



## **Marine Innovation South Australia**

*Excellence in marine science inspired through collaboration*

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**The Marine Innovation South Australia Student International Travel Grant 2009-2010**

### **Candidate details**

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*Degree enrolled in (Hons/MSc/PhD):* PhD

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### **Conference information**

The international conference must be within 12 months following the closing date for application.

*Conference name:* 8th Indo Pacific Fish Conference and 2009 ASFB Workshop & Conference (<http://www.ipfc2009asfb.com/index.html>)

*Conference location:* Fremantle, Western Australia

*Conference dates:* 31 May - 5 June 2009

## **8th Indo Pacific Fish Conference and 2009 ASFB Workshop & Conference**

The joint IPFC-ASFB conference held in Fremantle, Western Australia brought together some of aquatic sciences' leading professionals, scientists, students and lecturers from across the world. The conference and workshop focused on the issues in conserving aquatic biogeography and biodiversity with some 400 plus presentations and posters over the week long meeting.

Thanks to the MISA Student International Travel Grant I was able to attend this conference and broadcast some of the findings of my PhD research to the broader science community. I presented my work on the application of measurements of telomere lengths as an age determinate for fish. Telomeres, the caps of all eukaryotic chromosomes, function to protect chromosomes from DNA degradation. Recently, telomeres and more specifically, changes in telomere lengths over time have received interest as a novel means of determining the ages of animals. I presented some of my findings on telomere length relations with chronological age in the common carp (*Cyprinus carpio*) – my test species. While my research highlighted the potential for telomeres to determine the ages of wild caught fish, there was also a lot of interest in the application of telomeres as a condition index for individual fish. As an aside, my presentation also received an honourable mention (i.e. second prize) among the other 150 plus student presentations.

The telomere research that I presented received interest from some members of the seafood industry as a measure of fish condition/health. Changes in telomere lengths can be exasperated by 'stress events' (e.g. poor diet, competition and stress), which in turn increases the individuals susceptibility to disease and an overall loss in fitness/condition. The application of telomeres as an index of an individual animal's health/condition as well as their long-term fitness was of particular interest to some members of the (research) aqua-/mari-culture industry. Moreover, telomere length measurements may also be used as a bioindicators of environmental health by tracking telomere length changes in designated 'bio-indicator' species

I may also be able to explore the use of telomeres as a forensic tool to be applied in the management of harvested marine mammals (i.e. sea lions, whales). The ability to differentiate between harvested individuals will provide a useful forensic tool for the demographic management of a commercially exploited population. This has more of a direct application to the commercial harvests in Africa and the Americas, but the further development of telomere ageing in marine mammals may also provide a non-lethal means of determining the ages of whales and eliminating the requirement for destructive sampling. Hopefully, by linking up with some of the people that I was able to meet at the IPFC-ASFB conference I will be able to test the application of telomeres in a pinniped (seal, sea lion) species.

On a more personal level, the MISA International Travel Grant provided me with an opportunity to receive feedback on my findings, and my research aims in general from a range of multi-disciplined researchers. Furthermore, by attending the IPFC-ASFB conference I was able to undergo a certain measure of professional development. Attendance provided me the opportunity to broaden my collaborative ties in Australian and internationally and furthered my active participation in the field as I was elected the ASFB's student representative.

I would like to thank the Marine Innovation South Australia Student International Travel Grant and the South Australian Seafood Industry for the opportunity presented to me.