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A news update for Land Information New Zealand clients

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The national implementation of **Landonline** Stage Two – introducing online lodgement of survey plans and routine title dealings for subscribers via the Internet – is soon to begin.

# METADATA PROJECT GETTING DOWN TO NUTS AND BOLTS

A project to develop a common standard for government agencies to use when describing location-related information is starting to gather pace, with the draft standard on track for delivery by 1 July.

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LINZ has been asked to lead the Geospatial Metadata Standards project (see *Landscan* December 2002). It's a unique cross-agency collaboration that will see a common standard developed for the discovery level identifiers attached to the government geospatial information. This cataloguing and indexing of information is central to the consistent availability of data through Internet search engines.

Baz Parker (Project Leader) and Sarah Zimmerman (Topographic Information Manager) have been dedicated full time to the project and are now beginning to get down to the nuts and bolts.

Project partners include key advisers and analysts from other government agencies with an interest in geospatial information: Ministry for the Environment (who initiated the idea), Ministry of Fisheries, Department of Conservation, Statistics New Zealand, Landcare Research, Maritime Safety Authority, Ministry of Social Development and the New Zealand Defence Force. Local government agencies will also be encouraged to take up the standard.

Baz Parker says the project team members have started meeting, setting out the tasks and dividing up the work. At a two day workshop at the end of last month, the team got down to eyeballing the specific tasks required, he says.

"This cross agency work has been helped greatly by the setting up of an extranet by Lucy Hoffman, LINZ Team Leader, Online Channel Management," Baz says. "It's meant that we can continue using a virtual workspace without having to physically meet at every turn. People taking part in the project can see it developing via the extranet."

While it might be tempting to start from scratch and build a standard from the ground up, the work must be done with reference to existing standards and protocols if it is to gain acceptance. A number of standards are involved:

- **The international metadata standard (ISO19115).** Being finalised by May 2003, this will provide a framework, or base standard, which can be adapted to New Zealand requirements.
- **The New Zealand Government Locator Service (NZGLS) metadata standard.** This is a generic official New Zealand Government standard for the creation of discovery level metadata. Developed by the State Services Commission's E-government Unit, the standard is managed by Archives New Zealand.
- **E-government Interoperability Framework (e-GIF).** This framework sets minimum standards for the way various government businesses and technology systems can work together electronically. e-GIF is managed by the E-government Unit.

Baz and Sarah say they are encouraged so far by the commitment shown from within LINZ and by others in the project team.

"It's very important that the agencies taking part take ownership of the project early on, and that they get involved at a meaningful stage when there are still important issues to sort out.

"We're taking a good look at what systems agencies are using now so that the Geospatial Metadata Standard can cater for all needs as closely as possible."

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## GOOD LINE-UP AT GEOCART 2003

Hypermapping, virtual reality, internet and interactive mapping, geovisualisation, 3D environments and geo-computation were among the key issues for modern cartography which challenged the 80 people who attended the GeoCart 2003 Conference last month.

Sarah Zimmerman of LINZ, who was part of the organising committee, describes it as a great conference that concentrated on the importance of accessing and shaping geospatial information through recent advances, particularly in Internet mapping and interactive visualisations.

Three LINZ staff featured on the conference programme, along with a high-powered line-up of international speakers. Dave Balm spoke about redesigning topographic maps for screen display; Baz Parker talked about the Geospatial Metadata Standards Project; and Sarah spoke about Accessible LINZ – how LINZ's 1:50,000 topographic database is now online.

Geoff Lawford from Geoscience Australia (GA), currently on a LINZ/GA work exchange, addressed the conference on the Australian 1:250,000 topographic geodatabase.

Others at the conference represented the South Waikato District Council, Waikato and Auckland universities, Environment Bay of Plenty, Geological and Nuclear Sciences, RMIT University Melbourne, Eagle Technology, the University of California, UK Ordnance Survey, and the NZ Defence Force.

The exhibition which focused on the latest innovations available to the cartography and geospatial professions attracted considerable interest, as did the National Cartographic Exhibition running in conjunction with the conference.

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The 2003 Mauriora ki te Ao scholars. Back row: (L-R) Harold Smith, Nathanael Maxwell, Beth Tupara. Front row: (L-R) Tanira Morrison, Emma Wyeth, Jaroz Adams, Kerry N-Garrett. Absent: Huia Pacey, Micaelle Strange

LINZ CEO Russ Ballard (left) and LINZ scholar Nathanael Maxwell (right).



## STRONG INTEREST IN SCHOLARSHIPS FOR MAORI STUDENTS

Nine young Maori university students have been awarded this year's Mauriora ki te Ao Scholarships under a scheme supported by five Government agencies to increase the participation of Maori in the public sector.

One, Nathanael Maxwell, is in the final year of a four-year Bachelor of Surveying at Otago University, and has received a scholarship from LINZ. As well as the scholarship grant of \$2000, he will have the opportunity to work for LINZ over the university summer vacation.

Nathanael comes from Opotiki and is affiliated to Tainui and Whakatohea. He intends to use his qualification and skills to promote both his profession and culture and is keen to encourage and assist young Maori students interested in a surveying career.

This year, the Mauriora ki te Ao Scholarship programme has been administered by LINZ. Lyndsey Gilbert, LINZ Human Resources Adviser, says there was a substantial increase in the number of applications received this year.

"We were really encouraged by the large number of applications," she says. "LINZ has put a great deal of effort into raising awareness of the scholarship programme which is designed to support Maori studying towards tertiary qualifications in natural resource management and science. This has included new print material and developing a website with detailed information and application forms."

The scholarships are a joint initiative between five government natural resource agencies: the Ministries of Agriculture and Forestry; Fisheries; Environment; Research, Science and Technology; and Land Information New Zealand. Lyndsey says LINZ has enjoyed some unexpected benefits from its support of the programme.

"Having young Maori students working for LINZ has brought a whole different dimension for our people working with them."

The other Mauriora ki te Ao scholars are: Harold Smith, Tanira Morrison, Emma Wyeth (Ministry of Research, Science and Technology scholars); Kerry N-Garret (Ministry of Agriculture and Forestry scholar); Beth Tupara (Ministry of Fisheries scholar); and Huia Pacey, Micaelle Strange, Jaroz Adams (Ministry for the Environment scholars).

Since the scheme began in 1998, LINZ has sponsored six scholars. A previous LINZ scholar, Haylee Putaranui, joined the department full time as a property analyst in the Hamilton regional office after completing her BA/LLB at Waikato University.

### At a glance

- ◆ Nine people have been awarded Mauriora ki te Ao scholarships this year
- ◆ The scholarships are intended to encourage Maori participation in the public sector in the area of natural resource management and science
- ◆ Five government departments, including LINZ, offer the scholarships
- ◆ There is one LINZ scholar this year, Nathanael Maxwell, a student of surveying at Otago University.

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## LAND ONLINE STAGE TWO NATIONAL IMPLEMENTATION BEGINS

The national implementation of **Landonline** Stage Two – introducing online lodgement of survey plans and routine title dealings for subscribers via the Internet – is soon to begin.

This heralds the “beginning of the end” of **Landonline’s** rollout, and presents the opportunity for LINZ’s customers to undertake the majority of their land and survey work electronically.

The vision of a national Internet-based land information management system came a step closer recently when electronic lodgement was trialed.

From 18 November last year to 31 January 2003, LINZ piloted electronic lodgement with a group of 30 survey and legal firms, based largely in Christchurch. The Pilot participants were given a prototype of a computer based training programme on CD-ROM and were assisted through this and other support material to bring them up to speed on how to conduct eDealings (titles) and eSurvey lodgements.

The participants then began using electronic lodgement as part of their routine day-to-day business. Lodgements were monitored by LINZ and participants also completed

weekly questionnaires on how the system was working. A debriefing of Pilot participants was recently held in Christchurch, adding to the overall accumulated data which is still being analysed.

From early on in the Pilot it became apparent that eDealings worked very well, basically achieving everything they were supposed to and proving relatively easy to use. As former Law Society stakeholder representative (on the **Landonline** project) Duncan Terris summed up after talking with Pilot participants, “eDealings rock!”

So the initial results from the Pilot – particularly eDealings – looked very promising. In the period to 11 February, approximately 210 eDealings had been undertaken (comprising about 370 instruments), and 28 eSurveys had been lodged.

Obviously the total number of eSurveys lodged is small compared with the eDealings. eDealings (usually comprising DTMs – Discharges, Transfers, Mortgages)

are basically simpler and more straightforward to achieve. They're also more numerous than eSurveys.

However, the Pilot has also shown that there are some issues with the tool used to generate plans under the eSurvey system, so LINZ is now investigating how this can be improved. As well, in order to get more eSurveys lodged LINZ is looking at options for gathering further data.

Meanwhile, the national implementation of **Landonline's** Stage Two – in which surveyors and solicitors involved in conveyancing will be able to conduct transactions as well as search the LINZ national database from their own PCs – can now begin.

A phased rollout approach will be undertaken, introducing eDealings first, and eSurveys later. It is planned to make eDealings available in the South Island from 31 March 2003, with North Island implementation of eDealings from 28 April.

eSurveys will be implemented in the second half of 2003, in three phases, because it will likely have greater impacts on the performance of the **Landonline** system. A more gradual implementation is therefore planned.

Further information on how the rollout will affect customers, and about what customers will need to do to prepare for eDealings and eSurveys will be made available soon.



Helicopter application of herbicide in Lake Dunstan – clear, still conditions are required.

The success of the herbicide programme in Lake Dunstan can clearly be seen in these “before and after” views. The unsightly weed infestation (arrowed) affected the high-use foreshore area.

## WEEDING OUT SOUTH AFRICAN INVADER A CONSTANT CHALLENGE

*Lagarosiphon major*, or South African oxygen weed, has turned into a major aquatic pest since it turned up in New Zealand waters. It's widespread in the North Island and has become established in some significant South Island rivers and lakes.

While the plant has very specific needs for growing conditions (clear, calm, shallow water), these unfortunately coincide with the type of water frequented by people enjoying aquatic recreation. The plant spreads very easily, and one of the main ways it colonises new areas is courtesy of boats and trailers.

weed beds as protective cover for spawning trout, whereas boaties like access to ramps and boat lanes cleared. We try to accommodate all users as best we can.”

The aquatic weed in Lake Dunstan is controlled by aerial application of a herbicide. David says the control levels achieved with this method have been excellent.

“The first spraying was done 12-15 months ago and it achieved a much better than expected result. The spraying programme had the full support of the lake management committee and it's very cost effective.

“If we get a good knockdown of the weed, it may only be necessary to spray every second year, but many factors can affect its growth.”

*Lagarosiphon major* has been established in Lake Wanaka for about 30 years, and there is also an annual weed control programme. However, in this case mechanical weed control is used because of opposition to the use of herbicides in the lake. The main method is suction dredging. A diver checks the dredged areas and removes any remaining weeds by hand.

Suction dredging removes large quantities of weed, but it is more expensive than herbicide control. Control using mechanical methods needs to be targeted at areas with high use such as boatramps.

“Weed growth will ebb and flow with the environmental conditions, but we will always have to maintain a control programme until some method of eradication is found,” David concludes.

### At a glance

- Control of the weed *Lagarosiphon major* in Crown-owned lakebeds is mainly a LINZ responsibility
- In Lake Dunstan it is successfully and cost-effectively controlled using a herbicide
- In Lake Wanaka, mechanical methods are used because of opposition to herbicide use
- Mechanical methods are more expensive and can be less effective than herbicide programmes
- Control programmes are designed after extensive public consultation.

LINZ is responsible for weed and pest control on some areas of Crown-owned land and lakebeds. The lakeweed control work is contracted to Landward Management Ltd, which is working to a five-year plan to manage the weed. The long-term intent is to prevent the weed from spreading to non-infested waterways.

David Morgan, Contract Manager with the LINZ Crown Property Management Group, says there are two main ways of containing the weed:

- mechanical removal
- killing the weed with an aquatic herbicide.

The control method used is chosen after extensive consultation with interested parties. In the case of Lake

Dunstan, for example, Landward Management attend the monthly meetings of the Lake Dunstan Management Committee and communicate regularly with interested groups.

“The weed management plan sometimes involves a balance,” David explains. “For example, the anglers like us to leave

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## SUCCESSFUL HERBICIDE PROGRAMME IN ROTORUA LAKES

Control of weeds in the North Island's Rotorua lakes has been successfully managed using an aquatic herbicide for more than 40 years. The programme, also the responsibility of LINZ, is carried out at the request of the public and has achieved excellent results.

Eastern Region Fish and Game Manager Steve Smith says the herbicide programme in the lakes is a very positive way of managing the extensive beds of macrophytes which thrive in the shallow waters of Lakes Rotoehu and Rotorua. He says the shallow waters which the weeds prefer can extend up to a kilometre offshore, but the areas that required weed control are often quite small.

"The weed beds provide a habitat for invertebrates and for the fish in the lakes, but it makes sense to control the weeds to open up corridors in key areas, and also to prevent complete monoculture in the weed beds. Fish and Game would be happy to take part in strategic, long-term planning for the weed control programme in the lakes."

He noted that the effects of the active ingredient on aquatic life had been extensively trialed at Lake Tarawera, with no ill effects revealed.

David Morgan says the herbicide is neutralised on contact with the lake bed. National Institute of Water and Atmospheric Research (NIWA) trials with snails, a major food source for trout, had shown that neither the snails, nor the trout were affected by the use of the herbicide.

Because *Lagarosiphon major* is 90 percent water, there is very little residue left when the defoliated plant decomposes, he says.

## HORNWORT INCURSION BLITZED

An outbreak of hornwort (*Ceratophyllum demersum*) in a stream in the Upper Moutere area of Nelson has invoked a biosecurity emergency response from LINZ's Crown Property Management team and contractors Landward Management.

The free-floating weed is endemic in the North Island but not present in South Island waters. LINZ Contract Manager David Morgan says LINZ is working with Tasman District Council and the Department of Conservation. Together they moved swiftly to spray the weed with a herbicide.

"This achieved 90 percent control, and the area has since been re-sprayed to clean up any remaining weed," he says.

LINZ Manager Crown Property Paul Jackson says the hornwort incursion into the South Island is a serious one, and there will be ongoing cooperation with Ministry of Agriculture and Forestry (MAF) Biosecurity, Department of Conservation (DOC) and local authorities to manage the risk of future outbreaks.

Before and after: the dramatic effects of herbicide treatment on the hornwort incursion.



## eINITIATIVES MAKING FURTHER STRIDES INTO FUTURE

The various projects which come under the LINZ eInitiatives umbrella have all made good progress since the special parliamentary launch held in December and hosted by Land Information Minister, Hon John Tamihere. Here we update three of them: **NZTopoOnline**, **NZMariner** and **PositionNZ**.



### NZTopoOnline generates strong interest

Although officially still in its Beta, or 'first' stage, **NZTopoOnline** has attracted favourable comments and constructive feedback since it went online in December last year.

David Mole, Manager Topographic/Hydrographic Standards in the LINZ Topo/Hydro group says that by the end of January, there had been around 2,500 'unique visitors' to the **NZTopoOnline** website.

And they weren't just locals. Enquiries have come from 18 different countries, as far away as Venezuela and The Netherlands. David says that although the database wasn't put online to cater for homesick New Zealanders abroad, there are signs that ex-pats have also been quick to take advantage of the free service. But most enquiries have come from more predictable places such as other government departments, universities and consulting engineers.

"Some of the suggestions for improvements had already been earmarked, but we've been delighted with the positive and helpful nature of the feedback we've had to date.

"The various enhancements are being developed offline, and will be introduced when the fully functional version goes online in July as scheduled."

David says technical issues with the service so far have been minimal, but due to the large interest, the server capacity has been stretched once or twice.

"The comments we've had to date show we're well on track to providing what our customers want, and we're really only half-way there. The full version, to be released in July, will be a significant step up."

### NZMariner charting new course for maritime charts

LINZ Hydrographic Information Adviser Mike Farrell, is pleased to see the largest maritime operators and agencies have been quick to see the advantages of complementing the mandatory paper charts with **NZMariner**.

It contains digital facsimiles of 144 navigation charts covering New Zealand, the Pacific Islands and Antarctica. The Compact Disk (CD) contains the charts only, which must be viewed using additional software.

Users of **NZMariner** can create and store their own electronic overlays for marine charts.



Customised portions of topographic maps can be created and printed by accessing **NZTopoOnline** through the LINZ website.



Mike says eleven different software manufacturers support **NZMariner**, and mariners have plenty of flexibility over the type of hardware that can be used to run it – even Palm Pilots can be used.

Purchasers buy a one-off edition of **NZMariner**, and then they can elect to receive monthly updates on a subscription basis. The updates include corrections to Notices to Mariners and new charts published since the original CD was purchased.

The charts on **NZMariner** are provided in Raster format. Mike says this necessitates using CD for distribution rather than the Internet. “The charts are consolidated in a single file of about 200Mb,” Mike explains. “That’s a little too big for fast downloading on the Internet.”

He says the product has worked well since its release in late November last year. “Technical problems, can be corrected very quickly in the monthly updates. If a major problem is identified, all users receive an update, irrespective of whether they are on the monthly update service.”

Users of **NZMariner** have quickly learned to exploit its advantages, Mike says. Individual charts can be easily customised – for example the courses that were once plotted laboriously on clear film overlays can be done much more quickly and easily on screen and stored for future reference.

The Raster format used now is the first step towards the smarter Vector future, Mike says, and some testing work with charts in this format is being done in cooperation with shipping companies.

**NZMariner** and its updates can be purchased through LINZ-accredited chart retailers.

### PositionNZ network rolling out

Taupo has sedately ploughed 25mm further northwards over the past 9 months, while Gisborne has made an unexpected lurch of 20mm. The former movement was a predictable effect of plate tectonics while the latter was probably the result of a ‘slow’ earthquake – a gentle kind of earth movement that doesn’t rattle the crockery.

Precise and continually updated measurement of movements like these is being made easier thanks to the steady rollout of the **PositionNZ** active control network of 30 continuously tracking GPS stations which will form LINZ’s Zero Order

Network. Each station uses a system of triangulation to plot position in relation to several satellites. Both horizontal and vertical movements are tracked.

Priority in setting up the stations is being given to the North Island sites initially. Eight stations are operating now, with the remaining seven scheduled to be operational by mid 2003. So far there are four sites working on the South Island mainland and a further station on the Chatham Islands. The remaining 10 South Island stations – and the complete network – will be running by mid 2005.

LINZ Geodetic Survey Adviser, Graeme Blick, says the raw data can be downloaded by anyone who wants it – to date this is usually LINZ staff and their geodetic contractors – from the **PositionNZ** website.

He says the choice of location for the 30 stations is dictated by a number of factors, including security, access for maintenance, and ability to seat the station on bedrock (seasonal swelling and shrinking of soil would distort results if the foundations cannot be pinned to solid rock).

Data is channelled to LINZ through the Institute of Geological and Nuclear Sciences (the LINZ partner on this project) via a number of routes – some by radio link powered through solar panels, others by phone link. Graeme says the stream of data has been reliable and of good quality.

“We’ve had a good response from people using **PositionNZ** data so far,” Graeme says. “We won’t be promoting it actively until the North Island network is fully operational, but we’re very pleased with the way it’s working to date.”

He says there could be scope in future for provision of more refined data through further processing the raw GPS data.

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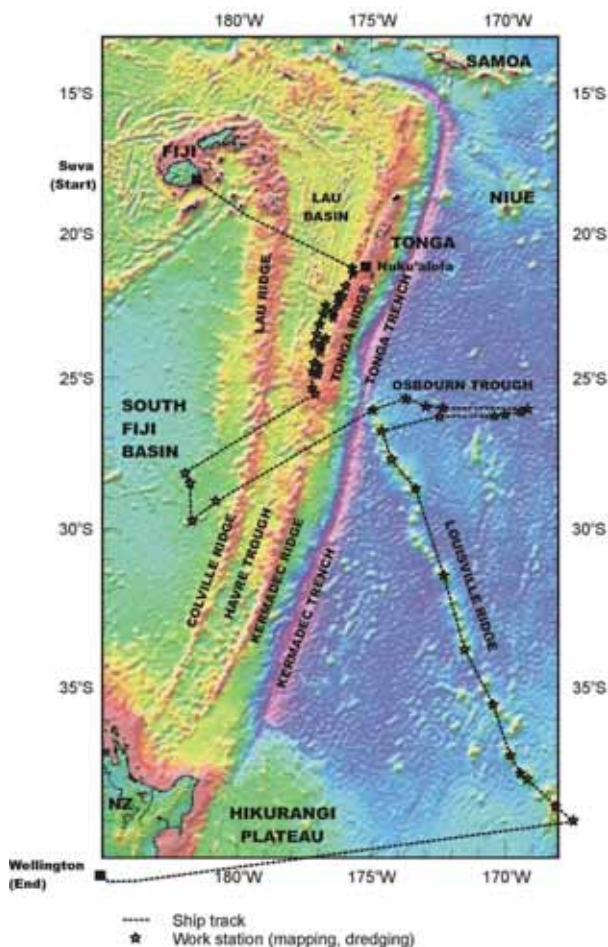
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**NZTopoOnline:** [www.nztopoonline.linz.govt.nz](http://www.nztopoonline.linz.govt.nz)

# CONTINENTAL SHELF PROJECT: NEW ZEALAND SKILLS IN DEMAND

All the work at sea is completed for the project to define the outer limits of New Zealand's legal continental shelf.

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Attachment A: Chart showing stations and track of planned cruise SO-167



The dredge sites for rock samples are the four stars between South Fiji Basin and Colville Ridge.

Now the focus moves to the teams working on analysing the data collected over the past four years and drafting the reports that will be used by the Ministry of Foreign Affairs and Trade (MFAT) to present New Zealand's continental shelf submission to the United Nations Commission on the Limits of the Continental Shelf (the Commission).

LINZ Project Leader Russell Turner says the last of the sea work was completed late last year when the *RV Sonne* undertook four days of rock dredging on four different sites in the Colville Ridge area near Raoul Island. No rocks were found on two of the sites but good samples were retrieved from the two other sites and these are now being analysed.

“The teams at the Institute of Geological and Nuclear Sciences (GNS) and at the National Institute of Water and Atmospheric Research (NIWA) are now honing their scientific analysis skills, and MFAT is analysing emerging interpretations of

Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS) so as to define the outer boundary of New Zealand's legal continental shelf,” Russell says. “All the data captured over the last few years is being sifted and weighed against the definition formula set out in Article 76.”

Earlier surveys identified six main areas where New Zealand's continental shelf extends beyond the boundary of its 200-nautical mile Exclusive Economic Zone. For each of those areas a separate report is being prepared. The first, for the area around Lord Howe Rise and the Norfolk Ridge, has been completed and is now being reviewed and agreed by LINZ and MFAT.

The next report is due for completion by the end of this year and covers the Three Kings Ridge and Colville Ridge area; by the middle of next year the two reports for the Campbell Plateau and the Resolution and Macquarie Ridges should be completed. By the end of 2004, reports will be completed for the final two areas, the Chatham Rise and Hikurangi Plateau, and the Louisville Seamount Chain and Kermadec Ridge.

While all the reports are being prepared, Russell says negotiations with Australia to define and reach agreement on maritime boundaries are continuing, with LINZ providing technical support to MFAT for the negotiations.

The Russian Federation has already submitted its Article 76 submission to the Commission – the first country to do so. It may shortly be followed by a submission from Brazil. New Zealand's aim is to present its submission by 2006 and Russell says that LINZ's input to the project is on time and is within budget.

An unexpected boost has been the international interest shown in the skills New Zealand has built up in the Continental Shelf project, particularly as a result of papers presented on the New Zealand desktop study and interpretations of Article 76 by members of LINZ Continental Shelf Working Group (CSWG) at international conferences and workshops.

It is quite clear from reports received from participants at these conferences and workshops that New Zealand is a leader in their desktop study approach and methodology used in the interpretation of Article 76. Russell says New Zealand's approach to the project has been praised by UNCLOS as a blueprint for other nations to follow and the desktop study methodology will be included in an UNCLOS training manual to assist coastal States in the preparation of a continental shelf submission. As a result, two countries have already approached LINZ for advice.

