

# MUDDY WATERS:

## Life and Death on the Great Barrier Reef

*Written and directed by*  
Sally Ingleton

*Produced by*  
Tony Wright/Stuart Menzies/Sally Ingleton

*Film Australia Executive Producer*  
Franco di Chiera

A FILM AUSTRALIA NATIONAL INTEREST PROGRAM IN ASSOCIATION WITH DECEMBER FILMS.  
DEVELOPED WITH THE ASSISTANCE OF THE AUSTRALIAN FILM COMMISSION AND  
FILM VICTORIA. PRODUCED IN ASSOCIATION WITH SBS INDEPENDENT.

Film Australia © 2002



FILM AUSTRALIA

NATIONAL INTEREST PROGRAM



# MUDDY WATERS:

## Life and Death on the Great Barrier Reef

### SYNOPSIS

By 2010, forty per cent of the world's coral reefs may be dead. By 2030, half of the Great Barrier Reef may be gone. Parts of it are already dying, but the reasons have not always been clear.

Global warming and outbreaks of crown-of-thorns starfish have put extraordinary pressure on the reef. Now scientists have identified another threat - sediments, fertilisers and pesticides from agricultural run-off.

The reefs most at risk lie along Australia's northeastern coast between Cairns and Townsville. This is the heart of the wet tropics where high rainfall regularly causes rivers like the Tully to flood, sending huge plumes of mud and chemicals into the sea. In their natural state, native wetlands filter the rain and silt but more than sixty per cent has been cleared and drained for sugarcane.

Sugarcane farmers, suffering bad seasons and low prices, are reeling at the prospect that their land management practices may be part of the problem. Some locals are trying to bring all the parties together to develop a workable solution, but leading the way can be hard work.

*Muddy Waters* journeys to the plantations of north Queensland and into an underwater world to find out what's killing the reef and what can be done to save it. It's the story of a small community facing the challenges of responsibility and change. This time, what's at stake is one of the world's greatest natural treasures.

# **MUDDY WATERS:**

## **Life and Death on the Great Barrier Reef**

### **PRODUCTION STORY**

**by writer/director/co-producer Sally Ingleton**

Four years ago I learnt to scuba dive on the Great Barrier Reef. At the time I was working on a project far out in the Coral Sea and was fortunate enough to dive in some of the world's most pristine and untouched coral gardens. Later I went diving in Indonesia and was shocked by the contrast. Many of the reefs close to shore were bleached, covered in algae and in a general state of poor health. Whilst some of this was due to global warming, the majority was due to human impact.

I found myself wondering if parts of Australia's Great Barrier Reef were also showing signs of ill health. And if so, who was taking its pulse?

I began doing some preliminary research towards the end of 2000. I travelled to Townsville and met with several key players who are involved in studying and protecting the marine environment of the 2000 kilometre-long Great Barrier Reef Marine Park.

I was in search of a story that would show the challenges involved in looking after such a pristine piece of the environment that is subjected to commercial pressures such as tourism. To my surprise all stakeholders identified that one of the biggest threats to the reef lay on the land, not in the sea. Scientists are convinced that water pollution from the excessive chemical and pesticide use in agriculture – primarily sugar cane and bananas, is severely damaging the in-shore reefs. The sugar cane industry has made many efforts to improve the land management practice of their members but as the average age of a cane farmer is 60 years, change may be too late.

This topic is currently polarising several communities in far north Queensland who are experiencing a clash of philosophies as to what is most important – the survival of old family industries such as sugar cane or the growth of 21<sup>st</sup> century industries such as tourism.

At stake is the future biodiversity of the Great Barrier Reef.

In 2001 both the Australian Film Commission and Film Australia provided assistance to develop the project. In September 2001, I approached December Films who agreed to produce the film. Film Australia further developed the project and committed to fund production under the National Interest Program in February 2002. The documentary was pre-sold to SBS Independent.

***Muddy Waters*** is set in the wet tropics between Cairns and Townsville. The land story was centred around the rural community of Tully that has an annual rainfall of over four metres. It is one of Queensland's main centres for sugar cane and bananas.

The logistics of filming ***Muddy Waters*** were complex, as filming on or in water always takes three times as long. We were fortunate to have the full cooperation of the Australian Institute of Marine Science (AIMS) who let us travel with the team of research scientists aboard the *Lady Basten* to the wet tropics and to Princess Charlotte Bay on the Cape York Peninsula. Filming began in April and we were on board for nine days and fortunately had perfect weather. Rory McGuinness was the cinematographer for both topside and underwater. Filming underwater took considerable time and was a huge juggling act, with the Digital Betacam camera and its protective underwater housing weighing over 50 kilograms.

All the macro filming had to be done on board while the coral and barnacles were alive. This meant dealing with constant movement that is tricky with microscopic filming.

We left the *Basten* up on the Cape York Peninsula and hitched a ride back to Cooktown via a marlin boat. This proved to be quite an adventure as bad weather turned a 10-hour trip into an 18-hour journey. On arrival, we encountered two weeks of solid rain in late April for filming of the land story. This made filming awkward but after months of dry weather, at least the rivers filled up and there was plenty of run-off coming off the farms for us to record – all essential to the story. Finally I understood why Tully is the wettest town in Australia!

An additional week of filming took place in late August to pick up the sugar cane harvest and follow through some storylines such as Dick Camilleri putting in a silt trap. During harvest time, north Queensland is busy. Harvesters go from dawn until nightfall and sugar trains rattle through the cane fields. It is very picturesque and was an important addition to the look of the film. Despite a record bumper harvest, the main talk around town was how was it possible to save the sugar industry? World prices had plummeted due to a glut on the market and farmers were lamenting that they were getting less for their crop than the cost of production. The government has offered a rescue package to encourage farmers to diversify or leave the industry altogether. There is also increasing pressure on farmers to be seen to be changing their land management practices to incorporate environmental codes of practice. As the industry ages it is likely that many will sell their farms. It will be interesting to see what the future of the Australian sugar industry holds over the next decade.

## Additional Notes

### Sugar cane farming

- Queensland produces 95 per cent of Australia's raw sugar and it's one of the country's largest export crops.
- There are over 6000 cane farmers and many north Queensland towns have been built around the sugar dollar. Most farmers have been running family farms for three or more generations.
- Sugar cane cultivation ideally needs warm sunny weather, freedom from frost, well-drained soil and at least 1500 mm of rain or irrigation per year. Fine, relatively cool weather immediately before harvesting retards plant growth and increases the sugar content of the cane. With the high rainfall of the wet tropics, farmers have drained the natural wetlands in order to get the water off their crops quickly. The wetlands traditionally filtered the rain and sediment and slowed down the flood flows. Now with more than 60 per cent of the Great Barrier Reef's coastal wetlands cleared, heavy loads of sediment, nutrient and pesticides are being washed down the river and out onto the near shore reefs, covering the coral with a layer of thick sticky mud.
- The sugar cane industry has developed environmental codes of practice, but encouraging farmers to implement them takes time and resources. Many farmers want to see the scientific evidence and can get confused when opinions differ.
- **Muddy Waters** has helped contribute to the debate and in November 2002 a meeting was held between the Tully Sugar Mill and scientists from the AIMS. The result was more understanding and farmer Dick Camilleri offered an open invitation to Dr Katharina Fabricius (senior scientist at AIMS) to come and visit his farm to witness his land management practice first-hand.

## **Sugar cane farmers**

### **Ross Digman**

Ross's great-grandfather grew sugar cane along the Tully River and is credited with being one of the founding fathers of the Tully sugar industry. Ross bought his parents' farm and up until the late 1980s farmed in much the same manner as his parents had. A keen fisherman, Ross noticed how the fish stocks were running low and realised that the years of draining the natural wetland habitat had affected the fish breeding grounds. He decided to build an artificial lagoon on his property. Ross now has three such lagoons and to the locals is known as a 'greenie'. After years of derogatory comments, local farmers are finally taking notice of Ross's environmental techniques and he's now in demand up and down the coast as a speaker.

Ross was an enthusiastic subject. He has made amateur videos and was keen to offer suggestions as to where best to film. Often he would ring at 6am reporting on where run-off was occurring on his farm, keen as mustard for us to come and film it.

### **Dick Camilleri**

Dick is a charismatic jovial farmer with a quick tongue and a memorable turn of phrase. He is deputy chairman of the Tully sugar mill and one of its most successful cane growers. Dick has been a farmer all his life. His father emigrated from Malta in 1927, moved to the north Queensland cane fields where he stayed and had a family. By 14 years of age Dick was clearing land by hand and by 18 he was running the farm. In those days when farmers cleared the wetlands, or 'swamps' as they were known, they were applauded for turning what was seen as unproductive land into one of Australia's biggest export crops. Dick is a proud farmer and finds it hard to understand why farmers are being blamed for creating environmental ills. His view is that everything they have done they have been told to do by governments or industry bodies – from clearing the land to the amounts of chemicals they put on their crop. He questions the scientific community because he feels he hears so many different stories he does not know who to believe.

Dick was willing to be filmed for ***Muddy Waters*** as he felt it important to get the 'right message' across to the people in the cities.

## **The Australian Institute of Marine Science (AIMS) Study: “Effects of Runoff on Coastal Reefs”**

- In mid 2000, the Australian Institute of Marine Science and the Reef Co-operative Research Centre started a two-year study comparing two geographically similar coastal reef systems.
- The sites were just south of Cairns, around Dunk Island, the Frankland Islands and Fitzroy Island. These are popular tourist destinations and in the past have had spectacular coral reefs. With the steady increase in cropping around the flood plains along the coastal rivers, there has been an increase in the use of fertilisers and pesticides. Further up the river system there has been extensive cattle grazing which has led to erosion and soil loss.
- During the wet season, the rivers flood and excessive sediment, nutrients and chemicals are flushed down the waterways into the sea. This sediment is thought to smother the coral polyps and tiny marine organisms. The study is examining how the coral can survive these regular doses of sediment and nutrients, and monitoring how the nutrients may be leading to a change in which species dominate the in-shore reefs.
- This area is compared with a series of coral reefs in Princess Charlotte Bay on the Cape York Peninsula. In this part of Australia there has been little agriculture or human development, yet the shallow sea floor makes the water around the coastal reefs silty. But without the addition of farm chemicals - the corals are in pristine condition.

## **The Australian Institute of Marine Science (AIMS) Study: “Effects of Runoff on Coastal Reefs”**

### **Team Leader: Dr Katharina Fabricius**

The team leader is Dr Katharina Fabricius, who has made six field trips in the past two years (2000-2002) to these locations. German-born Katharina is in her late 30s and has worked on coral reefs for over 15 years. She has dived in almost every coral reef in the world but has chosen Australia’s Great Barrier Reef as her research base.

Katharina is a senior scientist at the Australian Institute for Marine Science. In the 15 years she has been diving on the Great Barrier Reef, she has seen a marked difference in the health of various reefs and is keen to identify what has led to the demise of some of the reefs. One of her theories is that when sediment lands on the coral polyps they can manage to slough it off, but when sediment is mixed with nutrient and chemicals, only few baby corals settle and survive on the reefs, so reefs don’t recover from disturbances like bleaching or cyclones. As a result, a large number of coral species are missing and coral cover is poor.

## **MUDDY WATERS: Life and Death on the Great Barrier Reef**

### **BIOGRAPHIES**

#### **Sally Ingleton - Writer/director/co-producer**

Sally is a writer/director/producer who has been working in video production since the mid '80s. Her films include: *The Tenth Dancer* (1993) for ABC TV and BBC TV's Anthropological series *Under the Sun*; *Silk and Steel* (1995) for ABC TV; *Mao's New Suit* (1997) for SBS TV/Channel Four; *Pandora's Secrets* (1999) for BBC/Discovery Channel, *Painting Country* (2000) for NHK/SBS and *Dolphinmania* (2001) for ABC TV.

She was writer/researcher on the award-winning six-part series *Grey Voyagers* (2000) for SBS/RTE Ireland and her other awards include: Best Documentary Chicago Documentary Film Festival 1997, finalist for Best Documentary at the Dendy Awards Sydney Film Festival 1997 and at the Hawaii International Film Festival 1997 for *Mao's New Suit*. She was awarded a Golden Gate Award, at the San Francisco Film Festival 1994; Best Documentary ATOM Awards; Silver Plaque, Chicago Film Festival and finalist Best Documentary at the Hawaii International Film Festival 1993 (amongst others) for *The Tenth Dancer*.

Sally has also worked as a lecturer at AFTRS, RMIT and Open Channel and as Documentary Manager at Film Victoria, and has served on the board of the Australian Screen Directors' Association and the Australian International Documentary Conference.

#### **December Films**

December Films (Tony Wright and Stuart Menzies) is one of Melbourne's most energetic film and television production companies. With a broad slate of documentary and children's television they have developed a sound working relationship with a number of broadcasters including the Australian Broadcasting Corporation (ABC), Special Broadcasting Services (SBS), the British Broadcasting Corporation (BBC), Radio Telefís Éireann (RTE, Ireland), Nickelodeon (UK) and the Seven Network (Australia).

#### **Tony Wright and Stuart Menzies - Producers**

Documentary credits include: *Grey Voyagers* (2000) for SBS TV; *A Shared Table* (1999), a seven-part documentary series with cook and restaurateur Stephanie Alexander for ABC TV; *Auto Stories* (1999), a four-part documentary series commissioned by Film Australia for ABC TV; *For the Defence* (1998) for ABC TV; *Mama Tina* (1998) for ABC TV; *Grey Nomads* (1997) for ABC TV; *Hospital* (1997) for ABC TV; *The Hillmen - A Soccer Fable* (1996) for SBS TV (winner of 1996 Australian Film Institute Award for Best Television Documentary); *Hollywood Hotel* (1995) for ABC TV, and *What's So Funny?* (1994) for ABC TV.

# **MUDDY WATERS: Life and Death on the Great Barrier Reef**

## **CREDITS**

Writer, Director and Co Producer  
SALLY INGLETON

Producers  
TONY WRIGHT STUART MENZIES

Director of Photography  
RORY McGUINNESS, A.C.S.

Sound Recordist PAUL FINLAY

Editor TONY STEVENS

Composer ANDREW DUFFIELD

Narrator ROBERT MENZIES

Additional Camera PHILIP BULL  
Additional Sound CHRIS WEST  
Assistant Editor JEFF DANIELS  
Sound Post SOUNDWAVES  
Production TRISTAN MEREDITH PETER WALKER  
Post Production DIGITAL PICTURES  
On Line Editor GEORGE AWBURN  
Colourist JUSTIN HEITMAN  
Production Accounts MONIKA GEHRT  
Script Consultants DR LISA DETHRIDGE GAEL  
JENNINGS STEVE WESTH

Graphics OLE STURM  
Transcript ANNEMAREE ALLAN  
Post Production Script KERRY MCGOVERN  
Stills IAN COURTNEY SALLY INGLETON TONY  
WRIGHT KATHARINA FABRICIUS

Film Australia Production Unit

Business Affairs Manager SALLY REGAN  
Production Liaison KAREN SKEA ISABEL PEREZ  
Production Secretary LUCY SALT  
Production Assistant SALLY CREAGH  
Production Accounts LISA CALDER

Music Co-Producer BILL MILLER  
Keyboards ANDREW DUFFIELD  
Shakuhachi Andrew MacGREGOR  
Guitarist BILL MILLER SEAN KELLY  
Percussion BARTON PRICE  
Viola & Violin TOM FITZGERALD  
Pan Pipes & Wind Controller BRIAN BROWN  
Assistant Engineer JAMES ROWE  
Woodwind JOHN BARRETT

SPECIAL THANKS TO  
Dick Camilleri  
Dr. Katharina Fabricius  
Ross Digman  
Jason Aridis  
Sheriden Morris  
Nat La Spina  
Dr. Christian Roth

THANKS TO  
Theresa Millard, Tony McKenna, Jon Brodie, Arthur  
Brook, Tip Byrne Lewis, Lindsay Harrington,  
Warren Mitchell, Alf Hogan, Crew of Lady Basten,  
Peter Lucy, Alan Mitchell, Andrew Morgan, John  
Reghenzani, Ken Sallows, Delmo Tarditi, Dr. David  
Williams, Reef CRC  
Australian Institute of Marine Science, Dunk Island  
Resort, Great Barrier Reef Marine Park Authority,  
Queensland Parks & Wildlife Service, Tully  
Connections, Frankland River Cruises  
People of Tully, North Queensland

Archive reproduced courtesy of

Australian Institute of Marine Science  
Steve Gardner Coral Sea Imagery  
Fred Heyer  
Film Australia  
Screen Sound  
WIN TV  
Australia Talks Back (ABC Radio National)  
Sugar Report (ABC Local radio)  
Bureau of Meteorology

Made with the involvement of Singing Nomads  
Productions

Developed with the Assistance of Australian Film  
Commission

Developed with the Assistance of Film Victoria

Produced in association with SBS independent  
Commissioning Editor NED LANDER MARIE  
THOMAS

A Film Australia production  
in association with December Films

Executive Producer FRANCO DI CHIERA

A NATIONAL INTEREST PROGRAM  
Film Australia Ltd Copy MMII  
[www.filmaust.com.au](http://www.filmaust.com.au)