Obituary

Dr Janet Grieve

February 11, 1940 – August 16, 2025

Dr Janet Grieve (also – Bradford; Bradford-Grieve), who has died aged 85, was a New Zealand ocean scientist with a global standing in marine taxonomy and biological oceanography. She made significant and pioneering contributions to the growth and development of the national research community through a range of research leadership roles including the office of President of the New Zealand Association of Scientists from 1998-2000.

Janet Grieve grew up in Christchurch, New Zealand and attended Christchurch Girls' High School. From there she continued her education at the University of Canterbury both for her undergraduate (B.Sc. Hons 1963) and graduate (Ph.D. 1966) degrees. For her graduate work Janet studied under Professor George Knox where her 1966 doctoral thesis *The annual cycle of plankton off Kaikoura* documented the first evidence of high biological productivity off the north Canterbury coast, due to the inclusion of the canyon effects such as upwelling of nutrients and transport of organic matter from the coast. Her thesis work provides a critical baseline for assessing changes in the region.

She joined the New Zealand Oceanographic Institute (NZOI) in 1966 and spent almost her entire career at the institute – continuing onto the Crown Research Institute NIWA (National Institute of Water and Atmospheric Research). The only excursion from this was a 3-year period at the Smithsonian Institution, Washington DC, USA (1970–1973) when she was a formal "Visitor", Sorting Center Supervisor and Scientific Editor.

In terms of research, Janet was a world expert on the taxonomy and phylogeny of planktonic copepod crustaceans, so much so that she held the office of President of the World Association of Copepodologists from 2008–2011. She named 12 genera and 82 species. Her papers on copepods spanned subjects that ranged from their very earliest appearance in the geological record (Bradford-Grieve, 2002), through to descriptions of present-day local species (Bradford-Grieve, 2004) – and everything in between. This was synthesized into an on-line tool making copepod identification accessible to a wider audience (Bradford-Grieve, 2002).

She features in *Oar Feet and Opal Teeth* (Miller, 2023), a book on everything you ever wanted to know about copepods viewed through the eyes and thoughts of the researchers who study them. The book explains the science through interviews with copepodologists – including Janet. It tells of her career and her interest in a particular group of calanoid copepods linked to the benthic boundary layer. Her interest in copepods began with samples from her PhD and was something that continued for the entirety of her professional life – all this was inspired by a single specimen of Bradydius.

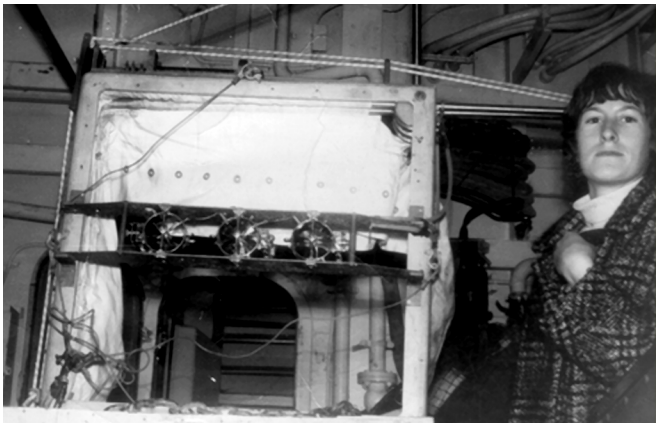

Figure 1: Janet aboard RV Taranui (late 1960s), Image courtesy of Lionel Carter.

Janet did not solely focus on the details of species – she was a pioneer on the interaction of physical and biological processes in marine environments. In particular, she examined how physical conditions can enhance ocean productivity, both in the open ocean and in shelf seas (e.g. Bradford et al., 1985). As part of this she was instrumental in the initial work seeking to understand how the sinking of "marine snow" moves carbon to the seabed – and her work was heavily cited in a recent major study of New Zealand's carbon accounting (Nodder et al., 2025).

Janet was amongst the first to try and connect ocean science to decision-making, especially through an ecosystems-based approach to the management of the marine environment. As such, she was one of the few NZOI scientists to 'cross the car park'. Prior to 1995 the Wellington Greta Point science campus was formed around the Ministry of Fisheries in one building separated by a car park from the NZOI (NIWA from 1992 onwards) in another building. So, collaboration with fisheries scientists on interdisciplinary topics literally involved a walk across the car park – a walk that helped enable the description of fish dietary components, plankton samples, and oceanographic

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patterns influencing fish migration, as well as contribute to papers on important commercial fish species including hoki, and rattails – some of which informed the New Zealand Fisheries Quota Management System (Stevens et al., 2020).

She was a member of the "J9" expedition to Antarctica's Ross Ice Shelf, which resulted in the southernmost ocean sampling (~82° S, Lipps et al., 1978) – a record that stood for decades. Janet memorably described how the team lowered a camera many hundreds of metres through the ice and ocean cavity to the seafloor and seeing, on the TV monitor, a fish swim by (Jacobs et al., 1978). The technological, operational and data achievements of this first expedition to an ice shelf cavity were quite remarkable.

Janet conducted some of the first open-ocean biological oceanographic studies in the New Zealand region in the 1980s, working closely with physical oceanographers in a way that became a template for the following years of research. For example, she investigated plankton and nutrient processes in Te Moana-o-Raukawa Cook Strait and on the west coast South Island Te Waipounamu, and then linked these to physical oceanographic mechanisms, such as ocean upwelling. She led the implementation of the New Zealand-focused component of the 1990s Joint Global Ocean Flux Study (JGOFS) that resulted in pioneering work on carbon cycling within plankton communities on the west coast South Island and in Subtropical, Subtropical Front/Convergence and Subantarctic waters off the east coast of Aotearoa NZ. Janet's drive led to the publication of several formative papers that characterized the composition and dynamics of the plankton communities in these open ocean environments, practically for the first time. She was not afraid to embrace new technologies and geographic areas, offering her valuable biological insights into topics such as the then relatively nascent satellite remote sensing, downward carbon flux, as well as ecosystems of the Subantarctic Zone and the Ross Sea. In addition, she led pioneering work on the seasonal migration of large neocalanoid zooplankton to depths in excess of 500 m to over-winter. This major migration is now termed the seasonal lipid pump and is a significant contribution of biological carbon into the ocean interior.

Janet grew up in a musical family and, as described in Rose-Marie Thompson's history of the NZOI, in the late 1970s the institute held its own recorder consort which played a variety of music, mostly from the Renaissance period. She, along with others including Penelope Lawrence, Basil Stanton, Penelope Luckens, Melanie Riley and Margaret Rudge, played at the Early Music Union in Wellington. Janet and Basil (himself a noted physical oceanographer) also branched out with more modern "jazzy" music (Thompson, 1994). Janet also loved to have fun or at least loved dragging introverted male colleagues up onto the dance floor at annual New Zealand Marine Science Society conference dinners!

She was a trailblazer for women in ocean science, and science more generally, in New Zealand. She served as Manager of the Marine and Freshwater Division at the NZOI, still the only woman to do so, and in 1967, was the first woman to lead a research voyage at the Institute. By the end of her career, she'd led at least nine voyages and participated in many others – no mean feat given the reluctance for sailors at the time to even have women on board ships.

Janet was heavily involved in the initiation of the Association of Women in Sciences (AWIS) in New Zealand. The establishment of AWIS was one half of a two-part response to a Symposium on Women and Employment in Science and Technology that had been held in Wellington in 1985. In parallel was the establishment of a group to support teachers, both men and women, wanting to promote women's and girls' involvement in the sciences, subsequently called WISE (Women into Science and Engineering). The aim of the Symposium was to raise public awareness and to identify directions for action. A background paper was prepared for this symposium (Bradford et al., 1985) which concluded that the issue of low participation of women in science and technology was not recognised as a priority, although some innovative interventions were being implemented. They recommended that as "a matter of some urgency that intervention programmes be evaluated and improved if the full harnessing of the 'missing half' of the country's brainpower and talent is to occur".

The inaugural meeting of the AWIS was held at Janet's home in February 1986. She was the founding Secretary/Treasurer of the organization, the only officer needed in those early days. Janet, with her focus on equity, was delighted to see AWIS grow into what it is today – a large active association, with a National Executive Team of five, plus Regional Convenors. Through a range of activities including submissions to government and offering awards for women in the sciences, AWIS continues to address biases, both conscious and unconscious, enable developing careers, and ensure work-life balance is possible.

Her support for marginalized people extended widely. Upon the formation of NIWA one of the first corporate actions was to sell the RV *Rapuhia* (formerly the German research ship Meteor). The replacement was a chartered Russian vessel RV *Akademik M.A. Lavrentyev*. Janet was very active in helping many of the crew – some of whom were away from family for a year or more – during their time in NZ waters. She was so invested that she learnt Russian and for many years continued collaborations with Russian Scientists, visiting them in their home institutes and hosting them in New Zealand. She was able to make more use of her language skills when somewhat by chance, Janet struck up a friendship with Dr. Elena Markhaseva from the Zoological Institute of the Russian Academy of Sciences during a holiday visit to St. Petersburgh, Russia. From this came a three-decade friendship and collaboration, including several highly cited publications, on abyssal copepods from both the Pacific and Atlantic oceans.

She also contributed greatly to the New Zealand Marine Sciences Society. As noted in Bob Hickman's review of the society (Hickman, 2010), Janet was one of the longest serving council members (nine years) during two separate periods of service in the 1970s and again in the mid to

late 1990s – as well serving as secretary/treasurer and two terms as vice-president. Janet was also involved in science advocacy in a more general sense, including being very active with the New Zealand Association of Scientists (NZAS) as President (1998-2000) and Treasurer (2006-2009) as well as a contributor to many of the Association's public position papers (e.g. Campbell et al., 2005), and co-convenor of several NZAS conferences. She was made a Life Member of the NZAS in 2013 (Gregory, 2016) and long after retirement she contributed to the editing and mailouts of this journal. One of us recalls a rather plaintive phone call, when Janet was in her late 70s, about challenges in distribution of the journal mail-outs. Upon calling round to her house, the guilty party was pointed in the direction of piles of heavy boxes of journals needing postage – the situation was hastily remedied.

Beyond these activities Janet contributed in many other ways including being a member on the boards of the Cawthron Institute, the SCOR (Scientific Committee on Oceanic Research) Working Group 93 on Pelagic Biogeography, the New Zealand IGBP (International Geosphere-Biosphere Programme) Committee, and the Wellington Polytechnic Council. In her emerita capacity she examined the state of science in New Zealand, especially taxonomy (Bradford-Grieve, 2016). Janet was outspoken in her support for science in general and taxonomists in particular, submitting a written memorandum to the UK Select Committee on Science and Technology: "Politicians are more concerned to put "spin" around everything they do, such that I am convinced they do not realise, themselves, what is happening... My impression is that talk of identifying priority areas is a red herring to cover up that fact that Governments generally have no intention of improving the resources" (Bradford-Grieve, 2007).

Janet was the recipient of many awards and honours including the New Zealand 1990 Commemoration Medal and in 2007, Officer of the New Zealand Order of Merit for services to marine science. In 1995, she received the New Zealand Marine Sciences Society Award and as noted above was made a life member of the New Zealand Association of Scientists. She was elected as a Fellow of the Royal Society New Zealand in 2003 (FRNZ). In 2017, Janet was selected as one of the Royal Society Te Apārangi's "150 women in 150 words" (Royal Society Te Apārangi, 2017), celebrating the contributions of women to knowledge in New Zealand. Six taxa were named after her – the genera *Bradfordiella* and *Grievella*; and the species: *Idomenella janetae*, *Sphaeronella bradfordae*, *Trichopeltarion janetae* and *Munida grieveae* (later synonymised with *Curtonida endeavourae*.

In compiling this obituary an underlying, and constant, theme emerged that was Janet's mentoring of so many people, both near to, and far from, her research and geographic centres. She was widely respected and a friend to many, and through the full duration of her long career helped a great number of people in their own careers. Discussions are already underway for a conference Special Session and Special Issue honouring her remarkable contributions to science. She is survived by her whānau including Hilary and Mick, Linda and nephews, Andrew and Richard.

Figure 2: Janet in her Brodie Building office in 2017 (NIWA archives, used with permission).

References

Bradford-Grieve, J. (2007), 'Memorandum submitted by Dr Janet Bradford-Grieve to Select Committee on Science and Technology, U.K. House of Lords', Memorandum submitted to Select Committee on Science and Technology, U.K. House of Lords. https://publications.parliament.uk/pa/ld200708/ldselect/ldsctech/162/162we07.htm

Bradford-Grieve, J. (2016), 'Is there a taxonomic crisis?', *New Zealand Science Review* **73**(3-4), 83–86. https://doi.org/10.26686/nzsr.v73i3-4.8532

Bradford-Grieve, J. M. (2002), 'Colonization of the pelagic realm by calanoid copepods', *Hydrobiologia* **485**(1), 223–244. https://doi.org/10.1023/A:1021373412738

Bradford-Grieve, J. M. (2004), 'Two new species of Xanthocalanus and the first record of Brachycalanus (Copepoda: Calanoida: Phaennidae) from the upper slope, north-eastern New Zealand', *New Zealand Journal of Marine and Freshwater Research* **38**(4), 621–647. https://doi.org/10.1080/00288330.2004.9517267

Bradford, J., Fenwick, P. and Suuring, D. (1985), 'Background Paper for the Symposium on Women and Employment in Science and Technology, Wellington, 6 June 1985', Background Paper for the Symposium on Women and Employment in Science and Technology.

Campbell, H., Lillis, D. and Grieve, J. (2005), 'There is a better way: Eight recommendations on the science system

in New Zealand', *New Zealand Science Review* **62**(3), 80–86.
https://doi.org/10.26686/nzsr.v62.8913

Gregory, G. (2016), 'A better way: New Zealand Association of Scientists 1992–2016', *New Zealand Science Review* **73**(2), 42–54.
https://doi.org/10.26686/nzsr.v73i2.8545

Hickman, B. (2010), 'Fifty years of NZMSS: A history of the New Zealand Marine Sciences Society', nzmss.org/about/the-history-of-the-nzmss/.
https://nzmss.org/about/the-history-of-the-nzmss/

Jacobs, S., Bruchhausen, P. and Ardai, J. (1978), 'Physical oceanography of the Ross Sea', *Antarctic Journal of the United States* **13**(4), 83–85.
https://s3.amazonaws.com/Antarctica/AJUS/AJUSvXIIIn4/AJUSvXIIIn4p83.pdf

Lipps, J., DeLaca, T., Farmer, J., Showers, W., Ronan, T., Clough, J., Raymond, J., Bradford, J. and DeVries, A. (1978), 'Benthic marine biology, Ross Ice Shelf Project', *Antarctic Journal of the United States* **13**(4), 139–141.
https://s3.amazonaws.com/Antarctica/AJUS/AJUSvXIIIn4/AJUSvXIIIn4p139.pdf

Miller, C. B. (2023), *Oar Feet and Opal Teeth: About Copepods and Copepodologists*, Oxford University Press.

Nodder, S. D., Law, C. S., Behrens, E., Bury, S. J., Cristi, A., Collins, C., R. Zeldis, J. and et al. (2025), 'Aotearoa New Zealand's marine carbon cycle in a changing climate – Current understanding and future directions', *New Zealand Journal of Marine and Freshwater Research* **59**(5), 913–956.
https://doi.org/10.1080/00288330.2025.2461289

Royal Society Te Apārangi (2017), '150 women in 150 words', https://www.royalsociety.org.nz/150th-anniversary/150-women-in-150-words/.
https://www.royalsociety.org.nz/150th-anniversary/150-women-in-150-words/

Stevens, D. W., Dunn, M. R., Pinkerton, M. H. and Bradford-Grieve, J. M. (2020), 'Diet of six deep-sea grenadiers (macrouridae)', *Journal of Fish Biology* **96**(1), 217–229.
https://doi.org/10.1111/jfb.14208

Thompson, R. (1994), *The First Forty Years – New Zealand Oceanographic Institute: Lives and Times 1954–1994*, 40th Jubilee Committee, Wellington.