The 600-foot-long cruise ship sank near St. George's Harbour on 22 October 1961 and today sits upright on her keel in 165 feet of water. The *Bianca C* is an internationally recognized site for advanced divers who come to explore

the intricate details and swim in one of the site's well-known highlights, the swimming pool on the upper deck.

Grenada and Curaçau have more than 50 dive sites, varying in depths and complexity from 20 feet to 200 feet. Grenada is home to the world's first underwater sculpture park created by Jason de Caires Taylor in Moliniere Bay. Whether you're looking for a tranquil experience or something more adventurous, Grenada has something for all dive and snorkel enthusiasts.

"Diving in Grenada is an unforgettable experience. Our waters are home to many shipwrecks and abundant marine life, including large schools of fish and undisturbed coral," said Simon Stiell, director of tourism for the Grenada Board of Tourism. "We encourage divers



and snorkelers to visit and explore this beauty and history for themselves."

As the 50th anniversary of this event approaches, the Grenada Board of Tourism is planning commemorative activities that will highlight the hospitality that was showcased when the Grenadian people opened their doors to the affected passengers and crew. The weekend will also include the following activities.

Friday October 21

- Presentation of two plaques at the Christ of the Deep statue on the *Carenage*
- The opening of the new *Bianca C* Exhibition at the Grenada National Museum

Saturday October 22

- Laying of the first plaque on *Bianca C*
- Various PADI training courses done simultaneously
- A church service

Sunday October 23

- Laying of the second plaque at the
- Under Water Sculpture Park where a second statue of Christ of the Deep is being unveiled

- An exhibition at Camerhogne Park featuring the latest works of nautical art

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CDWS

The Chamber of Diving and Watersports was founded by Egypt's Ministry of Tourism (MoT) in 2007 with the goal to improve quality, safety and standard of services in the diving and watersports industry, as well as to preserve the unique environment of the Red Sea. CDWS membership is a "must" to obtain MoT license to operate in Egypt and that won't change since it is the law, and all 365 licensed dive centers, 165 safari boats and 80 water sports operations are members in CDWS. If an operation is not a member of CDWS, it is operating illegally. ■

Red Sea diving organization hit hard by financial cutbacks

Text by Arnold Weisz

The Chamber of Diving and Watersports (CDWS) was severely hit by cutbacks in their funding. The Egyptian Ministry of Tourism (MoT) decided to redraw their fund leaving the organization to substantially reduce their staff. This also results in that some of the previous responsibilities of the CDWS, such as quality control, inspections and technical standards are shifted to the Egyptian Ministry of Tourism (MoT).

As of 1 July 2011, the responsibility for inspections are leaning on the MoT, and

the CDWS does not carry out inspections anymore. According to CDWS' managing director, Zeyad M. El Bassel, CDWS has inspected all operations during the past three years, which include all 379 diving centers, 180 safari boats and 80 water sports centers. We asked El Bassel not only about the recent events, but also about serious allegations made against the CDWS:

AW: Due to the recent redraw of Ministry of Tourism (MoT) funds, is the CDWS still operative, and in what capacity?

El Bassel: Yes, CDWS is still operative similar to all the other four tourism chambers in Egypt. CDWS membership is a "must obtain" license to operate a diving, water sport or safari operation in Egypt. Its function is to focus on members' services, marketing and environmental protection. All functions that have to do with quality control, inspections and technical

standards are now to be carried out by the Ministry of Tourism (MoT).

AW: When did the CDWS first inform its members about the financial cutbacks, made by the MoT?

El Bassel: The Ministry decision was a surprising, sudden one. As soon as it was confirmed by the Minister during a meeting with him and his staff, the CDWS sent a circular to all members on 2 July 2011.

AW: What is the reason for the sudden and massive redraw of funds by the MoT?

El Bassel: It is simply due to a change in MoT policy, from depending on CDWS for the technical issues, inspection and quality control to the MoT transferring these activities to itself.

AW: How many CDWS employees have been dismissed?

El Bassel: Our staff members have been reduced from 57, in all three branches, down to 24.

AW: If still in operation, how will CDWS fund the continued operations?

El Bassel: Similar to all other chambers, CDWS will depend on its own resources, which are the membership fees.

CDWS has had an important function in regulation the diving and water sports industry in Egypt. It is now up to the MoT to continue this work, and with the current political situation in the country, it remains to be seen if the government



PETER SYMES

is up to the task. El Bassel explains to us that during the last three years, only 14 operations failed to meet the technical and specification requirements of the Ministry of Tourism out of 379 operations in Egypt. It is also important to elaborate that such operations that failed were inspected more than five to seven times and with Ministry of Tourism inspectors as well as CDWS inspectors. They were also granted many chances over a period of more than a year to comply with the standards and requirements. When it was apparent that they did not comply, the Ministry of Tourism cancelled their licenses, not the CDWS.

Serious legal allegations

During its four year existence, the CDWS also has suffered from alleged corruption and misconduct by some diving and water sports businesses. And there have been attacks on the organization in several Internet forums.

AW: There have been allegations about corruption within the CDWS!

El Bassel: These are the rumors. If there were any corruption cases, they would have been investigated by the authorities or MoT. There has been no such thing at any time. These rumors have been spread by the illegal operations that were hammered heavily by the work of CDWS

during the last three years.

AW: Are you aware of any such activities within the CDWS or by any members of the CDWS board?

El Bassel: No way. There has been no corruption at any time—just many untrue rumors.

AW: Are there any pending court cases against the CDWS?

El Bassel: No. There are seven court cases against MoT, joined with CDWS, by operations that lost their MoT licenses asking to be legally allowed to obtain their licenses back. These court cases are mainly against MoT, since the MoT is the state department that issues and cancels the licenses.

AW: Since there are many rumors going around, why hasn't the CDWS responded with official press releases to avoid such uncertainty?

El Bassel: CDWS is member-focused, and did send them updates by circular emails, but I have to say that official statements are not as appealing as rumors. Unfortunately, these circular emails were not posted on the website, and there is no reason for this, except that it was simply overlooked! ■



PETER SYMES



Bikini Atoll re-opens to Scuba Diving

After a three-year closure, Bikini's world-famous lagoon and its fleet of sunken World War II vessels are now open to scuba divers. Bikini Atoll Divers in conjunction with Indies Trader Marine Adventures has announced the re-opening of Bikini Atoll, named by the United Nations as the Marshall Islands' first World Heritage Site in 2010.

Since the unreliability of the government airline prompted the atoll's closure in 2008, visitors now arrive by Daly's liveaboard vessel, *Windward*, from Kwajalein Atoll Airport. The voyage to Bikini is 215 nautical miles, 65 miles in the sheltered waters in the lee of Kwajalein Atoll and 150 miles of open seas from the northerly point of Kwajalein to Bikini. The open seas leg takes approximately 18 hours and the sheltered leg is seven hours.



Windward

The entire trip takes about 25 hours depending on sea conditions and current. The season runs from mid-May to early November.

For additional information, contact: saratoga@ntamar.net ■

British Foreign Office trials emergency SMS service

Vodafone teams up with Foreign Office to trial emergency text messaging service for Britons overseas.

The British Foreign Office (FCO) has launched a new trial service delivering emergency text messages to anyone on Vodafone's network when they are abroad. Over a 12-month test period, free texts will be sent to Vodafone's customers in countries experiencing major crises such as natural disasters or civil unrest.

"The recent consular crises in Libya and Japan have demonstrated the need to deliver live travel safety messages to as many people, as quickly as possible," stated Foreign Office Minister Jeremy Browne. "We hope in the future we will be able to roll out this service with other mobile network operators and mobile providers."

The FCO will soon have the ability to send text messages to British Nationals registered on the crisis database.

"As well as this we're also exploring the delivery of important information through a range of mobile and online tools, including smart phone apps, a travel advice site for mobile phones and making effective use of social media and digital tools," Browne added. ■



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