The 24-Hours Dive Story

By Michael AW

As I suited up for my 7th dive, the storm arrived. Lighting flashed the diabolic sky, thunder roared in the distance. An un-seasonal monsoon unfurled sheets of rain onto the Coral Princess's dive deck. Leo, my videographer from Spain seemed in predicament as wind howled and swells rose. Beyond the curling crests, the sound of an approaching Boston Whaler signaled of a returning dive team. It's 4am on April 11 and I wondered why in the world that 45 sensible people from thirteen countries would want to join me for a 24-hour dive on a submerged reef in the Indian Ocean. What could have compelled them to this insane sojourn?

The idea for a 24-hour dive began in December 1994 when a production house approached me to consult for a documentary based on a day in the life of the Great Barrier Reef. For the final edit, I was given 3 hours of footage comprising of the coral spawning process, whale sharks, tiger sharks feeding behavior, exquisite sequences of reef fishes, a collection of footage captured over 3 years at varied locations. The result was a one-hour documentary cleverly fabricated to represent the ecology of a coral reef over a 24-hour period. The finished program is of course a make believe kind of a 'perfect day' on the reef. No footage of sunrise? No problem, they recorded a sunset sequence backwards. I was not amused, thus the idea of really documenting the life within a coral reef continuously from noon to noon evolved. I wanted to dwell within the realm of an underwater metropolis, to learn about the lifestyle, who lives there, how they live, where they live, who are the early risers, who's sleeping with who, who's eating who, so to speak, what makes their world tick and how it ticks. That's how the quest began and it all seemed to be a good idea with a good intention.

Diving continuously for 24 hours on open–circuit scuba was not only humanly impossible and the implication of extended exposure was hazardous. One can get seriously sick, never to dive again. However with the advent of Nitrox into the recreational dive industry in 1995, a few crazy photographers, marine scientists, with Richard Nicholls, Sue Crowe, Chris Taylor, Merridy Cairn-Duff, Nick Tonk, Dr. Carden

Wallace and I, were the first to successfully pull off the feat on a reef called 'Temple of the Doom' in Australia's Great Barrier Reef. The book METAMORPHOSEA was published in the same year to record the event. Each of the principal photographers accumulated about 14 hours dive time breathing 40% oxygen-enriched air. The exercise was tested and now I sought an opportunity to do it again, this time on a much bigger scale.

17th March of 98, during the last leg of our shoot for the documentary "Dreams from a Rainbow Sea", we arrived at Maaya Thila. This submerged reef is specially noted as one of the top three-dive sites in the Maldives, a marine protected area declared by the country. Solidly built Grey Reefs patrolled the outer realm with an entourage of Rainbow runners, while White-tip sharks, tunas and jacks played havoc with blue and yellow fusiliers. The density of fish life was extraordinary. Curtains of anchovies dispersed and regrouped to form a variety of shapes stealing the show from the Grey sharks and companions. Schools of Blue-lined snappers and Batfish hovered around black coral trees, while in the blue Vlaming surgeonfish chewed on divers bubbles. Blue-faced angelfish, Clown triggerfish, Blue triggerfish, Dog-tooth tuna, Hawksbill turtles, jacks, moray eels, stonefish, and Anglerfish are all part of the ensemble that make this reef one of the most impressive in the Maldives.

During night dives, sharks in hunting mode zoom in from every direction. They were fast, but the smaller fishes have plenty of room to escape. Moray eels were seen leaving their dwellings in search of dinner. Octopuses were sighted in ambush position for a shellfish in passing. Black-spotted ribbon rays appeared out of the dark to sweep on sand patches for shellfishes, bloating up occasionally when they landed on an ill- fated prey. We liked what we saw, we dived the reef five times. From the region of my inner recesses, the concept of a 24-hour dive resurfaced.

The sea has contributed incalculably to our existence on this planet, yet only a handful of us have the resources to appreciate the marine environment; most people's knowledge of the aquatic world is confined to the public aquarium or the fish market. A good fish is one ready for eating on the dinner plate, and clownfish are best

described as cute decorations for the mouse pad and coffee mug. I want to produce a documentary to show a 24-hour observation, of animals on Maaya Thila, to tell of their way of life, the idiosyncrasies and the culture of their domain. The film will show that citizens of a coral reef community also have purpose in life; the animals eat to live, play, work and mate on most evenings to keep the cycle of life sort of things on going.

With a brief consultation to the lunar calendar for a day with the least tidal change, the dive was set for 10 to 11 April 1999, 12 noon to 12 noon. Least tidal change translates to little current and optimum time for spawning activities on coral reef. April was chosen because for two successive years, I have enjoyed mirror flat seas and blue water in the Maldives. That was the plan anyway. With the endorsement of the Minister of Tourism, organization for the project began May of 1998. The owners of the MV Coral Princess graciously offered the 40m-vessel as the dive platform and Bandos Island Resort backed up the production as the staging resort and base camp. The biggest hurdle that I introduced into the project was the live broadcast to the World Wide Web. As long as it is on firm ground remote upload of images even from the Antarctica or the heart of the Sahara Desert is, so to speak, a piece of 'wire' for VSAT technology. However from a boat, a wobbly platform, even using Immarsat or Iridium phone is only adequate to send the odd e-mail to a pathetic lover back home.

In November 1998, we locked onto the telecommunication giant, Cable & Wireless as sponsor; with their associate company in the Maldives, Dhiraagu, the plan was to set up a micro wave radio link from the Coral Princess to a reception dish on Maayafushi, the nearby island to provide for a 64k connection enabling uploading of both still and video images. Feasible in theory but we had to wait till the end of March before we knew if it would work.

I don't exactly remember at what point it dawned on me that organising a 24-hour shoot is not as simple as a weekend dive trip. The logistics required to produce a broadcast documentary, publish a book and live web broadcast is mind-boggling. I needed a team of people, each with their respective expertise, experience and

maturity to perform under pressure. Without a budget, I am dependent on volunteers with a passion for the sea and crazy enough to come. By then the publicity by the diving media and newsgroup broadcasts yielded over 300 enquires; most think that it is another holiday in the tropics. By December 98, the vocations of our 40 team members were impressive; scientists, professional photographers, film crews, engineers, airline pilots, writers, an air-traffic controller, scuba instructors, computers gurus, marketing managers, housewives, a spare-parts salesman, a hairdresser, a railroad engineer, technicians and even a bomb disposal expert from NASA! I supposed the element of risk and challenge to be the first has a lot to do with the astounding response.

But I am still lacking in a technical diving professional, not just an expert in the field with the knowledge of mixed gas but one with the experience of managing a mammoth operation, professionalism and the personality to match. The choice was obvious, but without money and a viable reason, I am too embarrassed to approach Richard Nicholls again. Then January 1999, DEMA New Orleans, Drager, the manufacturer of the state-of-the-art semi-closed re-breather confirmed their participation and in that instance, I knew, we have got Richard on the team. With some real money from Cable & Wireless, we were able to hire 1200 watt HMI lights from Panavision like those used in the movie `Titanic' and Seger from Germany made us another three 575 watt HMI - the project begins to look brighter and brighter as April approaches. Our associate in Singapore, Chris Lee assisted with a pre-sale of the documentary to National Geographic TV in Asia and Dhiraagu confirmed that the radio wave link to the Internet worked without a hitch.

What's in a story without a few little drama; one week before departure, I have to juggle a few team members due to work emergencies and put up with Alison's hysteric last minute search for insurance to cover us in the event of being sued. Between that the preparation and purchase of cameras, housings, strobes, films, videos, re-breathers, dive gears and computers the list seems endless. Writing the shooting script for the documentary is sort of a toilet-break activity. Of course insurance agents only ridiculed Alison and except for Kristin, one of our principal

videographers from Exmouth dive shop whose home was blown off the planet by a 295 kmph cyclone, there was no major drama! As I've mentioned, passion was one of the pre-requisites, Kristin left a broken home and husband for the Maldives. With 320kg of equipment and a middle ear infection, I settled into our base at Bandos on 6th of April.

Two days before departure for Maaya Thila, I arose to bad news. Most of the team had arrived on schedule, but the re-breathers, soda lime, and mixing panel didn't. The Coral Princess is down with one engine and with a bad weather forecast for the next 48 hours, its essential for her to sail ahead to Maaya Thila. Then, Raymond Howe, my confidante for the Maldives called to caution. Since the massive grips of El Nino in April of 98, sharks are rarely sighted at Maaya Thila, "we may need to bring our own", he suggested. Yeah, plastic inflatable or chop ups a few team members to lure the real one in! Were all these cosmic signs for what was to come? Karma? Kismet?

The soda lime and re-breathers arrived just in nick of time, but FedEx had our mixing panel somewhere in limbo between Cyprus and the Indian Ocean. The panel is absolutely essential to blend a 40% oxygen enriched air mix for the re-breathers. This called for some tricky maneuver using the membrane system on board the Coral Princess, capable of delivering up to a 36% mixture and only in small doses. Literally under pressure, Richard's wizardry shall soon be tested.

The monsoon arrived in time for our departure to Maaya Thila. Against a three-metre sea and torrential rain, 45 of us left on two speedboats, one for the people and one for 2500 kg of equipment. On route, half a dozen wished they'd never been born and the equipment boat turned back to Bandos. We persisted and eventually boarded the Coral Princess, minus minor essentials like toothbrush, cameras, Internet tools and dive equipment. They arrived the next morning, 18 hours behind schedule. With some creative juggling, the team pulled off the aerial shoot, accident management session, set up the web station, deployed HMI lights, set up re-breathers and the dive station, made check-out [i]dives and site reconnaissance, prepared all the cameras and even

found time to negotiate for the release of 3 juvenile Hawksbill turtles from a local resort in under eight half hours.

D-day, morning of April 10, the sun sneaks out from a hazy sky to shine upon us. Beneath the surface of calm and organized chaos, an atmosphere of nervous anticipation prevailed. I would soon pass on the director's role to Jodie Lee and Richard Nicholls and don on my photographer hat. A twinge of apprehension knotted in my gut. We have to produce images and footage good enough for a book and documentary in 24 hours. The plan was for the principal photographers and videographers to do 10 one-hour dives each with a one and half hour surface break over the 24 hours. In reality, by the time we return to the dive deck, change films and tape, recharge the batteries, if lucky, one will have about 20 minutes rest before its time to suit up for the next dive.

At 12 noon, together with the Minister of Tourism, Sobir Hassan, we dive into the 24-hour shoot. The sea was murky blue, with visibility reduced to 20m by the un-seasonal monsoon rain. I began each dive by heading straight for Seger Rock, a station set up at 30m with a HMI light. The objective was to monitor the inhabitants within its vicinity over the 24-hour period. At the edge of visibility, I saw a grey reef sharks with entourage of rainbow runners. Blue-lined and Big-eyed jacks played havoc with the fusiliers while big school of Blue-striped snapper swarm the black coral tree. An electrifying melee ensued. I inhale a silent breath from a Dolphin re-breather, whisper a prayer and I knew then that we will have a huge story to tell after the 24 hours.

The diversity and density of species on the reef remains as astounding as the year before. Hard corals between the reef-top to 20m affected by the bleaching phenomenon last April are now real estate for new comers to the reef. Surfaces of plate corals are home to uncountable solitary bright green Didemnum sea squirts. All anemones have regained their pink, purple or orange colouration and are host to exaggerated numbers of clownfishes. Crimson, blue and yellow feather stars decorate the reef in entirety. Bannerfish, triggerfishes, angelfishes, wrasses and parrotfish of

uncountable species feed continuously on the reef top. By late evening we knew exactly where turtles feed and where turtles dwell. We have got footage of spawning goatfish, surgeonfish, cuttlefish and feeding frenzy among snappers. The lucky ones return with sequence of white-tip sharks and marble ray feeding behavior but the ultimate was Leo's extraordinaire footage of a mating pair of octopus. After 1.30am, I surface to swim back to the dive dhoni, to find three squids just beneath the surface. Out of air from the re-breather unit, but not out of film, I switched to the back-up bottle and descend to fire off at the flamboyant squids. We saw the reef in transition; the colours of day taken over by the colours of the night; nocturnal animals take shift from the diurnal and vice versa the following morning.

Through the 24 hours, the team performs like clockwork. Each a professional in his or her own right, they knew exactly what needed to be done, and when to be done, functioning without any winges except for one instance at 3.30am. Richard came to me with a concern; one of the videographers apparently was not getting the support from his assistant. Between the both of us, one should have a word with this not so cooperative individual. I came up with a game of paper, stone and scissors to get me off the hook on tackling the conflict at such ungodly hour! Richard had a hard time to accepting that paper wins over stone and I will forever live with this tale to tell.

By dawn, compressors have died, and compressors rebuilt. In between monitoring the dive profiles, Richard, Raymond, Satha and Toma persistently push the compressors to its capacity to generate the Nitrox and compressed air. Only one assistant was cautioned and subsequently sent off due to a serious violation indicated by his dive computer. Kristin, a principal videographer was down with a flu after 12 hours, her assistant Jenny taking over the role. Likewise, Chris Lee succumbs to a virus in the wee hours and Jan from Germany took over as principal photographer to complete the job. Doug Perrine was bitten by a moray but survived to tell the story. At 4am the storm arrived. The web team, Alison, Jerome and the Dhiraagu boys worked through the 24 hours uploading both still images and video, even managing to broadcast a live quiz for the web audience. Hardware compatibilities arise but were

sorted out through the day. Satellite connection was lost during the storm but otherwise the upload went without a hitch.

About 12.30pm, the last jubilant divers staggered on to the Coral Princess, completing the 24-hour dive. Doug asked what I saw, I pondered momentarily, laughed and replied, " I don't know" and continued to laugh some more. Amnesia, no, just incredibly tired. Exhausted with bleary eyes, we celebrated the achievement on the dive deck with Minister Sobir. We have so to speak made history. We were the first to witness the life on a submerged reef system over 24 hours on Nitrox and re-breathers and first to upload underwater images live to the web from the Indian Ocean. We will also be the first to produce a book and broadcast documentary based on the ecology of a reef system that is actually filmed over a 24-hour period. For most of the team members, the 24-hour shoot is over, for me it has only just begun. With 85 hours of footage and about 100 rolls of film to cull, an immense postproduction job awaits. A new challenge lay in my path, to complete the almanac and documentary in less than five months. Let's say, I'd rather be diving.

*The broad cast documentary "24 hours Beneath a Rainbow Sea" will be release through National Geographic Cable TV channel after October 2000.

*The premier limited edition of the pictorial almanac available for USD$55

The Observations

In the perspective of scuba divers, Maaya Thila has all the attributes of a perfect reef. Sitting near the channel of an atoll, the reef is 80m in circumference received rich nutrients from the Indian Ocean. The reef top is average about 6m and slope quickly to about 30m, the maximum depth for recreational diving. The terrain comprises of overhangs and coral outcrops lush with soft corals, sea fans and black coral trees. Dominant denizens are Hawksbill turtles, Dogtooth tunas, jacks, White-tip sharks and Grey reef sharks. Less obvious but frequent visitors are manta and eagle rays. Big Black spotted ribbon rays drop in to feed in the evening. On the reef top octopus, cuttlefish and moray eels are local residents and reportedly friendly with divers. Whilst hard coral coverage is scarce, the reef top is covered with coralormorph, anemones and sponges. Maaya Thila boasts of the most prolific fish

and invertebrate fauna in the Indian Ocean. The colours of the reef comprise of angelfish, butterflyfish, damsel, lionfish, scorpionfish, stonefish, snappers, parrotfish, lizardfish, surgeonfish, rabbitfish, gobies, blennies, triggerfishes, goatfish, trumpetfish, boxfish, anthias, wrasses, squirrelfish, the list endless.

In early afternoon, feeding & mating are all part and parcel of life on the reef. Big schools of fusiliers, trevally and Blue-striped snappers are found in great abundance. Large blue-fin trevally takes regular dashes into them. Dogtooth tunas patrol the pelagic zone, while grey reef sharks swim underneath. Hawksbill turtles slowly cruised the reef, stopping frequently to munch on a never-ending buffet of algae, coral, and sponges. Swarms of Blue triggerfish pulse up and down in the water column, feeding on plankton. Near the bottom, a large school of Bigeyes rests in the open water between the main reef and a smaller coral rock. Undersides of the many overhangs are covered with orange skeletons of tubastrea coral, but their polyps retracted. Morays rest nonchalantly in their holes. White-tip and Grey reef sharks cruise the reef blithesomely. Regal and Blue-face Angelfish cruise the reef, pausing momentarily to graze on substrate. Clownfish flirt above their host anemones, in a game of hide and seek among the fronds of stinging tentacles. Octopuses are in and out of their holes stopping occasionally to make spooky faces at the bemused photographer. Titan triggerfish are on a mission to finish a nest by nightfall, digging and excavating the ground, moving rocks around and attack anyone that venture into their invisible boundaries.

Evening, we saw the reef soar. We recorded the courting sequence of goatfish, trevally, wrasses and hawksfish. Mating pairs rise into the water column to shed both eggs and sperms. Nicholas Pilcher, our scientific consultant saw a pair spawning blue-barred parrotfish. Scarus ghobban and bristletooth surgeonfish Ctenochaetus binotatus were also spawning in groups.

Once darkness overcome the reef, Leopard and White mouth morays emerge to hunt openly on the reef top. By 7pm, Red-toothed triggerfish are tucked into coral with their blue tails hanging out. Angelfish (blue-face) and unicornfish (Vlaming) are

quiescently hovering in little caves & under ledges. Turtles coming into ledges to sleep bump videographers out of the way. Clownfish are buried deep in their anemones, barely visible if at all. White-tip sharks start to hunt on the reef top. Tubastraea coral polyps are now extended.

One hour into the darkness, the feeding became more frantic. Morays take on prey in the open including photographers fingers. Crinoids, or feather stars scarce during day are now perched atop corals & feeding. Arms spread wide instead of curled in. Squids were spotted near the surface. The big school of Blue striped snappers and Big-eyes have retired from the reef.

Reef shrimps progressively become more visible and Parrotfish sleep within secreted cocoon among coral ledges. Neon fusilers adorned their night colouration of red belly settled scantily among coral rocks and ledge. Puffer fish found asleep among branches of a black coral trees coral and white-tipped reef shark continue to hassle the fusiliers deep into the night.

By the midnight hour, activity level on the reef has slackened. Spotted rabbitfish in their nighttime coloration (white mottling), were observed floating over the reef. White- tip sharks were not seen from midnight to 2 am but returned to haunt at about 3am. A big Marble Ray loomed across the reef, to hunt for mollusk buried in the sand. Turtles appear to be drugged, slowly rising up to surface then crash down into reef landing in exactly same spot to sleep again. There are about half a dozen asleep on the shallow part of the reef. A few gregarious ones indulged in midnight snack, chewing off chunk of coral bits just in front from their resting place. About 12 species of crinoids were documented at night compared to only 3 in the day. Though there're still a number of Vlaming's and Longnosed unicorn fish remaining, by 4am activity level has significantly dropped. At 3.30 am, a videographer caught a newborn blenny of some sort floating past before it eventually settled to live on this reef.

At 3am the plankton level around the HMI light at 30m increases until light is no longer visible. At 3.30am, I saw a pair of courting cuttlefish at 34m. The same pair

was spotted nesting at 18m by David Wong the next morning at around 11am. By 5am, the plankton around the HMI light is mostly comprised of shrimps about 2-5mm size. At 5.30am, thousands of Blue and Gold fusiliers and Blue-striped snappers swarm around the lights, gorging, devouring the planktons in a feeding frenzy. They must have thought it was Christmas! The Big-eyes assumed their position at 6am and a White-tip came in and took a fusilier right in front me.

By 6:30am, thousands of Red-toothed triggerfish checked out of `motels' and rose to feed on passing currents. One of the video crew actually captured a parrotfish devouring its cocoon prior awakening. Morning light broke with the arrival of half a dozen Dogtooth tuna and Sarah managed to sight an eagle ray in passing. At 7 AM, fairy basslet or anthias, fusiliers came streaming into water column, which is now full of fish. Uncountable numbers of Red-toothed triggerfish continue to rise into the water column in feeding positions, while Big-nosed surgeonfish chew upon diver's bubbles.

Leo captured the ultimate highlight of the 24-hour dive at 7:30am. He was turned on by the courtship and mating sequence of a pair of reef octopus. As the morning progresses, turtles return to their feeding ground and Grey reef sharks once again dominate the blue with their entourage of rainbow runners. Cleaner wrasse takes their stations to service the surgeon and unicornfish or just about any customer in the queue.

It's apparent that a Titan triggerfish has nested; a group of Blue-fin trevally swarms around the bold fellow who stood steadfast to protect his brood. Whilst Dog-tooth tunas hang out with the amble bodied grey reef sharks, Big-eyed trevally starts to play havoc with the fishes on the reef. A scene that is identical to the day before.

Albeit the difference in culture of this underwater cosmopolitan to ours, the basic essentials of life are similar. Like us, food is a basic requirement of life, thus much activity of the reef relates to procuring it. Though our society has made this into a more complex process, the sustenance of life and of our specie remains the same. As

in the word of the lady that discovered the coral spawning process, Dr. Carden Wallace - the aim of this exercise is to distill, through the lens of the camera, the unique "something" that makes a reef. This uniqueness indeed belongs to the animals and plants themselves; try as we might to understand it. Clearly the variety and connectivity of life forms, their extraordinary beauty, practicability, dynamism of every day life amaze us and will continue to leave us in awe. Amidst the threat of global warming, pollution, the survival of this system has become more urgent than ever before. Though Nature may play games with this system, it is in our interest that we protect this very special realm that has contributed incalculably to the success of our species on this water planet.

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