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planning • design • ecology



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A cause and effect approach to ecological assessment assists both regional planners and home gardeners. SEE PAGE 2.



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Boffa Miskell NEWS  
& PROJECT INFORMATION

autumn 2001

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news



## Editorial: growth and new initiatives

This has already been an active year in all Boffa Miskell offices, with stimulating projects and several initiatives to ensure we maintain our high level of client service.

Since the end of 2000, our staff numbers have grown by 15 per cent. This reflects both work load and client demand and, in part, our own initiative to upgrade and develop our IT services.

To accommodate this growth, our Auckland office has moved to larger premises and the Wellington office will relocate in August. The Christchurch office is planning to expand into additional space in the middle of the year, while our more recently opened Whangarei and Tauranga branches are continuing to consolidate.

In mid-March we reached a significant milestone - Boffa Miskell is now on the world-wide web. We invite our clients and friends to visit the website at [www.boffamiskell.co.nz](http://www.boffamiskell.co.nz), and trust that you find it accessible and engaging. We look forward to your feedback.

Don Miskell, Chairman

## Boffa Miskell NEWS

& PROJECT INFORMATION

# autumn 2001

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# Ecodomains

## She swallowed the cat to catch the bird, she swallowed the bird to catch the spider, she swallowed the spider to catch the fly...

Cause and effect. Burl Ives summed it up with his folk ditty that ended with the old lady swallowing a horse.

When it comes to managing land - whether it's for reasons of conservation or production, pest control or catchment management, questions of cause and effect are constant. Why are two habitats, which are physically close, so different? What will happen if we change them in some way (will the introduction of Burl Ives's horse be catastrophic)?

Isobel Gabites, Boffa Miskell ecologist, has successfully applied the 'ecodomain' approach to these sorts of questions.

"Ecodomains are areas of land that share similar environmental character. It's a gross simplification, but when features of climate, soil, top-rock, topography and physical processes are correlated, and you can assess which factors are most limiting or dominant, you do see a corresponding biological boundary on the ground. Even when you can't see one (and this is often the case where land use masks natural processes) - you can predict one."

Isobel says landscape ecology is the basis for recognising and interpreting ecodomains.

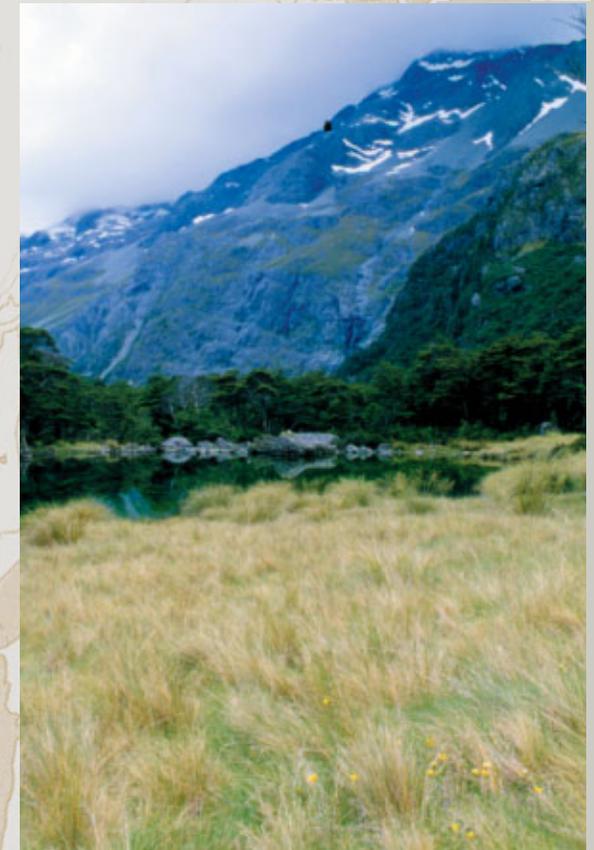
"Through ecology we analyse the way that environmental factors interact with biotic communities, and through landscape we can identify the places where similar environmental conditions occur," she says.

"When assessing biological communities there has traditionally been a bias towards valuing climax communities, such as mature forest, over modified communities. The trouble is that many of today's biological communities have been substantially changed by human activity.

"The ecodomain concept shifts this bias towards a better recognition of the dynamic processes in successional and modified communities.

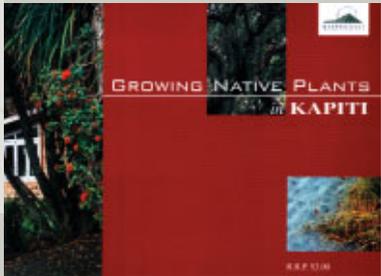
"In other words, by understanding the 'here and now' we can decide how best to improve and restore degraded natural communities."

Isobel says a useful scale for local authorities in mapping ecodomains is 1:50,000, as localised differences will be picked up, such as the salt zone along the coast. The ecodomain framework was used at this scale to depict broad environmental patterns and assess the dynamics within habitats in a recent ecological survey Boffa Miskell carried out for Porirua City Council.





◀ Three ecodomains are clearly evident at Punakaiki: coastal cliff communities subject to extreme salt; nikau forest in the humid, frost-free lowland; rainforest subject to cooler temperatures and high rainfall.



◀ The *Growing Native Plants in Kapiti* guide was based on ecodomain principles.

Boffa Miskell recently sponsored the reprinting of *Wellington Regional Native Plant Guide* and *Growing Native Plants in Kapiti*. Copies of these booklets are available from John Holmes at Wellington Regional Council 04-384 5708, and Andrew Guerin at Kapiti Coast District Council 0800-486 486.

Several years ago, Isobel mapped the ecodomains of the entire Wellington Region on a scale of 1:100,000, and these domains are now being used in several areas of the Regional Council's work, including the development of pest management strategies.

The domains were also used to identify distinctive areas and recommend appropriate plants in the Wellington Regional Council's publication, the *Wellington Regional Native Plant Guide*, which has sold more than 10,000 copies. The Regional Council officer responsible for preparing and marketing the booklet, John Holmes, says a key ingredient in its success has been that people have been better able to choose native plants suited to their local conditions.



◀ Ecodomains have distinct boundaries at high altitudes where energy and growth thresholds are reached.



▲ Wellington region ecodomain mapping. The 64 domains illustrated show how similar conditions can occur in distant localities, which highlights implications for land management.

“People often buy plants that fail to grow,” says John, “but the ecodomains approach has really helped people understand the differences between areas, and identify what will grow in one area but not in another part of the region.”

In a more localised application, Isobel developed a guide for home gardeners on the Kapiti Coast, *Growing Native Plants in Kapiti*, which was released by Kapiti Coast District Council. She based this on the distinctive character of each local ecodomain.

“An unexpected benefit of ecodomain mapping has been the ease with which all sorts of people can identify with these areas, whether they are farmers, gardeners, biologists or planners,” says Isobel.

“Often people know areas are different – but the ecodomains approach helps them understand why.”

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# dispatches



## Palmerston North Hospital redevelopment

Patient and visitor needs were uppermost in the minds of the Boffa Miskell landscape architecture team when designing the exterior spaces of the Palmerston North Hospital redevelopment.

The Accident and Emergency main entrance is now easier to find, with bold use of modern materials in the landscape – a design which complements the new main portico designed by Di Carlo Potts architects.

Recognising that outdoor spaces are important to patient care and rehabilitation, a series of courtyards have been designed to incorporate the particular requirements of the adjoining hospital wards. For instance, the paediatric area caters for different age groups, and aspects of patient safety have been considered in the design of the courtyards used by mental health patients.

The hospital's central courtyard will be developed during the second stage of the project, which is due to be completed this year.

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## TelstraSaturn's new HQ

TelstraSaturn wanted its new headquarters in Christchurch to signal the company's emergence into the New Zealand telecommunications industry and its arrival in the South Island, so Boffa Miskell set out to make a striking statement in the site design.

Strong abstract patterns inspired by sound waves were incorporated into the design, using locally sourced materials such as river stones and gravels, and swathes of native shrubs and grasses.

Boffa Miskell and Studio of Pacific Architecture exchanged ideas and worked co-operatively to achieve a highly complementary relationship between the landscape and building design.

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# Excavations in World Heritage Area

The largest single contributor to hydro-electricity generation in New Zealand is Meridian Energy's Manapouri Power Scheme, situated in the ecologically sensitive Fiordland National Park.

Known for its spectacular mountains, steep-sided fiords, extremely high rainfall and strong winds, Fiordland National Park is one of only two designated World Heritage Areas in New Zealand.

Since 1969, the Manapouri Power Scheme has been generating about 15 per cent of New Zealand's electricity from the water that flows through a 10 km tailrace tunnel from Lake Manapouri to Deep Cove at the head of Doubtful Sound.

To allow for more efficient use of the existing water, Meridian Energy is currently excavating a second parallel tailrace tunnel and channel to Deep Cove.

Excavation of the channel will inevitably result in discharge of some fine sediments into Doubtful Sound, and this required a resource consent.

Despite the sensitive environment, the resource consent application was processed and approved by Environment Southland without delay, due to the thoroughness of the investigation and the openness of consultation.

Boffa Miskell's role was to evaluate the effects of the sediments on the colour and clarity of the Sound's waters and the outstanding landscape and natural character values of the Sound. The effects on amenity values for residents and visitors, and on recreational, tourism and commercial fishing activities, were also considered.

Boffa Miskell project leader, Sarah Dawson, says the sensitive environment of Doubtful Sound presented a unique combination of challenges.

"The biological environment that has developed in the deep waters of Doubtful Sound is scientifically significant, with coral and other 'deepwater' communities living unusually close to the surface.

"Fiordland, including Doubtful Sound, is of special significance to Ngai Tahu, especially its Southern Murihiku Runanga, and the wilderness and natural character of the area also attracts a thriving tourism and recreation industry."

Meridian Energy was intent on obtaining sound scientific analysis of water and sediment behaviour. Innovative assessment techniques were developed in close collaboration with the multi-disciplinary group of scientists and engineers working on the project.

The high levels of freshwater discharged into the Sound naturally carry significant quantities of yellow organic material, and the waters of the Sound vary in appearance according to weather, seasons, and natural disturbances such as frequent floods. Visual landscape records were compiled to help predict likely changes in water colour and clarity. Photographic monitoring and water sampling enabled scientific data to be correlated.

Boffa Miskell was also involved in implementing surveys with tourists and visitors to Doubtful Sound. Understanding their perception of the natural character of the Sound and the colour and clarity of the sea under a variety of conditions was an important consideration.

"Meridian Energy is strongly committed to consultation in all its major projects, and its willingness to talk and share information freely with affected and interested people really helped the process," says Sarah.

"Through consultation, alternative excavation techniques were openly considered so that the final proposal was



acceptable to all concerned. This meant there were significant timesaving and cost benefits to Meridian Energy's project schedule."

Boffa Miskell was also responsible for compiling, editing and publishing the environmental assessment for the resource consent application. Sarah says the success of the document was a result of the high standard of scientific and analytical work by Meridian Energy's entire project team, which included Boffa Miskell, NIWA, Otago University Marine Sciences Department, Te Ao Marama Inc, Anderson Lloyd and Direct Project Management.

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▲ Photographic records were compiled to predict likely visual effects in the Doubtful Sound channel – an area subject to extreme climatic changes, as illustrated above.



## Riviera of the south

A quaint French settlement with striking coastal scenery and a plethora of visitor attractions, Akaroa Harbour is attracting a number of developments and a high level of public attention in the Canterbury region.

Boffa Miskell is involved in several projects in the harbour area, including planning a rural subdivision, and carrying out coastal, rural amenity and landscape assessments for the local and regional authorities. A number of marine farm consent applications are also being reported on for Environment Canterbury.

Christchurch Boffa Miskell planner, Carey Edwards, says the diverse nature of the issues and widespread public interest in the area makes these projects challenging.

“The projects call on a wide variety of skills in each of the company’s disciplines – landscape, ecology and planning,” she says.

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## Sinking ship

Northland’s Tutukaka coast is expected to receive an annual \$1.5 million boost to its local economy, thanks to a new diving attraction – the HMNZS Waikato.

Boffa Miskell was commissioned by Tutukaka Coast Promotions Inc to find a suitable site to sink the frigate, prepare the resource consent application and advise on its decommissioning.

Mark Poynter, marine biologist with Boffa Miskell, said the clean-up was carried out to the “highest possible standard”, and employed up to 20 people for five months.

“All fuel and other hydrocarbons were removed from gearboxes, tanks and the hydraulic system, and all floatables and breakables such as desks, mattresses and windows were also removed,” he says.

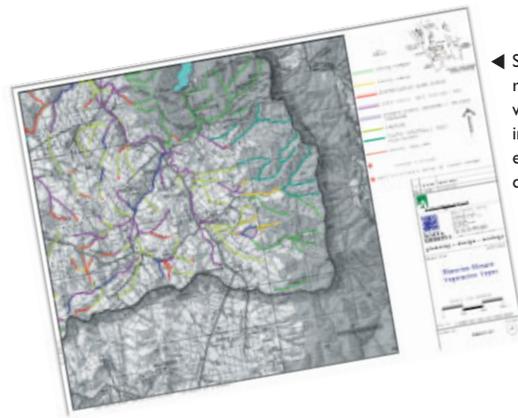
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## Wairoa Catchment

Five months in the field and many wet feet later, Boffa Miskell ecologists have made some useful discoveries about streams.

Auckland Regional Council commissioned Boffa Miskell to assess the first order streams in the Wairoa catchment (east of Papakura), and evaluate the condition and biological values of their riparian and in-stream habitats.

“First order streams are the smallest streams drawn on 1:50,000 topographical maps,” explains Vaughan Keesing, Boffa Miskell ecologist and project leader, “so this meant a lot of leg work in the back country, within a catchment of roughly 35 by 20 km.”



◀ Stream and riparian values were mapped in detail for the entire Wairoa catchment.

The Regional Council recognised that there is more to catchment management than flood control and engineering solutions, and wanted to find out how riparian and stream habitats within a catchment might relate to biodiversity, land use, amenity, water quality, water quantity, and landscape linkages.

The field team visited over 200 sites and gathered a raft of data – with surprising results.

“Contrary to expectations,” says Vaughan, “most first order streams in rural catchments are not ephemeral, but have year-round water flow and persistent aquatic life. So, even these small streams have to be regarded as important waterways and not just drains to be filled in or allowed to degrade.”



▲ Biodiversity in streams was highest where there was native riparian vegetation and no frequent sediment issues.

There was also a clear correlation between adjacent land use and water quality.

“If there were adjacent land uses primarily affecting erosion, such as heavy cattle grazing, water quality declined and conversely improved if the adjacent land activity did not encroach onto the riparian area.”

Correlations between riparian vegetation and biodiversity also revealed some unexpected results.

“In the streams, the highest levels of biodiversity occurred where the riparian vegetation was native shrubland and forest. However, on land, mixed exotic shrubland (such as gorse and manuka) was found to be as good for biodiversity as modified native forest.”

Auckland Regional Council has used these and other findings from the study to make some long-term land-use decisions, which recognise the importance of the first order streams and riparian habitat types in the catchment.

“Another spin-off,” says Vaughan, “has been the development of a robust protocol for assessing physical habitats, which the Regional Council has adopted for future use.”

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# Manukau Harbour gains ground

The \$451 million upgrade of the Mangere Wastewater Treatment Plant will give Manukau Harbour 500 hectares of restored coastal land.

One of New Zealand's largest construction projects, the upgrade will utilise some of the most innovative and up-to-date technology in wastewater treatment to enable existing oxidation ponds to be decommissioned and returned to the harbour.

Boffa Miskell was brought in to assist Watercare Services Ltd with landscape design for the coastal and foreshore area, including a 13 km length of new coastal edge.

Project leader John Goodwin says: "This was an exciting opportunity to enhance natural values and facilitate public access to a previously 'no go' area. Mangere Lagoon, for instance, an ancient volcanic crater currently filled with sludge, will be restored to a tidal basin with a walking track around the perimeter."



► The oxidation ponds will be opened to the sea and 13 kilometres of coastal edge restored.

## Restoring Habitats

Over 260,000 native trees and shrubs are to be used along the foreshore areas. Diverging from the common approach to revegetation planting, where a standard mix of species is planted at random, planting plans have been detailed at a level of 20 x 20 metre grids.

"The aim is to replicate initial colonisation communities and provide the range of habitats that can occur very close together along coastal edges such as this," says John.

"It's a matter of responding to subtle differences in site conditions."

Coastal forest, coastal shrubland, canopy trees, wetland and saltmarsh planting types are represented and all plants will be contract-grown using seed sourced from the local Tamaki Ecological District.

John says new roosts will also be created for the thousands of migratory birds that frequent the existing roosts in and along the harbour.

"Sections of the bunds that currently contain the oxidation ponds will form low-lying islands, ideal as safe bird habitat when the ponds are opened to the sea again. Bird hides will also be constructed in discrete locations to allow people to view the birds with minimal disturbance," he says.

## Public Access

Fifteen kilometres of new walkway will also be developed, taking in a range of habitats, lookouts and picnic areas. Importantly, this will link two other public reserve areas - Ambury Regional Park in the north and the recently opened Otutuata Stonefields Reserve in the south - greatly extending recreation opportunities around the harbour.

The walkway utilises sections of existing service roads, where possible, but also includes newly formed paths and boardwalks.

Signage will be an important feature of the foreshore area, with signs and markers to guide visitors along the new walkway. Natural history and panoramic interpretation panels will be strategically located to tell the stories of the area - the bird migrations, the cultural history, the volcanic origins, the decommissioning and current restoration. Curved panels and detailing will be used, evocative of the coastal setting and Maori connections with the area.

"Boffa Miskell has worked closely with the Project Manukau Community Liaison Group to ensure that the objectives in Project Manukau's *Coastal Community and Foreshore Management Plan* are met," says John.



▲ Former oxidation ponds will be opened to the sea and the 'new' coastal edge rehabilitated.

"Opportunities for involvement of local iwi from Maukaura Marae, Forest and Bird, and the wider community were explored at meetings with the liaison group, which included representatives from these groups and both consent agencies, Auckland Regional Council and Manukau District Council.

"Contractors bidding on the plant supply and planting contracts are also being encouraged to provide for community involvement during propagation, growing on and, later, community planting days."

The coastal and foreshore landscape enhancement works are due to start in 2002 and will continue through to 2006.

**PROJECT TEAM:**  
**JOHN GOODWIN, STEVE DUNN** - DESIGN; **VAUGHAN KEESING** - ECOLOGY; **ISOBEL GABITES** - INTERPRETATION AND SIGNAGE  
**CONTACT:** [johng@boffamiskell.co.nz](mailto:johng@boffamiskell.co.nz)

# dispatches continued...

## Adding depth to stormwater ponds



Symbolic connections to the past have added another dimension to recent restoration of stormwater treatment ponds in the Tauranga district. The approach, encouraged by iwi, seeks to create tangible links to the former landscape using plant, bird and fish species: in this case, puriri, keruru (wood pigeon) and tuna (long-finned eel).

Restoration is designed with the conditions needed for the nominated species in mind. The objective is that, as the ponds develop, they will particularly attract these indicator species and thereby secure a connection to the former landscape and its inhabitants. The contemporary landscape will be enriched in terms of both ecological and cultural values.

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## Havelock Marina

Port Marlborough New Zealand Limited has begun a major upgrade of the Havelock Marina - one of three marinas owned and operated by the company in the Marlborough Sounds.

Boffa Miskell provided site and landscape design services for stage one of the project, including siting of facilities, layout of access and parking, signage, and detailed planting.

The entrance was designed to provide a strong visual signal to travellers on SH6, with a large sculpture and flagpoles, evocative of boat masts.

Boffa Miskell worked closely with Tim Barton Architects and Smart Associates engineers to integrate engineering requirements and architectural design with the landscape concept.

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## Profiles

### Putting it on paper

An update of papers and seminars recently presented and published by Boffa Miskell staff:

**Rachel de Lambert** was one of a team of four presenters for the *Urban Amenity* field trip/workshop at the *2001 New Zealand Planners Institute Conference* in Tauranga (March 15 to 17). A preliminary workshop was held to identify key urban amenity issues facing planners and their potential responses, and Rachel facilitated a panel discussion among the presenters.

Background information for the field trip came from Boffa Miskell's 'Tauranga Residential Intensification Study: Amenity Values' report, which was prepared in association with market research company, Key Research and Marketing of Tauranga.

**Frank Boffa** presented a paper to the *Wairarapa Coastal Forum* in February, called 'Providing for Natural Character in Coastal Subdivisions'. The forum, hosted by the Wellington Regional Council, was convened to raise awareness and encourage co-ordinated management of coastal development issues in the Wairarapa. Frank discussed a range of good and bad examples, with an emphasis on determining what was appropriate in the Wairarapa coastal environment.

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### Recent staff appointments

#### AUCKLAND

**Bridget Gilbert**  
LANDSCAPE ARCHITECT

**Imogen Lewis**  
ENVIRONMENTAL PLANNER

**Mandy Rounsefell**  
LANDSCAPE ARCHITECT

**Phil Cummins**  
LANDSCAPE DESIGNER

**Sarah Poff**  
INTERN LANDSCAPE ARCHITECT

**Wendy Leitch**  
LANDSCAPE ARCHITECT

#### TAURANGA

**Gavin Kemble**  
PRINCIPAL, ENVIRONMENTAL PLANNER

**Rebecca Ware**  
LANDSCAPE ARCHITECT

#### WELLINGTON

**Raewyn Sinclair**  
ADMINISTRATION

**Rosalyn Day**  
ENVIRONMENTAL PLANNER

#### CHRISTCHURCH

**Amber Inwood**  
RECEPTIONIST

**Charlie Palmer**  
ECOLOGIST

**Gary White**  
CAD OPERATOR

**Kate Askew**  
ENVIRONMENTAL PLANNER

**Nicki Lassen**  
ADMINISTRATION



## John Potter

**Landscape Architect, AUCKLAND**

John Potter, a senior landscape architect from the United Kingdom, recently joined Boffa Miskell's Auckland team.

Before coming to New Zealand, John was an associate in a landscape consultancy which was largely design-led, but like Boffa Miskell, incorporated planning and ecology disciplines. During his 12 years as a landscape architect, John has worked in both the private and public sectors, generally in multi-disciplinary situations.

An experienced designer, he has managed the design and installation of a diverse range of large-scale projects, including commercial developments, healthcare facilities, urban improvement and residential schemes. John is also experienced in a variety of project procurement processes including traditional contracts, design and build, and working in partnerships.

## Auckland team finds new home

The quest to find larger premises closer to Auckland's central business district came to an end with the opening of Boffa Miskell's new Auckland office in January.

Carey Pearce, Auckland Office Manager, says the new open-plan office has been a hit with both staff and clients.

"While productivity and the work environment were foremost considerations in the layout, clients also benefit from the more spacious offices and refreshingly uncluttered meeting spaces."

Located on Level 3 of the IBM Centre (corner of Wyndham and Nelson Streets), the new premises are close to the burgeoning viaduct basin commercial precinct. Using Boffa Miskell's credit voucher system, clients are able to park in the neighbouring Farmer's parking building, or can use the 'Pay and Display' parking on both sides of Lower Nelson Street.

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[www.boffamiskell.co.nz](http://www.boffamiskell.co.nz)

Boffa Miskell is online! The new website, [www.boffamiskell.co.nz](http://www.boffamiskell.co.nz), went live in March, giving potential and existing clients the opportunity to see the huge range of work carried out by the company.



Marc Baily, who oversaw the project, says the website also gives Boffa Miskell a presence internationally, which is important for the growing number of clients who are investing in New Zealand and coming here to live.



Using website developers, The Web and DNA Design, Marc says the site was designed to be client focused, and was structured on a 'markets we serve' basis rather by discipline. "We decided to structure it in this way because it is difficult to separate our services by discipline when our approach is to integrate all three – planning, design and ecology".

He says a key part of the site is the project gallery, which shows the variety of work carried out by Boffa Miskell staff throughout the country. The project gallery will be updated approximately every four months, in line with publication of Boffa Miskell News.

Marc says one of the benefits he foresaw in having a website was its ability to be an avenue for communication. "Contact details for staff involved in the various projects are given on the website, and we encourage clients to contact us with their feedback."

## Keeping up with the times...

Boffa Miskell's IT system is being upgraded and developed to improve client service and keep pace with technology.

A central server has already improved inter-office communication, so we can more easily draw on the skills of staff in several offices to work on various projects. Growing use of specialist software, in particular Computer Aided Design (CAD), also enables us to keep to the forefront of visual simulation and working drawing techniques.

CAD specialists already work in all main Boffa Miskell offices, but two new positions have been created to manage overall IT services: IT Administrator and CAD Manager.



**Andrew Scrivens**  
IT ADMINISTRATOR

Andrew Scrivens, IT Administrator, joined the company with an in-depth knowledge of software and hardware applications. He manages the integration of specialised software within the company, and keeps a watching eye on the overall system (and its users!). Andrew aims to make sure systems are running smoothly and to ensure the various software applications are used effectively.



**Michael Bain**  
CAD MANAGER

Michael Bain joined Boffa Miskell in January as CAD Manager. With nearly 15 years of CAD experience in varied disciplines, Michael has been a CAD consultant/trainer for the last four years. He had already met most of the Boffa Miskell CAD team as a trainer and now joins the company to manage the team and develop overall CAD strategies.



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