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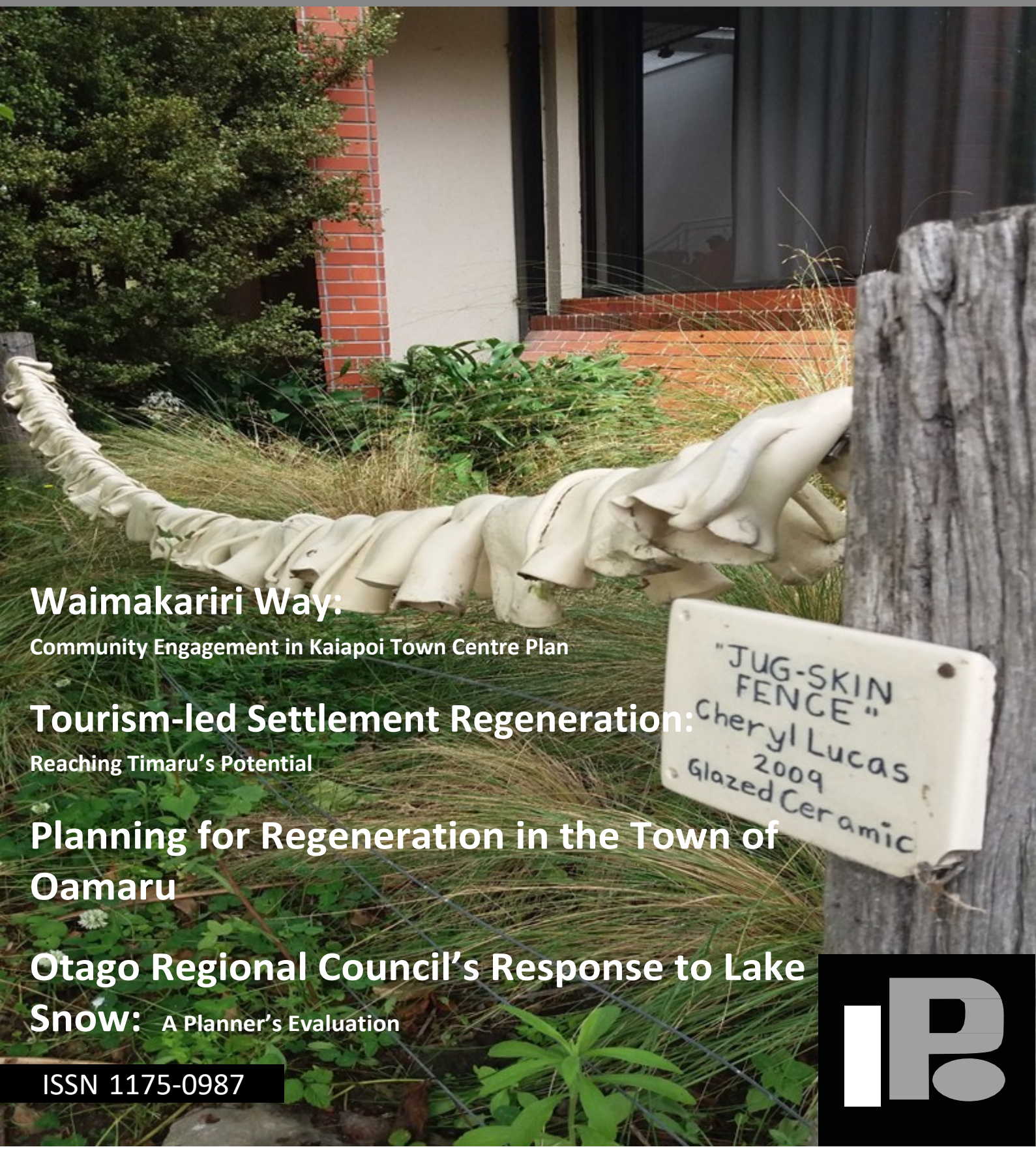


## Waimakariri Way:
**Community Engagement in Kaiapoi Town Centre Plan**

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Lincoln Planning Review is the journal of the Lincoln University Planning Association (LPR) and is the online publication produced twice each year and primarily edited by students.

The vision is *"to be the pre-eminent source of information on planning issues, research and education in and affecting the "central upper South Island".*

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Front cover photo by Assoc Prof Hamish Rennie, 2018

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# EDITORIAL
# Special Issue on Building Better Towns and Communities

Welcome to the 9th Volume of the *Lincoln Planning Review*! Almost a decade ago the then National Government launched a major change in Government research funding. After a major public consultation process there was a significant shift from a competitive tender system of awarding research contracts to one that required the various research providers to collaborate to meet a set of 11 National Science Challenges. This meant, as one CEO stated at the 2015 launch of a challenge team, that "we may not have all the best individual researchers, but we are confident we have the best teams". This year planners are starting to see the fruits of that research.

The Australian and New Zealand Planning Schools (ANZAPS) Conference, reported in this issue, was supported by *National Science Challenge 11 – Better Homes, Towns and Cities*. It was opened by Andrew Crisp, the new CEO of the recently established Ministry of Housing and Urban Development, who provided a much appreciated presence for the entire first day of urban planning research presentations. His key message was that the Ministry is not just building houses but is about building and strengthening communities. This is music to the ears of planners and an attitude that *LPR* strongly supports.

In recognition, this issue of *LPR* is our first *Special Issue* with a theme dedicated to rural towns (Oamaru, Timaru and Kaiapoi) and community development. It features three articles by members of the *Challenge 11* team and students the challenge supports. Continuing our close connection with environmental management, there is also a research article by MPlan alumni Stephanie Dwyer and former Lincoln staff member Dr Ronlyn Duncan on biosecurity and 'lake snow'. This should be compulsory reading for those heading to the southern lakes this summer!

In an enhancement of our previous practice, not only have the four research articles been subject to our usual double blind peer review, but the number of reviewers has been increased to include at least one practising planner among the three reviewers of each article. We have decided to continue with this model in future and wish to thank all of our reviewers and copy editors for their work on this issue.

Two of the three research articles are co-authored by Dr Mike Mackay who has recently been appointed inaugural Director of Lincoln University's new *Centre of Excellence: Sustainable Tourism for Regions, Landscapes and Communities*, reflecting the importance of tourism to the planning and development of our rural towns. The third article, continues Dr Su Vallance's strong support for *LPR* and urban resilience as she co-authors with final year MPlan student Mithran Ramesh-Gopinath an initial report on their work on the post-quake outcomes for Kaiapoi. Dr Vallance takes over the role of Director of the MPlan in January 2019.

This issue includes two field notes with interesting data and book reviews of recent publications whose authors include Lincoln

staff or alumni. In furthering our mission of bridging the gap between academia and practice, we continue to provide a selection of profiles of our staff and some recent alumni, information on awards, new partnerships and programmes, conference reports and lists of planning relevant research outputs by our staff and students.

This is also the first issue where we have used the Open Journal Software throughout and this has made the process run much more smoothly and enabled the workload to be more easily spread between the members of our excellent editorial and OJS support team. All will be continuing with us in 2019, enabling us to return to two separate issues of *LPR* each year.

Also a first, we include a reflective poem about the third year professional practice students, penned by contract lecturer Laurie McCallum, read to an appreciative audience of students and others at the end of the semester. Enjoy!

Hamish Rennie
Editor-in-Chief

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# Waimakariri Way: Community Engagement in Kaiapoi Town Centre Plan

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***ABSTRACT***

*Waimakariri District Council's Kaiapoi Town Centre Plan (KTCP) is part of a broader recovery - and now regeneration - process for Kaiapoi following the 2010 earthquakes. The Council employed a number of innovative and interactive tools and engagement strategies in order to facilitate public participation in the process. Importantly, these tools and strategies reflect a 'community-based' logic that, combined, enact a distinctive methodology often referred to as the 'Waimakariri Way'.*

*Keywords: community engagement, community development, disaster recovery, regeneration*

## 1. BACKGROUND

The 2010 earthquake resulted in extensive damage to Kaiapoi, Pines Beach and Kairaki in the Waimakariri District. Though affecting a smaller area, proportionally, Kaiapoi was as badly affected as the city of Christchurch. In the aftermath, over 5, 000 people lost water and sewer services (Vallance, 2013). Almost 1,200 homes (a third of all housing stock in Kaiapoi) and most homes in Pines Beach and Kairaki - were severely damaged (Vallance, 2013). A quarter of Kaiapoi businesses were immediately closed, and there was widespread damage to local infrastructure.

In 2011, the Council began work on the Kaiapoi Town Centre plan based on the understanding that land prone to liquefaction would be remediated and the housing stock and damaged businesses rebuilt. A comprehensive and integrated rebuild was developed and machinery was on-site to begin when the first of a series of Red Zone decisions were made by the then- Minister for Earthquake Recovery, Hon. Gerry Brownlee. In these zones, the cost of remediation and rebuild was considered too costly, thus, in Kaiapoi 1,048 houses (almost 90 hectares of land) surrounding the Town Centre were red-zoned and the homes on that land were subsequently demolished.

Post-earthquake, Waimakariri District Council (WMK) have won a number of accolades and awards for the high level of public participation they managed to achieve during the preparation of their various recovery and now regeneration plans and strategies. This overview is part of a larger project undertaken by the National Science Challenge 'Building Better Homes, Towns and Cities' which is aimed at identifying and analysing the organisational practises and process tools that made the Residential Red Zone Recovery Plan's, 2016 (RRZRP) collaboration process so effective and compares these with the current Kaiapoi Town Centre Plan - 2028 and Beyond (KTCP). Data for this project has been collected by reviewing secondary sources describing the processes of

both the RRZRP and KTCP. This has included official documents from the council's website, journal articles, reports and newspaper clips[1]. Primary data was collected by interviewing a selection of current and past senior management staff from the WMK and a selection of community members who made submissions on the plans. In order to target participants who were involved in both the RRZRP and KTCP, the snowball sampling technique was employed[2].

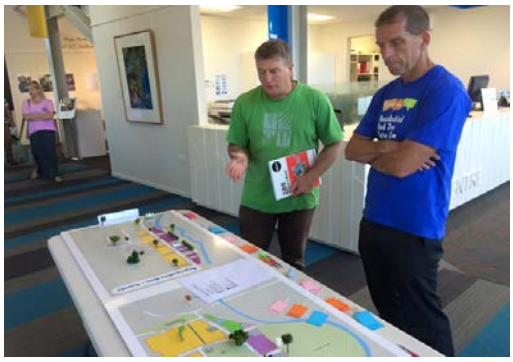

*Figure 1: Waimakariri Residential Red Zone Recovery Plan Report on 3D Model – Community Sessions*

Post-disaster, government organisations face the difficult task of creating recovery plans that are both inclusive as well as speedy (Olshansky, 2006). For life to normalise, essential services and infrastructure needs to be fixed as soon as possible. Inclusive community-based plans require some sort of consensus to be achieved across the affected community (Chandrasekhar, 2012). Regardless of the methods employed, deliberation and consensus building tend to be time intensive. Hence, speed and inclusiveness tend to be at odds with each other in any recovery planning scenario.

WMK's KTCP is an extension of an initial 'community-based' response, recovery and now regeneration process for Kaiapoi. The process has revolved around the need to engage and work with the affected community. This was not an easy task as, WMK staff were trying to engage with people who were traumatised by the earthquake and its ongoing aftershocks (Waimakariri District Council, 2017). Added to this complexity was the fact people had to deal with the stressful legal and insurance related procedures. This context distinguishes recovery planning from business-as-usual.

To achieve high levels of public participation the WMK employed a number of innovative and interactive tools and engagement strategies. The aim was not just to achieve high levels of public participation (quantitatively), but to ensure that ideas for future land use of the red zone areas came from a wide cross-section of a well-informed public. This article provides a brief insight into the way in which WMK operate by examining their initial response to the disaster, the recovery planning procedure of the RRZRP and the regeneration planning process of the KTCP. More research is required to determine the effects that inclusive community-based decision making can have over long-term recovery and regeneration. Nevertheless, certain key points have been picked up from the way in which WMK operate.

## 2. WAIMAKARIRI WAY

### 2.1 The Initial response to the Earthquake:

WMK head office and most of its staff are situated in Rangiora but, soon after the earthquake, the council set up a base in Kaiapoi called the Hub (Vallance, 2015). As a result of the extensive damage caused to the town, it was deemed necessary to have representatives on the ground talking to affected people and both coordinating and enabling response and recovery efforts. The Hub acted as an integrated centre where people could air their grievances and receive the help/advice they needed to move forward. Infrastructure and social recovery managers, an earthquake communications manager, representatives from the Inland Revenue Department, Work and Income New Zealand and an authorised building company were some of the people based at the Hub. Additionally, local NGOs providing a range of support services and representatives from Waimakariri Earthquake Support Service were

[1] The appendix contains a sample of some of the resources which were examined.

[2] Further details – including information about the methodology and primary data collection – are available from Dr. Vallance, Suzanne.vallance@lincoln.ac.nz .

also housed at the Hub. This integrated presence resulted in a good flow of information between affected people, WMK staff and other organisations involved in the recovery process. Response efforts were informed by the affected community and the affected public received information and expertise (for example engineering expertise) in a timely and well-organised manner.

### 2.2 Red Zone Recovery Plan:

Initially, the Minister for Canterbury Earthquake Recovery Authority conducted a campaign called *Canvas (2014),* which was aimed at identifying community ideas for future red zone land use (Waimakariri District Council, 2016). Subsequently, the Minister directed WMK to prepare the red zone recovery plan founded on the ideas highlighted by the Canvas campaign. Once prepared, the draft plan went through a *Let's Discuss (2015)* phase aimed at procuring community feedback on the prepared draft. However, the draft received a very low number of submissions. This was interpreted by council staff as indicating a lack of engagement and some level of 'consultation fatigue' caused by the extended recovery sequence.

WMK decided to employ a number of different techniques in the hope of better engaging the community. Information surrounding the plan was shared through websites, emails, advertisements, local newspapers, flyover videos and social media (Facebook, Twitter and YouTube). Face to face interactions occurred during workshops, meetings and update sessions.

Another innovate technique was the use of 3D models depicting potential land use for the red zone areas. Colour coded models were printed on foam boards and taken to a variety of locations. Children from local schools created miniature buildings and trees to bring the representations to life (Waimakariri District Council, 2016). As the models were displayed at different locations, people were able to share their thoughts on potential land uses with council staff. Moving colour coded flags around the displays helped facilitate conversations about the strengths and weaknesses of different options. Blue flags allowed people to highlight what they liked, orange flags indicated areas of concern and

*Figure 2: Areas of Kaiapoin that were Red Zoned within the KTC circled*

pink flags were used to propose new ideas. These sessions gave WMK staff a chance to interact with participants, answer queries and explain the specifics of the plan. This hands-on active participation technique seemed to appeal to a wide cross-section of society as everyone from small children to the elderly participated in the 3D model community sessions. Over 400 people visited the various sessions and about 197 flags were attached to the displays. As a result, the Council managed to achieve a higher level of engagement when compared to the low number of submissions received during the previous *Let's Discuss* phase of the plan.

In 2016 the RRZRP was approved and this resulted in red zone land becoming areas of regeneration. The plan outlines proposed land uses and activities for the five regeneration areas of Kairaki, The Pines beach, Kaiapoi East, Kaiapoi West and Kaiapoi South. Given the context, the plan initially focussed on non-built and non-residential options such as a dog park, reserves, walking and cycling links, new parks, a BMX track, mahinga kai activities, rural applications, roads and infrastructure sites, as well as some 'mixed-use business areas' (MUBAs) for those parts of the Red Zone immediately adjacent to the town centre (Waimakariri District Council, n.d.). These MUBAs comprise the areas that are now the focus of the KTCP.

### 2.3 Who was involved in the KTCP?

The Council used various tools and methods of engagement to inform both the RRZRP and the KTCP, including multi-criteria assessment of uses and activities reviewed by a range of experts, street corner meetings for those affected by decisions, drop-in sessions, regular meetings with the Regeneration Committee that included representation from both Councillors and Community Board members and was attended by representatives from NgaTuahuriri, ENC, WBNC and other stakeholders. There were also a number of larger town meetings where the Mayor, CE, senior managers and technical staff were present to ask and answer questions. For the KTCP specifically, three Inquiry by Design sessions were undertaken with the business community by an independent consultant (Boffa Miskell), along with two larger public meetings (one more for commercial interests to test the findings of the IBDs, and one for the general public).

Importantly, these 'tools' or 'methods' reflect a distinctive logic that, combined, enact a distinctive engagement method*ology* often referred to as the 'Waimakariri Way'. For the council this is articulated in Tā Mātou Mauri (Our Values):

- Act with integrity, honesty and trust;
- Work with you and each other;
- Keep you informed;
- Do better every day;
- Take responsibility.

What this looks like in practice is evident in a story from a senior manager describing the Council's early earthquake response:

*"Traditionally TLAs do not step across the home-owner's boundary and any infrastructure issues between the house and the front boundary is the home-owner's problem. But post-earthquake it would have been impossible to just call a plumber to get the issue fixed. So we [Waimakariri District Council] made a decision fairly early on to liaise with EQC and coordinate repairs across the boundary because there's no point us fixing our side of the sewer and people still not being able to use [the toilet] because the pipe between the house and the boundary is broken"(as reported by Vallance, 2013)*

## 3. KEY MESSAGES

Six key points emerged from our analysis of how WMK operates:

- The planning process – irrespective of the plan that comes out of it – plays an important role in recovery: Recovery and regeneration planning does two things. First – and very traditionally - the focus is on the way the public informs plans. The second, less well-understood outcome of recovery planning concerns the way these processes build or compromise relationships between the council and the community, and between community members. As we heard during our research, some people who made submissions on plans 'didn't get what [they] wanted but [they] felt heard and respected'.
- It is important for all council staff to have good interpersonal skills: A council ambition – implicit in Tā Mātou Mauri – is that all council staff members are engagement officers all the time. The people writing the plan should be at the head of the process and be a part of the communication team that goes out and engages with the community. Even 'technical staff' are encouraged to see themselves and their role in this way. As we were told by one staff member, if your budget is limited and you don't think you can afford a prolonged community engagement process, "don't hide, be a face, be out there".
- Information sharing is key: It was also emphasised that it is important to empower both communities and elected members with good information and advice. This can mean having staff who can answer technical questions in an easy-to-understand way present at community meetings.
- Open to experimentation: We were also told that it is essential to have a good communication team who are open to

experiment and who are not afraid to engage. It is important to try new things, employ innovative techniques and engage people using different forms of social media such as YouTube clips.

- Meaningful engagement: Spending time engaging well, through drop-ins, one on one interactions, integrated assessments, 3Dmodel sessions, IBDs are all examples where council staff could speak with those making the comments. Such interactions in-situ provide a different understanding of the context and generates outcomes that reading a submission in a formal setting does not.
- Post-disaster - Important to create a one-stop shop to coordinate relief and recovery efforts: An integrated hub could also be used to share information and provide a number of support services. A two-way flow of information could be used to ensure that relief and recovery efforts are directed towards providing support to the most affected/vulnerable sections of the community.

While we know that not everyone is wholly satisfied with the processes or the plans, our research thus far does demonstrate the importance of seeing the process of planning as have implications and effects. Being satisfied with the process – feeling heard and respected, understanding why the request was denied - can mitigate the negative consequences of not necessarily getting what is wanted. Doing engagement well places unique demands on the organisation - across budgets, human resources, personal relationships, 'thinking outside the box' and so on – thus the key messages presented here will likely depend on developing an institutional culture that enables this kind of approach. More research is required to establish how and why innovative and engaging cultures can be developed within local government and other organisations with a public remit.

*Acknowledgements:*

We gratefully acknowledge funding support for this research from the *Building Better Homes, Towns and Cities National Science Challenge*.

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## 5. APPENDIX

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# Tourism-led settlement regeneration: Reaching Timaru's potential

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***ABSTRACT***

*This paper reports the preliminary element of a study of tourism development in Timaru, South Canterbury, New Zealand. Deriving from a research project entitled Supporting Success in Regional Settlements, tourism is used to illustrate how local efforts are being focused on ways of making regional settlements more attractive places economically, socially, culturally and environmentally. We situate our study in the urban and tourism-led regeneration literature and report secondary data and documentary analysis of the current situation with respect to tourism development in Timaru District.*

*Keywords: tourism; urban regeneration; Timaru; South Canterbury; New Zealand*

## 1. INTRODUCTION

The research reported in this paper was funded by the New Zealand National Science Challenge: Building Better Homes, Towns and Cities: Ko Ngā Wā Kāinga Hei Whakamāhorahora, part of which is examining the lived and comparative experience of regional small-town New Zealand. This stream of work, entitled Supporting Success in Regional Settlements, is interpreting and supporting local efforts to make these places more attractive in which to visit, live, work and do business. The research team is examining the broad contexts of regional settlements, their trajectories and how residents are defining their situation and engaging in initiatives to improve their towns economically, socially, culturally and environmentally (www.buildingbetter.nz/research/regional.html). We are examining what initiatives work best as tools for regeneration and supporting the creation of a community of practice - sharing approaches to settlement development - incorporating private, public and third-sector practitioners. While interpretations of success vary from community to community, one overall aspiration in all of the settlements under study, is sustaining current populations, attracting new migrants and visitors, while simultaneously enhancing the built environment.

In the context of our programme, we have examined regeneration initiatives across four main interrelated dimensions:

- *Economic development:* for example, building on under-exploited local

resources and skills sets; supporting business incubators; place branding and marketing; tourism events to attract new visitors and raise the profile of the town.

- *Community development and planning:* for example, creating new urban and regional spaces and institutional/governance arrangements e.g., to mitigate climate change, provide services to sectors of the community and defending existing resources from threats of closure.
- *Historical, cultural and environmental heritage conservation:* for *example*, protecting, interpreting, promoting and marketing local heritage resources for their environmental, social and economic value.
- *Property development:* for example, rehabilitating former industrial spaces or public facilities for re-use; constructing new private and public facilities and spaces for interaction e.g., retailing outlets, cycle-ways, farmers' markets, offices, factories, convention centres; providing new technologies and infrastructure to advance connectivity, innovation and entrepreneurship.

The Supporting Success in Regional Settlements project arose from national and international public and policy concern about the considerable variability in the success of towns, cities and regions. In New Zealand, this concern is associated with an anxiety that the well-being of individuals, families and communities cannot be developed to its full potential if they are living in places that are under-performing economically and are under-developed socially, culturally and environmentally. This anxiety is exhibited most strongly in small to medium sized settlements, known as the 'second-tier' with populations of between 10,000 and 65,000.

Regional settlements of this size in New Zealand are currently at the centre of a conversation about the need to 'reboot' struggling areas located outside the main urban centres (Spoonley, 2016). Unlike the UK and other European settings, in New Zealand, there has been very little recent policy emphasis placed on the development of peripheral regions and their second-tier settlements. Uneven spatial economic development at the national level is a stark reality. This manifests as very significant growth in Auckland, the country's largest city, and a few other centres, with many others in stasis and some in decline (Brabyn, 2017). In the face of this situation, public, private and third-sector agencies in many second-tier settlements have taken it upon themselves to initiate a range of activities aimed at urban regeneration largely unsupported by extra-local agencies (Mackay & Perkins, 2017).

The situation with respect to this support is now changing. The election of the Labour Coalition Government in 2017 has seen the establishment of a '1 billion dollar per annum' contestable provincial growth fund that is to support the implementation of town improvement projects in areas outside New Zealand's main urban centres. This 'powering up of the regions' (Jones, 2018), has captured the public interest and stirred expert debate about investment priorities and the monitoring of the distribution of the fund (e.g., Bennett, 2018; Cropp, 2018).

Tourism initiatives are important in this regard. They have been the subject of discussion in our research fieldwork interviews with a range of stakeholders in second-tier settlements, focusing on the need for local economic diversification and the perception of untapped regional tourism potential. In one of the towns we are studying – Timaru, South Canterbury (township population circa 28,000) – the result of these discussions between us and local community stakeholders, including local government politicians and officials, was the co-production of the following research question: *How can local government and allied tourism development agencies and actors realise the potential of a currently underdeveloped visitor economy and, in turn, provide a greater range of recreational and related services to visitors and locals?* This has led us to the literature on urban-, tourism- and events-led regeneration, and a situational analysis and brief history of tourism activity

and services in Timaru, which has, in turn, influenced the direction of our project in that town. In addition, we reviewed the relevant planning literature, prioritising material on urban and small-town regeneration (Johnston et al. forthcoming). Our other secondary data were derived from an archival search and a review of publicly available material including: local government reports, Council minutes, official regional tourism statistics, the local newspaper, internet sites, tourism brochures and visits to various sites, facilities and events during the summer of 2017/2018. In this paper we discuss the outcomes of that work.

## 2. URBAN REGENERATION

Urban regeneration is a broad term widely used to describe initiatives, policies and/or projects that singly or collectively contribute to the renewal of city areas, neighbourhoods and settlements (Roberts, 2017). Urban regeneration initiatives typically include housing development programmes (McNally & Granger, 2017); waterfront/business district renewal projects (Shaw, 2018); the adaptive-repurposing of heritage buildings and creation of cultural precincts (Gentle & McGuirk, 2017); the facilitation of economic investment targeting health, crime, and unemployment; the provision of recreation, sport and tourism facilities, community events and local cultural celebrations (Garcia, 2004; Gibson & Connell, 2011; Roberts, 2017; Ruming, 2018; Smith, 2012). Hall and Barrett (2012, p.148) note that while urban regeneration initiatives can take many and varied forms, they generally have four main goals:

I. Improvements to the physical environment (which have more recently come to focus on the promotion of environmental sustainability);
II. Improvements to the quality of life of certain populations (for example through improvements to their living conditions or by improving local cultural activities or facilities);
III. Improvements to the social welfare of certain populations (by improving the provision of basic welfare services);
IV. Enhancement of the economic prospects of certain populations (through, for example, job creation, education or reskilling programmes or diversifying local economies).

To define urban regeneration and measure its success, urban and regional spatial planners stress the need for holistic thinking. They often define success in terms of functional integrated effectiveness in a number of spheres, including: population; the needs and aspirations of cultural/ethnic groups; recreation, arts and culture; historic heritage; the urban and regional economy; the bio-physical environment; responses to climate change; the built urban environment; housing; physical and social infrastructure; and transport and communication. In these terms, regeneration is a multi-dimensional process delivering multiple outcomes. The outcomes of regeneration, however, may take a long time to manifest, requiring a commitment to evaluating and monitoring the effects of an activity, programme or project over the short *and* long term, and a commitment to changing tack if things do not go as planned (Spires & Moore, 2017).

While the urban regeneration research literature is dominated by a focus on larger European cities and stories of project/programme success and failure, very recent work has emerged from Australia (Ruming, 2018) exploring the multiple aspects and processes of regeneration including planning policy, development financing, remediation and transport. Among its many case-studies is an interesting and useful focus on waterfront regeneration underscoring the changes European, North American, Asian and Australasian ports and associated waterfronts have experienced over the last 50 years (Shaw, 2018, but also see Cheung & Tang, 2015). These areas have undergone dramatic changes from being industrial and commercially focused, to incorporate significant elements of tourism, leisure, hospitality, retailing and

various forms of accommodation (Girard, Kourtit & Nijkamp, 2014; Hussein, 2015; Sairinen & Kumpulainen, 2005).

The impetus for global waterfront transformation and regeneration has been a complex combination of economic and technological changes. The decline of coastal shipping and concentration of fishing fleets in fewer ports in some countries, for example, saw some ports become defunct. Technological changes to international shipping and the development of container services triggered the decline of many urban and regional port areas as they were no longer fit for purpose and became under-utilised. Early regeneration attempts were focused on halting decline and involved significant elements of leisure, tourism, including events, and commercial property development to bring people and activities back to these areas (for a New Zealand exemplar see Adamietz, 2012).

More recently, having seen the success of these early developments, urban and regional authorities in other centres have embarked on second and third waves of waterfront development involving a broader range of activities and infrastructure development. Like many regeneration initiatives, waterfront developments are often very large ventures requiring sophisticated strategic planning over many decades and requiring extensive public and private capital investment (Adamietz, 2012). Tourism is often key to making these spaces thrive.

This literature is directly relevant to our work in Timaru as it is a coastal town with a sea frontage in walking distance from its central commercial and retailing area (for an early historical perspective see Hassall, 1955). Its sea frontage currently displays strong elements of production in the form of a busy port, and consumption and amenity allied to domestic recreation, hospitality and modest levels of tourism.

## 3. TOURISM-LED REGENERATION

Expressed generally, tourism-led regeneration is a process in which opportunities for tourism development are pursued strategically as a set of local projects or initiatives in towns and cities – often, but not always as public-private partnerships – for the purposes of sustainable economic, social and spatial development (Wise, 2016; Perkins et al. 2018). The touristic opportunities common to regeneration practice includes: (mega) sporting events (Wise & Harris, 2017); community festivals (Fountain & Mackay, 2017); place promotion and marketing (Kolb, 2017); arts and culture; and the development of a wide range of attractions, spaces, infrastructure, recreational opportunities and visitor services (Owen, 1990). Tourism often overlaps with a wide array of other regeneration initiatives associated with property development, cultural and environmental heritage conservation, the enhancement of greenspace, new retail precincts, community development and planning, and wider economic development projects, including waterfront revitalisation (Mackay & Perkins, 2017). All of these and other examples are associated with attempts in tourism to enhance the image of the towns concerned, to attract visitors and capital and extend the range of services and activities available to locals.

Galdini (2007) uses the example of Genoa, Italy, as a case study in tourism-led regeneration. Following difficult economic times, Genoa has used a comprehensive tourism policy to help regenerate and re-establish its role within the Italian economic and social system. The city fought decline and regenerated through a restructuring programme of the old harbour areas and the waterfront, which included the establishment of an historic centre. The focus of the integrated programme has been to preserve the old town, and at the same time positively influence physical, social and economic conditions by building a better place for residents *and* tourists (for an Australian example see Gentle & McGuirk, 2018). The process has linked the city to the sea, bringing new life to the area. Our Timaru case material tells a similar story.

In places where tourism is neither prominent nor overwhelming, it has the potential to produce economic and cultural benefits for the host community; an increase in visitor numbers means greater use and diversification of hospitality and accommodation facilities and services, thereby contributing to the local economy and improving employment (Edgell & Swanson, 2019). Improvements to infrastructure and public space and facilities often occur when councils and city groups focus on tourism, thus improving the physical and aesthetic form of the city. This formulation is perhaps too strongly orientated toward improvements in physical infrastructure. Our research points also to the importance of social and cultural activities, such as events and festivals, in processes of urban and tourism-led regeneration.

## 4. LINKING THE LITERATURE TO PRELIMINARY OBSERVATIONS IN TIMARU

After conducting the literature review and tourism situational analysis, we spent time in Timaru engaging in a number of site visits. It became immediately clear that tourism in Timaru is at cross-roads. Early in the 20th Century, Timaru's Caroline Bay was a very significant domestic tourism destination – known as the 'Riviera of the South' – attracting trains full of short stay visitors from Christchurch and Dunedin seeking relaxation at the seaside and participation in carnivals and events, very much in the British seaside tradition. The Bay's main attraction is an artificially sandy beach situated along the 240 km long Canterbury Bight, characterised mainly by mixed sand and gravel beaches. The sandy beach of Caroline Bay was created as a direct result of the two breakwaters (North Mole and Eastern Extension) being created for the Port of Timaru. Sand accumulated in the lee of the North Mole resulting in a beach protected from the high energy southerly waves making it safe and accessible for recreationists (Fahy, 1986; Hart et al., 2008; Hastie, 1983; Tierney, 1977).

The first official tourism attraction for Caroline Bay was the saltwater swimming baths. Newspaper articles dating to 1886 comment on the excitement accompanying the completion of these baths (Button, 2010). On 22nd October 1912, the Caroline Bay Association was inaugurated (Button, 2010). The Association's initial plans were to construct a road along the Benvenue Cliffs thus creating an esplanade complete with a range of leisure facilities. This work quickly transformed Caroline Bay and Timaru into a very popular beach resort.

The Caroline Bay Carnival – today an annual staple – took time to establish, but by the early 1920s it was the dominant feature of event-based tourism in Timaru. By 1938, the South Islands Travel Association of New Zealand claimed that Caroline Bay was the "BEST equipped beach in the South Island. Its spacious gardens, broad sands and safe warm waters make an ideal holiday resort" (SITANZ, 1938, p.37) and the 'principal attraction' of Timaru.

Caroline Bay went into a slow decline for much of the latter part of the century (Button, 2010), but from 2004 the Bay areas was regenerated significantly under the guidance by the Caroline Bay Development Plan which aspired to:

- Provide greater access to and along the beach front
- Provide a safe clear circulation pattern
- Tell the stories of the place
- Maintain open green space
- Provide for a wider range of activities
- Enhance the Bay experience
- Use planting to enhance sense of place, interest, shelter and wayfinding (Button, 2010, p.109).

While not achieving the heights of past popularity as a holiday resort, the Bay's regeneration has created a very attractive place to spend time for locals and visitors (Figure 1). It is the site of several events including the annual Timaru Festival of Roses, first run in 2002, and the longstanding summer

carnival. In mid-2012, the Caroline Bay Aquatic Centre was opened and as one of our local authority recreation management interviewees indicated it has proven to be extremely popular among locals and visitors alike. Sand dune planting and stabilisation work has created an attractive seafront space for walkers, some with dogs. The recent regular arrival of little blue penguins has added to the attractiveness of beach area and have become a source of local pride, informal tourism and debates about penguin protection. One of the main debates is about how to exclude dogs from the areas the penguins visit over the summer months (Williams, 2018a).

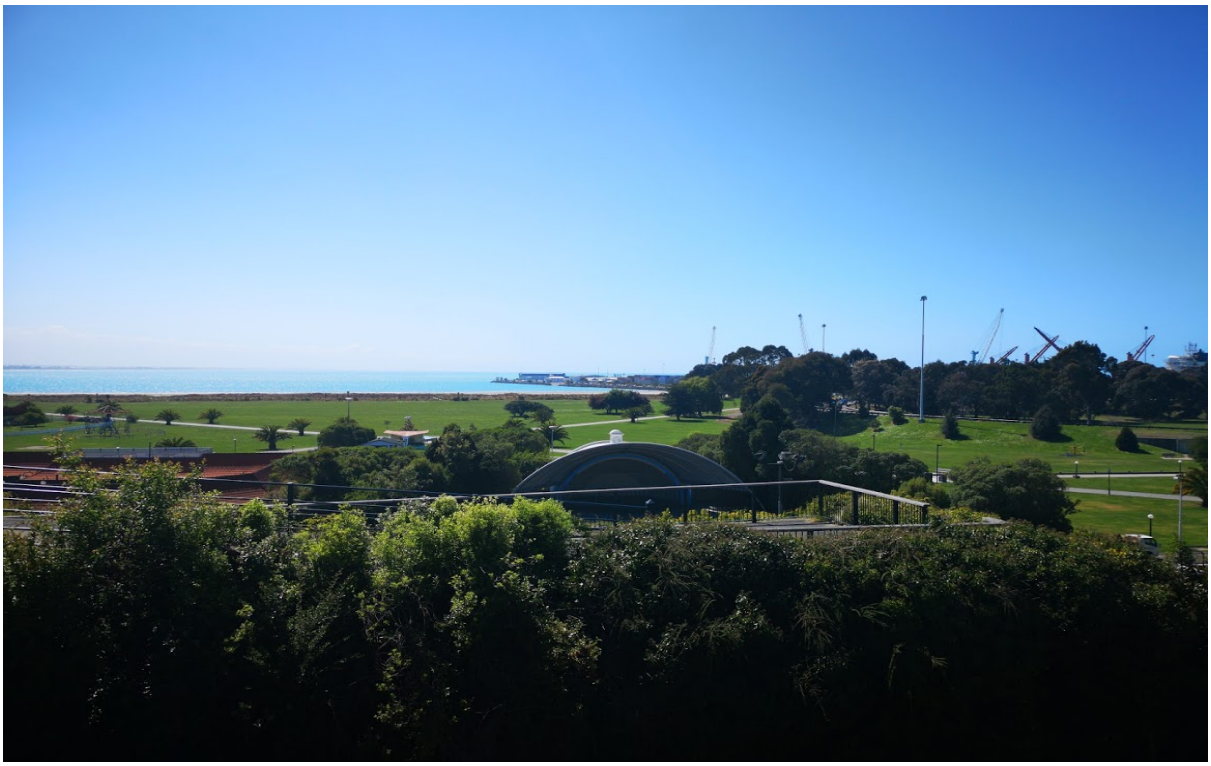

*Figure 1: Caroline Bay today. Photos: H. Evans, 2018*

Other developments link Caroline Bay to the wider urban fabric. A very few cruise ship visits have recently contributed to tourism in Timaru, but the potential for growth and positive impacts of these is unclear (McPhee, 2018). Workshops have been held recently to prepare the businesses and port for more visits. The experience of other New Zealand centres with cruise ship tourism has been discussed in these workshops (Aulakh, 2017a). Restaurant Developments on Bay Hill overlooking Caroline Bay (Figure 2) have proven very successful. A proposed accommodation development on the neighbouring former Hydro Grand hotel site, once the location of regionally important hotel and heritage building, controversially demolished in 2017 (McPhee and Hudson, 2017), has the potential to bring more people to the area and therefore strengthen the already existing spatial links between town and Bay. This, and similar developments, will require greater attention to the ways commercial property can be developed in regional centres such as Timaru (Levy, et al. 2018). Towns of this size do not often attract the same level of institutional investment as seen in large urban centres. This therefore requires Councils and their planners to work with and support local people with an interest in and passion for investment in town redevelopment, but perhaps not having significant property development experience (Levy, et al. 2018).

There is agreement about Timaru's tourism development potential but a need for better coordination among several important strands of activity and associated sites. One very good example is the Te Ana Ngāi Tahu Māori Rock Art Centre representing the ancient Māori rock art sites in the Aoraki region associated with three Māori kainga: Te Rūnanga o Arowhenua, Te Rūnanga o Waihao, and Te Rūnanga o Moeraki (https://www.teana.co.nz/).

European-settler built-heritage is also much in evidence in Timaru manifesting in a very attractive Edwardian town centre and some adaptive re-use of former commercial buildings by community members, and now used commercially in the town's hospitality and tourism information offerings. The Landing Services Building (Figure 3) near the waterfront is an excellent example of adaptive re-use now hosting the Rock Art Centre mentioned above, the tourist information centre, a bar and restaurant. Some of these heritage buildings are the subject of seismic retrofitting concerns and are at the centre of discussions about the need for a masterplan to revitalise the town centre.

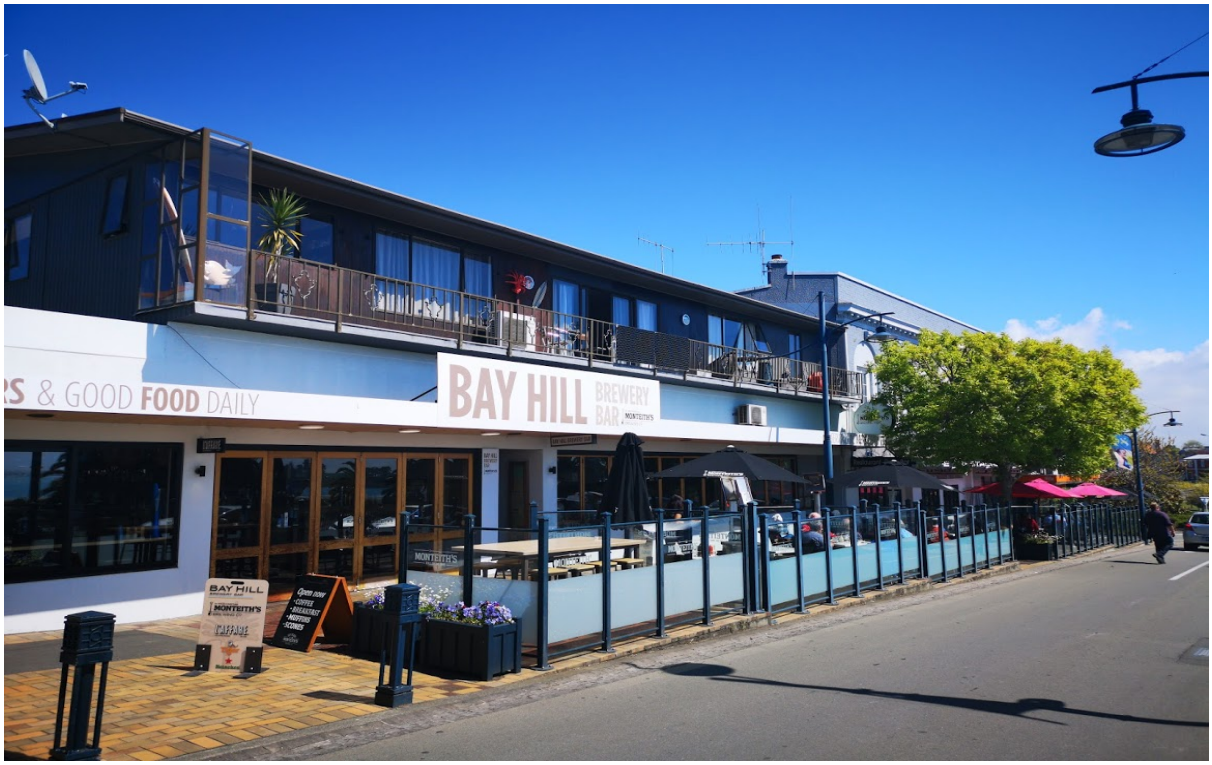


*Figure 2: Top: Bay Hill hospitality zone. Photo: H. Evans, 2018*

Going further, sport tourism associated with Masters Games and national and regional high school tournaments is now well established, taking advantage of the district's central location on the east coast of the South Island and its well-developed indoor and outdoor sports facilities (Quinlivan, 2018; Williams, 2018b). The big limitation to large events, particularly in summer, is commercial accommodation provision. A recent sports event, involving 1000 participants and supporters, saw people being accommodated as far away as Oamaru, some 85 kilometres distant. The existing accommodation is frequently close to capacity being used often by business clients and tourists visiting or passing through Timaru (Sutherland & Quinlivan, 2018). This suggests the need for a strategy to assist in the management of events in Timaru, particularly those that attract large numbers of people to the area. Such a strategy would provide alignment and support to all events in Timaru, ensuring that they are effectively managed, and that tourism operators are well prepared in advance to offer their best service to visitors (Sutherland, 2017).

Timaru also has a significant art gallery and collection – including paintings of national importance - and its museum is similarly attractive. The Botanical Gardens and other public parks and open spaces add to the amenity of the district.

Finally, in this part of our discussion, it is important to acknowledge the only part of the district that currently hosts high numbers of international tourists, if only for a brief period. We refer here to Geraldine (population 2,500) situated inland on the edge of the district and 35kms from Timaru City. Many of this small town's domestic visitors are from Canterbury and Otago, and they often stay overnight. But Geraldine is also on the main road from Christchurch International Airport to the very high amenity Mackenzie District centred on Lake Tekapo and Aoraki Mt Cook, and the road beyond to the international resort of Queenstown. For international tourists who are on the way to these places, Geraldine is mainly a stopover for refreshments, fuel and a comfort break. Timaru is not on this main international tourist corridor and so does not benefit greatly from these visitor flows. While overall, Timaru District's challenge is to take greater advantage of these tourists by dispersing them more widely and having them stay longer, Geraldine's challenge is to have them stay more than a few hours in the town.

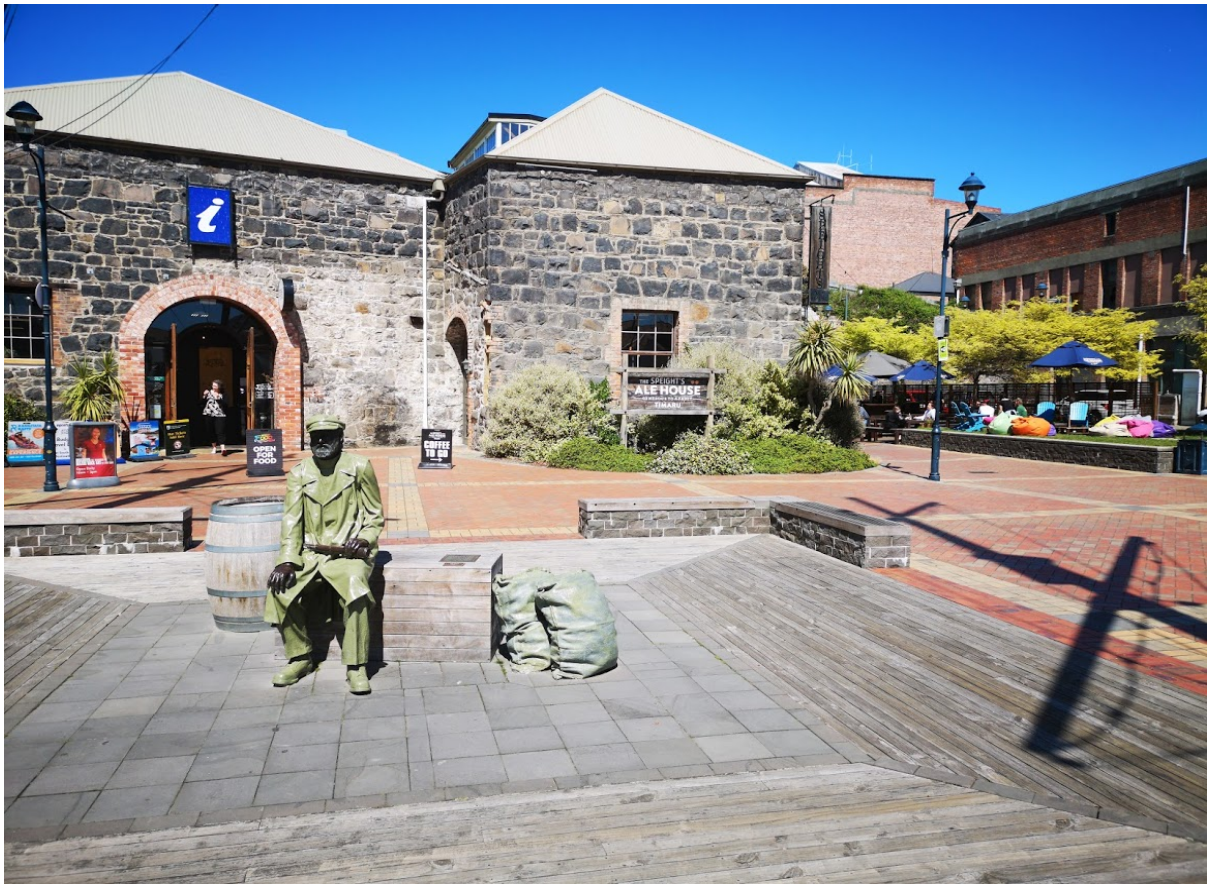


*Figure 3: Landing Services Building. Photo: H. Evans, 2018*

## 5. CONCLUDING REMARKS

Tourism-led regeneration has an important potential role in diversifying Timaru's economy and contributing to social, cultural and environmental development. Recent institutional re-arrangements such as the establishment of the Aoraki Tourism agency (www.aorakitourism.co.nz), albeit on a very small scale, is a welcome signal that is indicative of a desire to move in a positive direction. But despite these developments there is uncertainty about how best to advance

tourism development in Timaru and position it in the district's diversifying economy. Recent data produced by *Infometrics* show that in the year ending September 2017, Timaru's GDP grew by two per cent, with tourism emerging as an important contributor, growing by six per cent over the period (Aulakh, 2017b). Despite these positive developments, our research shows that there are many actors on Timaru's tourism stage, and thus a need for increased coordination and strategic planning. The district's potential is relatively untapped and investment on a greater scale in people and planning is necessary if Timaru is to effectively embrace tourism-led regeneration and achieve elements of its former high status as a premier South Island tourism destination.

We offer two further provisional statements about tourism-led regeneration in small towns. First, while the basic resources to form a strong and attractive tourism destination are often in evidence in small towns, there is often not the capability to take advantage of them. Local tax bases are often far too limited to pay for the intermediation work that is required to make connections and adapt old or create new activities and spaces. Finding new ways to sufficiently resource and re-resource the regions is critically important. Second, many of these small towns are travelled to and through, but not stopped in: so finding ways to encourage visitors to stop, stay and spend is the key challenge for tourism planners and development agencies. Our future work as part of National Science Challenge: Building Better Homes, Towns and Cities: Ko Ngā Wā Kāinga Hei Whakamāhorahora is to address these issues in conjunction with local stakeholders.

## 6. ACKNOWLEDGEMENT

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# Planning for Regeneration in the town of Oamaru

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***ABSTRACT***

*This paper reports the preliminary findings of a research project underway in the township of Oamaru, North Otago. The study is one part of a research programme entitled Supporting Success in Regional Settlements funded by the National Science Challenge: Building Better Homes, Towns and Cities: Ko ngā wā kāinga hei whakamāhorahora (BBHTC). The Supporting Success in Regional Settlements programme asks: how are local settlement regeneration initiatives working to improve the economic, social and environmental performance of regional towns in New Zealand? What drives success, and how can improvements be made and supported? Using primary and secondary data sources, our analysis in this paper provides a preliminary insight into Oamaru's past, present and future regeneration initiatives and the issues associated with their integration and resourcing. We conclude by emphasising the importance of careful planning, the effective integration of multiple regeneration activities, the harnessing of local energy and creativity, and sympathetic engagement with local residents to ensure that a widely acceptable vision for the town's future is adopted and implemented.*

*Keywords: planning; regeneration; Oamaru; Waitaki District; New Zealand*

## 1. BACKGROUND

Researchers at Lincoln University have had a long-standing interest in planning issues for the Waitaki, South Island, New Zealand. This interest originates in the work of the Tussock Grasslands and Mountainlands Research Institute, and the leadership of past staff at Lincoln, including Professors Kevin O'Connor, John Hayward and Ken Ackley. Under the auspices of the UNESCO Man and the Biosphere Programme, Lincoln produced a number of reports relating to the region. In an overview of this original research programme, and discussion of issues for regional planning, O'Connor and Ackley (1981) posited an approach to planning that considers natural and social systems together, to identify the opportunities and limits of natural resources and the objectives of the people and communities who use them. More recent interest in the Waitaki is reflected in the work of the authors in relation to water management (Taylor, et al., 2015; Taylor & Mackay, 2016), hydro-electricity development and tourism (Mackay et al., 2017; Mackay, Wilson & Taylor, 2015; Taylor, Mackay & Perkins, 2016a, 2016b; Taylor, Perkins & Maynard, 2008; Wilson & Mackay, 2015), irrigation (McCrostie Little, et al., 1998) and outdoor recreation (Mackay, 2016; Mackay & Wilson, 2014).

In this paper we report the preliminary findings of new research underway in the township of Oamaru – the Waitaki's main urban centre. The Supporting Success in Regional Settlements programme asks: how are local settlement regeneration initiatives working to improve the economic, social and environmental performance of regional towns in New Zealand? What drives success, and how can improvements be made and supported? The project is examining the role of the local council and other community leaders in achieving integration across a suite of local regeneration initiatives.

Regeneration, in broad terms, refers to "development that is taking place in cities and towns" (Tallon, 2013, p.4). Ruming (2018, p.3) notes that the impetus for regeneration activity is a "desire to reconfigure the form and operation of cities [and small towns and districts] in response to a series of social, economic and environmental challenges," with the broad aim of strengthening the economy and improving the local quality of life. Ruming (2018) and Powe et al. (2015) note that regeneration is a multidimensional, complex and multi-scalar process, that involves the private sector and public agencies working together on area-wide improvements in an effort to halt local social, physical and/or economic decline and develop a more positive trajectory. While many regeneration initiatives have a strong property dimension – targeting the physical transformation of the built environment – regeneration projects can also draw on local cultural and environmental assets to improve places for residents, often in a series of steps (Powe, et al., 2015, p.177). Part of the picture therefore is cultural and built heritage revitalisation, ecological restoration, social entrepreneurship, events and community ventures. Ruming (2018, p.5) argues that, "regeneration projects (no matter what their size) should not be viewed in isolation, but collectively as drivers of city-wide [and we would argue District-wide] change." This is important in the context of our work, given the diversity of regeneration activity evident in Oamaru.

Our findings are focused on three sets of initiatives. The first cluster is *local* in nature and has proved fundamental to providing the initial momentum of regeneration in Oamaru. These initiatives are associated with planning and implementing regeneration of the Victorian heritage precinct of Oamaru's stone buildings in the harbour area and along the main street. This set also includes the eco-tourist attraction of the blue-penguin colony and visitor centre, and more recently a number of other initiatives in the waterfront area. The second set of initiatives is linked to the Alps to Ocean ($A_2O$) cycle trail, which starts at Aoraki-Mt Cook, connects two districts and transverses the Waitaki catchment, ending in Oamaru. The $A_2O$ is *national* in scope in that it is based around a cycle trail planned and implemented as part of the National Cycleway Project Nga Haerenga – The New Zealand Cycle Trail (Bell, 2018; Pawson & the Biological Economies Team, 2018). Despite this, it was initiated and organised by local groups and the Waitaki District Council, with input from Department of Conservation, Meridian Energy and local businesses. The third set of initiatives is broadly involved with the GeoPark proposal led by the Waitaki District Council in conjunction with partners such as Ngāi Tahu and UNESCO. The GeoPark began as a local initiative, progressed to a district initiative and has in the last year expanded to a global reach initiative with the recent selection of the Waitaki GeoPark as the single New Zealand proposal being put forward for formal recognition by UNESCO.

This paper provides preliminary analysis and reflection on results obtained from field research into these sets of initiatives to date. We provide initial observations about the role of strategic planning and particularly the role of the district councils in the regeneration of towns such as Oamaru. We argue that an essential element to success in regional regeneration is the ability to mobilise local resources and external inputs in an integrated strategic approach that can include a number of different planning instruments. We also observe that it is important to build local capacity in regeneration in a way that encourages multiple leaders and organisations.

## 2. METHODS

The method used in the Oamaru case study utilises the combined approaches of realist evaluation and social assessment. Realist evaluation is a theory-driven method that, "identifies and refines explanations of programme effectiveness" (Pawson and Manzano-Santaella, 2012). The approach asks essential questions about what works and why, and for whom. Social assessment is an approach that combines iterative cycles of data gathering, synthesis, deduction and induction to identify and manage the impacts of a plan, programme or project (Taylor et al., 2004). Both social assessment and realist evaluation are eclectic in terms of theory and sources of data, or mixed methods.

The approach to the Oamaru case study therefore combines an evaluative dimension in terms of what makes regeneration successful and an assessment dimension in terms of understanding the impacts of regeneration on people and communities. It is intended that together these dimensions will build knowledge to use in the case study community and in other places interested in similar development tracks.

The combined approach places a heavy emphasis on qualitative data in order to build depth of understanding in the field context. Sources of data for the case study have included primary and secondary data. Primary data that is qualitative is obtained through field research using in-depth interviews and participant observation. At the point of writing this working paper, 22 interviews have been undertaken. A number of interviews were recorded and transcribed for detailed review along with written field notes and observations. Secondary, qualitative data has included historical records, documentary research, reports and studies and media coverage in sources such as the Oamaru Mail and Otago Daily Times. Secondary, quantitative data are also used in the study, including census data, economic and employment data and GIS maps. These sources have helped to build a social profile of the town and district.

The starting point for this research was to map and characterise the range of regeneration initiatives in Oamaru, and the periods over which they developed. The key stakeholders in each initiative were also identified. As a result of this scoping analysis and the input from key stakeholders, we were able to identify initiatives to examine in more detail. Scoping also identified the central themes of integration of regeneration and sustainable development.

The research emphasises the co-production of knowledge, which facilitates and empowers the input of all participants into the research and pays particular attention to the contribution of local knowledge (Djenontin & Meadow, 2018). We acknowledge here the ready involvement of the Mayor, Council members, Council staff, business operators and community leaders in this research and in sharing information with us. These people represent a range of interests across hospitality and tourism, economic development, heritage conservation, planning and environmental management. In the final stage of the research we plan to undertake further field research and analysis and to work with the Council in holding a workshop or symposium to discuss and elaborate further the results. The research was reviewed and approved by the Lincoln University Human Ethics Committee.

## 3. THE POPULATION AND ECONOMY OF OAMARU AND WAITAKI DISTRICT

Oamaru is the main urban centre of the Waitaki District and services the surrounding rural hinterland (Figure 1). The District extends inland from the mouth of the Waitaki River, up the Waitaki River Valley, through Ohau to the top of the Ahuriri River Valley. It reaches south along the east coast beyond Palmerston to Flag Swamp. There are also valley townships at Omarama, Otematata, Kurow, Duntroon and Ngapara, and a number of smaller settlements.

Four of Ngāi Tahu's 18 Papatipu Rūnanga uphold the mana of their people over the land, the sea and the natural resources of the Waitaki District (WDC, 2018a). They are: Te Rūnanga o Moeraki, Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Kāti Huirapa Rūnaka ki Puketeraki. The District has a number of sites

*Figure 1: Oamaru from South Hill. Photo H. Evans, 2018.*

The population of Oamaru (Table 1) has grown modestly in recent years, with a sub-national estimate of 13,800 in 2017, indicting this trend goes past the 2013 census year and is a reversal of preceding years. Previously, Oamaru lost population over a difficult economic period through to 2006. It is notable that all the townships in the Waitaki valley, Omarama (-3.3%), Otematata (-23.5%), Kurow (-19.6%) and Duntroon (-25.6%), lost population in the period 2001-2013. In contrast, the irrigated river plains gained population due to the influence of dairy farming (Taylor et al., 2015). The loss of population in the valley townships gives them a keen interest in future development of the district as a whole, and the town of Oamaru in particular, where valley people have strong social ties and obtain many services.

*Table 1: Changes in Usually Resident Population of Oamaru 1996 -2013*

| Census Year | Oamaru | | Waitaki District | | New Zealand | |
|---|---|---|---|---|---|---|
| | Number | % change | Number | % change | Number | % change over 5 years |
| 1996 | 13,419 | | 21,573 | - | 3,617,547 | - |
| 2001 | 12,696 | -5.4 | 20,088 | -6.9 | 3,736,560 | 3.3 |
| 2006 | 12,681 | -0.1 | 20,223 | 0.7 | 4,027,320 | 7.8 |
| 2013 | 13,044 | 2.9 | 20,826 | 3.0 | 4,242,048 | |

Source: Statistics New Zealand for nine area units that make up Oamaru

of cultural significance, including wāhi tapu, nohoanga and places for mahinga kai.

In addition to concerns about achieving a viable total population, economic development initiatives are influenced by the particular demography of the area. One factor mentioned frequently in field research is the ageing population and the need to attract a greater range of people to the town to maintain its vigour. At the same time, we observed and were told a number of stories about "retired" people shifting to Oamaru for the "cheaper" housing, whilst starting new enterprises or featuring in new community groups. These incomers are an essential part of the regeneration that is taking place.

The Waitaki District has experienced an increase in median age, notably above the South Island and NZ projected median ages but this is projected to level off from 2020. Median age is consistently increasing over time in Oamaru, with a median age of 38.2 (in 1996), up 7.6 years by 2013 to 45.8. This suggests a consistent upward (ageing) trajectory for this area until at least 2020. The proportion of the population of Oamaru over 65 will reach one quarter of the population by 2023 and approximately one-third (28.6%) by 2043 on current projections.

Another feature mentioned in the field research is the increasing cultural diversity of the town and district. Interviews and local media noted the large number of people

identifying as Tongans who were attracted to the town in recent years. At the 2013 census, 85.7% of the Waitaki population were European, 6.1% were Māori, 2.9% were Asian and just 2.3% were Pacific peoples. This indicates on a national level the population was far from diverse. However, recent school roll data on ethnicity indicate high proportions of Pacific people at some Oamaru schools- 7.6% (282 students) of students in the District, with the majority of these being Tongan. This suggests the 2018 census will show an increase in the proportion of Pacific people.

To understand the influx of migrant workers to the District in recent years, it is important to understand that the district as a whole, and the town of Oamaru, are especially reliant on the fortunes of the primary sector and rural servicing, manufacturing (particularly food processing and textiles), alongside wholesale and retail trade, hospitality, business, social, and personal services.

The agricultural sector in the Oamaru area generates economic wealth and employment as the largest productive sector. This is shown in the economic profile developed for the case study. Forestry, Fishing, Mining, Electricity, Gas, Water and Waste Services sectors account for about one-fifth of all GDP. A common refrain amongst respondents reflecting on the economy is the positive effect of the meat processing plant at Pukeuri – and the negative effect any reduction of this plant would have on the economy. This Alliance plant is the largest employer in the district. A large fire in 2006 required major repairs and refit of the plant and a further upgrade was recently proposed, suggesting its future is secure in the meantime.

Hospitality and associated retail activity, such as specialised shops, provide an important element of economic diversification and is also attracting amenity migrants. Oamaru is well-known for its precinct of neoclassical buildings, built with locally quarried stone that attract international and domestic visitors. The nearby harbour is recognised as a site of national significance by the New Zealand Historic Places Trust and is home to the Oamaru Blue Penguin Colony. In addition, the valley itself is increasingly a visitor attraction as a result of the $A_2O$ cycle trail.

Respondents commented on the availability and relative attraction of the price of property in Oamaru and district. However, it was also pointed out that homes with a view of the harbour and a sunny aspect commanded higher prices. There was a low incidence of home ownership in Oamaru in the 2013 census, with 48 per cent of dwellings being owned or partly owned (cf. 57% Waitaki District, 51% New Zealand) and another 11 per cent held by a family trust (cf. 14% Waitaki District, 12% New Zealand). The incidence of rental occupation most likely reflects the presence of low-income families and newcomers to the town. At the time of our research a local valuer whom we interviewed described the situation with respect to commercial property as a “boom”, adding that he had “not seen anything like it in 20 years of practice”. Some new-build growth is in the Council-owned Business Park at the northern end of Oamaru. Away from the Park, further south, commercial property expansion is associated with the growth of particular industries in the town (e.g., home improvement retailing and cheese manufacturing). Many businesses own their buildings rather than rent from commercial investors. At the southern end of the town lies the heritage precinct where adaptive repurposing is commonplace along with proposals for new hotels.

## 4. REGENERATION INITIATIVES

Taylor et al. (2008) have previously emphasised the importance of longitudinal research when considering the Waitaki Valley, especially when trying to understand planning for land and water, and for the economic development of the smaller settlements and towns. For this research looking at ways of supporting regional settlements, it is important to understand that regeneration initiatives in Oamaru have a back history to the challenging period the district went through in the 1980s as neo-liberal economic restructuring took effect (Fitzgerald and Taylor, 1989; Taylor et al., 2008). In addition, the area went through successive severe

droughts in the late 1980s. By 1989, the Council for Social Services in Oamaru had commissioned The Centre for Resource Management at Lincoln University to provide a report on social issues in the town, in recognition of the difficulties faced by the population at that time (Fitzgerald and Taylor, 1989). Questions of economic regeneration were then high on the agenda for the town's leaders as a response to high unemployment, and amongst initiatives suggested as a way to stimulate employment was the preservation and use of the town's heritage buildings to build greater visitor activity.

By taking a longitudinal perspective on regeneration it is useful to consider the efforts of the local community and central government to develop irrigation on the Waitaki Plains. The scheme was developed in the 1970s and commissioned in 1976, replacing small areas of irrigation and the stock race network. It takes water from the Waitaki at Borton's Pond and delivers it to the lower plains out to the coast. The irrigated area is used primarily for dairy farming today (Figure 2). By converting small, dryland farms to irrigation the project was a major force for land use change and economic development in the district from the late 1970s with the advent of dairy farming (McCrostie Little et al., 1998). This strong economic boost was vital in the late 1980s and early 1990s as the dryland farms of the district, largely in sheep and beef, struggled with the combined effects of successive droughts and the loss of farm subsidies.

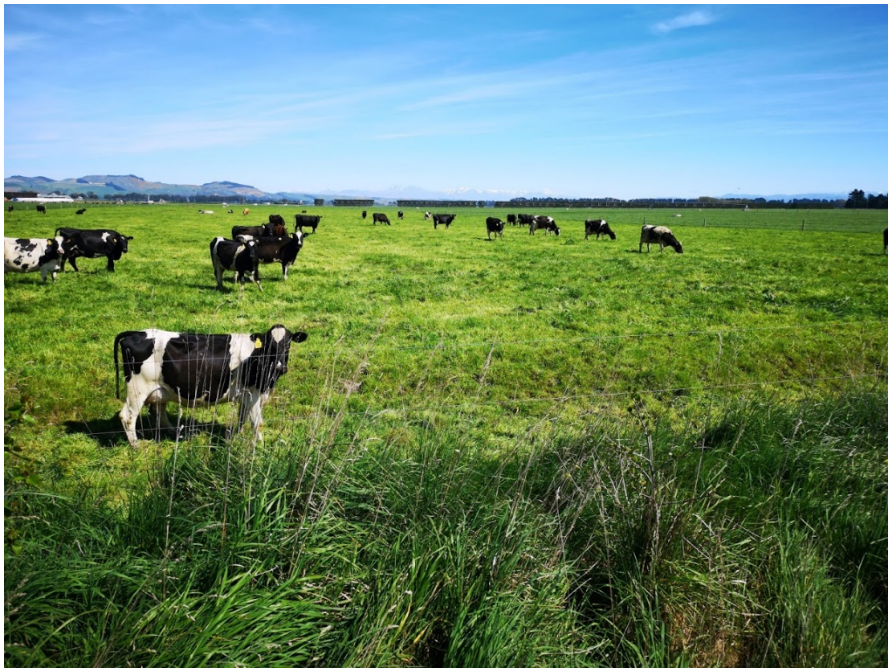

*Figure 2: Dairy farming in the Waitaki Valley. Photo: H. Evans, 2018*

The Ministry of Works and Development drove early irrigation development in the mode of centralised resource planning that predominated at the time and was familiar in the area due to successive hydro dam projects. It is important to note that when central government divested from irrigation projects in the late 1980s, the investors moved their interests to the newly formed Lower Waitaki Irrigation Company which included farmers, the Waitaki District Council and the Pukeuri meat works who were all eager to shift scheme ownership into local control (McCrostie Little et al., 1998).

Associated with milk production is the opportunity for processing. The Whitestone Cheese factory was established by a farming family in 1989 in response to the rural downturn. The factory now employs over 50 staff and includes a viewing room, cheese delicatessen and shop combining cheese production with a visitor sector that has an emerging food focus. Otherwise, milk is largely driven north for processing however, very

recently in 2016, a dairy factory was built at Glenavy just out of the district.. It is owned by a leading global dairy company, Yili, who confirm plans to expand the factory with a further $400m investment. More than 70 jobs have been created by stage one of their operations (Oceania Dairy, online).

Further local investment in irrigation in the North Otago downlands was led by the North Otago Irrigation Company (NOIC) with Waitaki District Council actively involved. The first stage was completed in 2006. Stage 1 provided 10,000 ha of irrigation and added $49 million to the North Otago economy. It created 274 new jobs according to an economic survey (The Agribusiness Group, 2010). Stage 2 of a further 10,000 ha got sufficient backing to proceed in 2018. Our respondents commented on the importance of these schemes and associated intensification of agriculture to the economy of Oamaru.

In terms of local effort to diversify the economy and develop Oamaru as a destination, the heritage precinct and harbour are the focal point (Figure 3). Interest in the heritage buildings of Oamaru coalesced with the 1987 feasibility study into the redevelopment of Oamaru's Harbour and Tyne Streets now known as Oamaru's Victorian Precinct. It was the original commercial and business district of Oamaru and served as the base for trade through the port of Oamaru (The Oamaru Whitestone Civic Trust, online). The feasibility study signalled a change in attitude to an area previously seen as "derelict" to a place with heritage values and a site for regeneration activity. With a dominant position at the entrance to the harbourside precinct, the Criterion Hotel gained Historic Places Trust registration in 1987 (Figure 4). Restoration of the hotel became a flagship development in the historic area as the Oamaru Whitestone Civic Trust refurbished the building (Warren and Taylor, 2001). It was operating as commercial premises by July 1999 and changed ownership in 2012 (Criterion Hotel, online). The hotel anchored commercial opportunities in the precinct along with businesses such as the book binders and booksellers, Slightly Foxed. The heritage precinct is largely themed Victorian, with names used for the area including 'Victorian town' and 'Victorian Oamaru'. Most recently it has been named, 'the Oamaru Victorian Precinct', with the website being https://www.victorianoamaru.co.nz/. Further attempts at creating place identity for Oamaru are evident in the use of such names as, 'Culture Waitaki', 'Whitestone Trust' and 'Steampunk Oamaru'. The latter was created in 2011 and occupies an old granary building in the Victorian precinct.

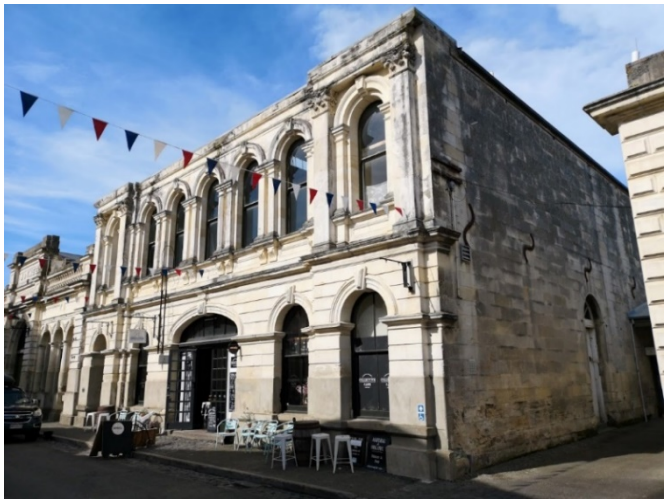

*Figure 3: Oamaru Victorian [Heritage] Precinct - Photo: H. Evans, 2018*

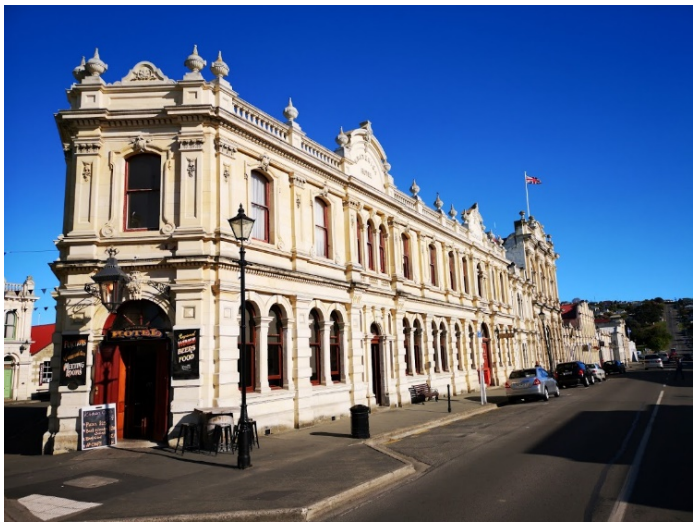

*Figure 4: Criterion Hotel - Photo: H. Evans, 2018*

The Oamaru Blue Penguin colony opened in 1992 as a result of the restoration of roosting and breeding areas adjacent to the harbour in the early 1990s. The facility has expanded over time with public viewing areas, information displays, research facilities and a shop. It is now a premier attraction in Oamaru, with an added benefit of encouraging people to stay overnight in order to enjoy the evening viewing of penguins returning from the sea at dusk. The facility is run by Tourism Waitaki, the regional tourism organisation, and had 70,000 visitors in 2016 and managed a significant redevelopment in 2017 (MacLean, 2017).

With an emerging awareness of the interlinked potential of the historic precinct and harbour area, additional initiatives have taken place over time. This includes the establishment of a café/restaurant close to the penguin colony and upgrades to the historic sheds. One of these sheds is now a craft workshop. Other features of the harbour include the upgraded main wharf and the Victorian Sumpter Wharf that is in a state of disrepair, but is now home to a shag colony. This colony hosts both the spotted shag and the rare Otago shag, the latter being known to breed on the wharf. A recent addition to the heritage area is an interactive information centre and museum called Whitestone City. Like the penguin colony, it is run by Tourism Waitaki.

Working to a master plan for the area, the Council have moved to link the harbour area directly to the heritage precinct with a new road link and footbridge over the rail lines. Development close to the harbour and wharf now includes a new café, children's playground, refurbished public toilets and Waitaki Bike Skills Park. Close to the heritage area, a craft brewery/tavern has opened which attracts many locals and visitors. The linked heritage/harbour precinct area is also the preferred location for a number of events and festivals, including activities associated with the Steampunk NZ Festival Weekend, Harbour Street Jazz & Blues Festival, Network Waitaki Victorian Fete, and Victorian Heritage Celebrations.

The $A_2O$ is a cycling and walking trail that is a national scale initiative, which initially arose from the efforts of a small local group enthusiastic about developing such a trail. The proposal was developed in 2009 leading to the cycleway being fully developed though to Oamaru (the ocean). The cycle way is 300km long, starts at Aoraki-Mt Cook National park and descends 780m through the Mackenzie Basin and Waitaki Valley to Oamaru. While this was a local initiative it importantly received funding from the National Cycle Trail Project (Bell, 2018; Wilson, 2016) and was also supported by the involvement of Waitaki District Council through project management and dealing with issues such as property access over private farm land.

The $A_2O$ traverses part of the Waitaki Whitestone Geopark, another important regeneration initiative located in the District. This initiative is the innovation of a group of volunteers associated with the Vanished World Fossil Centre– a community organisation

located in the small settlement of Duntroon which lies 30 minutes from Oamaru (Figure 5). The Centre was created in 2000 by a group of land owners in Duntroon with assistance from the Geology Department of Otago University (WDC, 2018b). Since then it has operated as an interactive fossil display gallery and geology education centre, while also overseeing the 'Vanished World Trail'. This trail showcases sites of local geological significance in the vicinity of Duntroon. It also sits behind the Waitaki Whitestone Geopark brand, however this initiative is now in the process of upscaling via an official bid for UNESCO Global Geopark accreditation. This process involves Waitaki District Council working alongside Ngāi Tahu, Vanished World Incorporated, Tourism New Zealand, the University of Otago, the North Otago Museum, Tourism Waitaki, Environment Canterbury, the Waitaki Tourism Association, the Otago Museum, and the Department of Conservation. Waitaki District Council (2018c) state, "the UNESCO Global Geopark network celebrates earth heritage and promotes sustainable local economic development through geotourism. A UNESCO Global Geopark uses geological heritage in connection to an area's cultural identity to give the people who live there a sense of pride, generate new sources of revenue and safeguard geological treasures". The proposal will include a global geopark management plan.

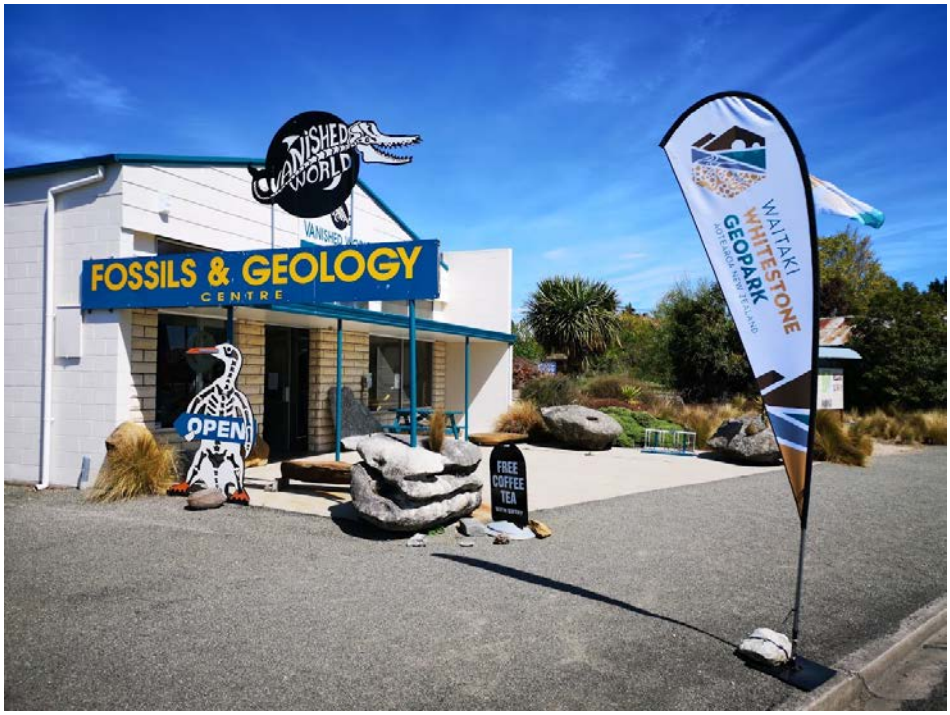


*Figure 5: Vanished World Fossil Centre, Duntroon. Photo: H. Evans, 2018*

## 5. ISSUES IN PLANNING AND IMPLEMENTING REGENERATION

In considering the research questions and evaluating the effects and success factors in the regeneration of Oamaru, our findings are supported by previous research (Powe et al., 2015) which identifies social capital and community capacity are important to consider if regeneration initiatives are to reflect fully the local context and empower local actors. Waitaki District displays strong social capital with a broad range of social service and community organisations to support the lifestyles of its residents. A multicultural council of ethnic groups provides services for incoming workers and their families such as the Tongans who are employed by the meat processing plant at Pukeuri, and the Filipinos who work on dairy farms in the District. In total there are around 450 organisations in the District including social service and health providers, pre-school educators, community groups, churches, sports clubs and other recreational clubs. Many of these organisations are based in Oamaru.

Past approaches to regeneration projects were mostly focused on the heritage precinct. These involved a series of small steps which were largely community driven initiatives by heritage organisations, volunteers and small businesses all taking advantage of the opportunities created by the increasing numbers of visitors, while also serving locals. When reviewed for factors of success over time it is possible to identify a number of factors, with no single factor or one specific project on which regeneration hinges. Rather, there has been investment in place over time, as resources and energy in the community and Council allowed. Certainly, the limited resources of the Council need to be directed carefully to support a range of developments.

Strategic planning has played an important part in the regeneration process. The harbour area development strategy was completed in 2011 and built on previous studies such as the harbourside study undertaken in 2007. The strategy is flexible and staged and provides a framework for a series of investments by the Council and others with the objective of improving the harbour area as a destination.

There is no doubt that in terms of investment in place, the success of the heritage area has continued to build on the investment and persistence of heritage enthusiasts, the Council and businesses in the heritage buildings and waterfront area. If there is one anchor over time it has been the penguin colony attraction that brings visitors into the harbour area on a daily basis. Substantial investments in heritage and the restoration of particular buildings is also vital to give a sense of progress in the face of the common difficulties of restoration work (cost, expertise, regulation).

It is from a diverse base of activities more clearly defined initiatives have emerged, such as more recently the $A_2O$ and the GeoPark proposal. The advantage of these newer initiatives is that they provide the potential for community groups and individual businesses to work off and around them, adding to visitor attractions and services over time and as capacity allows.

Scaling up of regeneration initiatives means community leaders, planners and local government will increasingly need to address issues of investment, capacity and skills, the integration of activities, and the sustainability of development. It is important that the different types of initiatives attract the necessary investment of capital, knowledge and experience of private sector investors. Examples of this can be seen in a group of local farmers investing in the refurbishment of the old Duntroon pub, as well as necessary visitor facilities at that point on the cycle trail, and current efforts by the Council to attract investors to build a new waterfront hotel.

Along with the increase in scale of initiatives, the pace of change has also increased. This tests the adaptive capacity of the area and raises the likelihood of host resistance. There is already some tension between old and new ways, between directive leadership and planning and bottom-up community involvement, and over what developments are appropriate for the physical and social environment. Resistance to change often reflects the perception that people are losing their strong sense of place and, along with that loss, there is a perception that long-established and strongly protected density of acquaintanceship and social relations is threatened.

Naming of the heritage and waterfront area for the purposes of promoting the town and particular sites is a particular dimension of these tensions. Current multiple naming of this area reflects the ad hoc nature of different initiatives over time, each with their own particular leadership, energy and organisation. On the other hand, this multifaceted approach has served to capture and maximise a diverse base of entrepreneurship, organisational capacity and volunteerism.

There is also tension between the potential development of heritage and downtown areas that potentially works against the opportunities for craft people and heritage enthusiasts who have made place's vibrant and maintain a sense of creative possibility. If planning and public investment is effective it will work to accommodate both sets of interests. Planning is necessary to give strategic direction and agreed rules about what can happen, but it also needs to maintain

and further create character while preserving and enhancing existing features.

## 6. CONCLUDING REMARKS: LESSONS FOR REGENERATION

In conclusion, we note that this paper is a provisional and early report on the research. We will undertake further research and analysis and work through the results with stakeholders in Waitaki.

As an initial observation, we note that plans are important. They provide strategy and guidance, especially when there is a strong underpinning of community input, such as in council planning. Formal plans include the District Plan, Long Term Plan and Annual Plan, along with master planning exercises. An important preliminary finding is the importance of integration across the strategies and plans, especially when dealing with a large number of heritage buildings and projects. The Council plays an important part in this integration along with community leaders and private investors. Formal plans are also important. They confirm the Treaty partnership with Māori, who have a long cultural, environmental and economic interest in the Waitaki valley and coastline and are potential investors in new developments such as visitor facilities.

We have also considered our findings in relation to a literature review undertaken for the research (Johnston et al., forthcoming). The following three points merge ideas from the field research in Oamaru together with the available literature on regeneration and can be applied in Oamaru and elsewhere. The multi-faceted approach identified in Oamaru is likely to bring further success in the long term. In particular there are four key aspects that work together, retail growth and hospitality, housing and residential growth aiming for repopulation and suitable for a greater number of older residents, growth of the rural-service centres and rural processing, and the provision of further visitor attractions, accommodation and services in an integrated package.

Key factors in success include: amenity and attractiveness; heritage, and convenient location and natural features; with proximity to a range of attractions and transport corridors; and the capacity to plan and implement regeneration. A range of organisations and leadership broadens the base of local capacity, along with a proactive local council. Influential local people or pressure groups, political will, contributions from central government, planning and governance arrangements are also all important.

Finally, planners must address the inexorability of demography. This includes the need to plan for cycles of decline and growth evident in resource communities and changes in demographics such as an ageing population, as well as an increasing cultural diversity in the population.

## 7. ACKNOWLEDGEMENTS

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# Otago Regional Council's Response to Lake Snow: A Planner's Evaluation

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***ABSTRACT***

*Regional Council ability to respond to invasive species under the Biosecurity Act 1993 is essential to protecting New Zealand's economy, environment and society. Otago Regional Council's response to lake snow is investigated as a case study. The findings highlight the implementation 'gaps' and challenges encountered by the regional council through identification, researching and managing the nuisance algae.*

*Keywords: Biosecurity, framing, lake snot/snow, Lake Wanaka, Ministry for Primary Industries, Otago Regional Council, risk, uncertainty.*

## 1. INTRODUCTION

For 80 million years, New Zealand has evolved in isolation, resulting in a biodiversity richness with many endemic species. New Zealand's economy, environment and community are increasingly threatened by invasive species. An 'Invasive species' is defined as a non-native organism, whose introduction causes harm to society or the environment (NISIC, 2016). New Zealand's relative isolation and high endemism has meant that it is more dependent on biosecurity measures to address invasive species than many other developed countries. In New Zealand, the Biosecurity Act 1993 (BSA) sets out the law relating to the exclusion, eradication, and effective management of pests and unwanted organisms. Under the BSA every Chief Technical Officer (appointed by relevant central government departments) has the power to determine whether pests are unwanted organisms. Regional councils can provide further surveillance of pests, and any action required to manage and control pests in their region.

Otago Regional Council (ORC) is currently addressing an invasive gelatinous algae, called "Lake Snow", that was originally discovered in Lake Wanaka in the early 2000's and has now become widespread throughout North and South Islands. Lake snow can be regarded as a biofilm, slime or flocculent that binds together biological and physical particles (Ryder, 2017). The process of concentrating nutrients and aquatic life (e.g., bacteria, phytoplankton and zooplankton) to produce the lake snow slime has potential environmental effects on the lake ecosystem. The potential environmental impacts include: shortening the lake food chain, shifting the species composition, changing the sinking rate of biological materials and changing how nutrients are cycled through the lake (Ryder, 2017). The environmental impacts are affecting water users' recreational enjoyment of the Alpine lakes in Otago - the slime sticks to skin, hair and fishing lines.

Lake snow was not originally regarded as invasive, or a nuisance until algae began to produce in other Central Otago Lakes in 2016. In that year, media reports raised the question "Why did Otago Regional Council take so long to address lake snow?" (Otago Regional Council, 2016). This paper seeks to identify the potential 'implementation gaps' that influence the overall effectiveness of the biosecurity framework in New Zealand. It presents an analysis of the challenges that arise within an institutional body's ability to form frames and framing, due to the risk and uncertainty that invasive species pose.

## 2. BIOSECURITY MANAGEMENT FRAMEWORK

The biosecurity risk framework covers: pre-border risk management, border management, readiness and response, and long-term pest management to ensure that biological risk and threats are managed throughout New Zealand. Pre-border management imposes health standards, risk assessments and international trade agreements to reduce risk of invasive pests coming into New Zealand, through shipping, passengers or packaging, for example fresh fruit. Border management, assesses the potential risk of organisms (Biosecurity New Zealand, 2006). The Ministry for Primary Industries (MPI), is responsible for informing biosecurity clearance and surveillance activities at airports of pests that are a high risk to New Zealand. Sniffer dogs and passenger inspections [MPI, 2017]) are examples of activities used at airports to prevent the entry of pests. Readiness and response actions deal with biosecurity emergencies. Under the BSA, agencies may be given access to powers (to enter properties, impose controls, destroy infected properties and give direction) to deal with harmful organisms once these pests get past the border (MPI, 2017). The last line of defence is long-term pest management, that is, preparation and review of both national and regional pest-management plans[1]. The MPI is responsible for updating national plans. Regional councils may be responsible for developing and implementing Regional Pest-Management Plans (PMP) under the BSA. Both plans contain rules and principal measures to be used to achieve objectives aimed to control the introduction, spread and use of organisms.

Pre-border and border control stages are the strongest defence for biological invasions, because once invasive species become established it can be more difficult to identify the pest and apply appropriate strategies to eradicate and manage the organism. Under the BSA Chief Technical Officers (CTOs) are responsible for determining whether a new organism is an unwanted organism (Parliamentary Commissioner of Environment, 2002). CTO are appointed by any central department with biosecurity responsibility (including the Department of Conservation [DOC] and the Ministry for Primary Industries). Under the HSNO Act, a new organism is identified as a pest or a disease that has newly invaded New Zealand, whereas MPI identify an unwanted organism as any organism that is capable of harming natural and physical resources (e.g., forests and waterways) or human health; this is not necessarily a new organism. Once unwanted organisms have been identified, the pest is placed on an Unwanted Organism Register. This is an on-line register essential to ensuring that all regional councils in New Zealand have clarity about which organisms are unwanted. Regional councils are responsible for managing and controlling unwanted pests identified in the national register if they become established within their region (Teulon, Boyd Wilson, Holton and Ridley, 2012).

## 3. THEORETICAL FRAMEWORK

Scientific advice can help institutional bodies to identify, prioritise and guide decisions on biosecurity management (Parliamentary Commissioner for the

[1] In the Biosecurity Law Reform Act 2012 (BLRA) pest management plans replaced the previous pest management strategies (which had been introduced into the BSA in 1997). Pest management strategies, whether national or regional, operative at the commencement of the BLRA were deemed to be plans and remained operative, some are yet to be replaced by plans prepared under the amended legislation.

Environment, 2002). However, there is considerable uncertainty and risk surrounding invasive pests, affecting how biosecurity department and local authorities can respond and eradicate pests. Wynne (1992) believes that the shift towards a preventative approach has influenced how environmental and technological policies are used to assess risk.

### 3.1 Precautionary Approach

The precautionary approach seeks to prevent environmental effects before they occur. The approach draws on anticipatory knowledge from scientific evidence to understand complex systems. Wynne (1992) argues that science can only define risk, or uncertainties by artificially "freezing" a surrounding context, which may or may not represent reality. All knowledge is conditional, it is impossible to identify, control and understand all the components of a complex system.

### 3.2 Uncertainty

It is essential that these limitations and uncertainties are acknowledged. Wynne (1992) presents a useful framework for understanding multiple layers of uncertainty: risk, uncertainty, ignorance and indeterminacy. Risk, you may 'know the odds', means you can identify and quantify the probability of the outcome occurring. Uncertainty, when the parameters are known but the odds are not', means that the probability of an outcome occurring cannot be calculated. Ignorance, relates to ontology 'we don't know what we don't know', and forms a deep uncertainty that cannot be predicted or reduced by further research due to the complexity of the system. Lastly determinacy, is embedded into risk and uncertainty. It refers to how social institutions and practices adapt scientific knowledge to fit into current paradigms of society. In this process of simplification, the true meaning and cause can be lost in translation between regional councils and scientists.

### 3.3 Framing

Society constructs frames to understand the elements and processes of the external world. Frames and framing are constantly being used in decision making to guide the strategies and actions to address an environmental problem, such as a biosecurity threat. Dewulf et al. (2004) identified the nature of frames using two different approaches – the interactive approach and the cognitive approach. The interactive approach resembles Bateson's (1955) work on metacommunication, frames are communication devices that can be used to understand the interactions, negotiation and perceptions between different parties. In addition, the cognitive frame theory formulated by Minsky (1975), frames are knowledge structures that help organise and interpret data that fits into current paradigms, beliefs and values of society. In this paper, the cognitive and interactional approaches are used to identify and understand how Otago Regional Council framed lake snow as an issue.

## 4. METHODS

This research used a qualitative singe-case study approach, desk top study and semi structured interviews. A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-world context (Yin, 2013). The study provided a systematic way of observing the management processes used by one regional council over a period of time. The interview followed a semi-structured approach with pre-circulated questions to help lead the discussion. These questions focused on key issues and events, surrounding the discovery, the research and management challenges and the threat lake snow poses to society and the environment**.** Three scientists and one community group chairperson were interviewed for the purposes of this research. Desktop study and the semi structured interviews were used with a triangulation method to construct the case study. Triangulation methods were used for cross-checking multiple sources and collection procedures to help strengthen the validity of this study. Documents were analysed for two

purposes. Firstly, to understand the implementation of the Biosecurity Act 1993. Secondly, the document analysis has allowed the Otago Regional Council approach under the biosecurity framework to be evaluated.

## 5. ANALYSIS

Analysing the frames and framing of lake snow contributes to understanding how Otago Regional Council responds to invasive pests in Otago. There are three key events: Firstly, the discovery of lake snow. Secondly, the spread of lake snow which lead to lake snow becoming a research priority. Lastly, evidence of lake snow as an introduced pest to New Zealand.

### 5.1 Discovery

In the early 2000s, a fisherman discovered an unfamiliar slime sticking to fishing line and reel, while fishing in Lake Wanaka. This unknown phenomenon was later identified by Marc Schallenberg an Otago University Professor, as lake snow (Shallenberg, 2016). In later years, *Lindavia intermedia* would be recognised as a diatom, a group of algae, that produces mucus known as lake snow. Since, the discovery of lake snow Schellenberg has been involved in supervising students in researching lake snow. By 2010, Schallenberg had become vocal in the media and had notified ORC, trying to raise concerns surrounding lake snow. However, ORC perceived lake snow as "no point of concern", because of the lack of supporting evidence and therefore was not on the "council's' radar", no requests for follow up were made on lake snow (Adam Uytendaal, former ORC scientist, personal communication, 2017).

### 5.2 Spread of lake snow

In 2016, lake snow was confirmed in Lake Wakatipu, and Lake Hawea (Schallenberg, 2016). It was at this point that many organisations began to change their perception and approach towards lake snow. The spread of lake snow and its appearance on fishing lines and domestic water filters led to the vernacular term "lake snot" coined by Schallenberg and Novis. This was because of its similarity to didymo, an invasive diatom in New Zealand rivers that is sometimes known as "rock snot" (Novis, Mitchell, & Podolyan, 2017). Schallenberg expressed in the media "much remains unknown about lake snot" (Mitchell, 2017) and "we have had little success attracting research funding from any level of government" (Mitchell, 2017). Schallenberg was articulating his concern and frustration at the lack of progress that had been made towards finding answers about the production of lake snow.

The uncertainty and the research gaps led ORC to organise a technical workshop to discuss current knowledge, sampling methods and research prioritisation of lake snow. The technical workshop was held on 20 December 2016. Many organisations were invited to present at the workshop including: Landcare Research, Cawthron Institute, NIWA, University of Waikato, University of Otago, MPI, Queenstown Lakes District Council, Environment Canterbury, and Environment Southland (Ryder, 2017) The primary objectives of the workshop were:

I. Develop and prioritise research questions
II. Scope the methodology, timeframe and resource requirements for each research question.

The research questions were divided into 5 main areas:

(1) Is *Lindavia intermedia* native or non-native to New Zealand,
(2) What are the environmental drivers,
(3) Development of effective sampling and monitoring technologies,
(4) how to reduce the growth and lastly
(5) Supporting citizen science (Ryder, 2017).

In promoting the workshop, Otago Regional Council stated that they could become "world leaders in analysing lake snow" (ORC, 2016)

### 5.3 Discovery of an Invasive pest

Otago Regional Council has made headway on many of these research priorities. One of the biggest discoveries is the identification of lake snow as an introduced pest to New

Zealand. In 2016, ORC signed a $30, 000 contract with Phil Novis from Landcare (Ryder, 2017). The results were released in the *Otago Daily Times* on the 14th of September 2017 by journalist Tim Miller (Waterworth, 2017d). The report confirmed that lake snow is highly likely to have been introduced in New Zealand from Lake Young, Washington (Novis, Mitchell, and Podolyan, 2017). ORC revealed that "no immediate measures would be taken to stop the potential spread of lake snow"; however, a more intensive research programme would get underway to understand the organism and work towards solutions to minimise the effects of lake snow (Waterworth, 2017d). ORC has continued to make progress with the other research priorities.

Monitoring is one of ORC's key responsibilities under the BSA and Resource Management Act 1991 (RMA). Under Part 4 of the BSA, regional councils must monitor unwanted organisms, provide information and inform the Ministry if unknown organism are detected. Under s.35 of the RMA, local authorities have a duty to gather information, monitor and keep records. ORC has been concentrating on developing and reviewing the effectiveness of monitoring tools such as Monitoring Buoys (Waterworth, 2017c). However, ORC wish to ensure that adequate viable solutions are researched thoroughly to ensure money is not wasted and effective monitoring can be achieved (Waterworth, 2017c). In the meantime, to reduce lake snow, ORC commissioned MPI to engage with NIWA to review the effectiveness of a 'Check, Clean, Dry' programme (to persuade recreational lake users to clean their equipment) on *Lindavia intermedia* (Ryder, 2017). The resultant 2017 report concluded that one minute of dishwashing liquid, bleach, freezing and drying at room temperature was the most effective treatment. Hot water and salt water were not recommended without future testing (Kilroy and Robinson, 2017). ORC will continue to promote the Check, Clean, Dry concept between waterways as recommended treatment for lake snow.

To support citizen science ORC have signed a $10, 000 contract with a community-based group, Aspiring Environmental Ltd run by Chris Arbuckle (Ryder, 2017). Aspiring Environmental established 'The Touchstone Project' in early 2017 as a direct initiative to support those concerned with lake water quality, raise awareness of the impacts and demonstrate how to make a positive change on the lake (Chris Arbuckle, personal communication, 2018).

Researching the environmental drivers is ongoing. The University of Otago and the Ministry of Business, Innovation and Employment are studying the relationship between diatoms with overseas situations, and the effect of nutrient availability, climate warming and grazing pressure of water fleas on the algae. In 2016, Schallenberg believed that nutrient, climate warming and grazing pressure may be encouraging the growth of lake snow. Many Central Otago lakes have very low Trophic Level Index (TLI) values, which indicate low levels of nutrients and algae, a good sign of water quality. The land use changes may be causing a very slight increase in nutrients, which may impact on the algae community. Changes to the climate, for instance increases in temperature, may favour the growth of a different species of algae. Lastly, North American introduced water flea (Daphnia spp.) graze on an alga that competes with lake snow algae, allowing lake snow to be produced (Otago Regional Council, 2018). Further research on environmental drivers is crucial. This work will be intensive and is seen as best delivered through Universities, and a number of post graduate and post-doctoral research programmes (Ryder, 2017). ORC will continue to coordinate with Land care, University of Otago, MPI, Aspiring Environmental Ltd and other regional councils to understand the phenomenon and find viable solutions to combat lake snow.

## 6. DISCUSSION

There are a number of challenges that arise over biosecurity management and the potential 'implementation gaps' that are evident in this case study. This research has shown that understanding how an issue is framed can play an essential role in biosecurity management. There are many challenges in framing environmental problems which have

impacted on ORC's ability to respond to lake snow. The framing and defining of an issue require building an understanding of the problem: a problem cannot be fully defined if there is limited knowledge and understanding surrounding the topic (Bardwell, 1991). The ORC's slow response to lake snow may have been as a result of limited knowledge and understanding of the lake snow issue, which was exacerbated by the costs of obtaining information through research and the geographical challenges of doing so, given the size of the lake. Since lake snow has become a 'national issue', coordination, co-management and communication between institutional bodies have become crucial to pest management. Challenges within the institutional bodies such as: MPI, local government and non-government organisations have occurred.

### 6.1 Institutional Arrangements

MPI is responsible for providing money, and support, and setting up programmes for regional councils to implement (e.g., the Check, Clean, Dry programme aimed at reducing the spread of invasive pests). MPI could not provide crucial funding for scientific research until lake snow was confirmed as a "new organism" under the HSNO Act 1996, and as an invasive pest (Ryder, 2017). However, once a Landcare Scientist (Phil Novis) confirmed that lake snow was most likely an invasive pest, MPI was unwilling to identify lake snow as an unwanted organism on the national register. MPI have not provided reasoning for their decision. In Otago, under the BSA the local government (including ORC and Queenstown Lakes District Council [QLDC]) is responsible for managing lake snow in coordination with other councils (Environment Southland and Environment Canterbury) and non-government organisations. Councils contract non-governmental organisations to undertake research in biosecurity management. Non-governmental organisations include community trusts and groups such as the Lake Wanaka Trust, Guardians of Lake Wanaka and Guardians of Lake Hawea. The Guardians have provided and offered to support ORC in identifying and managing lake snow; however, the ORC, according to Robertson (Chairperson of Guardians of Lake Wanaka, personal communication, 2017), has not been forthcoming in accepting the Guardians' help. This has been frustrating for the Guardians. However, ORC have contracted another non-government group, Aspiring Environmental Ltd, to carry out citizen science, to increase community involvement in monitoring of lake snow.

There is lack of understanding and common foundation between the different organisations—central government, regional and district councils and non-governmental organisations (Drage & Cheyne, 2016). Therefore, there is a lack of understanding of the threat that lake snow poses to the community and environment, due to the limited funding for scientific research, as well as a lack of transparency and support between groups.

### 6.2 Risk and Uncertainty

Research on lake snow has been undertaken by national research institutes (such as Landcare Research, the University of Otago and NIWA) over the last eight years, especially in 2017 and 2018. The depth of understanding of lake snow has increased. Research is a slow process. It can be difficult to identify the biosecurity risk and, according to Wynne (1992), science is based on conditional knowledge that may not represent reality. Wynne's (1992) four uncertainty concepts; risk, uncertainty, ignorance and indeterminacy can be used to understand the challenges of identifying and researching the threat that invasive species pose to New Zealand. With regard to risk, freshwater scientists were able to understand that the odds of invasive species being introduced were high, due to high numbers of domestic and international travel. However, there was uncertainty surrounding the types of species that would be a risk of establishing in New Zealand. In the earlier years of discovery, freshwater scientists could not predict whether lake snow would become a problem, because *Lindavia Intermedia* is an unusual diatom that may be present in waterways but does not always produce the

mucus that is identified as lake snow (Shallenberg, personal communication, 2018). There still remains a deep uncertainty surrounding the environmental drivers and the full impact lake snow will have on the composition of the lakes. This can be classified as ignorance under Wynne's framework (1992). In terms of biosecurity, freshwater is an indeterminate system; there are gaps within scientific knowledge and understanding of invasive species. Social institutions, scientist and policy makers seek to understand or to formulate assumptions surrounding lake snow, through creating and forging connection between current environmental issues and water quality issues that have been affected by land use and climate change. The freshwater scientists recognise the complexity of the freshwater ecosystem, and the limitation of scientific research. However, policy makers used the uncertainty of lake snow as a reason not to act, which is counter to the precautionary principle.

It is important to note that, since the introduction of lake snow the problem has got much worse and therefore, much more difficult to manage. Once the severity of lake snow was recognised, the central government, local government, research institutes and non-government organisations are now doing their best to work together to overcome challenges and increase the understanding of the lake snow phenomenon, how it can be managed (monitoring) and whether there is potential (biological controls) to eradicate lake snow. The management process is more effective and beneficial if the organisations are on common ground and, engaged openly with one another and support each other through the process of dealing with unidentified organisms. This management process can be used as a prime example for tackling invasive species, to ensure that the environment, community and economy are protected within New Zealand.

## 7. CONCLUSION

Otago Regional Council's response to lake snow was used in a single case-study analysis to provide useful insights into pest management. This research found that how a biosecurity threat such as lake snow is framed can strongly influence regional council's ability to respond and approach invasive pests. A biological risk identified as an occurrence that may have adverse consequences, can be framed in a variety of ways due to different scientific, community knowledge, social institutions, and challenges incorporated in understanding the phenomenon. This research identified that Otago Regional Council's uncertainty surrounding lake snow and indeterminate freshwater system and the Ministry of Primary Industries' lack of support has led to a slow response towards lake snow. In their eyes, there was no evidence suggesting that lake snow would become a problem for the community. Council formulated naïve assumptions surrounding scientific analysis, and assumed that more scientific research would be key to managing lake snow. However, it was difficult for research to be undertaken due to the lack of support from the central government. MPI refused to identify lake snow as an invasive species on the national invasive register or provide appropriate funding for scientific research to be undertaken. In this case, by the time that lake snow was identified as a freshwater invasive pest, it was too late to effectively manage and control as it had already become established in too many lakes in Otago and other lakes in New Zealand.

Overall, this research demonstrates that the biosecurity framework is difficult to implement at regional planning level, therefore key recommendations and future research have been proposed. More support and better collaboration between different levels of governance and non-government organisation in terms of information sharing and providing funding is crucial. Information sharing can be improved through the development of national and international species databases. The introduction of a precautionary invasive pests fund for local government in New Zealand can be used to support research projects. Development of national guidelines on identification and regional management regimes that seek to understand and overcome the uncertainties, risk and challenges of managing biological invasions in New Zealand are needed. Action

on these recommendations and further research are essential to improving the implementation of a biosecurity framework within regional planning in New Zealand. Biosecurity management is crucial to ensuring that New Zealand's unique biodiversity can be protected for future generations.

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# Lincoln University Transport Survey 2018 – Results and Follow-up

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***ABSTRACT***

*A survey of transport practices and preferences of 524 staff and students of Lincoln University suggests there is significant scope for developing a more sustainable transport strategy.*

*Keywords: mobility, CO2e, sustainability, energy, preferences*

## 1. INTRODUCTION

In July 2018, a campus wide transport survey was conducted at Lincoln University to gather information about travel habits, patterns, desires and issues from both staff and students. A total of 524 participants completed the survey (376 students and 148 staff) providing a reasonable cross-section of the campus community. The survey was conducted by SAGE (Sustainability Action Group for the Environment) and the results have been shared with LUSA, Lincworks and the LU Senior management Group. Through this article and an earlier item in the student magazine RAM, they are also being shared with the wider campus community.

The purpose of the survey was to get a better picture of current transport practices and preferences so that SAGE and the wider campus community would get a clear picture about the current situation, in order to inform proposals to promote more efficient and sustainable transport practices in the future.

There are 1384 parking spaces on campus (data from Lincworks, 2016) and based on some informed guesstimates of the number of vehicles using these spaces throughout the year, it is estimated that approximately 818, 000 l of petrol/diesel is used annually to support the daily commute of Lincoln students and staff to campus. This produces around 1997 tons CO2e (carbon dioxide equivalent) annually which in 2016 represented about 18% of the total campus carbon footprint. Given the urgent requirement as stated in the latest Intergovernmental Panel on Climate Change Report (IPCC 2018) that in order to keep the mean global atmospheric temperature increase to below 1.5 degrees, we have just 12 years (until 2030) to stabilize emissions, it is clearly incumbent on all of us to individually and collectively take some urgent action, rather than wait for the government or society at large to make changes.

Given the high carbon footprint of Lincoln University, and some of the findings from the survey (see summary below), such as the high number of single occupancy vehicles being driven to campus daily and the low uptake of the public transport options available (e.g. bus number 80 running between the campus and central Christchurch), it is clear that the scope for developing a more sustainable transport strategy is significant.

## 2. PRELIMINARY FINDINGS FROM THE TRANSPORT SURVEY

### 2.1. Car and bike

- 43% of respondents commute as a single occupancy driver as their primary source
- On average, the time spent on commuting is 21 mins

- 52% of students sometimes carpool compared to just 20% of staff.
- 44% of staff and 43% of students currently sometimes use a bike to commute

### 2.2. Bus Transport

- 44% of staff and 58% of students own a Metrocard.
- Students indicated a willingness to increase bus usage if improvements were made to routes, frequency of service, discounted fares were provided and Wifi was available.

### 2.3. Electric Vehicles and E-Bikes

- 36% of respondent indicated an interest in purchasing an EV and 16% in purchasing an Ebike - not unexpectedly, interest was higher amongst staff than students.
- 48% would be more interested if there was a free/subsidised charging on campus.
- 45% of respondents expressed an interest in finding out more about EVs & E- bikes.

## 3. REASONS

Top 5 reasons for choice of transport are the same for staff and students:

- Convenience
- Time
- Cost
- Environmental
- Health

Other reasons cited include:-

- Weather
- Enjoyment
- Personal Safety
- No alternatives,
- Social/Company,
- Habit,
- Family Reasons, and
- Unfamiliar with alternatives.

## 4. WHAT NEXT?

The SAGE transport sub-committee are currently working on these findings and will use them, in consultation with LUSA and other stakeholders, to develop some proposals to put to the University regarding possible improvements to transport options. These will focus around initiatives to encourage the greater uptake of carpooling, improvements to public transport and better facilities to encourage the use of EV's, E-bikes and more cycling and walking. Watch this space for further updates.

## 5. ACKNOWLEDGEMENTS

The SAGE Transport sub-committee acknowledges the assistance of all the volunteers who have assisted with the survey and its analysis. If you have, any comments or ideas on improvements email: john.gould@lincoln.ac.nz.

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# Annual census of wetland birds on Te Waihora / Lake Ellesmere

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## 1. BACKGROUND

Te Waihora / Lake Ellesmere is large shallow coastal lake situated at the bottom of the Selwyn Catchment in Canterbury. The lake is separated from the sea by Kaitorete Spit which is periodically mechanically opened for fish migration and managing land inundation. Even though the lake and environs are highly modified there is a diverse range of wetland bird species present including those with conservation concerns such as the banded dotterel and Australasian bittern. In 1990 a National Water Conservation Order was gazetted for the lake to recognize its outstanding wildlife values. In 2011 the order was updated to include indigenous wetland vegetation and fish; and as being of significance in accordance with tikanga Maori in respect of Ngai Tahu history, mahinga kai and customary fisheries. However, the health of the lake and the tributaries that feed into it have declined over the decades, mainly through land use change.

Since 2013, the Waihora Ellesmere Trust, a community group established in 2003 to advocate for improved management of the lake, has been co-ordinating an annual count of wetland birds around the lake. The bird count is in partnership with the Department of Conservation, Birds NZ, Christchurch City Council Rangers and volunteers. The survey operates in accordance with an agreed monitoring protocol (see Hughey 2012).

## 2. CENSUS

The one-day count is done in February each year for several reasons; mainly to be consistent with previous surveys including those done in the early to mid-1980s. The lake shore is divided up into 17 sectors established by O'Donnell (1985). The boundaries of these sectors are based on access points, natural boundaries and natural limits of habitat types. Teams of observers each cover one or more of these sectors. Observers gather at 8am for a briefing before heading out to the lake by around 8:30am. Mid-morning to mid-afternoon is the time of day when wetland birds are easiest to observe. Each team is made up of 3-5 people with at least one experienced birder. The Christchurch City Council Ranger teams survey the seven sectors on the southern and south-eastern side of the lake (including Kaitorete Spit). These sectors lie within the Christchurch City Council boundaries. The other teams survey the 10 remaining sectors which lie in the Selwyn District. Each observer carries a pair of binoculars and each team has at least one spotting scope. Members of the teams walk parallel to the shore in a line, distances between team members are determined by bird density, team size and the experience.

All wetland birds representing shags, herons, waterfowl, NZ Waders, Arctic waders, gulls and terns are counted. Numbers of pukeko, Australasian harrier and New Zealand kingfisher are also recorded. Weather, lake level and status (open or closed) is recorded.

Bird numbers showed an overall decline from 2013 to 2017 (56,755 to 42,852); however, 2018 saw numbers improve (51,807). Recent counts are higher than those done in 2006, 2007 and 2008; these three years had an average count of 39,272 birds (Crossland et al. 2015).

Waterfowl are the most numerous group of birds making up 77% of birds counted in the six years of this survey. Grey teal was the most

abundant bird counted in 2018 (17,773) followed by black swan (9,531). Black swan numbers have been declining over the survey period, but 2018 saw numbers close to 2006 levels. However, numbers are well down from peak populations of 80,000 recorded in the 1950s. The second most numerous group (12.7%) is the waders; pied stilt, banded dotterel and wrybill being the key New Zealand species. Key arctic waders counted on the lake are bar-tailed godwit, red-necked stint and red knot. A bird whose numbers have increased greatly since a sharp drop in 2014 is the New Zealand scaup, a small dabbling duck. The 2018 survey counted 367 birds whereas only 12 were counted in 2014.

Te Waihora / Lake Ellesmere is of international significance as a habitat for wetland / coastal birds. An average census of 49,000 birds has been recorded over the six years from 2013 to 2018. It is habitat for at least 14 species of birds that are either nationally vulnerable, nationally critical or nationally endangered, including the Australasian bittern, black-billed gull, banded dotterel and wrybill.

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Lincoln Planning Review, 9(1-2) (2018) 46-47

Book Review

# Conservation and Prosperity in New Federal Nepal: Opportunities and Challenges

By Shailendra Thakali, Brian Peniston, Govinda Basnet and Mahendra Shrestha

Retrieved from: https://asiafoundation.org/publication/conservation-and-prosperity-in-new-federal-nepal-opportunities-and-challenges/

The study outlined in this report is the first to examine how the edicts of the 2015 Constitution of Nepal are affecting Nepalese conservation and protected area management systems. Although the research was undertaken before the effects of new governance models were fully implemented (or even understood), analysis undertaken during periods of change is warranted. Regulatory changes by nature mandate courses of action, the outcomes of which can rarely be predicted with certainty. On this basis, studies such as this serve to both forecast and forewarn, and the lessons they contain are applicable to international as well as local contexts.

The report begins with a history of conservation in Nepal and the contributions conservation has made to national and local prosperity, the value of which is emphasised throughout. A description of the methodology follows, detailing sources which included documents, interviews/field consultations with over one hundred stakeholders (from private, public, and political, organisations and the community), and a national level workshop was conducted to present findings and get feedback from over fifty five key policy makers. In addition, eight experts were identified and recruited to review the policy document. The range and breadth of sources consulted is impressive, and it speaks to the value of such research that three international funding streams supported the research (the Australian Government, The Asia Foundation, and the Snow Leopard Conservancy).

The authors go on to provide a detailed summary of the new legal framework and the ways in which devolution of power may affect conservation work at different levels. This aspect of the document makes it an ideal source for those wishing to gain an overview of the 2015 Constitution of Nepal in relation to conservation.

The remainder of the document outlines challenges and opportunities; in particular, the authors extol the accomplishments that community-based organisations have thus far achieved in biodiversity and natural resource management. They point out that while Nepal's new constitution aims to retain participatory and democratic natural resource management, there are reservations about how changes to power structures will affect the ability of community groups to effectively manage natural resources in ways that will meet the needs of both development and conservation. The authors emphasise the value of natural resources to both economic prosperity and for conservation.

The authors conclude that successful natural resource management can occur within the new legal framework with the proviso that collaboration occurs between government bodies and community-based organisations. They note that this will require investment in training and capacity building. A useful feature of the report is that key points

in each section are highlighted in bold, allowing easy access to those not reading the document in its entirety as well as for quick reference.

The report succeeds in its goal to highlight the opportunities and challenges faced by the Nepalese conservation sector in the wake of new legislative changes, and is timely in that laws must be amended and enacted before 4th March 2019 in order to fully implement constitutional provisions. The authors' main argument is to caution that measures taken to devolve power to provincial and local levels under the new regulatory framework may in effect undermine valuable participatory structures already in existence. They make several recommendations to safeguard the community-based organisations[1] viewed as crucial for the sustainable management of natural resources in conservation and protected areas.

The question remains how programmes will be implemented to best support natural resources to allow both (economic) development and conservation to take place. However, the seven recommendations at the end of the report provide a succinct summary of key points which offer a road map for future conservation efforts amidst the changing regulatory framework.

*Reviewed by Megan Apse,*
*Postgraduate student*
*Department of Tourism, Sport and Society, Lincoln University*

[1] Community based organisations include community forest user groups, buffer zone management groups, and conservation area management groups.

Lincoln Planning Review, 9(1-2) (2018) 48-49

Book Review

# Agri-environmental Governance as an Assemblage: Multiplicity, Power and Transformation

Edited by Jérémie Forney, Chris Rosin, Hugh Campbell

Routledge Publishing, 2018, ISBN 978-1-138070-73-8

This new edited collection provides a welcome addition to the growing literature taking assemblage theory as its starting point in trying to understand the paradoxes and complexities found in contemporary agri-environmental governance. In their introduction to the volume the editors argue strongly that the book represents an overt effort to think beyond existing conceptual frameworks based on the exposition and critique of neoliberalism and capitalism. Ideas of assemblage and territorialisation frame the book's three distinct parts. The chapters in Part 1 focus on the complex multiplicities that emerge when different forms of agri-environmental governance are seen as territorialized assemblages. Part 2 shifts attention to the struggles to fix and stabilize particular orderings of actors for specific ends. These struggles render the making of assemblages inherently political, but as the chapters show these politics are often played out in very subtle ways. The chapters in this section are a very useful rejoinder to criticisms that power and politics are absent from assemblage theory. Part 3 shifts the book beyond the description and critique often associated with assemblage theories. Instead the chapters in this section ask how assemblage and territorialisation can help in the generation of alternative agri-environmental imaginaries and practices.

The book draws together a wide range of established and emerging researchers, and covers an enormous amount of terrain among its cases. These range from Gisela Welz's examination of food labeling policy in relation to halloumi in the Republic of Cyprus; to Karly Burch et al.'s work on food safety standards in Japan following the 2011 accident at the Fukushima Daiichi Nuclear Power Plant; through to Michael Carolan's argument for 'weak' scholarship as the basis for contesting the emerging claims and imaginaries of 'big data'. The breadth of scholarship evident in the range of cases, places and practices examined could have led to a confusing jumble of a book. To their credit the editors have adroitly framed the conceptual, and structural, dimensions of the chapters so as to enable the particularities of individual cases to be teased out, but in a way that clearly and coherently contributes to the wider intellectual project of the book. My only minor criticism of the book is that the arguments about the wider project of questioning, and undermining, dominant categories, of recognizing multiplicity, the overdetermination of context, and the development of alternative and enactive forms of research (pages 10-13) could have justified an explicit end piece. These are important questions and I would have welcomed the editors extending their reflections on them.

The book is worthy of attention from a wide range of scholars and students concerned with agri-environmental governance, and wanting to develop a sense of how assemblage work can contribute to forging new approaches to existing 'wicked problems'. It does not provide a recipe about how to 'do' assemblage work, or what will be found, but through its range of cases it provides a rich body of examples of

how assemblage work might be done, what might be found, and what might be imagined differently. In a world where the range of agri-environmental problems confronting us seems to be growing while the range of possible solutions are diminishing the book is a timely expression of hope that assemblages can be imagined, ordered and practised in alternative ways. I strongly recommend that anyone interested in the past, present and future of agri-environmental governance read, and reflect on, the imaginative resources offered by this book.

*Reviewed by*
*Matthew Henry*
*Senior Lecturer*
*School of People, Environment and Planning*
*Massey University*

Lincoln Planning Review, 9(1-2) (2018) 50-51

# The New Zealand Geographical Society/Institute of Australian Geographers Conference 2018

Sarah EDWARDS

*Department of Environmental Management, Lincoln University, New Zealand*

The New Zealand Geographical Society (NZGS) and the Institute of Australian Geographers (IAG) held their joint conference at the University of Auckland from 11-14th July 2018. The theme for this conference was "Creative Conversations, Constructive Connections", which was chosen because it "reflects our desire to stimulate dialogue and to enrich a discipline that is always in the making"[1]. While this theme could be taken as a description of the coming together of trans-Tasman rivals, it is also indicative of the many different facets of the "discipline" of Geography. Indeed, the call for papers included sessions ranging from continental philosophy to geomorphology, so there was room for everyone, including people without a formal training in Geography such as myself.

Prior to the official opening of the conference, a number of study groups took the opportunity to meet together in a less structured format than provided for in the conference programme. Included in this pre-conference event schedule was an Early Career Researcher session, which included two panels aimed at issues of particular concern to the next generation of geographers. The first of these was a "Meet the editors" session, where managing editors of four prominent Geography journals helped demystify the processes involved in publishing scholarly outputs. This was followed by an "After the PhD" session, where four panellists shared their thoughts on how to plan a successful career on the basis of a geography PhD, whether in academia or some other setting. I helped organise this second panel along with Nick Kirk, who completed his PhD in the Department of Environmental Management at Lincoln University, and now works at Manaaki Whenua. Panellists included Harvey Perkins (who is an Adjunct Professor of Human Geography at Lincoln) and Lucy Baragwanath (who completed her PhD at Lincoln). I find it very encouraging that Lincoln University had a strong presence at this Early Career Researcher session – the only thing missing were some of our current postgraduate students!

Lincoln University researchers continued to make important contributions throughout the conference. Harvey Perkins and Mike Mackay convened a panel session based on their National Science Challenge research programme: "Supporting success in regional settlements". This featured contributions from Lincoln's Chris Rosin, Karen Johnston and Nick Taylor. Suzanne Vallance convened a panel on making and managing public places, which drew on her long-standing research interests in urban studies, and the Marsden funded research she conducted into the temporary use of public space following the Christchurch earthquakes. Ed Challies, from the joint Lincoln/Canterbury Universities Waterways

[1] See NZGS/IAG 2018 Conference Programme, page 1, available at https://nzgsconference2018.org/wp-content/uploads/2018/07/NZGS-IAG-2018-Programme-Final.pdf

Centre, presented a paper on the construction of environmental problems in the context of the proposed Waimea Community Dam in Tasman District, and I presented a paper on the twists and turns involved in using Actor-Network Theory in empirical research. As an interesting aside, Ed and I met for the first time just after the conference dinner at the Viaduct centre – perhaps a "Constructive Connection" that was only created by our attendance at this conference?

The NZGS will be holding its next conference in 2020, and it would be great to see an even greater presence of Lincoln-based researchers, including postgraduates who don't consider themselves to be "Geographers" in the traditional sense.

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# Australia and New Zealand Association of Planning Schools Conference, 1-3 November 2018
# Conference Theme: "Decisions, decisions"

Hamish G. RENNIE

*Department of Environmental Management, Lincoln University, New Zealand*

This year the annual meeting of the Australia and New Zealand Association of Planning Schools (ANZAPS) was hosted by Waikato University. This conference was supported by the National Science Challenge 11 – Building better homes, towns and cities.

Andrew Crisp, CEO of the new Ministry of Housing and Urban Development, presented an opening address and the Chair of the Challenge Governance Group, Prof. Richard Bedford (AUT), and the Challenge Director, Ruth Berry (BRANZ), were in the audience. The importance of the event was underlined by the CEO staying for the full first day of the conference and being very approachable during breaks. A key take-home point was that the Ministry is not just about housing, but about developing urban communities.

The quality of the presentations fully justified the high level participation. Most of the papers and the panel on the first day were on urban housing. Keynotes were delivered by well-recognised housing researcher and urban planner Professor Nicole Gurran (University of Sydney) and RMITs Director of Urban Research Professor Jago Dodson. Aside from housing and urban policy and research, the conference featured sessions on the pedagogy of planning education, teaching indigenous planning, climate change, the environment and resilience. I was particularly interested in the research by Waikato's PhD student Christina Hannah on managed retreat. Her PhD and associated publications will be well worth reading by practitioners as well as researchers.

Discussions between educators indicated that Australia is clearly very much focussed on having to both internationalise and indigenise their planning programmes. The internationalisation includes running government subsidised fieldtrips for planning classes to developing countries, something that is unlikely to be replicated by the New Zealand Government.

ANZAPS continues to be a small but very informative conference and the Planning Programme at Waikato University has provided a good model for the next time it is hosted in New Zealand.

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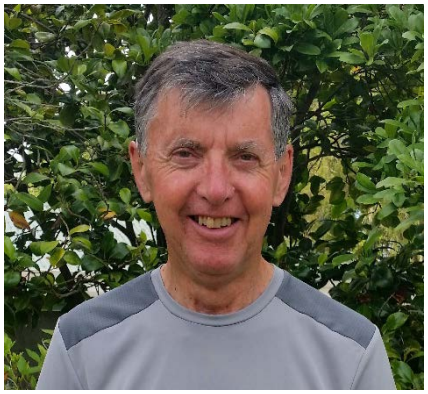
# Department of Environmental Management Staff Profiles



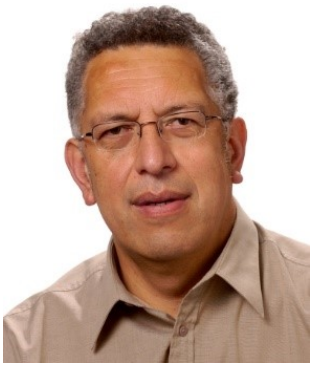
**LAWRENCE MCCALLUM**

Lawrence McCallum was contracted to teach Professional Practice to third year students at Lincoln University in 2018. Prior to teaching at Lincoln University, Lawrence completed a Bachelor of Arts and his Master of Arts at Massey University. After working for a few years in Gisborne, Paraburdoo (Western Australia), and the Bay of Islands, Lawrence completed a Master of Science in Resource Management through Lincoln and Canterbury Universities.

Since then, Lawrence has been in Christchurch, building an extensive career in planning – working with both private consultancies and local government. Over his career, Lawrence is proud of numerous projects he has been involved with. Some of these include: helping the first 50 families into their homes in a new township in Paraburdoo, working on the catchment board with Dr George Griffiths, working on the Waimakiriri Floodplain Management plan and working with Environment Canterbury on major projects. Previously, Lawrence has been a member of the New Zealand Planning Institute and was a member up until 2012 when he left Environment Canterbury.

Presently, Lawrence is part of the Ruapuna Community Noise Committee and the Christchurch Airport Noise Committee where he ensures these run smoothly. On reflection of his time in the planning environment, Lawrence says "A stage is reached where you cannot keep putting your body on the line. There comes a point where you feel you have done enough in that regard and you would like to pursue other things". Lawrence's current passion lies within the realms of historical research, and he has written and published two books on George McCulloch to date. One of these, his biography of George McCulloch, has been spread throughout the world and been put into various international libraries.

Lawrence's perspective on where planning is today is that: "New Zealand needs good planning just as much today as it has over the last 40 years. The Resource Management Act has a tendency to get bogged down in trivia and mindless complexity and so New Zealand is not really getting the most out of good planning that it could… There are a lot of good things going on, but planning is not sufficiently integrated with other systems".



**HIRINI MATUNGA**

Hirini Matunga is currently Professor of Maori and Indigenous Development and prior to that was appointed to a Professorship in Indigenous Planning at Lincoln University. Having taught at Lincoln University between

1994 and 1996, he returned to the University in 1999 after working in the Planning Department at the University of Auckland, and has been here ever since. Before taking up his current role, Hirini has held a number of positions, including Director of the Centre for Maori and Indigenous Planning and Development, Assistant Vice Chancellor, and then Deputy Vice Chancellor.

Hirini began his studies at Otago University studying Social Anthropology, before undertaking the graduate entry programme to the Bachelor of Town Planning. He completed his Bachelor of Town Planning, graduating as a town planner in 1983 and has been practising as a planner since then. Aside from his roles at Lincoln University, Hirini has had a variety of other positions including: senior lecturer in Planning at Auckland University, Senior Planner specialising in Maori issues at the Auckland Regional Council, being one of the first Maori Planners in the country with the Ministry of Works and Development in Auckland, and his graduate planning job as a Development Planner with the Napier City Council in 1983. Hirini is a current member of the New Zealand Planning Institute. Additionally, Hirini has been a member of the Executive of the World Archaeological Congress which covers the management and protection of indigenous heritage and was convenor of the Indigenous Executive of the Congress for many years.

Hirini is proud of helping draft the first Code of Ethics on archaeologist's responsibilities to indigenous communities, as well as assisting many Iwi authorities in the preparation of their Iwi Management Plans and advising and helping establish various frameworks for Iwi Management Planning. Hirini is particularly interested in the impact of rural and urban planning on Māori communities, an interest which was sparked through his involvement as the secretary of the Petane Marae Committee in the Hawke's Bay. In 2015, Hirini was awarded the Inaugural Papa Pounamu – New Zealand Planning Institute Award for outstanding service. The award is for "Demonstrating with excellence Papa Pounamu Values and Service in Māori Environmental Planning and Resource Management"—an achievement which he feels very honoured to have received.

Now, Hirini is excited that iwi and hapu around the country are developing their own capacity for planning and environmental management, often as the result of treaty settlements. He sees this as a form of innovation in the expression of rangatiratanga, allowing iwi to employ their own planners and environmental managers.

Hirini's perspective on where planning is today is that "planning must be used as a tool for empowering Maori communities 'to determine their own futures' as well as encouraging equity in communities to look after the needs and interests of those who are less powerful in society. Having a social, environmental and cultural agenda is where planning still needs to go as the implementation of the Resource Management Act created a strong environmental focus, but often left the social and cultural aspects of planning behind".

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# Lincoln Students

Lawrence McCallum

*Lincoln University*

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With tousled hair and weary looks,
they trudge to the library to look at the books
Or probably not, loaded up with a laptop,
it's to chat with friends with the books as a backdrop.
For friends is what can get you through,
on a long degree with always lots to do.
At Mrs O's or the George Forbes Cafe,
you'll see them talking, it makes their day.

There once was a time when I was one of them
With John Hayward et al and an M.Sc. in Resource Management.
Back in 1980 it was a different world.
A career ahead, Iwas going to change that world!
So to be back in Lincoln but in a different role.
Do I understand student life and what takes its toll?
It seems much more stressful with loans, work and fees
My time back at Massey begins to feel like a breeze.

But they all seem to be coping and making the grade.
Near the end of their degrees here, it's no time to fade.
They're attentive and courteous, not too boisterous or loud.
They all call me Laurie which makes me feel proud.
They come from cities and farms across New Zealand,
from around the world and far western Southland.
Some are looking for jobs, others thinking of masterates.
Whatever they do I'm sure they'll make a success of it.
The world is their oyster, full of opportunities.
As good Lincoln students, they'll make the most of these.

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# Where *are* they now?

Hannah Staines

*Masters of Planning Student, Lincoln University*

**SAM COOPER**

Sam Cooper graduated from Lincoln University in 2017 with a Bachelor of Environmental Policy and Planning (Hons). Following a high school geography project about the Wellington airport extension Sam became inquisitive about planning and the environment, and after meeting with the careers advisor was sold on the course at Lincoln.

At university Sam relished all opportunities afforded him, but particularly enjoyed learning and appreciating the cultural history unique to New Zealand. As part of his degree he also undertook a research paper which enabled him to gain greater awareness and understanding of local government, particularly in the area of strategy and policy. This has proved invaluable to his current employment.

After taking a few months break after graduation, Sam found work with Hutt City Council initially as a front counter planning technician, then moving into his current position as a policy advisor in the strategy and planning team. His job involves writing reports and reviewing the implementation of key growth documents, as well as managing projects, conducting workshops and engaging with key stakeholders. Sam has provided valuable input to the council's homelessness strategy and is currently involved in a project relating to healthy families, healthy eating and housing growth. On a daily basis Sam is motivated by the challenge and reward he receives from his job. He enjoys engaging with community members, local NGOs and government department officers to inform his critical thinking regarding real socioeconomic issues affecting everyday people, which in turn can influence councillors in their decision-making.

In the short to medium term, Sam hopes to further his career in strategic policy and move towards a role in central government. Longer term he has ambitions to transition into politics and has a goal of being an MP. However, in his spare time Sam is an accomplished piano player and the grand piano located in the Stewart Building on campus at Lincoln has been witness to Sam's talents. Therefore, he would also like to work part-time as a classical pianist (see https://www.youtube.com/playlist?list=PLnWESYWsog8qnbAWsfC8e-QdQSNI1zOtj)

**PIPPA HUDDLESTON**

Pippa Huddleston is currently employed by the engineering consultancy Jacobs and is based in the Christchurch office. Her daily focus is on major infrastructure, which is a far cry from her original intentions to study graphic design at Massey, Wellington. After an international school exchange programme Pippa undertook a review of her plans and by accident happened on the Bachelor of Environmental Policy and Planning (Hons) course at Lincoln. She could see the course touched on so many different subjects and supported her ambitions to work overseas one day, therefore her career path took a change of direction.

Whilst at university Pippa became passionate about inclusive and adaptive planning, and the importance of multi- and inter-disciplinary planning. This was harnessed by undertaking papers in Catchment Management and Risk and Resilience.

Prior to graduation in 2017 Pippa had been offered her position at Jacobs and has never looked back. She loves her job and the supportive team environment. Her role is diverse, challenging and rewarding. Primarily responsible for obtaining various approvals under the RMA and LGA, she has exposure to working with various sustainability rating systems, and at present is also working in a tender team for New Zealand's largest infrastructure project. She acknowledges this is an amazing opportunity. Pippa attributes her skills to managing large, complex issues faced at work to the broad and transferrable skills learned throughout her degree at Lincoln. She learned how to think systematically, how to identify webs of effects, and how to communicate these to a range of audiences.

With a love of adventure Pippa hopes in the future to extend her work in environmental sustainability and community planning and embrace opportunities to work and travel overseas.

**JOSIVINI KALOUMAIRA**

Josivini Kaloumaira was born and raised in Fiji. Her education provided her a double major bachelor's degree in Land Management and Human Geography, and a Postgraduate Diploma in Real Estate Property Management. With these qualifications she aimed to work in the Town Planning section of Nasinu Town Council in Fiji. After achieving this she was keen to further her studies in planning and in 2015 was awarded a New Zealand aid scholarship to undertake her Master of Planning at Lincoln University and graduated in 2017.

On returning to Fiji Josivini found work with a Monash Sustainable Development Institute research programme called Revitalizing Informal Settlements and their Environments. This programme is implemented through a local NGO called Live and Learn Environmental Education. Her daily work is busy and involves a thorough understanding of planning laws and regulations, field visits, facilitation of stakeholder meetings, brokering relationships between lead researchers, technical coordination teams and government departments.

In the future Josivini aspires to establish her own planning and environmental consultancy, undertaking her own research work as well as environmental impact assessments.

She remembers her time at Lincoln fondly and particularly enjoyed undertaking the Advanced Professional Planning Methods and Practice paper which enabled real planning issues to be analysed and options considered. After being requested to provide planning evidence in court back in Fiji, Josivini understands the importance of learning planning laws and regulations and wishes this had been fully appreciated before she started her Masters. She is thankful to Lincoln for providing her with the valuable skills and knowledge to embrace such challenges and enable her to pursue her career in the planning field.

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# Looking for ways to broaden your knowledge?

Hannah KANE

*Bachelor of Environmental Policy and Planning (Hons) student, Lincoln University, New Zealand*

A few summers ago I stumbled across the Southern Institute of Technology's (SIT) website. At the time they were advertising their online Certificate of Environmental Management. I was initially interested in this to compliment the degree I was already studying at Lincoln, and the more I looked into it the more interested I became. While some of the content involved in this course did overlap with my degree, there was also a lot of content that was appealing to me and unavailable through Lincoln, so I signed up.

I started the online certificate at the start of 2017 and finished it by June 2018. I was required to complete five mandatory courses over a maximum period of two years. Because I was already studying full-time through Lincoln, I split the courses up over three semesters. This meant my workload significantly increased and at some points I was doing six courses per semester. At times this was slightly hectic; however, the staff at SIT were flexible and understanding, adapting to my course requirements at Lincoln and giving me extensions when I needed them.

Some of the papers through SIT included marine and freshwater ecology, conservation management, resource management and environmental law. While courses offered at Lincoln are similar, the papers through SIT are split into several segments, each of which covers a broad range of information focussed on places throughout New Zealand. The entire certificate can be done through distance learning and is covered under SIT's Zero Fees policy and costs just over 500 dollars (depending on individual circumstances). The 500 dollars includes administration charges and seven dollars per credit.

At the time I signed up for this certificate I thought it would be a productive way to fill in the spare time which seemed abundant in first year. This proved to be easier said than done and my time management skills have certainly improved as a result. Although doing the certificate meant more work, I was able to broaden my knowledge surrounding environmental management extensively. It has allowed me to obtain a more holistic perspective and gain a range of knowledge that I have since been able to apply to other situations. In terms of my future career, I feel as though this is a good addition to my CV as it gives me an additional qualification and shows that I am able to prioritise, succeed, set and achieve goals, and manage my time so that important deadlines are not compromised.

Overall, I thoroughly enjoyed my experience of studying through SIT and I have only positive things to report. I would definitely recommend this course to anyone else who is currently studying or working in the field of environmental management. More information can be found on the course website:
https://www.sit.ac.nz/Courses/Environmental-Management#

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# Planning - One step closer to becoming a walk in the park

Max LICHTENSTEIN

*Bachelor of Environmental Policy and Planning (Hons) student, Lincoln University, New Zealand*

At the beginning of this year, Lincoln University's Faculty of Environment, Society and Design reintroduced its Parks and Outdoor Recreation programme as an additional Major available to its aligned degree programmes. For example, in the inaugural year participating students come from different faculties within the University and are studying towards a variety of degrees such as the Bachelor of Environmental Management, Bachelor of Environmental Policy and Planning (NZPI Accredited), Bachelor of Environment and Society and Bachelor of Science. The revised Major brings another dimension of the social, cultural and economic significance our natural areas provide us with to the wide range of land-focused undergraduate courses, especially those accredited by the New Zealand Planning Institute (NZPI). The course includes a variety of different topics within the parks and recreation management field that look into the human dimensions of managing natural areas for recreation and tourism. The reintroduction is in response to an increasing demand for industry professionals in the area of New Zealand's natural resources management.

This demand has been proven first hand by the industry itself. This year, the Department of Conservation has invested in an ongoing scholarship programme for parks and outdoor recreation students. The scholarship offers financial support to students and a variety of networks and opportunities within the Department that can provide students with further practical learning experiences in the sector. The NZ Parks Agencies Manager's Group (NZPAMG) signed a Memorandum of Understanding with Lincoln University in November 2018 that signifies Lincoln University as the educational provider of choice for the industry and creates mutually beneficial opportunities for students, the university and NZPAMG.

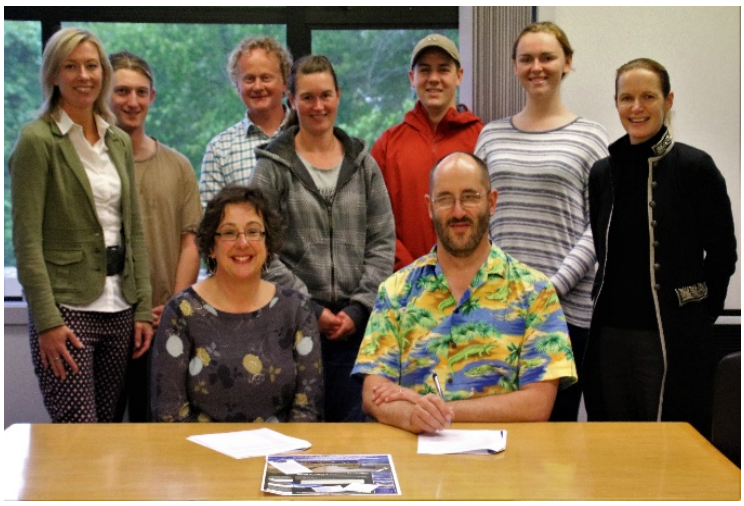

*Figure 1. NZ Parks Agencies Manager's Group (NZPAMG) signing a Memorandum of Understanding with Lincoln University in November 2018 (photo credit @Emma J. Stewart).*

Whilst New Zealand has developed into a prime tourism destination with its main focus on providing unique conservation and outdoor adventure tourism experiences capitalising on our natural resources, critical management decision making has become more imperative than ever before. This growing capitalisation has created a huge need for a bridge between the two different fields of planning and parks and recreation, to collaborate on shared ideas and resources to come up with planning solutions and directed management strategies. Planners create the framework that defines how future resources are utilised. Study in the Parks and Outdoor Recreation field will provide planning students with an enhanced understanding of the complexities of managing our natural heritage alongside the competing social and economic demands on natural resources used for recreation and tourism. This is significant because of New Zealand's rise in international tourism numbers and greater accessibility to the outdoors.

The new additional Major provides students with a holistic approach to managing natural areas for recreation and tourism and because it fits in with existing qualifications offered at Lincoln University, it creates an opportunity for the planning industry to become more accessible to a wider variety of students that are already studying in relevant and aligned areas. As the Major has only been re-established this year, it will be interesting to see what impact graduates have on the planning sector through further growth and development of the industry in years to come.

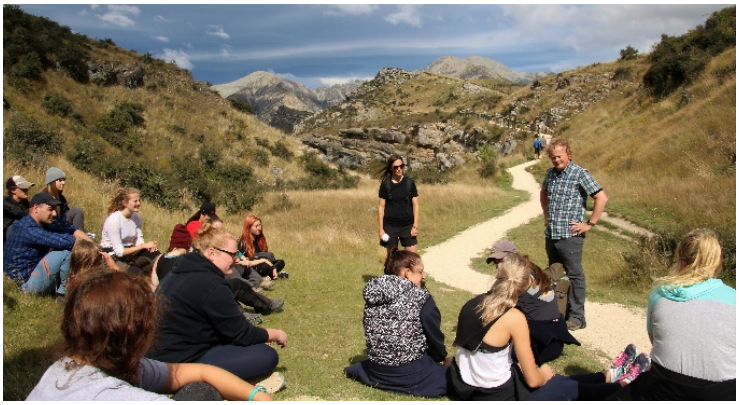

*Figure 2. Lincoln University Parks and Recreation students on a field tour to Arthur's Pass National Park hearing from one of DOC's community rangers (photo credit @Emma J. Stewart).*

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# Awards

## INTRODUCTION

Each year Lincoln University students gain merit-based recognition and the winners are often announced in the following year. We record them in the earliest edition of LPR after they have been announced. A number of students also received Summer Scholarships, usually externally funded, to work on research projects under staff supervision during the summer vacation period.

## STUDENT AWARD RECIPIENTS

**The John Hayward Memorial Prize 2017 - Mandille Alcee**

The John Hayward Memorial Prize was created after the death of John Hayward in 1993. John Hayward was the founder of the Centre for Resource Management at Lincoln, as well as the Master of Science (Resource Management) degree, a precursor of the Master of Environmental Policy and Management degree. This award is given to the most outstanding Master of Environmental Policy and Management student who has completed the requirements for the degree, and is based mainly on their academic performance in core subjects. In 2017, the recipient was Mandille Alcee who is currently a Management Trainee at WASCO – the Water and Sewerage Company in St Lucia.

**The Thomson Reuters Prize in Resource Management 2017 – Kenton Baxter**

The Thomson Reuters Prize in Resource Management is awarded to the highest performing first year Master of Planning student, and is based on academic performance in core subjects. Thomson Reuters are a leading provider of information and solutions to the legal, tax, accounting and business markets in New Zealand. Through their online and hard copies of the Resource Management Act and other relevant pieces of legislation they allow students to gain information and keep up to date with changes in resource management and planning law. The recipient of the 2017 award was Kenton Baxter, who is currently working in policy planning at Christchurch City Council.

**The Lincoln University Planning School Award 2018 – Nick Beattie**

The Lincoln University Planning School Award is funded by the Canterbury/Westland Branch of the New Zealand Planning Institute. It is awarded each year to the student member of the NZPI with the highest grade point average across their Level 3 papers who has completed their third year of their Bachelor degree at Lincoln and is continuing their tertiary study in an NZPI accredited planning degree at Lincoln University. Within six months of receiving the award, the recipient shall demonstrate a contribution to the NZPI, the Canterbury Westland Branch, the Canterbury/Westland Emerging Planners or the planning profession generally.

Nick Beattie was the inaugural awardee in 2018 and gave a presentation at a *Meet-the-Planner Event* (jointly hoisted by the Canterbury Westland Planning Institute's Emerging Planners and the Lincoln University Planning Association) on his MBIE funded *National Science Challenge – Resilience to Nature's Challenges* summer scholarship project. In this research he explored the planning provisions for transient people (visitors, temporary workers) in Kaikoura. Nick is studying for a Master of Planning degree at Lincoln.

## SUMMER SCHOLARSHIPS

**Nick Beattie**: Building resilience in transient rural communities – A post-earthquake study
Supervised by David Simmons

Funded by National Science Challenge-
Resilience to Nature's Challenges

**Laura Dance:** Tourism in Timaru District,
South Canterbury: A situation analysis
Supervised by Mike Mackay and Harvey
Perkins
Funded by National Science Challenge 11 –
Building Better Homes, Towns and Cities

**Jorden Derecourt**: Landscope Designlab
concept development and communication
project
Supervised by Mick Abbott
Funded by Lincoln University Designlab

**Katelyn Moore**: Christchurch Club Cricket
review
Supervised by Roslyn Kerr and Koji Kobayashi
Funded by Canterbury Cricket Association

**Eshita Sutariya:** Examine location information
for live aquatic life permits
Supervised by Hamish Rennie and Crile Doscher
Funded by the Department of Conservation/
Faculty of Environment, Society and Design

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# Lincoln University Planning Publications: 2018

Compiled by Hamish G. RENNIE

Each year Lincoln University academics and students publish original research outputs. Much of this is directly relevant to practitioners as well as other researchers. In an endeavor to bring some of that to planners we have compiled the following selection of articles and book chapters published since the last edition of the Lincoln Planning Review. The list includes two publications that were first available online in 2018 (one of which has been published in hard copy and conventionally is listed as the year of the hard copy 2019). It is particularly satisfying to see publications by Sin Meun How, one of our first tranche of MPlan students and Alison Outram one of our 2017 completions turning their MPlan dissertations into external publications.

Unfortunately there is no readily accessible database of all planning-relevant publications over this period and compiling such lists is an arduous time consuming task. So the following list is very much that which was able to be readily identified by the compiler as clearly planning-relevant, with apologies for omissions and no intention of being seen as comprehensive.

- Blackburne, K. & M. Barthelmeh (2018) Life in the Face of Death: A Role for Landscape Architecture in Post-disaster Greening *Spaces and Flows: An International Journal of Urban and ExtraUrban Studies 9(1)*: 51-62.
- How, S.M. & G. N. Kerr (online 2018) Earthquake Impacts on Immigrant Participation in the Greater Christchurch Construction Labor Market *Population Research and Policy Review*: 1–29. https://link.springer.com/article/10.1007/s11113-018-9500-6
- Kench, P.S., Ryan, E.J, Owen, S., Bell, R., Lawrence, J. Glavovic, B., Blackett, P., Becker, J., Schneider, P., Allis, M., Dickson, M. & H.G. Rennie (2018) Co-creating resilience solutions to coastal hazards through an interdisciplinary research project in New Zealand *Journal of Coastal Research 85(S1)*:1496-1500.
- Kraberger, S., Swaffield S. & W. McWilliam (2018) Christchurch's peri-urban wildfire management strategy: How does it measure up with international best practice? *Australasian Journal of Disaster and Trauma Studies 22* (Port Hills Wildfire Special Issue): 63-73.
- Matunga, H.P. (2018) A discourse on the nature of indigenous architecture pp. 303-330 in *The Handbook of Contemporary Indigenous Architecture.* Grant, E., Greenop, K., Refiti, A. L., Glenn, D. J. (Eds). Springer, Singapore.
- McDonagh, J., Bowring, J. and H. Perkins (2018) The consumption of chaos – from the charm of chaos to the tedium of order: The case of Christchurch, New Zealand, before and after the central city post-earthquake rebuild *WIT Transactions on Ecology and the Environment 217*: 855 – 865.
- Montgomery, R. (2018) The Port Hills fire and the rhetoric of lessons learned *Australasian Journal of Disaster and Trauma Studies 22* (Port Hills Wildfire Special Issue): 85-95.
- Owen, S., Lawrence, J., Ryan, E., Kench, P., Bell, R., Rennie, H., Blackett, P, and Schneider, P. (2018) Anticipating staged managed retreat at the coastal margins. *Planning Quarterly 209*: 8-11.

- Rennie, H.G. (2018) The seduction of fast track recovery legislation - the Mangamaunu surf break saga *Planning Quarterly* Issue 211 (December): 21-27.
- Rennie, H. and A. Outram (2018) Section 33 Transfers — Implications for Co-management and Kaitiakitanga (17 May 2018 Update) *DSL Environmental Handbook* Thomson Reuters Westlaw NZ: Wellington. P.39 (online).
- Rennie, H., Simmons, D., Fountain, J., Langer, E.R. (Lisa), Grant, A., Cradock-Henry, N. and T. Wilson (2018) Post-quake planning – tourism and surfing in Kaikōura, pp. 37-38 in Hendtlass, C., Borrero, J., Neale, D., and Shand, T. (eds.). *Shaky Shores – Coastal impacts & responses to the 2016 Kaikōura earthquakes*. Wellington: New Zealand Coastal Society. 44p.
- Shimpo, N., Wesener, A. and W. McWilliam (2019) How community gardens may contribute to community resilience following an earthquake *Urban Forestry & Urban Greening 38*:124-132.
- Sword-Daniels V, Eriksen C, Hudson-Doyle E.E, Alaniz R, Adler C, Schenk T, Vallance S.A. (2018) Embodied uncertainty: living with complexity and natural hazards Journal of Risk Research 21(3):290-307
- Tripathi, M., Hughey, K., & Rennie, H. (2018). The role of sociocultural beliefs in sustainable resource management: A case study of traditional water harvesting systems in Kathmandu Valley, Nepal. *Case Studies in the Environment*, 0nline. doi:10.1525/cse.2017.00085