Ōtākou Whakaihu Waka
UNIVERSITY OF OTAGO

Kā Rakahau o Te Ao Tūroa
Centre for Sustainability

Centre for Sustainability Research

Newsletter 18 – Summer 2025

The Centre for Sustainability Research is a University of Otago premier research centre with an international reputation for its innovative interdisciplinary research on local and global sustainability challenges.

We collaborate closely with communities, iwi, industry and government agencies and form teams with other researchers from across New Zealand and internationally to generate high-quality research.

CONTACT INFORMATION

Centre for Sustainability Research
University of Otago | PO Box 56
Dunedin 9054 | New Zealand
Telephone: 64 3 479 5220
Email: centre-sustainability@otago.ac.nz
Website: otago.ac.nz/centre-sustainability
facebook.com/otagocentreforsustainability

"Interdisciplinary research on sustainability challenges"

Behavioural Shifts for a Low-Carbon Future

How can councils best support people and organisations to reduce their carbon emissions? Our new report, Behavioural Shifts for a Low-Carbon Future, is helping to guide councils' low-carbon strategies all over the country.

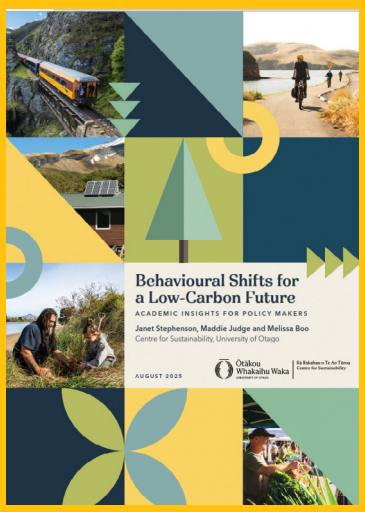
Aotearoa New Zealand has a target of net-zero carbon by 2050, and many councils aspire to achieve this by an earlier date. Individuals, households and businesses can make a considerable contribution by adopting low-carbon behaviours and technologies. However, a lot of time and money can be wasted on ineffective actions.

So, the report focuses on answering two important questions: *Which behavioural changes (including adoption of new technology) are most impactful in reducing emissions? And how can these changes be best encouraged?* It compiles insights from 140 peer-reviewed NZ and international papers, including many review articles that compare findings from multiple studies.

Authors **Professor Janet Stephenson**, **Dr Maddie Judge** and research assistant **Melissa Boo** were initially commissioned by the Dunedin City Council to collate insights from academic research to help inform their Zero Carbon programme. With DCC's permission they generalised the findings so that the report is relevant to any council, government agency or other organisation or group interested in low-carbon transitions.

"We've had huge interest from councils around the motu, including being invited to give webinars to council staff. They like how Behavioural Shifts makes practical recommendations about what kinds of interventions will reliably enable behaviour change in areas such as transport and energy use" says Professor Stephenson.

Behavioural Shifts is equally relevant to households and businesses, and is available through the University of Otago's Research Archive: https://hdl.handle.net/10523/47726



Did you know?

The greatest reductions in your personal annual greenhouse gas emissions can be achieved by:

- Living car-free
- Reducing air travel
- Replacing your fossil-fuelled car with an EV

Other impactful changes include:

- Greater use of public transport and active transport (walking, biking)
- Eating less animal protein
- Choosing building renovations that conserve energy

Other facts:

- Most lifestyle changes that reduce GHG emissions also benefit your health and wellbeing
- NZ's highest income earners produce 4-5 times more GHG emissions than the lowest income earners
- People (and politicians) typically under-estimate the degree of public support for low-carbon policies

Director's Notes

As we hurtle towards the summer break, it feels like a perfect time to reflect on the year that's been. Notably we rebranded the Centre in October, moving from our name of the past 20+ years - CSAFE, Centre for Sustainability, Agriculture Food and the Environment, to the **Centre for Sustainability Research (CSR)** – this reflects our desire to be inclusive of a broader sustainability focus, on topics including energy, climate adaptation, community resilience, mātauranga, conservation and disaster management.

The Centre has been bustling with visitors and postgraduate students activities throughout the year. At our monthly Research Update Meetings (RUMs), I've been so proud to see our students overcoming challenges, supporting each other, and achieving many firsts on their academic journey - first draft chapters, first journal articles, first conference presentations, and so much more. From gaining ethical approval right through to data analysis and full drafts, each step is an achievement to be celebrated along the way, and I love seeing our research team come together to do this each month.

Early next year we will be farewelling **Dr Fan Yechao** from Minzu University of China, Beijing, who has been with us on a research fellowship for a year. We will miss having you with us Fan, and look forward to your next visit soon!

Mauri ora

Caroline

Research updates

Disastrous Doctorates PhD Symposium – coming to the Centre in February 2026

PhD students across Aotearoa New Zealand whose research focuses on natural hazards and disaster resilience, will gather to attend 'Disastrous Doctorates' 2026, hosted at the University of Otago, Ōtepoti Dunedin, on 9 -10 February 2026. A record number of 80 students are attending this year, the largest ever group at a DD Symposium.

This student-led symposium is a chance to share research, connect with peers, and build networks across research in engineering, technology, earth sciences, social sciences, health & safety, psychology, or any disaster-related!

This year's programme will feature:

- Talks from senior experts in disaster research
- Quick, friendly, 3-minute thesis presentations, for students to showcase their work
- A field trip exploring Dunedin's natural hazard context

Disastrous Doctorates 2026 Committee invites you to follow us on our social media for more information. The event is sponsored by the Natural Hazards Commission, QuakeCoRE and the Natural Hazards and Resilience Platform.

Facebook | https://www.facebook.com/DisastrousDoctorates/
LinkedIn | https://www.linkedin.com/company/dd2026

Quake Core meeting report

The 2025 QuakeCoRE Annual Meeting was an excellent showcase of research and collaboration, with Dunedin providing a fitting backdrop for discussions on resilience and risk reduction in lower seismic risk areas. Staff and students from the Centre were not just participants, they were active contributors throughout the programme.

The Lightning Talks are always a highlight, and this year was no exception. **Niloofar Dini** and visiting student **Jenny Stein** delivering fast-paced, insightful presentations with Jenny announced as the overall winner! Momentum continued with **Aiggan Kitila's** sharp 60-second poster pitch, delivered with clarity and confidence.

Beyond the conference halls, attendees were encouraged to explore the city through a walking tour of Dunedin's heritage architecture. A blend of history, engineering, and storytelling, this was an excellent tour organised by **Caelen Church**.

Caroline Rowe co-led a well-received workshop on emotion in risk communication alongside AF8's Alice Lake-Hammond and Dr Sara McBride from the California Seismic Safety Commission. Her poster on the same topic went on to win the annual poster competition.

To cap it all off, Centre Director **Associate Professor Caroline Orchiston** chaired a plenary on risk governance in low seismic hazard zones. This was a timely session in light of the Government's recent announcement on changes to New Zealand's earthquake-prone building regulation.

With such strong contributions across the board, we were proud hosts and even prouder participants. By Caroline Rowe

Nature-based Solutions for flooding risk

For decades, concrete walls and stopbanks have stood guard on many New Zealand rivers, holding back the water. Built in the 1950s and 60s these defences are aging and the cost of maintaining them now exceeds $11 billion a year. With climate change bringing heavier rain and rising seas, the question is no longer if these barriers will fail, but when.

>>>

Instead of fighting to keep the water out, Nature-based Solutions (NbS) consider how we can work with the water. Wetlands, river re-shaping, and green corridors can help absorb and redirect water, sometimes with greater success than traditional engineering. However, their success depends on more than science and engineering. Communities must trust and accept them if they are to be implemented.

Caroline Rowe and **Caroline Orchiston** have recently been awarded a biennial grant from the Natural Hazard Commission to explore the media and public narrative around NbS. Undertaking the research as a postdoctoral fellow from April 2026, Caro will focus on two case study communities in Otago and Southland. Her research asks: How are NbS framed in public and policy narratives? What shapes people's perspectives to either support or resist their use? And how can communication strategies build trust and social licence for these solutions?

This research will investigate the best communication tools and approaches to help decision-makers gain public support for NbS, so we can use innovative, natural solutions to advance New Zealand's climate adaptation and resilience goals.

Centre events

Peninsula outing

Kekeno | fur seal. Photo by Brandon Whitley

Group on Katiki peninsula. Photo by Jenny Stein

Postgrads are always very busy people, but this winter our students have also been out and about experiencing Otago's natural heritage.

There have been several outings to view the scenery and local wildlife, such as the pūrātoke | glow worms at Nichol's creek, wildlife cruises on the Monarch tourist boat, and expeditions to view the tōroa | albatross and kororā | blue penguins at Tairoa Head.

On one trip, they spent a whole day visiting the sea caves at Long Beach, and the takahe, kākā, and skinks at Orokonui Ecosanctuary. They continued up to te Kaihīnaki | the Moeraki boulders, and finally to nearby Katiki Point where they saw kekeno | fur seals and hoiho | yellow-eyed penguins - who put on the best show of all!

These intrepid scholars from Italy, Canada, Ethiopia, Iran, China and NZ also enjoyed the culinary delights of the local cuisine, sampling such delicacies as cheese rolls, lolly cake, and of course, fish and chips on the beach. The discovery of tomato sauce (or "ketchup") in a tin can was the source of great amusement and some even declared it the best part of a day already full of many Kiwi delights.

These trips are not just about sightseeing, they also enable students and Centre visitors from all over the world to build and cement relationships. And for our desk-based researchers, no opportunity to appreciate te taiao firsthand can ever go amiss.

Tree planting trip

Former Centre researcher Henrik Moller and his wife Fiona invited staff and students to their property north of Dunedin to take part in a planting day at Tūmai Beach farm park. This long-term project aspires to grow a temperate coastal forest through communal replanting of native plants and trees.

Tree planting at at Tūmai Beach. Photo by Lucia

Our keen group of students and staff were delighted to continue our support of this project with another visit on June 18th. We were able to hone our tree planting skills, and enjoyed a delicious lunch hosted by Henrik and Fiona.

For more information about the project check the website Ecosystems Consultants:

https://www.ecosystemsconsultants.co.nz/project/ecologically-responsible-coastal-development

Graduations

Congratulations to **Maria Barnes** who graduated in absentia from her PhD in August. Maria's thesis is titled *Kua tae mai te pīpīwharauroa: tangata whenua approaches to future-proofing food systems in Hokianga* and is available here https://hdl.handle.net/10523/47237

Congratulations

Stephanie Guest won Best Woman Director Award for *Ko Tātou te Wai* at the My Name Is Climate Film Fest!

This film was a collaboration between the Tautoro community, Honorary Senior Research Fellow Dr Gianna Savoie, Centre research affiliates Prof. Merata Kawharu and Prof. Paul Tapsell (Lincoln University). It was funded by an MBIE Endeavour research programme—Whakapapakainga: Low Carbon & High Cultural Connectedness Futures for Community Cross-generational Benefit.

Ko Tātou te Wai explores the multi-generational understanding held by the Tautoro community of Te Taitokerau, regarding their life-giving spring waters of Te Mata, which originate out of a lake in a high volcanic crater cone, named Kereru. Elders and the wider marae community share their mātauranga and what they must do in the face of the challenges caused by a changing climate, to protect and monitor these precious waters for present and future generations.

Welcome

SIDNEY WONG

We are pleased to welcome **Sidney Wong** to his new role as a Postdoctoral Research Fellow with Te Pūnaha Matatini, hosted by the Centre for Sustainability Research. Sidney is working with Research **Professor Cilla Wehi**, as part of the newly established Modelling for Impact Hub. He introduces himself here:

Kia ora, I'm Sidney. I was born in Te Awa Kairangi ki Tai (Lower Hutt) and now based in Ōtautahi (Christchurch). I have ancestral ties to Southern China and familial links to Hong Kong and Macau. My research focuses on modelling complex social systems, with a particular interest in social inclusion and resilience. As part of my PhD, I modelled language variation and change in local populations using geo-referenced social media data. I hold degrees in Linguistics and Applied Data Science from the University of Canterbury | Te Whare Wānanga o Waitaha, and previously worked as a Senior Design Analyst – Te Ara Takatū at Stats NZ | Tatauranga Aotearoa, supporting hapū, iwi, and iwi-related groups with their data needs. Feel free to get in touch or explore my work: https://linktr.ee/sidneygjwong

ELLE GILCHREST

Elle Gilchrist is a new PhD student at the Centre for Sustainability Research exploring the use of arts-based community engagement in climate change adaptation, with **Janet Stephenson** and **Maddie Judge** as supervisors. Her research interests include sense of agency, place-based research, human-nature relationships, transformative continuity and understanding perceptions of change.

She holds a bachelor's in marine biology from Unity College, and a master's in human ecology from College of the Atlantic. Her most recent projects involved understanding human-ocean dynamics in a fishing town in the Yucatán, arts-based coastal heritage research on Rakiura-Stewart Island and developing an arts-based school curricula for critically reflecting and connecting with place in Aotearoa. She strives to not take herself too seriously, to emphasize curiosity, and to braid joy into her research and collaborations. An avid reader, she is always giving and receiving book recommendations. Her natural and preferred habitats include: the garden, the saltwater pool, or a warmly lit cafe.

MISAKI FUDUKA | VISITOR

Misaki is a Master's student at Kyushu University in Japan, researching the role dairy cooperatives play in influencing sustainable dairy farming in Japan. Misaki visited the Centre for Sustainability Research to investigate what Japan can learn from the practices of NZ's dairy farming and the role played by large-scale dairy cooperatives.

Publications

Danzi, L., Orchiston, C., Higham, J., & Baggio, R. (2025). Formation and development of tourism disaster management networks: from preparedness to response. *Journal of Sustainable Tourism*. Advance online publication. doi: 10.1080/09669582.2025.2575089

Danzi, L. (2025, June). *Tourism disaster management in Aotearoa New Zealand*. Checking in with Professor James Higham (episode 26). Retrieved from https://jameshigham.com/tourism-disaster-management-in-aotearoa-new-zealand/. [Podcast].

Danzi, L., Orchiston, C., & Higham, J. (2025). Effectiveness and sustainability of collaborative networks in tourism disaster management. *International Journal of Disaster Risk Reduction*. Advance online publication. doi: 10.1016/j.ijdrr.2025.105775

Darling, M., Robinson, T., Adams, B., Wilson, T., & Orchiston, C. (2025). Minutes matter for risk to life in disasters: The experience from Aotearoa, New Zealand. *Proceedings of the European Geosciences Union (EGU) General Assembly*. EGU25-1744. doi: 10.5194/egusphere-egu25-1744[Abstract]

Hoek, J., Ozarka, E., & Gartner, C. (2025). An analysis of submissions on regulations to implement Aotearoa New Zealand's tobacco endgame policies. *Health Promotion International, 40*, daaf126. doi: 10.1093/heapro/daaf126

Jarić, I., Fernández-Llamazares, Á., Molnár, Z., Arbieu, U., Canavan, S., . . ., Wehi, P. M., & Jeschke, J. M. (2025). Cultural integration of invasive species. *npj Biodiversity, 4*, 25. doi: 10.1038/s44185-025-00097-3 [Review].

Kitila, A., Lilley, R. Orchiston, C., and Davie, G. (2025). Workplace guidance for earthquake preparedness and injury prevention in Aotearoa-New Zealand: a document analysis. *New Zealand Journal of Health and Safety Practice*.

MacKintosh, R. (2025). A kin community study: Utilising whakapapa as a research methodology. *Te Kaharoa, 18*(1), 63–86. https://doi.org/10.24135/tekaharoa.v18i1.481

Orchiston, C., Johnston, D., Barrell, D. J.A., Cox, S.C., Goded, T., Stirling, M., Williams, J., Latton, R., Mueller, S., Stewart, J., Vinnell, L., Andrews, E. and Cathie, P. (2025). Commemorating the 1974 Dunedin earthquake to encourage community resilience. *Proceedings of the New Zealand Society of Earthquake Engineering, Auckland*.

Rowe, C., Orchiston, C., and Medvecky, F. (2025). Walking the faultline of fear: how affect-inducing risk communication can help promote disaster preparedness. *Journal of Communication*. 24(06), A02. https://doi.org/10.22323/1487202507101907l9

Stephenson, J., Judge, M., & Boo, M. (2025). Behavioural shifts for a low-carbon future: Academic insights for policy makers. (pp. 1-50). Dunedin, New Zealand: Centre for Sustainability, University of Otago. doi: 10.13140/RG.2.2.30358.82241

Media

Caroline Orchiston contributed to: A seismic step towards managing earthquake-prone buildings. *Newsroom*. (2025, October 8). https://newsroom.co.nz/2025/10/08/a-seismic-step-towards-managing-earthquake-prone-buildings/

Caroline Orchiston, Sophie Bond and Janet Stephenson featured in: Joining forces to tackle climate effects. *Otago Daily Times Online News*. (2025, October 10). https://www.odt.co.nz/opinion/joining-forces-tackle-climate-effects

Caroline Orchiston featured in: Nelson Lakes hold earthquake clues. *Nelson App*. (2025, May 6). https://nelsonapp.co.nz/news/articles/68192fc2fd580402afdbf54d

Jen Purdie featured in: New Zealand government votes to bring back fossil fuel exploration in major reversal. *The Guardian*. (2025, July 31). https://www.theguardian.com/world/2025/jul/31/new-zealand-government-votes-to-bring-back-fossil-fuel-exploration-in-major-reversal

Jen Purdie wrote: With fossil fuel use due to decline, why is the government restarting oil drilling? *Interest*. (2025, August 6). https://www.interest.co.nz/public-policy/134562/given-global-demand-oil-could-peak-soon-jen-purdie-says-nz%E2%80%99s-plan-revive

Kathryn Wright appeared in: Forestry conversions spur study. *Otago Daily Times Online News*. (2025, August 6). https://www.odt.co.nz/rural-life/horticulture/forestry-conversions-spur-study