



RGSQ Bulletin

ISSN 1832-8830

April 2024
Vol 59 no 03

Published by The Royal Geographical Society of Queensland Ltd., a not-for-profit organisation established in 1885 that promotes the study of geography and encourages a greater understanding and enjoyment of the world around us.

Patron: [Her Excellency the Honourable Dr Jeannette Young AC PSM, Governor of Queensland](#)
President: Mr John Tasker

What's happening on Council?

The Society's Council met on Tuesday 19 March. Items of interest include:

- The YouTube recording of the April Geography Matters presentation – *Ice sheet stability and sea level rise in Australia* by Poul Christoffersen and Adrian McCallum – had already had over 5,000 views. If you missed it, you can watch it now on Society's YouTube channel: <https://www.youtube.com/watch?v=S9NCD2zZnKo>
- The Society has changed its internet and phone service provider. If you've had any problems, or noticed any difference (good or bad), please pass that feedback to Lilia in the office.
- Along with the rest of the Queensland Science Network, the Society had to cancel its participation in the City of Science event. With very short notice we were told that everyone staffing the stand would need blue cards (Working with Children clearances). It was impossible to meet this requirement in the time available. We'll try again next year.
- The IT Management Committee is requesting quotes for the IT management services that are currently provided externally.
- The events organised by the Treks and Activities Committee continue to be very popular and fill up fast, often with waiting lists. So don't delay if you see something of interest.
- Judging panels for the Geography Writing Competition have been organised. See yourself as a budding author? Submit your short story by the end of April. Full details at: <https://rgsq.org.au/event-5551067>

For further information on any item, please talk to a Councillor at a Society event, or send an email to info@rgsq.org.au.

Vale Doug Hoare

We are sad to report the death of Doug Hoare, one of the Society's more long-standing members having joined in 1969. Until his retirement, Doug was a geography teacher. His dedication to the advancement of geographical education was shown not just through his long and active involvement with the Society, but also through his leadership within the Geography Teachers' Association of Queensland. Our sincere sympathy to his wife Valerie and family.

Monthly Lecture

Conserving and utilizing the Australian flora for food and energy

Tuesday 9 April, 7:30 PM – 9:00 PM

Gregory Place, 1/28 Fortescue St, Spring Hill & Zoom

Register: <https://rgsq.org.au/event-5633581>

Professor Robert Henry

Professor of Innovation in Agriculture in the Queensland Alliance for Agriculture and Food Innovation at the University of Queensland



The diverse Australian flora contains many species that are wild relatives of important crops.

These species have had limited use as a source of variation in crop breeding. Recent advances in genome sequencing have made it possible to explore the genomes of these species to evaluate their utility. The genomes of many Citrus species have novel and potentially important disease resistance genes. Oryza (rice) species have novel quality and nutritional traits. Some of these species are key targets for de novo domestication to expand the range of crop species. Genomics is a key tool now being applied in conservation of biodiversity in ecological restoration and in protecting the populations of crop wild relatives that are key genetic resources for agriculture and food.

Bio: Robert Henry is Professor of Innovation in Agriculture in the Queensland Alliance for Agriculture and Food Innovation at the University of Queensland. His research aims to conserve and utilize biodiversity to support food and energy security with a focus on genomics of crop wild relatives. He established the Centre for Plant Conservation Genetics at Southern Cross University and was Foundation Director of the Queensland Alliance for Agriculture and Food Innovation. His research is supported by the ARC Centre of Excellence for Plant Success in Nature and Agriculture, and he is Director of the Research Hub for Engineering Plants to Replace Fossil Carbon.

GEOGRAPHY IN CONVERSATION

The Brisbane River: Lower Catchments to the Mouth

Tuesday 23 April

Register: <https://rgsq.org.au/event-5659845>

Speakers: **Mr Scott Chaseling**, the Principal Program Officer responsible for Natural Environmental outcomes at Brisbane Sustainability Agency, **Mr Leo Lee**, the President of Save Our Waterways Now (SOWN) which is the Enoggera Catchment Bushcare group and **Mr Robbie Porter**, Senior Special Projects Officer, Ozfish Shellfish Revolution.



Brisbane River Oxley Creek Mouth; courtesy of Mr Scott Chaseling

Oxley Creek Transformation - Brisbane City Council has committed \$100 million over 20 years to transform Oxley Creek, from its mouth at the Brisbane River to Larapinta, into a world-class green lifestyle and leisure destination.

When SOWN began, the local creeks and waterways were seen as dumping grounds for rubbish and weeds. SOWN has sought to engage with and educate the community about the benefits of creeks for residents and for the environment. Enoggera Catchment creeks are now highly valued by the local community for their environmental and lifestyle benefits.

Ozfish, on 15 October 2021, launched the largest community-driven shellfish reef restoration project in Australia in Moreton Bay. Over the next six years, volunteers will build more than 50,000 robust Oyster Baskets (ROBs) and deploy them to reform a living vibrant ecosystem donated for restoration by the Port of Brisbane.

Each speaker will have 8-10 minutes to spotlight their work. During the Q&A forum the audience will have 60 minutes to ask questions of the experts on their projects.

Please post your questions on notice to:
questionsonnotice@gmail.com

Date: Tuesday 23 April 2024

Time: 5:30pm light refreshments – doors open @ 5:15pm

6:00 – 6:30 pm Presentations

6:30 – 7:30 Q&A Forum

7:30 – 8:00 Mingling

Place: Gregory Place, Level 1, 28 Fortescue St. Spring Hill, 4000

Cost: \$5.00 for refreshments, included in registration.

Cost: \$5.00 members; \$10.00 non-Members

\$5.00 students



Treks and Activities

BRISBANE'S OLD INNER DAMS

Wednesday 15 May

Register: <https://rgsq.org.au/event-5640307>

Join us on a tour of the old inner dams of Brisbane – the city's early water supplies before the Somerset and Wivenhoe Dams



Gold Creek Reservoir water intake; credit Ralph Carlisle

Time and place: Depart Enoggera bus station at 8.30am. Please arrive by 8.15am.

NOTE: NOT Eagle Junction!!!

The bus station is located immediately adjacent to the Enoggera rail station (Ferny Grove line) and is connected to it by a pedestrian overbridge. BCC buses service the bus station.

Off-street parking is available at the station (enter from Glenalva Terrace), while on-street parking is available in Glenalva Terrace and surrounds.

The tour visits the following:

1. Enoggera Dam
2. Gold Creek Dam
3. Lake Manchester
4. Mt Crosby Weir and
5. Mt Crosby Westbank Water Treatment Plant - Seqwater (1.30 pm)

BYO Morning tea - at Gold Creek Dam (bring your own)

BYO Lunch - Picnic lunch at Lake Manchester (bring your own)

Return to Enoggera Station about 3.30pm - 4.00pm.

Cost: members \$50; non-members \$60

28 registrants MAXIMUM. Register and pay by Tuesday 23 April 2024

Participants, please note - the outing involves about three hours of bus travel.

At each stop, there is the opportunity for walking short distances to various points of interest. There will be the opportunity to walk to the top of Gold Creek Dam - a steep climb! Toilets are available at each of the stops.

At the **Water Treatment Plant** (courtesy Seqwater):

- **Mobility:** Tour group members will be required to walk up and down stairs and sustain an hour of walking around site.
- **PPE:** Full-length pants and sleeves, closed in flat shoes.

Also, please bring sun safe clothing, hat and sunscreen, water and camera as well as picnic lunch and morning tea makings.

Ralph Carlisle (Event Coordinator)

Geographical Research News

Using giant clam shell geochemistry to understand past environmental change and human-environment interaction on Lizard Island

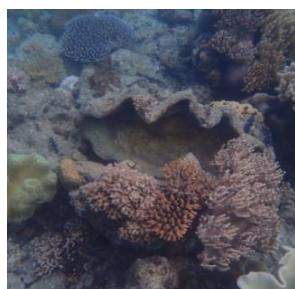
By Bohao Dong, RGSQ Scientific Studies Committee research grantee, University of Melbourne, School of Geography



The giant clam (*Tridacnidae* spp.) is an historian lying in shallow seawater sea, writing a diary during its lifespan. The date of the diary is the radiocarbon age and the periodical increments. The content of the diary is the surrounding seawater parameters, including sea surface temperature (SST), sea surface salinity (SSS), dissolved inorganic carbon (DIC) and insolation. The language is geochemistry.

Variations in earth's environment have been larger and more frequent in the last Quaternary geological period (2.58 million years ago to the present). High-resolution past climate reconstructions are needed to provide crucial baselines for understanding global environmental changes and enable better adaptations to current and future climate change. Giant clams have a widespread distribution in the subtropical-tropical Pacific region. They have high growth rates, clear increment bands and long lifespans, enabling long continuous reconstructions. The annual and daily shell increments can provide monthly, and ultra-high resolution paleoenvironmental data using geochemical methods to decode the information preserved within giant clam shell.

I am collecting fossil, archaeological and modern samples of giant clam shells from Lizard Island, on the Great Barrier Reef, Queensland. The first step is using modern giant



clam samples for calibration using instrumental data to build an accurate and reliable relationship between giant clam proxies and the paleoenvironment. Secondly, I apply this relationship to archaeological and fossil giant clams to reconstruct paleoenvironments since 6500 years ago.



I am very grateful for the RGSQ grant funds which have been utilised for some travel costs and fieldwork sample transportation from Lizard Island to Melbourne. I have now finished collecting *in-situ* samples: five adult-size modern giant clams, one adult-size Little Ice Age giant clam and 18 juvenile-size archaeological giant clams have been collected and transported to the University of Melbourne. I am currently focusing on the largest modern shell which is 81 cm in length and 51 cm in width. The sample was cut into 8 sections for further analyses and powder samples are accessed by micro-drilling at the University of Melbourne and the Australian Nuclear Science and Technology Organisation (ANSTO). Our results so far include: (1) The giant clam shell includes approx. 60-year modern environmental parameter records; (2) The proxies preserved in the giant clam shell have potential to indicate local environment records; (3) stable oxygen isotopes and the ratio of magnesium calcium show very clear annual variation which can be used to build a *sclerochronology* (the study of physical and chemical variations in the accretionary hard tissues of organisms, and the temporal context in which they formed) timeline; (4) stable oxygen isotopes show a close relationship with the local SST.

We are currently conducting further data processing and analysis to gain additional insights into the relationship between the shell proxies and the local environmental history.

Photos by Bohao Dong

References:

- Arias-Ruiz, C., *et al* 2017. *Geochemical fingerprints of climate variation and the extreme La Niña 2010–11 as recorded in a Tridacna squamosa shell from Sulawesi, Indonesia.* Palaeogeography, Palaeoclimatology, Palaeoecology. 487, 216–228.
- Elliot, M., *et al* 2009. *Profiles of trace elements and stable isotopes derived from giant long-lived Tridacna gigas bivalves: Potential applications in paleoclimate studies.* Palaeogeography, Palaeoclimatology, Palaeoecology. 280, 132–142.
- Lowe, J.J., *et al* 2006. *Introduction | Understanding quaternary climatic change.* Encyclopedia of Quaternary Science 28–39.
- Sano, Y., *et al* 2012. *Past daily light cycle recorded in the strontium/calcium ratios of giant clam shells.* Nature Communications 3.

Water Security – Dams, Desalination and Drinking

Report **GEOGRAPHY IN CONVERSATION**

27 February 2024

The first Geography in Conversation event for 2024 was held on 27 February and examined current and future challenges for ensuring water security in Southeast Queensland. All speakers touched on how achieving water security requires both water supply and water quality to be addressed.



Lisa Welsh, Executive General Manager Customer, Strategy and Planning from Seqwater began by providing an update on the most recent Water Security Program. Ensuring sufficient water supply after 2035 will become increasingly difficult due to the accumulating impacts of ongoing climate change and population growth. Business cases are being prepared to expand the capacity of the Tugun Desalination Plant on the Gold Coast and construct a second plant to the north of Brisbane. Additional desalination will be essential to offset the declining yield flowing into dam storage as rain events become more extreme but more intermittent.

Professor David Hamilton, Director of the Australian Rivers Institute at Griffith University presented modelling of Wivenhoe Dam during the 2022 floods which showed how the importance of catchment management to ensuring dams can operate safely fulfil their dual roles of water supply and flood control. Hundreds of thousands of tonnes of pathogen-laced sediments from the upper catchment were dumped against the dam wall in 2022. This threatened the ability of the water treatment facilities to function. Investment is therefore needed in nature-based solutions to minimise soil erosion and improve water quality.

Dr Iris Tsoi from Healthy Land and Water addressed the poor public awareness of and engagement with the issue of water security. Healthy Land and Water surveys have found that 45% of people believe water resources are infinite and only 26.5% of people are involved in activities to improve waterway health. A case study from the Warrill Catchment identified that erosion can be reduced by 50% if riparian forest cover is increased by 30%. The Seqwater catchment is 97% privately owned and broad community engagement is therefore essential to ensure our water supply remains safe and secure.

Photo: Daphne Stephens

Contributed by Riley Kernaghan

What's a young geographer's favourite board game?

Apparently 'Ecosystem' and 'Evolution' (rounded out with a hilarious whole group game of 'Hues and Cues')!



A big welcome and thank to all the familiar faces and the new students and professionals who joined us on Friday 1st March at the University of Queensland for our welcoming board game night. It was a wonderful to learn about what geographers are interested in and involved with across Brisbane while enjoying delicious pizza and games.

Keep an eye out for our next Young Geographers map-athon event in early April and in the meantime check out the wide range of upcoming RGSQ events at: <https://www.rgsq.org.au/events>. Photo: Giselle Pickering

Contributed by Giselle Pickering

Ice Sheet Instability and Sea Level Rise in Australia

Report **GEOGRAPHY MATTERS** 12 March 2024

Professor Poul Christoffersen, a glaciologist joined the University of Tasmania in 2023. Poul is a member of the Centre of Excellence in Antarctic Science and the Australian Antarctic Program Partnership. He was a Lead Scientist of the International Thwaites Glacier Collaboration in Antarctica, funded by research agencies in UK and USA.



In the 1990's ice melting caused half of the global sea level rise, by 2010 this had risen to two-thirds. Predictions into the future are difficult because continents are moving. Sea level rise is a local effect. The IPCC Summary for Policymakers has potential high-level predictions between 0.5 and 1 metre according to computer models associated with ice sheet stability. Poul explained the dynamics of hydro fractures where liquid water flows into fractures. The Thwaites Glacier is sensitive to ocean heat due to the Amundsen and Bellinghousen Seas warming and the loss of ice sheets. Climate change is a concern for the Denman Glacier in Australian Antarctic Territory.

Poul was joined by Dr Adrian McCallum, University of the Sunshine Coast who holds a PhD from the Scott Polar Research Institute to discuss the topic further. It was a

great discussion on the Antarctic ice sheet dynamics and climate change in polar regions.

You can find the recording of the presentation on our YouTube channel: <https://youtu.be/S9NCD2zZnKo>

Contributed by Pamela Tonkin

A HOUSING CRISIS – QUEENSLAND PERSPECTIVES

Report **HOUSING FORUM** Friday 22 March



On Friday 22 March 2-5pm the RGSQ and the UQ School of the Environment (SENV) held a public forum, organised and chaired by Assoc. Prof. Thomas Sigler (RGSQ member and SENV) and Dr. Iraphne Childs (RGSQ past president) on the housing crisis in Queensland. The venue was UQ's Viewpoint on the St Lucia campus. We were very grateful to have sponsorship from URBIS. A total of 72 registrations were received via the RGSQ website of which 51 were in-person attendees (22 general public, 10 RGSQ members, 3 SENV members, 16 students) and 21 on Zoom.



The keynote address was given by Ms. Julie Saunders from URBIS: *Observations on the Queensland Government housing policy*, followed by presentations from:

- Assoc. Prof. Elin Charles-Edwards (UQ-SENV) *The demography of the housing crisis*

- Mr. Murray Benton (Q Shelter) *Community Housing Futures Program Queensland*
- Ms Rachel Gallagher (UQ-SENV) *Character contradiction: how Brisbane planning excludes low-income households from desirable suburbs.*

Lively participation from the audience and during a wrap-up panel discussion included critical questions relating to:

- Length of time required in Queensland to adequately supply social housing
- Changing household size and links to migration
- Meeting the needs of vulnerable community groups
- The impact of Brisbane's current land use zoning scheme relating to housing supply

Comments on the forum from in-person attendees were very positive. A group of participants joined the organisers and speakers for social drinks at St. Lucy's café on campus after the forum.

Many thanks to RGSQ members who helped on the day: Kath Berg, Ralph Carlise, Daphne Stephens and Nuzhah Tarsoo.

Photos: Ralph Carlise

Contributed by Iraphne Childs

Congratulations to Kay and Graham Rees

Kay and Graham Rees have both been awarded Society fellowships in recognition of their many and varied contributions to the Society.

Kay is one of the coordinators of the Map Group and is a member of the Publications Committee. She is our 'official' photographer, taking and storing thousands of photos of Society events and putting together the slideshows for the Christmas parties and welcome nights. Graham administers the Society's website which includes event postings and membership records. He is also on the hard-working IT Management Committee.

They both regularly volunteer to help with the Australian Geography Competition; were on the Treks and Activities Committee for several years, organising day trips and interstate treks; and were vital members of the support team at the Society's Pungalina-Seven Emu Scientific Study.



Welcome New Members

We have much pleasure in welcoming *Brice Kenneth Mutton, Angela and Jim McLeod, Sophia Gadloff, Alex Lemon-Scott, Marcel Schlamowitz and Liyang Yu* as new members. We hope your association with your new Society is long and mutually enjoyable.

Contributors

Kath Berg, Iraphne Childs, Ralph Carlisle, Bohao Dong, Robert Henry, Riley Kernaghan, Kay Rees, Daphne Stephens, Pamela Tonkin

Find RGSQ on social media:

 [Facebook.com/The Royal Geographical Society of Queensland](https://www.facebook.com/The-Royal-Geographical-Society-of-Queensland)

 [YouTube/RGSQ Channel](https://www.youtube.com/RGSQ)

 [The Royal Geographical Society of Queensland](https://www.linkedin.com/company/the-royal-geographical-society-of-queensland)

 http://twitter.com/The_RGSQ

RGSQ Bulletin

April 2024

Tue 9 April: Monthly Lecture

Conserving and utilizing the Australian flora for food and energy

Wed 10 April: Treks and Activities

Port of Brisbane Tour

Tue 23 April: Geography in Conversation

The Brisbane River: Lower Catchments to the Mouth

W: www.rgsq.org.au

E: info@rgsq.org.au

P: 07 3368 2066

The April Council will meet on the third Tuesday of the month.

The Royal Geographical Society of Queensland Ltd
PO Box 625, Spring Hill QLD 4004

POSTAGE
PAID
AUSTRALIA