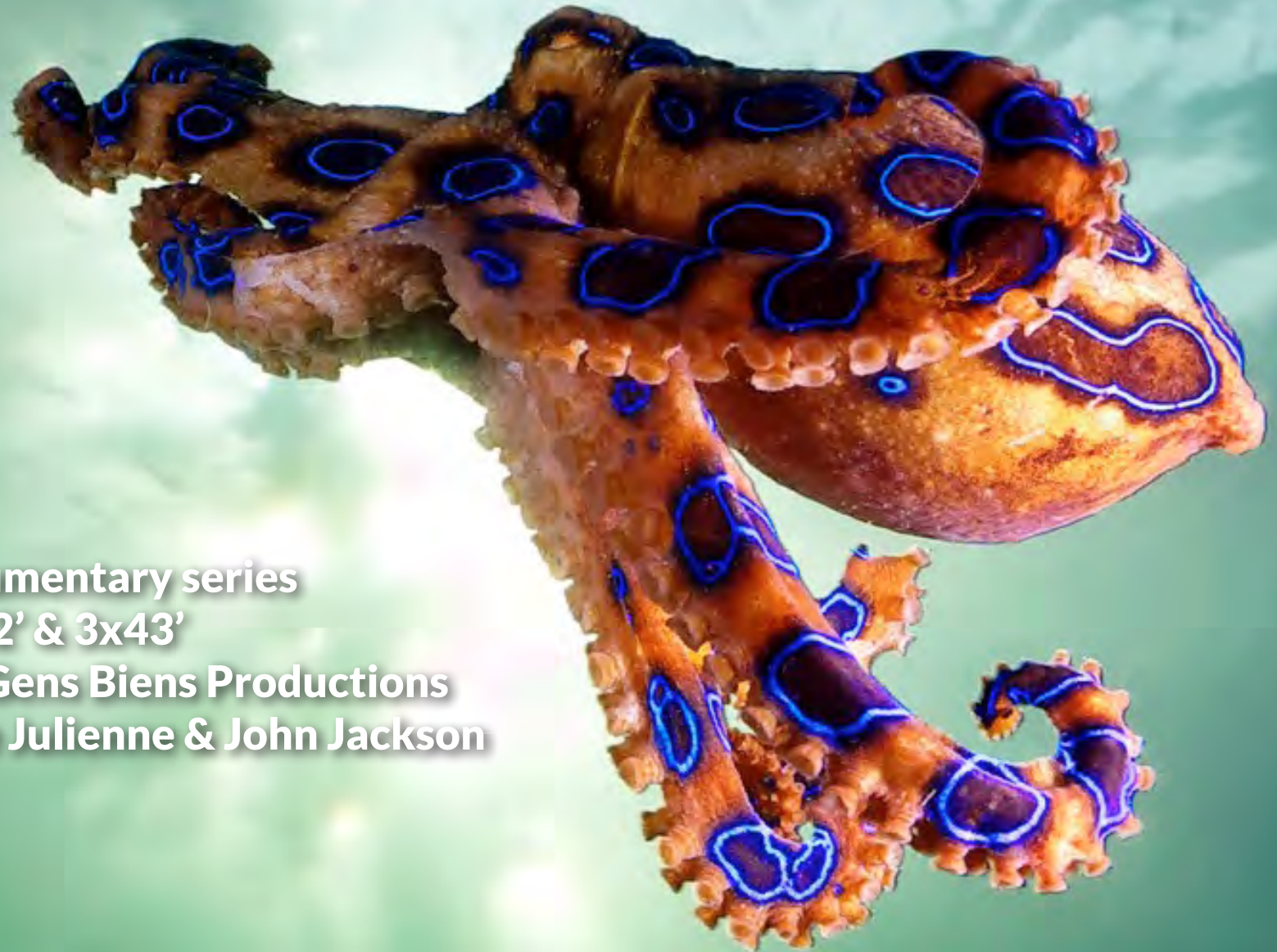


arte
DISTRIBUTION

PLANET REEF

A **4K** documentary series
3x52' & 3x43'

Produced by Les Gens Biens Productions
Directed by Jérôme Julienne & John Jackson





PITCH

One of the seven wonders of the natural world, the Great Barrier Reef is a planet of its own, home to over 9000 known species such as turtles, crocodiles, sharks, venomous sea snakes, brightly colored worms, and large algae. These species interact with the coral to form a complex and delicate ecosystem dependent on each other for survival. Yet today the coral—and therefore all the organisms that depend on it—is gravely at risk. In a visually stunning series of one the most beautiful natural habitats on Earth, our international award winning crew has followed a team of scientists for 5 years. Their mission is to develop groundbreaking technological solutions to save the Grand Barrier Reef from destruction.

Global reef occupy 1% of the globe's surface, 50% of the marine species depend on them and they produce half of the oxygen we breathe.

SYNOPSIS

The idyllic, shimmering, light-flooded image of the coral reefs, full of thousands of multicolored fishes, is a tiny part of reality that is far from reflecting their ecological place of prime importance.

Reefs play a major role in the world of the oceans. They are the central part of a complex universe on which a quarter of all the world's marine species depend. The animals of the open sea, lagoons, coastal wetlands, deltas and river mouths are all dependent, at one time or another in their lives, on the presence of coral reefs.

Without reefs, half of all marine and coastal species would be doomed to extinction, which is an impressive statistic when you consider that they represent only one percent of the world's surface.

A veritable oasis in an unprotected sea, offshore species such as sharks come here to reproduce and their juveniles, which are defenseless, survive only thanks to the protection provided by the dense network of corals and the labyrinth of shores bordered by mangroves that the reefs protect from the onslaught of storms.

But the GBR—and all reefs on Earth—are in critical condition, suffering from the ravages of global heating. Some people believe that there is little hope for them, but a dogged, courageous crew of marine scientists are surprising everyone with some ingenious, hands-on solutions, showing the world what imagination, science and action can achieve.

Leaving their academic desks and departments behind, these scientists are taking the fight against climate change straight out to the water: raising sinking islands, seeding new coral, deploying killer robot drones, and tracking unknown animals, all in an attempt to rescue the Great Barrier Reef and the world of incredible plants and animals within it. **A full ten percent of all the fish species in the world are found right here, as well as 85% of all sea turtle species.**

Between the reef and its inhabitants, it's a win-win agreement ... Provided that the fragile balance of this agreement is respected.



3 EPISODES:

3 scientific missions to save emblematic animals

Every episode is built with stunning images of **marine wonders** (including never-before-seen natural behaviours) at the service of a **scientific mystery or innovative rescue mission**. Together, they work alongside the world's top marine scientists at the frontlines of Reef exploration and rescue—experts in coral, sharks, sea crocodiles, sea turtles, venomous jellyfish, and deepwater exploration.

Leading the charge in PLANET REEF is **Richard Fitzpatrick, a renowned marine biologist and shark expert at Australia's James Cook University**. Richard regularly puts his laboratory and research vessel "Argo" – the modern-day "Calypso"—at the disposal of other scientists, and is a human lynchpin in the GBR. And what's more, he is also renowned as one of the world's most accomplished underwater photographers, having collaborated on genre-defining films with the BBC, National Geographic and Discovery Channel.



EPISODE 1 /

RESCUING THE TURTLES IN RAINE ISLAND

LOCATION
Raine Island

FEATURING /
Green Sea Turtles
Brown boobies
Frigatebirds
Tiger sharks

WITH /
Dr. Andy Dunstan,
Queensland
Parks and Wildlife
Service
Jamie Wutha,
Ranger

Green turtles are the only marine turtles of the seven existing species that are exclusively herbivorous. They feed mainly on meadows, essential to the reproduction of many marine species which hide their eggs there, which need to be regularly cut to avoid the proliferation of parasitic algae which would suffocate them. It is this essential role that nature has devolved to green turtles.

Of the seven species of sea turtles, all are classified as vulnerable, endangered or on the edge of extinction. One of the main reasons for this is the degradation of their nesting spots. The successful restoration of Raine Island is a winning technique that can be exported around the world.

The award-winning cinematographer Richard Fitzpatrick has documented every stage of the recovery in 4k, PLANET REEF can tell its full story, from the original dark days on an inhospitable island, to the first hints of success now in view. With a new series of expeditions being conducted at the end of this year, there is a goldmine of material on Raine Island: rescuing a species is an immense undertaking.

Raine Island is also the most important seabird rookery in the Great Barrier Reef—home to 20,000 breeding pairs of Frigates and Boobies. Their survival is intimately tied to that of the turtle colony, because without young turtles to feed on, seabird numbers would collapse, too.



EPISODE 2 /

RESURRECTING THE REEF

LOCATION /

The Great Barrier
Reef

FEATURING /

Coral
Crown-of-Thorns Starfish
Giant Triton Snails

WITH /

Matt Dunbabin,
Queensland
University of
Technology

Peter Harrison,
Kirsten Bekendorff,
Southern Cross
University

Over the past 30 years, the world has lost nearly one-third of its coral reefs, whether in the Indian Ocean, the Pacific or the Caribbean. The greatest losses have occurred in the last two decades. More than one billion people worldwide depend on reefs for food and hundreds of thousands of people depend on reef tourism for their livelihoods.

Without reefs, half of the world's marine and coastal species would be doomed to extinction, an impressive statistic when you consider that they represent only one percent of the world's surface. Moreover, half of the oxygen on Earth is thought to come from the plant micro-organisms that grow in the oceans and reefs. Plants, animals and humans depend on them to breathe!

The problem is the same everywhere: climate change leads to warming of the oceans. Reversing the course of events and resurrecting the reefs of our planet therefore requires a colossal effort and the implementation of innovative and radical strategies.

From the most recently developed killer robots to shellfish farming, ultra-modern tactics are now proving their worth in the Great Barrier Reef to ensure the survival of this natural wonder that is the coral world and to make it possible to export this know-how to many of the world's reefs.



Stretching across 345,000 square kilometres and visible from outer space, the largest reef in the world is also in fact the largest living organism on Earth. And while not quite on life support, the GBR is clearly in intensive care. Coral bleaching and violent storms—both made worse by global warming—are major culprits, but the Reef has other foes, too. In fact, one animal predator alone is responsible for the disappearance of nearly half the Great Barrier's coral!

It sounds like science fiction, but it's very real: the Crown-of-Thorns starfish is a huge, carnivorous creature that eats coral. It feeds by turning its stomach inside out through its mouth, and then digests the layer of soft tissue off a coral's skeleton. Previous attempts to limit their numbers by slicing and dicing them may have backfired horribly: like some mythological monster, this starfish can regenerate severed arms and may even replicate when sliced in half. Estimates have their numbers at several million, and with each one able to consume a foot of coral per day, the Great Reef is literally being eaten up before our eyes.

RangerBot is an underwater drone, able to navigate and recognize the Crown-of-Thorns all on its own, with 99% accuracy. Once spotted, it's death by lethal injection: a robotic arm sticks the starfish with a toxin designed specifically for it (and harmless for all else).

EPISODE 3 /

PROTECTING MEGAMOUTHS

LOCATION
Nothorn Great
Barrier Reef

FEATURING /
Whale Sharks
Manta Rays
Minke
Humpback

WITH /
Amelia Armstrong
Brad Norman
Adam Barnett

Whales, manta rays, whale sharks ... are all huge eaters of animal plankton or small fish, themselves huge consumers of vegetable plankton. These marine algae produce half of the oxygen on earth and capture 40% of the carbon dioxide (which is the cause of the greenhouse effect).

The decrease in productivity of the coral reefs leads these animals to look for other feeding sites around the reef, the deep water upwellings. In doing so, they “free” space for less greedy animals, but also participate in the regeneration of the ecosystem by bringing the plankton that flows to the surface by their incessant upwelling and by fertilizing the reef with their iron-rich excrement, which encourages new development of the plankton (trophic cascade).

But the global role of the Mastodonts is hardly believable. By swallowing plankton and the small animals that feed on them, these giants capture and store carbon in their fat. When they die, they sink into the abyss where the carbon remains trapped for thousands of years. **For example, one whale captures as much carbon each year as a thousand trees.**

These giants are real allies in regulating the climate and restoring reef productivity. The programme for identifying these new feeding areas is easily reproducible in all the areas concerned around the world.

“Upwellings mean colder currents, and we know that areas with these colder currents will be most important to the reef’s survival through this period of climate change. These areas may in fact be the only places where the Reef survives, period. So we really want to be able to protect these areas, and make sure they are healthy, because they’re our best hope. It all depends on cold-water upwellings.”

—Richard Fitzpatrick



REEF RESCUERS



RICHARD FITZPATRICK

Richard Fitzpatrick is an amazing character – a kind of scientific and artistic jack-of-all-trades, and perhaps the foremost collaborator on research projects in the Great Barrier Reef. He's the lynchpin, connecting a new generation of scientists to the older veterans who remember a different, more vibrant Reef, and who are now out working together to save it.

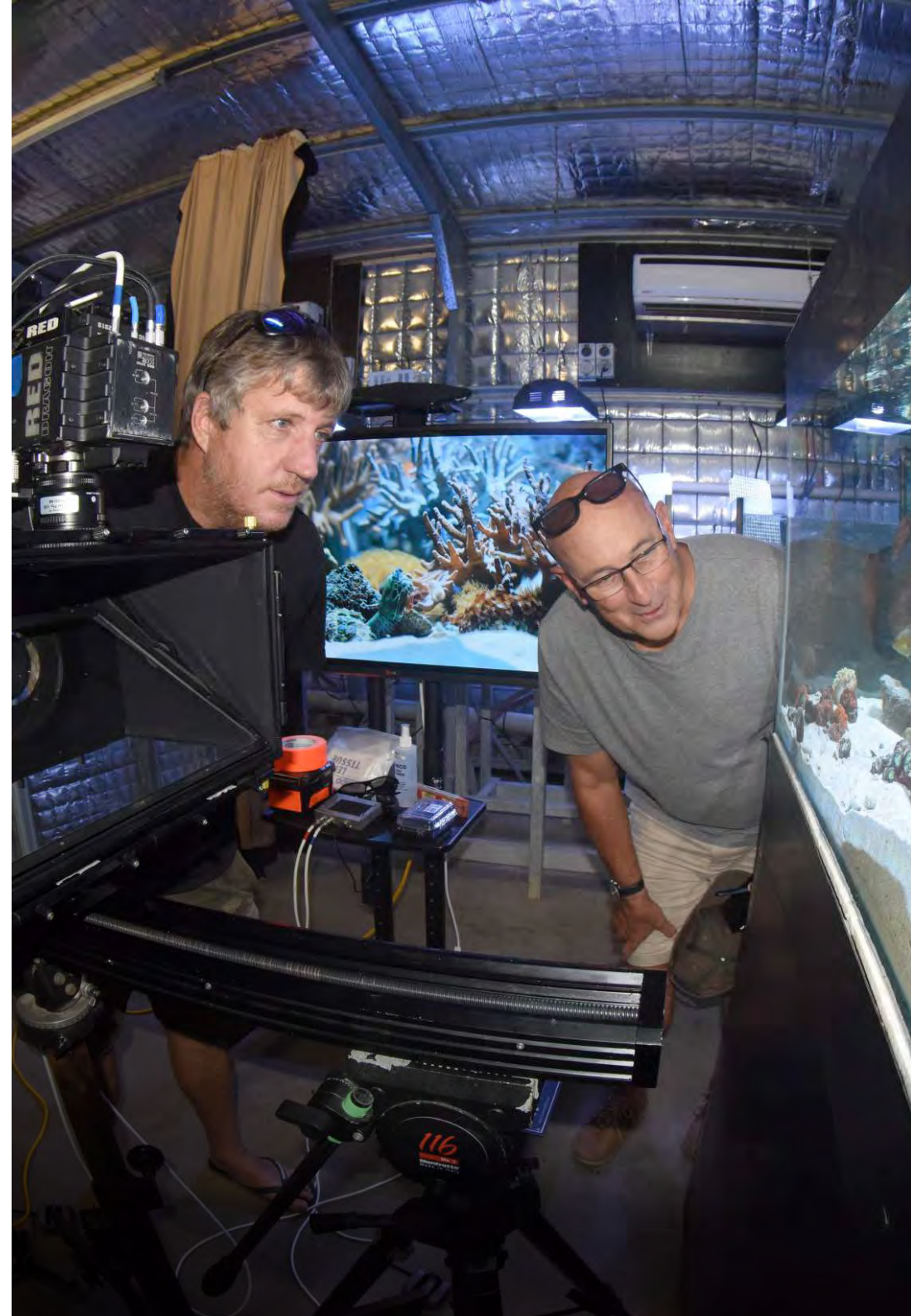
Primarily, he's a marine biologist and shark researcher at James Cook University in Cairns, Australia. His research on sharks was instrumental in the creation of the new Coral Sea Marine Park, a biodiversity hotspot covering 989,842 km², extending seaward from the Great Barrier Reef. But he is also one of the world's greatest marine and submarine cameramen, winning many Emmy Awards for his work on over 50 films with the BBC, National Geographic and Discovery Channel. With his immense scientific and practical knowledge of marine biology, he

has recorded some of the most complex animal behaviors ever seen, from the Amazon to the Arctic.

But it is in Australia, working and collaborating with others to save the Great Barrier Reef, where he most loves to be. He regularly puts his large research vessel, the Argo, at the disposal of other marine biologists, and his underwater and aerial images are an invaluable scientific resource for them. To this end, he has accumulated more than seven thousand dives and thousands of hours of footage. And because of his scientific access to protected areas, much of what he has filmed is exclusive.

At James Cook University, he had huge outdoor research tanks constructed which serve as faithful reproductions of coral reef ecosystems and mangrove estuaries. These facilities allow scientists at the University to study reef dynamics up close, and have also allowed Richard to film some of the most intimate behaviours and events that take place anywhere in the GBR. Things like predation by the extremely venomous blue-ringed octopus, and the spawning of coral.

Jérôme Julienne and John Jackson first met Richard while filming a nature series in 1997, and have since maintained a close professional and personal connection with him. Richard is very enthusiastic about bringing greater public attention to the often radical work he and colleagues are undertaking to save the Great Barrier Reef, and to that end has offered us exclusive access to all of his coming expeditions (many of which are in areas that would otherwise be totally off-limits). He has also put the "Argo" at the disposition of this Production, as well as the exclusive use of thousands of hours of 4k images he has filmed, in order to tell the complete story of the rescue missions that comprise THE HEART OF THE OCEAN series.



THE ARGO TEAM / MARINE BIOLOGISTS



LAURA WELLS

Laura Wells is a marine biologist and science communicator. She works collaboratively with James Cook University to promote their fieldwork to a large audience. She also conducts whale research in the Cook Islands every year, carrying out tagging, skin collection, identification and population re-search, and will soon be extending that work into the waters around Norway. Around the world, she carries out research on plastic pollution, including its impact on shearwater seabird population.



JOHNNY GASKELL

A passionate marine biologist with a long working history working with marine life, Johnny Gaskell holds two bachelor degrees. The first is a bachelor of science: Fisheries Management & Aquaculture and the second is a bachelor of teaching: Primary and Secondary, majoring in environmental science and biology. These studies are the inspiration for his own underwater photography/videography work.

VIDEO: [youtube.com/watch?v=MNufKm9z6Dg](https://www.youtube.com/watch?v=MNufKm9z6Dg)

EPISODE 1: RESCUING RAINE ISLAND / PROJECT LEADERS & EXPERTS



DR. ANDY DUNSTAN

Dr. Andrew Dunstan is currently the chief scientist for the Queensland Parks and Wildlife Service's "Raine Island Recovery Project". His interest in Raine Island goes back over 20 years when he was manager of one of the pioneering ecotourism operations "Underwater Explorer". During his role as manager Andy helped facilitate pioneering research with science collaborations in whale, turtle, shark and other research programs. He gained his Ph.D. researching the movement patterns of the Nautilus living in the deep-sea environments of Osprey Reef.



JAMIE WUTHA

Jamie Wutha is a young aboriginal Ranger of the Kemer Kemer Meriam Nation, one of the Traditional Owners of Raine Island.



DR. MATT DUNBABIN

Dr. Matthew Dunbabin joined Queensland University of Technology as a Principal Research Fellow (Autonomous Systems) in 2013. He is known internationally for his research into field robotics, particularly environmental robots, and their application to large-scale marine habitat monitoring, marine pest identification and control, and aquatic greenhouse gas mapping. He has wide research interests including vision-based navigation, adaptive sampling and path planning and cooperative robotics. Dr. Dunbabin received his Bachelor of Engineering in Aerospace Engineering from the Royal Melbourne Institute of Technology and his PhD from the Queensland University of Technology. At CSIRO he held various roles including Principal Research Scientist, project leader and the Robotics Systems and Marine Robotics team leader before moving to QUT in 2013.



PROF. PETER HARRISON

Professor Peter Harrison is the founding Director of the Marine Ecology Research Centre at Southern Cross University. Peter is a recognised leader in coral reproduction ecology and coral larva restoration and has been actively researching and teaching a wide range of marine science and ecology programs for more than 30 years. Peter was a leading member of the coral research team at James Cook University that discovered the mass coral spawning phenomenon on the Great Barrier Reef (Harrison et al. Science: 223: 1186-1189), and was a joint recipient of a prestigious Eureka Prize for Environmental Research for this discovery. He has been awarded multiple prizes for excellence in science research and University teaching including a 2009 Australian Learning and Teaching Council citation for outstanding University Teaching and two University Teaching excellence Awards.



PROF. KIRSTEN BENKENDORFF

Kirsten Benkendorff is a professor of marine sciences and an interdisciplinary researcher at Southern Cross University, focused on assessing the bioresource value of marine invertebrates. She has made significant contributions towards assessing human impacts in marine ecosystems, using molluscs as bioindicators. Her research program includes assessing the impacts of ocean climate change and environmental contaminants on the immune health and nutritional quality of seafood species. She is also investigating the use of marine molluscs for human medicine and has identified a promising anticancer and anti-inflammatory agent that is in preclinical trials. She was awarded the 2011 Dorothy Hill Award from the Australian Academy of Science, a 2008 SA Young Tall Poppy Award and the 2000 Young Australian of the Year Award in Science and Technology.



DR. BRAD NORMAN

Dr. Brad Norman, a Postdoctoral Research Fellow at The University of Queensland, has been awarded a Member (AM) of the Order of Australia for his work researching whale sharks at Western Australia's Ningaloo Reef for 25 years. Dr. Norman's work has had significant impacts on the conservation of whale sharks, preparing the original species report for the United Nations IUCN Red List of Threatened Species, which resulted in the whale shark being assessed as vulnerable. Dr. Norman's work goes beyond research, reaching out to involve people, providing benefits not just for science, conservation and whale sharks, but also for



AMELIA ARMSTRONG

Amelia Armstrong is a Ph.D. student at the University of Queensland School of Biomedical Sciences. She's interested in the use of genetic tools for manta ray population structure, size and movements throughout the Australian and the Indo-Pacific regions.

WRITERS & DIRECTORS

JÉRÔME JULIENNE DIRECTOR & WRITER

JÉRÔME JULIENNE, award-winning documentary Writer/Director, specializes in marine wildlife and under-water films. After finishing his studies in film, he immediately joined the Cousteau team, where he became an underwater cameraman, then an assistant director, and eventually a second unit director for 14 of Cousteau's expeditions. He then joined Canal + where he worked as a scriptwriter and co-director on the television series Dans la nature (Stéphane Peyron) and Aqua + (Ellipse Marine). Since his first film as director, Sea Soldiers, he has written and directed numerous series such as The Fifth Dimension (France 5) as well as over 20 one-hour international co-productions for the following broadcasters: France 2, France 3, Canal+, La Cinq, Arte, Discovery, CBC, Radio-Canada, PBS... His most recent films are Aliens of the Deep Sea (Thalassa, CBC, Discovery Science and Canal D), Vacarme en haute mer (France 2), and Hurricane (Arte & 3D Net), as co-author with Andy Byatt and John Jackson, Conversations with Dolphins (Thalassa, CBC, Canal D), Cuba, the Blue Island and Cuban, the Green Island (Arte).

JOHN JACKSON DIRECTOR

JOHN JACKSON, Director/Director of Photography, studied at Brooks Institute in Santa Barbara before working in L.A. with the renowned Jacques Cousteau or "Captain Planet" as he was then known. He stayed with Cousteau, working on the Calypso and his other boats for more than 12 years as a full time Head DOP. He then moved on to work with Discovery, the BBC and National Geographic, directing many award-winning science, history and extreme adventure documentary films. He co-directed the 3 x 52' series Hurricane for 3D Net and Arte. His most recent productions: Aliens of the Deep Sea (Thalassa, CBC, Discovery Science and Canal D), Vacarme en haute mer (France 2), Conversations with Dolphins (Thalassa, CBC, Canal D), Cuba, the Blue Island and Cuban, the Green Island (Arte).

ROBERTO VERDECCHIA WRITER

Roberto Verdecchia is an award-winning documentary director-writer-producer. For more than 25 years, he has worked on an incredibly wide range of documentaries, many for CBC's The Nature of Things, all the way from indigenous rights in the Amazon, the wild insect life inside your home, high-speed particle physics, and mountain gorillas, to the mystery of what killed Edgar Allan Poe (where he also starred as Poe himself). Aside from making movies, Roberto Verdecchia has also developed numerous social and environmental projects, from neighbourhood newspapers in Toronto to nonviolence training in Sierra Leone. He lives in Toronto with his partner, daughter and dog.



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