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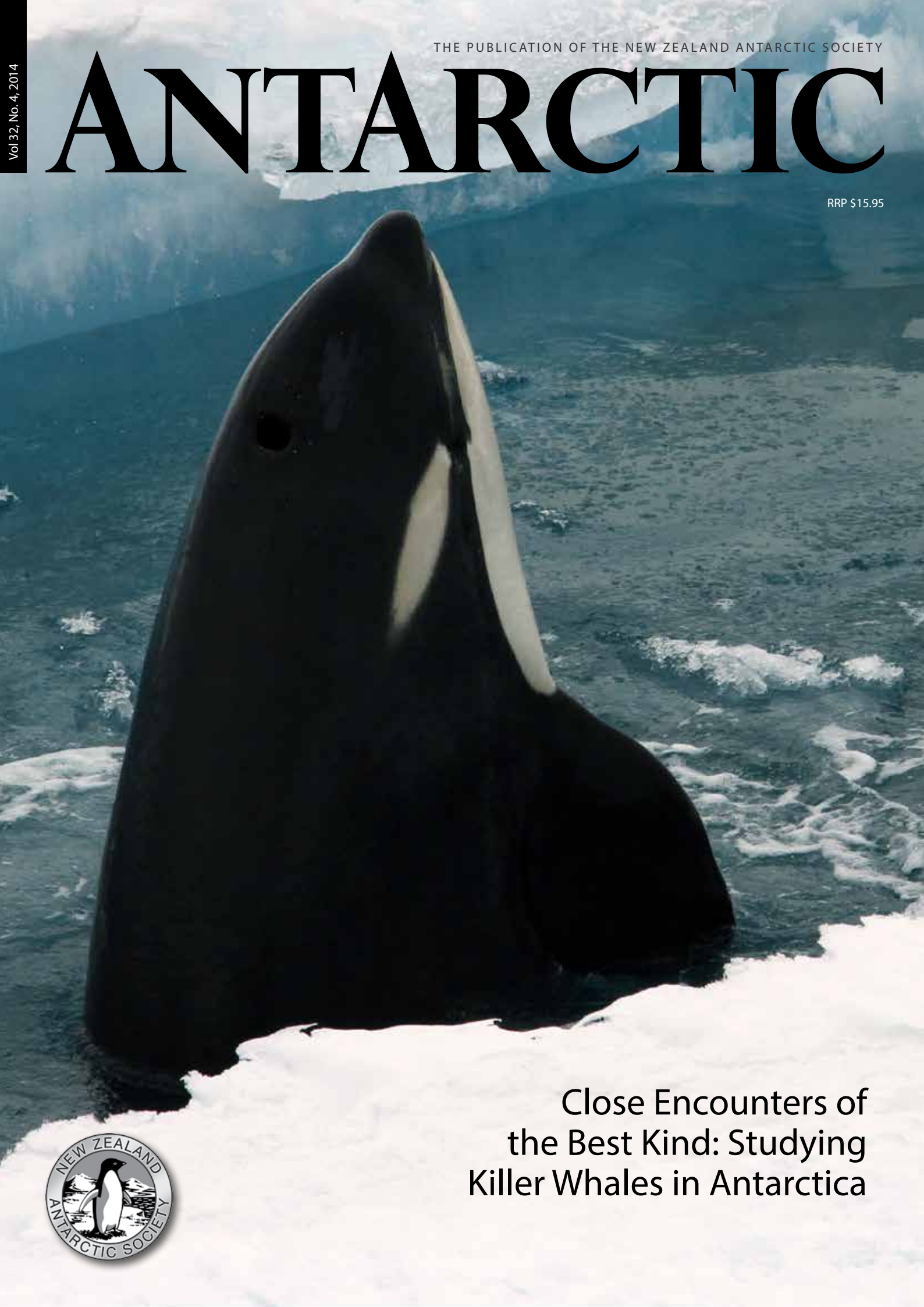

Close Encounters of the Best Kind: Studying Killer Whales in Antarctica

NEW ZEALAND ANTARCTIC SOCIETY

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Patron of the New Zealand Antarctic Society:
Professor Peter Barrett, 2008
Immediate Past-Patron: Sir Edmund Hillary

NEW ZEALAND ANTARCTIC SOCIETY LIFE MEMBERS

The Society recognises with life membership, those people who excel in furthering the aims and objectives of the Society or who have given outstanding service in Antarctica. They are elected by vote at the Annual General Meeting and are restricted to 15 life members at any time.

Current Life Members by the year elected:

1. John Claydon (Canterbury), 1980
2. Jim Lowery (Wellington), 1982
3. Robin Ormerod (Wellington), 1996
4. Baden Norris (Canterbury), 2003
5. Bill Cranfield (Canterbury), 2003
6. Randal Heke (Wellington), 2003
7. Bill Hopper (Wellington), 2004
8. Malcolm Laird (Canterbury), 2006
9. Arnold Heine (Wellington), 2006
10. Margaret Bradshaw (Canterbury), 2006
11. Ray Dibble (Wellington), 2008
12. Norman Hardie (Canterbury), 2008
13. Colin Monteath (Canterbury), 2014
14. John Parsloe (Canterbury), 2014

Cover photo:
A Type C killer whale spyhops among ice floes in McMurdo Sound. (Photo courtesy of Paul Ensor.)

Back cover photo:
Blue iceberg in heavy pack ice, northern Ross Sea. (Photo courtesy of Colin Monteath / Hedgehoghouse.com.)

This page:
At the 27 September NZAS annual wreath-laying ceremony at the site of Scott's statue, Christchurch. From left to right: Mr Bill Cranfield, Mrs Helen Cranfield, the Reverend Peter Beck, and June, Lady Hillary. (Photo courtesy of Ms Michelle Rogan-Finnemore.)

Vacancy:

Editor – *Antarctic*

Antarctic is the flagship publication of The New Zealand Antarctic Society, and is currently published four times a year, to a worldwide readership.

Our publication is looking for a new editor.

An ability to develop the magazine's "online presence" is important.

A knowledge of Antarctica, and wide contacts/networks within the Antarctic community both here in New Zealand and overseas would be useful.

Some writing is required, and as editor you would be responsible for gathering or commissioning articles from contributors, preparing them for publication and liaising with the magazine's designers.

This is an unpaid position.

Expressions of interest are requested by 5 January 2015 to president@antarctic.org.nz for an immediate start.

Annual General Meeting of the New Zealand Antarctic Society

The Society held its 2014 AGM in Wellington on 18 October. Highlights of the meeting were the decisions to award the Society's Conservation Trophy to Neil Gilbert and life membership to Colin Monteath and John Parsloe.

The following officers were elected:

- National President: Mariska Wouters
- South Island Vice-President: Margaret Bradshaw
- North Island Vice-President: Linda Kestle
- National Secretary: Myra Walton
- National Treasurer: Lester Chaplow
- Immediate Past-President: Jud Fretter

Branch news

The branches of the New Zealand Antarctic Society have recently confirmed the following officers and committees:

Auckland:

Chair: Linda Kestle
Secretary: Roger McGarry
Treasurer: Mike Wing
Committee: Nichy Brown, Brett Fotheringham, Myra Walton

Canterbury:

Chair: Ursula Rack
Secretary: Gabriela Roldan
Treasurer: John Rogers
Committee: David Bowen, Margaret Bradshaw, Hanne Nielsen, Sue Stubenvoll

Wellington:

Chair: Chris Gregory
Secretary: Bron Faulkner
Treasurer: Tamsin Falconer
Committee: Robin Falconer, Jud Fretter, Daniil Ivshin, Mariska Wouters

Some recent international meetings in New Zealand

SCAR 2014

Over 950 people from 39 different countries attended the recent XXXIII SCAR Biennial meetings and the 2014 Open Science Conference at the Sky City Convention Centre in Auckland from 23 August to 3 September. This was the largest gathering of Antarctic researchers ever assembled in New Zealand. It was a very busy programme of invited speakers, oral and poster presentations, mini symposia, workshops and public outreach events (see www.scar2014.com). The first day and a half of the Open Science Conference was shared with COMNAP before COMNAP moved to Christchurch for their annual meeting. As well as the busy science programme, New Zealand IceFest provided evening entertainment events that included a musical performance *These Rough Notes* and an illustrated comedy *Te Radar's Antarcticana*. Evening public lectures were provided at the Auckland War Memorial Museum as part of their Smart Talk series and SCAR outreach events. In addition Auckland Museum hosted *Still Life: Inside the Antarctic Huts of Scott and Shackleton* on behalf of the New Zealand Heritage Trust. If all the above was not enough, the SCAR meetings were part of a larger programme of events that included World Science Week, a series of public lectures, some on Antarctica, and the 31st General Assembly of the International Council of Science (ICSU), the parent body of SCAR.

The next biennial SCAR meetings will be held in Kuala Lumpur in Malaysia, 19–31 August 2016, with a focus on *Antarctica in the Global Earth System from the Poles to the Tropics*.

A free copy of the abstracts from the SCAR Open Science Conference in Auckland is available from Gateway Antarctica, University of Canterbury (gateway-antarctica@canterbury.ac.nz).

Bryan Storey, Director, Gateway Antarctica, University of Canterbury
Vice-President, SCAR

COMNAP AGM XXVI

Antarctica New Zealand recently hosted the 26th AGM of the Council of Managers of National Antarctic Programs (COMNAP) in Christchurch. COMNAP's purpose is to "develop and promote best practice in managing the support of scientific research in Antarctica", and its Members are the national Antarctic programmes of the 29 Consultative Parties to the Antarctic Treaty.

The AGM, which ran from 27 to 29 August 2014, was attended by representatives from 27 of the COMNAP Member organisations and invited observers from the national Antarctic programme of the Republic of Belarus. SCAR, the Antarctic Treaty Secretariat, the Committee for Environmental Protection (CEP), the World Meteorology Organization (WMO), the International Hydrographic Organization (IHO) and the International Association of Antarctic Tour Operators (IAATO) also attended. The meeting discussed all aspects of science support.

At the meeting, Professor Kazuyuki Shiraishi of Japan's National Institute of Polar Research (NIPR) was elected as the COMNAP Chair for a three year term. Professor Shiraishi is a geologist and has a long history of involvement in Antarctic activities. He succeeds Professor Heinrich Miller, who successfully completed his term as Chair. Hyoung Chul Shin (KOPRI, Republic of Korea) and John Hall (BAS, United Kingdom) continuing COMNAP Vice-Chairs, were joined by newly elected Vice-Chairs: Yves Frenot (IPEV, France), José Retamales (INACH, Chile) and Rob Wooding (AAD, Australia). Along with Michelle Rogan-Finnemore (Executive Secretary) these officers complete the seven-member COMNAP Executive Committee. COMNAP also unanimously agreed to extend the employment contract of the Executive Secretary, Michelle Rogan-Finnemore, for a period of six years (through July 2021). The University of Canterbury will continue to host the headquarters of COMNAP – the COMNAP Secretariat – under a further six-year MOU.

Michelle Rogan-Finnemore
COMNAP Executive Secretary

Photograph on p. 39 of issue 229

The editor should have credited to Sue Stubenvoll the photo of Natalie Cadenhead and George Rogers in the last issue. It was taken during a February 2014 working bee organised by John Parsloe and Natalie to move, sort and store the Society's archives.

Polar Tourism Gateways – The Fourth Conference of the International Polar Tourism Research Network

Following the Scientific Committee on Antarctic Research's biennial international conference in Auckland, the International Polar Tourism Research Network (IPTRN) held its fourth conference in Christchurch and Akaroa. IPTRN IV focused on polar tourism gateways and brought together 30 delegates from Europe, North America, South America, South Africa and Australasia. An academic programme in Christchurch included thought-provoking presentations on a variety of topics – from polar tourism policy, to tourism impacts, to educational, literary, historical and environmental dimensions of polar tourism, to the conservation of polar heritage. Aside from scholarly presentations, the conference delegates also benefited from a riveting debate on controversies around environmental and political aspects of Antarctic tourism as opposed to its managerial and operational realities. A visit to the Antarctic campus and the International Antarctic Centre (IAC), including a tasty conference dinner and a warm welcoming address by Peter Beggs, the CEO of Antarctica New Zealand, was one of the highlights of the social programme of IPTRN IV. About half of the conference delegates joined the IPTRN IV retreat in Akaroa, which followed the trail of Frank Worsley and allowed for more in-depth discussion on issues related to polar cruise tourism, polar heritage and tourism management in the sub-Antarctic islands. Overall, IPTRN IV was a vibrant and enjoyable conference, which brought representatives of the Arctic tourism community closer to Antarctic tourism scholars.

Daniela Liggett, Co-convener
Gateway Antarctica,
University of Canterbury

IPTRN Conference 2014
Christchurch, New Zealand

June, Lady Hillary, breaks an ice ribbon to open the Christchurch IceFest on 27 September. Mr Peter Beggs, CEO of Antarctica New Zealand assists. (Photo courtesy of Ms Michelle Rogan-Finnemore.)

Tim Naish Awarded 2014 Muse Prize

Tim Naish, Director of Victoria University of Wellington's Antarctic Research Centre, has received a prestigious international award for his outstanding research into understanding Antarctica's response to past and present climate change and the role of Antarctica's ice sheets in global sea-level change through time. Professor Naish, who is also a Principal Scientist at GNS Science, has become the first New Zealand recipient of the Martha T. Muse Prize for Science and Policy in Antarctica. This leading global award for Antarctic science is funded by the Tinker Foundation and administered by SCAR. The award recognises significant and sustained contribution to Antarctic scientific research and policy.

Antarctic Office Planned for Christchurch

Christchurch Mayor Lianne Dalziel has announced plans for a Christchurch Antarctic Office, which will be funded from 2015. The mayor, who visited the Antarctic for the first time in November, said:

The city is placing huge importance on its Antarctic status, activities and international and local partnerships. As a sign of our commitment, the council is planning to establish an Antarctic office as a co-ordinating point for Antarctic-related economic development and civic relations in respect of Antarctica. The office will act as the city's Antarctic liaison point across a whole range of players throughout Christchurch.

Christchurch and the Canterbury region have a long and well-established relationship with Antarctica and Antarctic activities, but there has never been one central office to liaise with the many organisations involved in those activities.

Close Encounters of the Best Kind: Studying Killer Whales in Antarctica

By R. Eisert, Gateway Antarctica, University of Canterbury

On 20 January 2014, a team of five sets out from Scott Base by helicopter to begin a study of the most charismatic of Antarctic megafauna, the killer whale. This project, led by Dr Regina Eisert (Gateway Antarctica, University of Canterbury), is the first whale research supported by Antarctica New Zealand and funded by the New Zealand Antarctic Research Institute (NZARI).

The goal of the project is to determine whether killer whales feed on Antarctic toothfish. There are growing concerns that the fishery for toothfish in the Ross Sea could affect marine mammal predators, but it is not certain that toothfish are an important prey item for killer whales; all that scientists have to go on are anecdotal observations. To assess whether fishing poses a risk to killer whales, we urgently need more data.

The killer whale or orca is the undisputed top predator of the Southern Ocean. Until recently, all killer whales worldwide were thought to belong to the same species, *Orcinus orca*, but there is increasing evidence for the existence of multiple (sub-) species. In Antarctic waters, three morphologically distinct types of killer whale exist, and each type targets different prey: minke whales, seals and penguins, fish. Scientists have practically but unimaginatively designated these killer whale types as A, B, and C. Type C or "Charleys", the type most common in the Ross Sea, are considerably smaller than other killer whales, and readily distinguished by the cheerful angle of their narrow white eyespots. Presumed to be fish specialists, Charleys are the type of killer whale most likely to be affected by the toothfish fishery.

To study killer whales, one needs small boats or the support of an experienced helicopter pilot. Our team of January 2014 has Andrew "Heff" Hefford, who flies northwest, following the ice edge. Our goal is to land on the ice next to killer whales and collect small skin samples using special biopsy rifles that shoot tethered darts. These biopsy rifles, used by whale researchers all over the world, are made by a small company in Timaru, Paxarms NZ Ltd. Its owner, Trevor Austin, volunteered for the killer whale project and lends us his own state-of-the-art equipment.

Before getting close to the whales, we need to consider safety: landing on late-season sea ice is risky. With the helicopter hovering just above the ice, our field safety expert, Drew Coleman, jumps out, drills the ice to ensure it is safe, and directs us to a suitable landing spot. Just in case, we all wear bright orange floatation suits, and we brought along rope tethers for working near the

ice edge. But first, we have to find the killer whales. Heff, our pilot and an experienced deer hunter, spots a killer whale and throws the helicopter into a high-g turn before the rest of us have noticed anything.

While we have no trouble finding enough whales, there is a shortage of stable ice for us to land on. In the summer of 2013–14, the ice in McMurdo Sound breaks out to an extent not seen for many years, making new areas accessible to the killer whales that follow leads in the sea ice as soon as they appear. To collect biopsy samples, we need to land, since the rotor wash is too intense for the biopsy darts, and possible entanglement of the monofilament tether lines in the rotor blades represents a severe hazard. Our main reason for collecting skin biopsies is to determine the proportion of toothfish in the whales' diet. Depending on their position in the food chain, different prey species accumulate varying levels of naturally occurring stable isotopes. We hope to detect consumption of toothfish – a large fish that is a top predator in its own right – from the isotope signature left in the whales' skins.

On 20 January, because we cannot land, we spend most of our time observing the whales from the air, which turns out to be unexpectedly informative. We see that many groups of killer whales include calves small enough to depend on milk. Lactating mothers need a lot of extra energy, and their presence provides indirect evidence that killer whales are hunting large, high-quality prey such as toothfish.

During this and seven other flights in late January, we count 307 whales, most of them Charleys, but also a few Type B killer whales ("Bravos"), distinguished by large, horizontal eye spots and a preference for seals and penguins. Fortunately, the killer whales ignore the helicopter, allowing us to hover above to observe them, and they show no reaction to our attempts at biopsy sampling from the ice edge.

The whale research team with their helicopter from Southern Lakes Helicopters. Everybody wears flotation suits as a safety measure for working on the unstable late-season ice. From left to right: Trevor Austin (biopsy rifle expert), Andrew "Heff" Hefford (pilot), Amanda Christophers (ground staff), Paul Ensor (photographer), Regina Eisert (project leader), Drew Coleman (field safety). (Photo courtesy of Regina Eisert.)

A Type C killer whale with a small calf. Small calves were observed frequently during the 2013–14 season, indicating that Type C killer whales are able to find high-quality food that can support the high cost of milk production. (Photo courtesy of Regina Eisert.)

On the second-to-last day of our allocated helicopter time, we spot a group of feeding killer whales attended by flocks of skuas fighting over scraps. When we get closer, we see that the whales are Charleys and they are carrying large toothfish in their jaws! Predation on toothfish by killer whales has been recorded only three times – in 1980, 2001, and now in 2014 – and this is only the second time that the killer whale feeding on toothfish can be identified as Type C. Analysing the images later, we estimate that one fish taken by the whales has a total length of 1.5 metres. Instead of indirect evidence from skin biopsies, we now have pictures – not bad for our first season!

After the eight flights, the biopsy rifles are packed up and the two whale experts, Paul Ensor and Trevor Austin, return to New Zealand. Regina Eisert, together with a team from the University of Tasmania, stays behind to deploy satellite transmitters on Weddell seals. The last remaining sea ice disappears from McMurdo Sound, and waves lap at the shore below Scott Base. And this is when the whales come. This time, both Charleys and Bravos appear in similar numbers, sometimes within metres of the shoreline. One evening at dinnertime, Charleys swim past Scott Base and empty the dining room in minutes: people leave their food to run outside to take pictures or just look, while the whales pay no attention to the excitement they cause.

In contrast to the nonchalant indifference of Charleys, visiting Bravos make a beeline for the people watching them from the shore: the whales spyhop to look at the humans, splash, roll, blow bubbles, and mist their admirers with their breath, almost close enough to touch. It is hard to resist the impression that the whales enjoy having an audience. Throughout February, small pods of Bravos continue to visit Scott Base to look for seals and penguins. Surprising their wary prey, the killer whales carry out swift raids, and disappear as quickly as they came.

Through luck or unusual ice conditions, the inaugural killer whale research season can be considered a great success. Not only did we establish safe operating procedures for studying killer whales, we also collected a wealth of scientific data that will hopefully mark the beginning of a New Zealand research programme on these fascinating top predators, the killer whales of the Ross Sea.

Regina Eisert and Trevor Austin using biopsy rifles to collect small tissue samples from killer whales. The biopsy rifles, made by Trevor in Timaru, are sold to whale researchers all over the world. (Photo courtesy of Paul Ensor.)

New Zealand and the Antarctic Treaty System

By Alan D. Hemmings
Gateway Antarctica, Christchurch, and Perth, Western Australia

Even within the Antarctic community, how the Antarctic is regulated internationally generally remains something of a mystery. Yet, all the really big decisions around the future of Antarctica have been, and are, arrived at through international negotiation. So, we have collectively had to agree about demilitarisation, mining, fishing, containing positions on sovereignty, and so on. Often these are vexed issues. Right now we are faced with some difficulties in reaching agreement on the designation of large parts of the Ross Sea as a Marine Protected Area, an idea which many of us believe has great merit and is long overdue.

My own Antarctic engagement started as a scientist, saw me wintering in the Antarctic, and then attending Antarctic diplomatic conferences for more than twenty years, in the course of which my research and writing shifted so that they are now exclusively around the politics, policy and international legal aspects of the Antarctic. Each year I provide a review of New Zealand in the Antarctic Treaty System for the *New Zealand Yearbook of International Law*. In this much shorter article I will try to say something about how New Zealand, in practice, engages in this Antarctic Treaty System, and the realities of that engagement.

New Zealand may claim the Ross Dependency, but this claim (like those of Argentina, Australia, Chile, France, Norway and the United Kingdom) is not recognised by most of the world's 193 states, even within the Antarctic "club". So, even in the Ross Dependency, getting anything done (at least if you expect others to follow) requires collective agreement. The Antarctic Treaty System is the group of international treaties that start with the 1959 Antarctic Treaty. Subsequently we agreed a seals convention (but there is now no sealing), a marine living resources convention (which regulates fishing and the marine environment) and the Madrid Protocol (which establishes environmental obligations over the continent and parts of the marine environment). The minerals convention failed to enter into force and is dead. There are two annual Antarctic meetings: The Antarctic Treaty and Madrid Protocol are considered at the Antarctic Treaty Consultative Meeting (ATCM), which moves around the membership – this year it was in Brasilia; the marine living resources convention (CCAMLR) is always held in Hobart. Decisions at both annual meetings are reached by *consensus*, which is unanimity-lite. States don't have to think a decision is the best outcome possible; they just have to find it not so bad that they cannot agree to it. But getting consensus amongst 29 states at the ATCM and 24 states and the EU at CCAMLR is no mean task.

These meetings attract several hundred delegates representing their states, and maybe half as many again representing various specialist agencies, NGOs and industry groups – although only the top-tier states (Consultative Parties at the ATCM, Commission Members at CCAMLR) take part in decision-making. A New Zealand national delegation to an ATCM is normally 9–12 people, led by MFAT and involving staff from that Ministry, DoC, Antarctica New Zealand and other agencies as required, plus an environmental NGO representative. The delegation to CCAMLR has recently been a little larger (say 15), reflecting the effort around the Ross Sea Marine Protected Area proposal. As you would expect, other agencies (now often from within the Ministry for Primary Industries) and the fishing industry are involved in the New Zealand CCAMLR delegation. Particularly in relation to various scientific advisory groups of CCAMLR, which operate between the meetings, a wider community of New Zealand scientists is involved.

Both the ATCM and the CCAMLR meetings run to pre-agreed (and largely constant between years) agendas, and the various agenda items are distributed across specialised working groups. Neil Gilbert, whose article "Future-Proofing the Antarctic Treaty System" appears in this number, was previously the chair of one of these (the Committee for Environmental Protection – CEP).

The bread and butter of the actual discussions in the Plenary and working group discussions at the ATCM and CCAMLR meetings are the diplomatic papers tabled by states and the various other bodies. At the ATCM we are talking about 200-plus papers; at CCAMLR perhaps half this number (but others, particularly technical and scientific papers, appear between the meetings). This is a massive body of work, completed at home well before the meetings. New Zealand annually submits a dozen-plus papers to the ATCM and around a dozen to CCAMLR. These range from proposals for New Zealand to fish for toothfish in the Ross Sea, through proposals for protected areas designation, updating management plans for protected areas, discussions of various environmental management tools and approaches, tourism management – including search and rescue – scientific cooperation, etc. The papers are sorted into various classes, and for critical issues are translated into the other three Antarctic Treaty languages (French, Spanish and Russian) by the secretariats.

In the popular imagination perhaps, a good idea presented in a diplomatic paper is welcomed with acclaim, achieves consensus on its substantive proposals and is promptly converted into some sort of agreement of the meeting. In practice, such is rarely the case, unless it relates to some of the standard operating procedures of the Antarctic Treaty System – such as protected areas management plans or the assignment of annual fishing quotas to states.

Flags of the original 12 Antarctic Treaty signatories at the NSF Chalet, McMurdo Station. (Photo courtesy of Alan. D. Hemmings.)

Other sorts of papers (the majority) generally receive kind mention in the meeting's Final Report and that's as far as it goes; sometimes they engender further discussion over succeeding meetings, before finally (but not always) leading to some sort of agreement. Occasionally, the issue raised by the paper is reflected in an agreement to do something at the meeting where it was first tabled. But *what* that something is, may vary in its significance. At the soft end, the agreement may simply be an exhortation from the meeting that something should be done – but with no legal obligation to do anything; a sort of guidance, if you will. This may well be positive – guidance may do the trick, or be the first stage in a progressive development eventually leading to legal obligation. Much rarer is an agreement by the meeting that is *legally binding* on the Parties. But this then has to be brought into legal effect in each of the states, before it enters into force generally – and that may take a very long time indeed. As an example, we agreed on a liability agreement in 2005, and that has still to enter into force.

So, what are the take-home lessons for the majority of Antarctic-engaged people who are not policy-wonks or attendees at diplomatic meetings?

Firstly, I suggest, a recognition of the very considerable amount of work that is going to be involved in taking a good idea from an inter-departmental or public-consultation meeting in Wellington, or a scientific or policy debate at one of our universities, or an NGO or industry consultation, through to even tabling at an Antarctic Treaty System meeting.

Secondly, an appreciation that most successful developments in Antarctic governance have taken years – and in some cases as long as a decade – to come to fruition. I recall a meeting in Melbourne, where I was upbraided by a scientist because the issue I was saying needed attention would, in his words "probably not arise for five years!" The mismatch between meaningful time horizons in the scientific community and what may be required to achieve a response in the policy sphere is a recurrent issue. Of course the reverse happens too: the scientific community says climate change needs urgent response; our politicians seem to think it doesn't.

And finally, perhaps, an understanding that whilst officials and "the government" can indeed "fail" (and we should not be afraid to criticise these failures), it may be a tad unreasonable to always expect success. Not every failure to progress a wonderful idea in the Antarctic is necessarily entirely the fault of one's own government and officials. If other states won't agree, one is jiggered, as the saying goes. Until next year, or however long it takes. The need for persistence is perhaps the enduring take-home lesson.

Scott Base from the road to McMurdo. (Photo courtesy of Alan D. Hemmings.)

Future-Proofing the Antarctic Treaty System

By Neil Gilbert, Director, Constantia Consulting Ltd

The Antarctic Treaty System is arguably one of the more successful international regimes. Negotiated in 1959 at the height of the Cold War, the Antarctic Treaty, with its neatly devised solution to disputed Antarctic territorial claims, has withstood the test of time. Under the auspices of the Antarctic Treaty the Parties have over time negotiated a suite of additional free-standing agreements that together constitute the Antarctic Treaty System. Antarctic Treaty membership continues to grow, with 50 countries now party to the Treaty; 29 of them with active Antarctic science and logistical interests.

The most recent of these Treaty-inspired agreements is the Protocol on Environmental Protection to the Antarctic Treaty (the Protocol). Adopted in 1991, the Protocol designates Antarctica as a natural reserve devoted to peace and science and introduces a suite of principles and rules to protect Antarctica's natural environment.

Arguably the hard work is over. Four decades of successful regime development have been completed, and since the late 1990s the Treaty Parties have relaxed into a period of regime implementation. Yet the hardest work perhaps lies ahead.

Parts of Antarctica are warming as fast as anywhere on the planet, and climate forecasts predict that trend to continue. Native species on the Antarctic Peninsula are being affected by changing climate conditions, with a number of species showing shifts in their range and distribution. Perhaps more alarming is the establishment and persistence of a number of non-native species in parts of Antarctica. Such change puts at risk Antarctica's status as a natural global laboratory.

These environmental changes are overlain with an expanding human presence in the region. Governments continue to establish new bases and expand their logistics programmes to support increasing numbers of researchers. The tourism industry seems set for another period of growth after a few static seasons, and, offshore, growing interest in fishing for krill and toothfish continues.

The very product that the Antarctic Treaty System is there to protect is changing. Steady-as-she-goes is no longer an acceptable option for the Treaty Parties. Wise and timely policy and management action are needed if Antarctica's status as a natural scientific reserve is to be maintained. To support the System to achieve that aim New Zealand (Antarctica New Zealand and Landcare Research) is developing an exciting new initiative – the Antarctic Environments Portal (www.environments.aq). Available in the four Treaty languages, the Portal aims to put the best available science knowledge at the fingertips of Antarctic policy makers. Targeted at the primary policy and management issues, and drawing on the best available science, the Portal provides up-to-date "state of knowledge" reports in a format that is readily accessible to Antarctic policy-makers and managers.

The project was initiated by Antarctica New Zealand and Landcare Research, but has received significant support from the international Scientific Committee on Antarctic Research and from partner countries Australia, Belgium and Norway.

The Portal will be launched at the 2015 Antarctic Treaty meeting to be held in Bulgaria in June.

Whatever the future holds for Antarctica, the information contained within the Portal will ensure that ignorance cannot be used as an excuse for inaction!

Some of the team at Antarctica New Zealand. (©Antarctica New Zealand)

Do You Know What it Takes?

By Jeanine Begg, General Manager Marketing and Communications, Antarctica New Zealand

There are few places on earth that you can't buy an airline ticket to visit – Scott Base, Antarctica is one of them. Science events supported by Antarctica New Zealand in the dynamic and isolated environment of the Ross Sea region are widely reported. However, what it actually takes to get these events to the ice – the behind-the-scenes logistics – is little understood.

Each summer season, 350 people pass through Scott Base as part of more than 100 scheduled events. Planning for this begins close to one year before the Antarctic season opens in October.

Antarctica New Zealand works with organisations who wish to undertake science in Antarctica. We collect high-level information about these projects and assess the resources required to deliver them. If we don't have the right resources, we work on a plan to purchase them, or we work with other countries to trade resources – sometimes this takes up to 12 months.

Once we agree in principle to support an event, we look at time schedules in order to avoid any conflicting requirements for resources; for example, two projects needing the same piece of equipment at the same time.

As part of the assessment process, an environmental evaluation is completed with the Ministry of Foreign Affairs and Trade. Red flags around risk are identified and controls are put in place to ensure safety of both the people and the environment. We discuss these controls with event personnel to ensure they are understood. Permits to operate in Antarctic Specially Protected Areas (ASPA) or the McMurdo Dry Valleys Antarctic Specially Managed Area (ASMA) are also processed.

During this time we're seeking the brightest, most resilient support staff to join our on-ice operations – a team of 35 over the summer season.

Once the scheduling has advanced and we have a plan that we can deliver, the operations team kicks into action. They cover everything from the set-up of deep-field science camps or local projects, to travel, beds, clothing, and food! They also ensure Scott Base infrastructure is in good working order – from power and water generation, wastewater treatment and fire protection, to vehicles and telecommunications.

As this brief summary shows, even before the wheels of a US C-17 or Kiwi C-130 Herc take off from Christchurch, the Antarctica New Zealand team have worked tirelessly to plan a season that supports our scientists to achieve their ambitious goals.

Learn more:

Website: www.antarcticanz.govt.nz
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Twitter: @AntarcticaNZ **Tweet:** #AntarcticaNZ

Antarctica New Zealand

Dorothy Braxton at Cape Hallett, 17 February 1968. (Photo courtesy of Barbara Braxton.)

The First-Women's Club of Antarctica: Remembering Dorothy Braxton

By Lester Chaplow

What do the following names have in common? Dorothy Braxton, Ingrid Christensen, Sophie Christensen, Marie Darby, Jennie Darlington, Patricia Hepinstall, Lois Jones, Ruth Kelly, Kay Lindsay, Eileen McSaveney, Caroline Mikkelsen, Jean Pearson, Lillemore Rachlew, Edith Ronne, Terry Tickhill, Mathilde Wegger, Solveig Wideroe and Pamela Young. They are all in the First-Women's Club – first in Antarctica.

The Christensens (mother and daughter), Mikkelsen, Rachlew, Wegger and Wideroe were the first *Norwegian* women in Antarctica, and probably the first women there ever; certainly the first identified women. They travelled with the Norwegian whaling fleets of the 1930s, with Mikkelsen, in 1935, being the first woman known to actually go ashore in Antarctica, on Tryne Island, and Ingrid Christensen the first to land on the Antarctic *continent*.[1] Darlington and Ronne were the first *American* women, and the first women to winter-over. They travelled south with the Ronne Expedition (1947). In 1957, Hepinstall and Kelly arrived on the first commercial flight to Ross Island as stewardesses on a Pan Am plane – and became the first women to visit the Ross Dependency. Jones, Lindsay, McSaveney, Pearson, Tickhill and *New Zealander* Pamela Young[2] were the first women at the South Pole. The six women are reported to have exited the plane arm-in-arm, so as to arrive on the Ice at the South Pole together (in November 1969).

Dorothy Braxton is remembered as a very active member of the New Zealand Antarctic Society in the 1960s, and also as the first female journalist from New Zealand to go south to the Ice – in February 1968 on the *Magga Dan*, the month after Marie Darby had become the first New Zealand woman to go to Antarctica, also on the *Magga Dan*. Dorothy Braxton told the story of her Antarctic visit in her 1969 book, *The Abominable Snow-Women*. After a career in journalism, in her adopted country of Australia she was awarded the Centenary Medal and made a Member of the Order of Australia (AM) for services to adult education. Dorothy Pearl Braxton died on 3 September 2014, aged 87.

References:

Blackadder, Jesse (2013). *Chasing the light: A novel of Antarctica*. Sydney: HarperCollins Publishers.

Braxton, Dorothy (1969). *The abominable snow-women*. Wellington: A. H. & A. W. Reed.

Darlington, Jennie (1956). *My Antarctic honeymoon: A year at the bottom of the world*. New York: Doubleday.

Ferguson, Henry (1932). *Harpoon*. London: Jonathan Cape.

New Zealand Ministry for Culture and Heritage. *Women in Antarctica*. <http://www.nzhistory.net.nz/media/photo/women-antarctica> accessed 24 September 2014.

Pan Am Historical Foundation. *Pan Am: Way down south*. <http://www.panam.org/points-of-departure/stories/209-pan-am-way-down-south.html> accessed 24 September 2014.

Ronne, Edith (2004). *Antarctica's first lady: Memoirs of the first American woman to set foot on the Antarctic Continent and winter-over*. Beaumont: Clifton Steamboat Museum.

Young, Pamela (1971). *Penguin Summer – or, a rare bird in Antarctica*. Wellington: A. H. & A. W. Reed.

1. Jesse Blackadder, in her 2013 book *Chasing the light: A novel of Antarctica*, makes passing reference to "Olga", whose Antarctic adventure was recounted in the 1932 book *Harpoon* and who may have pre-dated the Norwegian women, but Blackadder doubts the story.
2. Pamela Young was also the first New Zealand woman to work in Antarctica, in 1969–70.

Guy: The Adventures of New Zealand Photographer Guy Mannering

Written from his diaries by Margie Mannering and Nikki Latham

Reviewed by Colin Monteath. This review was originally published in *The Climber,* No. 88, Winter 2014, and is reproduced here with the permission of the New Zealand Alpine Club.

The name "Guy Mannering" is synonymous with the early days of mountaineering in New Zealand. G. E. (George, but known as Guy) Mannering (1862–1947) wrote the classic book *With Axe and Rope in the New Zealand Alps,* in 1891, which documents his five attempts to climb Aoraki.

But it is George's son Guy Mannering (1925–2003) who I came to know and admire as a mountaineer, adventurer, jet-boat enthusiast and, crucially, for me, as an Antarctic photographer. It was Guy's crisp black and white prints of emperor penguins at Cape Crozier that caught my eye upon first entering the Department of Scientific and Industrial Research's Antarctic Division library in 1973. These images were in part responsible for setting my life's course.

While Guy junior climbed our highest peak, a summit that eluded his father, Guy is not really a climbing biography. Instead, the book covers the years from the early 60s through to the mid-70s when Guy was particularly active in many fields, not the least of which was his highly successful Christchurch photographic business: Mannering and Associates.

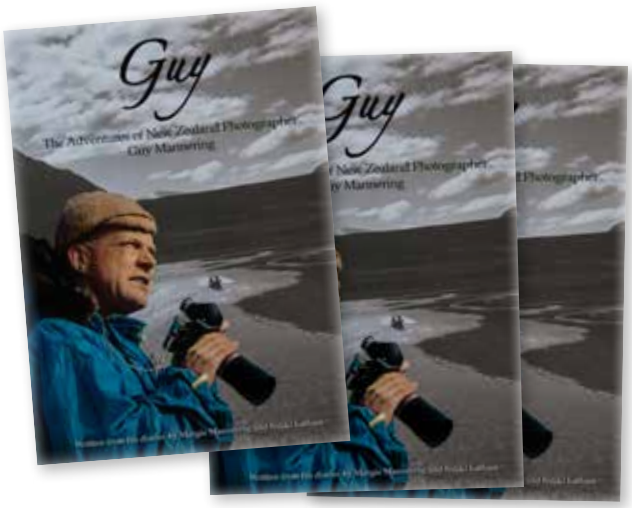
Many will be familiar with Guy's two wonderful books *The Peaks and Passes of JRD: James Robert Dennistoun* (1999) and *The Hermitage Years of Mannering and Dixon* (2000). Both were privately published and produced from his retirement home in Geraldine. The books were not only much-needed histories; they oozed with attention to detail, with fine art paper and quality photographic reproduction. With similar production standards, *Guy* has been crafted lovingly by Guy's widow Margie and Guy's granddaughter Nikki Latham. Much of the book is based on Guy's expedition diaries with linking passages of text by Margie and Nikki.

Guy was an early aficionado of jet-boating in Canterbury, so much so that his boat was the third ever produced on Jon and Bill Hamilton's line (of Hamilton Jet). Together with the Hamiltons, Guy pioneered ascents of many New Zealand rivers, proving beyond doubt the versatility and manoeuvrability of these remarkable craft. This friendship led to a jet-boating adventure up (and down) the Colorado River in 1960, an expedition filmed by Guy. There are in-depth chapters on subsequent jet-boat expeditions up the Mekong River in South East Asia in 1965; the Sepik River in Papua in 1966; and down the Congo River (formerly the Zaire) in Africa in 1974. These were all inspirational, difficult trips that I'm sure influenced Ed Hillary's decision to use jet-boats on the Ganges for the From the Ocean to the Sky Expedition in 1977. But it was the chapters on Guy on Antarctica that really drew me in. Guy was invited to Scott Base in 1962 as a photographer (along with writer Graham Billing) in the early days of what became the PRO position, a vital publicity role to document base activities and scientists at work in the field, then to send out press releases to the media. Sadly, this position has now been discontinued. Guy's photographic record of the New Zealand Antarctic Research Programme in the early 1960s is priceless, largely due to his passion for working long hours and taking every opportunity offered to disappear on a flight when a field party was being dispatched.

This was an era when Scott Base dogs were thrown onto R4D aircraft prior to a sledging season, of unreliable aircraft that crashed all-too-often after JATO (jet-assisted take-off) bottles misfired on take-off (Guy was on board during one crash), of the Nuky-poo nuclear power station at McMurdo that was in the process of self-destructing, of icebreakers and cargo ships arriving on Ross Island in November, of regular ship visits to the then functioning USA and NZ base Hallett in North Victoria Land, of a time when Kiwis were allowed to go to Cape Crozier to see emperors and of a time when every skerrick of water had to be melted from ice blocks. (Minute dirt particles in the water caused all sorts of hassles for Guy in his black and white darkroom.)

Guy Mannering loved Antarctica. He made several trips there during the 1960s prior to the release of his classic book *South: Man and Nature in Antarctica*, which was first published in 1964 (with text written by Graham Billing). If you are after an insight into how Scott Base used to function – an Antarctic world now long-gone – then I strongly suggest delving into *South* and now, *Guy*.

Alongside granddaughter Nikki, Margie Mannering laboured long and hard over this fitting tribute to her husband. Margie was tragically killed in a car crash as this book was going to press. Thankfully, she did at least have the satisfaction of seeing the book to completion before her death.



Guy is privately published by Nikki Latham (nikki_up@xtra.co.nz).
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