

# TALL POPPY CAMPAIGN

*Investing in Australia's Future*

## Young Tall Poppy Profile: Dr Culum Brown

**Name:** Culum Brown

**Title** (ie. Dr, Assoc Prof, etc): Dr

**Research Field:** Fish Behaviour and Ecology

**More Specifically:** Learning and memory in fishes

**In other words:** Understanding how the environment shapes the behaviour of fish

**Abbreviated Qualifications:** BSc (Melb), BSc (Hons Class 1; UQ), PhD UQ

**Current position:** Australian Research Fellow, Lecturer

**University/Institution:** Macquarie University

**What do you do?** (in 100 easy-to-understand words or less)

My research examines how genes and the environment shape the behaviour of fish. My primary focus is on learning; ie how fish change their behaviour as a result of experience. Contrary to popular belief, fish actually have a good memory and learn quickly. Their behaviour varies depending on the environment in which you catch or rear them. I mostly work with freshwater fish because they are understudied and freshwater ecosystems are under threat (think Murray Darling Basin). I also examine how native fish interact with exotic pest species and develop protocols to enhance the post-release survival of hatchery-reared fishes.

**Why is this research important? How is it relevant to society at large?**

Whilst much of my research is driven by curiosity it also has plenty of applied aspects to it. Many freshwater ecosystems are under threat from over-exploitation and habitat degradation. Some of these threats include introduced pest fish species such as mosquito fish and redfin. The research in my lab examines how native and introduced fish interact and if naïve fish are capable of learning to cope with introduced species. Another method of resurrecting fish stocks for both recreational fishing and conservation biology is to rear them in hatcheries and release them into the wild. By teaching fish to recognise predators and prey, we better prepare them for life in the wild and thereby increase their chances of survival.

**What's difficult about it?**

The saying goes "never work with children or animals". Well imagine working with young fish and you start to get the picture. This job requires a lot of patience. Fish can be very frustrating at times, especially if it's a species you are unfamiliar with. It takes a long time to figure out what works for them and what doesn't. Number one rule: Never fight the fish! You have to work with them and swim with the flow.

**Why are you passionate about it?**

I spent a decent chunk of my childhood in SE Asia. There are some pretty spectacular beaches and reefs over there. I used to watch the local fisherman bring in their nets then run around and rescue all the little ones. Nothing has really changed I guess, now I just get paid to save fish. I'm particularly passionate about freshwater fish. Australian freshwater fish can be super spectacular and hardly anything is known about them. Given that a large percentage of them are still undescribed and the rest are threatened, I figure it's my duty to bring their plight into the lime light.

**Why share your research with high school students?**

Most people don't have a clue about fish. But when you take kids to an aquarium or take them snorkelling, suddenly they realise there is a whole world out there that they have never seen before. Nothing beats Scuba diving with a bunch of fish swimming around you going about their business. If people were more aware of this, I'm sure our rivers and oceans wouldn't be in the state they are currently in.

**Why study sciences?**

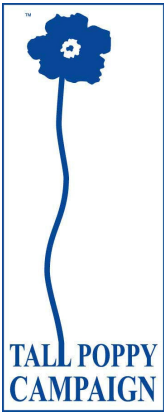
For anyone who wants to know the reason for anything or is naturally curious: science is the answer. Young kids ask hundreds of questions per day. If you ask me, we are all born scientists. I guess in

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some people the curiosity is never suppressed, others go on to be accountants... go figure. For me nothing beats going out sampling fish. Its like a lucky dip: you never know what you are going to turn up!

**Is it what you've always wanted to do?**

When I was a kid I wanted to be a marine biologist and chase dolphins. I've grown up a bit since then but not much!

**What else are you into?** (ie. What are your hobbies and interests when you're not researching)?

Rock climbing, Cycling, Scuba Diving, Hiking, anything outdoors in/under/on water

**Public profile** (Please list the science promotion activities you have taken part in – incl. University Open Day activities, community programs, talks etc and media articles featuring you/your research):

- Advisory board member for the Qld. Department of Primary Industries, Fisheries.
- Member of the CSIRO's *Scientists in Schools* program
- Open Day at Macquarie University 2007, 2008
- ABC's Ultimo Science Festival 2007
- Edinburgh Science Festival Organiser 2005
- Cheltenham Science Festival 2004 *Can we get inside animal minds?*
- Featured on TV, highlights include; BBC *A Child of Our Time*, BBC *Toyota World of Wildlife*, ABC *Catalyst*, Discovery Channel *Daily Planet*, Network 10 *Totally Wild* (3 times), Network 10 *Scope*, Red TV *Science Sussed*, AOL Video *Animal World* etc...
- Radio, including: BBC *Future Fish*, J-Wave 81.3 FM Japan, SABC, CABC, ABC Regional and National Radio, Radio National NZ, 2UE *Drive Time*, a series of interviews on 2SER's *A Question of Balance* and others
- Print media; *New Scientist* (3 times), *TIEDE* (Finland), *Bioforum* (Germany), *Discovery Magazine* (USA), *The Age*, *Sunday Times* (UK), *The Scotsman* (Scotland), *The Times* (UK), *Edinburgh News*, *The Week*, *The Australian*, *Metro* (UK), *The Independent* (UK) and others

**Your achievements - How did you get where you are today?**

**Your HSC subjects:** Maths, Biology, Physics, Geography, English

**Degrees:** Bachelor of Science, major in zoology, University of Melbourne 1993; Bachelor of Science Honours 1st Class, University of Queensland 1995; Doctor of Philosophy University of Queensland 2000.

**Some of your previous position/s:**

Lecturer in Animal Behaviour, University of Canterbury, NZ

Post-doctoral Researcher, University of Edinburgh, UK & Smithsonian Tropical Research Institute, Panama.

Post-Doctoral Researcher, University of Cambridge, UK

Fisheries consultant for both government and private sector

Marine Education Officer, Australian Institute of Marine Science

**Current position:** Lecturer and Australian Research Fellow (ARC) at Macquarie University

**Relevant awards and prizes you have received as part of your studies/research/work:**

Australian Post-graduate Award

Australian Research Fellowship

Australian Academy of Science Early Career Researcher Award

Teaching and Development Award (NZ)

**Summary of published works:**

- Assistant Editor of the "*Journal of Fish Biology*" 2006
- Editor "*Fish Cognition and Behavior*" Blackwell Scientific 2006
- Invited Editor of "*Fish and Fisheries*" Volume 4 Issue 3, 2003
- Published over 35 peer reviewed papers on fish behaviour plus numerous government and private industry reports.

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