

## **"24 Hours Beneath a Rainbow Sea"**

Duration: 43 mins

Producer: Michael AW

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#### a. Synopsis

This is one of the most unique documentary films made of the sea; the 43 min documentary focuses on a 24-hour, non-stop observation of a submerged reef located in one of the atolls of the Maldives, Indian Ocean. All the footage in the 24-hour dive segment was actually captured on 10 to 11 April, 1999, 12 noon to 12 noon. The story enlightens briefly on the ecology of the coral reef system, the underlying objectives for the project, the technical challenge, the preparation and logistics of the project. The documentary will also bring the viewer to the dive platform, covering aspects such as the remote live web up load and on site observation with interpretation by leading marine scientists. The production involved the use of the latest underwater technology such as Semi-Closed re-breathers; Oxygen enriched air, Xenon lights, digital video cameras and current Internet technology.

The production 24 Hours Beneath a Rainbow Sea is the product of a group of 44 dedicated experts from fields as diverse as science, technology, film and photography coming together to share their passion, new ideas and to discover secrets of the marine animals previously un-witnessed. Albeit the differences of nationality, race, religion or culture, this documentary will show the drama of dedicated individuals working together, united in their passion for the sea. Aside from the first time ever-scientific documentation of life on a reef over 24 hours, the participating characters both above and below the water guarantee compelling viewing. The commitment, passion, headstrong personalities and obsessions of individual team members on board the dive platform are sure to amaze and entertain.

While underwater, the cast of fantastic marine creatures ranging from magnificent grey reef sharks, huge Fan-tailed ray and swarms of swirling anchovies, hunting eels, mating octopus and tunas to the behavior of Hawksbill turtles will enthrall and delight viewers. Share the excitement and tribulation of the team as they prepare for the challenge and learn the intricacies and idiosyncrasies of a day in the life of a coral reef system. The energy and enchantment of a unique marine reserve in the Maldives is beautifully revealed in this feature through the eyes of the director and the 24-

hour dive team. Relive the 24-hour odyssey in a metropolis of marine animals in the colours of the rainbow realm.

b. Credits:

Produced & Directed by  
Michael AW

Edited by  
Harun Rahman

Written by  
Michael AW  
Chin Kek Mien  
William Clark

Narrated by  
Noraini Jane Ariffin

Financial Controller  
Alison Redhead

Assistant to Producer  
Christopher Lee

Camera – Underwater

Micahel AW	Australia
Kristin Anderson	USA
Leo Blanco	Spain
Harun Rahman	Malaysia
Jaon Isley	UK
Jose Haba	Spain
Jenny Sadzik	Germany

Camera – Topside  
Harun Rahman  
Simon Christopher  
Priscilla Hon  
Leo Blanco

Top Side Video Team  
Jodie Lee – 1st Assistant Director

Project Scientist  
Nicolas Pilcher  
Dr. Carden Wallace

Dive Control Team

Richard Nicholls - Diving Director  
Raymond Howe – Deputy Director  
Steve Van Meter

Video Assistants  
Pascual Martin  
John Elliot  
Ann Lim  
Jack Lim  
Chris Watts

HMI Lighting  
Brad Freeman

HMI Xenon Lights  
Michael Seger

Edited at Novista Sdn Bhd,  
Kuala Lumpur, Malaysia

“Dreams from Rainbow Sea”  
footage courtesy of  
OceanNEnvironment

### c. Credentials

**M i c h a e l A W**  
Project Director / Director of Photography

After a successful career in the advertising industry, Michael AW now lives in Sydney, Australia, as a full-time marine photographer/ consultant. He has been diving since 1981 and as a NAUI Instructor Trainer, he has taught openwater courses, marine awareness programs, and leadership courses to instructor levels. He is the Chairman of Ocean N Environment, a non-profit public organisation dedicated to education and preservation of the marine and natural environment.

His photographs and articles on environmental issues, natural history, travel logs and technical aspect of SCUBA have been featured in publications from Australia, S.E. Asia, Europe and the United States. Publications include: GEO (Australasia), Underwater GEOGRAPHIC, Nature Focus, Action Asia, Scuba Diver, SportDiving, Divelog, Travel Away, Ocean Realm (USA), Times, Asia Week, Dive International, Aqua, Aquanaut, Discover Diving (USA), Sources Journal, Asian Geographic, Outbound, Travel Sojourn, Strait Times Press (Singapore), New Paper (Singapore), HER World (Singapore), Telegraph Mirror (Australia), Northern Herald (Sydney), SunHerald ( Sydney), Wings of Gold (Malaysia), Verve (EVA Air

infight magazine) to name but a few. His marine photographs have received awards from several international organizations including a prestigious Superb Close-Up Award from the 1995 Nikon International Photo Contest. Over 5000 of his images have appeared in various publications and exhibitions worldwide including the Australian Museum, Sydney Aquarium and Museum of Tropical Queensland.

Michael has presented lectures and slide presentations on marine life and underwater photography to the Australian Museum Society, aquariums, private organizations in the pacific-rim countries including the world renown Monterey Bay Aquarium in California. He is also the author and photographer of 'Beneath Bunaken' a case bound 180 page coffee table anthology – a work of art which has received the accolade of being a 'Gift of State' for Indonesian protocol offices. He has also authored and photographed for two marine awareness guide - "Tropical Reef Fishes' and Tropical Reef Life' – a handy photographic and natural history guides to reef fishes and invertebrates. He was the scientific & scripting consultant for the TV documentary 'Eyes on a Reef' - based on a day in the life of the Great Barrier Reef, Australia. He is also the producer/ author of 'METAMORPHOSEA', a pictorial anthology from the world's first 24-hour photographic sojourn on the Australian Great Barrier Reef. "Dreams from a Rainbow Sea- Maldives", a high-quality pictorial book, has been selected as the Gift of State and endorsed by the President of the Republic of Maldives. "24 Hours beneath a Rainbow Sea" was captured and preserved as a 160-page coffee table book together with the documentary. In collaboration with award-winning film maker Leo Blanco, Michael directed and produced a music documentary based on his pictorial "Dreams from a Rainbow Sea" in 1998.

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Dr. NICOLAS J. PILCHER  
Honorary Member – Ocean N Environment  
Director of Research

Shell Chair in Environmental Studies, Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak. Developing the research programmes upon which to develop a Coastal Zone Management Plan for Sabah and Sarawak, in particular the design and implementation of field work and database assimilation. Developing, through the Institute, an awareness of marine biodiversity, its current situation, threats, and conservation goals. Visiting Lecturer, Faculty of Resource Sciences and Technology.

Just completed: Higher degree (Doctor of Philosophy) in marine zoology/ ecology. Research programme centered on the analysis of marine turtle nesting grounds

and their environmental threats; and co-ordinating legislature and its enforcement for the marine turtles *Chelonia mydas* and *Eretmochelys imbricata*.

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Doug Perrine  
Honorary Member – Ocean N Environment  
Naturalist/Photojournalist  
Principal Photographer

Doug Perrine has had a varied career as an English teacher, a marine biologist, a scuba diving instructor, a USCG licensed boat captain, an interpretive naturalist and tour leader, and a photojournalist. His academic credentials include B.S. and M.A. degrees in marine biology from the University of Miami. Currently he is a self-employed writer and photographer specializing in marine life.

His photographs appear frequently in calendars, posters, postcards, and other graphic products, and have been published in hundreds of books and magazines, including

National Geographic, Smithsonian, Time, Natural History, Elle, Newsweek, U.S. News and World Report, Omni, Outside, Geo, Airone, Terre Sauvage, Stern, National Wildlife, Ocean Realm, Wildlife Conservation, BBC Wildlife, etc. Perrine is the author of *Sharks* (1995) and *Mysteries of the Sea* (1997).

He has served as a consultant for filming projects for the National Geographic Society, the Discovery Channel, Disney, and other companies. His photography has won several awards, including the 1995 BBC Wildlife Photographer of the Year award in the Animal Behavior category. Perrine is president of Innerspace Visions, a stock photography library in Kona, Hawaii, which specializes in marine wildlife, with extensive files on whales, dolphins, and sharks, representing over five dozen of the world's top photographers in these fields.

Leandro Blanco  
Honorary Member – Ocean N Environment  
Film Crew

Born in Spain. At the age of five, he moved to New York with his family. During his High School years he formed a vocal group and by the age of fourteen won first prize in a musical festival at New York's world fair. The Tokens, who by then had a number one hit in the charts ( *The lion sleeps tonight* ) became their producers. He recorded several records with them and spendt most of the time promoting and touring the states with such groups as the The Supremes and the Shirrels.

He took up flying as a hobby and got his private pilots license at the age of nineteen. In 1970 he returned to Spain, where he recorded several records, including a double LP ( The four seasons by VIVALDI ) and also wrote several music scores for various motion pictures. In 1973 he decided to turn his hobby into a career and became an airline pilot. Today he's an Airbus 320 captain flying for a mayor international airline company.

It was back in the 80s when the first music videos came out, that got him started in filming. It was the magic of the music moving along with the fast cutting images that caught his eye. His passion for nature had already taken him all over the world. By then he had also written several pieces of music, celebrating the beauty of the Amazon jungle and the vast desserts of Africa. Now it was time to go back and do some filming. His first short documentary got him first prize at the London film festival, and by 1990 he had already won several mayor awards, including VIDEO FILM MAKER OF THE YEAR BY THE BBC WILD LIFE MAGAZINE, 1993, for his documentary skills. In 1990 he made his first underwater documentary, which he wrote, narrated, edited, performed and wrote all the music to. He received several awards, including the prestigious GOLDEN MEDAL in the OKEANOS UNDERWATER FILM FESTIVAL in France.

It's during these years that he decided to devote all his spare time to the underwater world.

He has received over 30 international awards, his documentaries have been shown on mayor TV networks all over the world, and his music scores have been acclaimed by magazines like BILLBOARD and MUSIC FOR MUSIC. He is also an honorary member of THE ROYAL PHOTOGRAPHIC SOCIETY, for his photography in his video Just passing by too.

d. Why a 24 hour dive on a coral reef?

We know that by day the coral reefs are the most active, diverse and ecologically complex of marine ecosystems, often compared with terrestrial rainforests, and often exceeding the diversity of even these. Dusk heralds the awakening of an entire new kingdom, resplendent in its colour, complexity and imagination. The reefs could be seen as the womb from which springs marine life, as the reef's sponges, crabs, lobsters, clams, sea stars and fish, along with all its other inhabitants, release eggs and larvae into the ocean's currents. These travel for many days and miles before settling, and during this time grow into new individuals, or become sustenance for something else. The pelagic, or deep-sea, fishes depend on this initial input of larvae, as the fishes that feed on this become at a later stage their diet. For this and many other reasons coral reefs are inextricably linked with oceans around the world, and are the focus of scientific studies to document their ecology and their species diversity.

Dr. Carden Wallace explained:

*Scientists and divers know the reef in various ways. To explore a single reef within 24 hours is an unusual experience. I don't think many people have ever done this before so it's a whole new experience for us. By focusing on one reef we plan to become familiar with the reef community by exploring its inhabitants, its homes, its highways, its timetables and its networks. ... all within a single day and night.*

*For us scientists the task is equally daunting because we normally restrict ourselves to far more limited observations. For myself it is all about hard corals, others about turtles, worms, Basically knowing a lot about a little.*

*A 24 hour dive allows us to document a sample of the reef community without interruption and by doing so we can basically understand how reef animals interact with one another, how they live with each other, what makes a reef function. This has never been done before.*

#### e) Insights into the 24 Hour Observation

##### 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 receiving rich nutrients from the Indian Ocean. The reef top is on average about 6m and slopes 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 mantas 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 coralomorpharians, 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 and, squirrelfish, the list is 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 take regular dashes into them. Dogtooth tunas patrol the pelagic zone, while grey reef sharks swim underneath. Hawksbill turtles slowly cruise 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 tubastraea 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. Octopi 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 hawkfish. Mating pairs rise into the water column to shed both eggs and sperms. Nicolas 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 overcame 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 fusiliers adorned in 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 levels on the reef have 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 8:30am. 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.

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.