

Wet & Wild

Waitara wetland makeover

The buzz! The bustle! The thwack of hammers, the wheeling of barrows, the digging, the planting, the chatter of children! The exclamation marks!

The scene at St Joseph's Primary School in Waitara at 10 a.m. on Saturday 20 March 2010 would have cheered the heart of any conservationist. In one day the school and community, in partnership with sponsors, well-wishers and funding providers, was about to transform a perpetually-wet strip along the edge of the playing fields into a wetland with paths, a boardwalk, an elegant, red bridge and a viewing platform above a pond.

Much of Waitara is built on swampy low-lying land. For many years the school struggled with sports fields that were so sodden they were roped off for much of the winter. Attempts at draining them failed. Finally, Deputy-Principal Bethne Hooper asked: 'Why don't we work with the water? Why don't we turn it into a wetland?' It was an idea whose time had come. Logs were placed to outline the wet area and suddenly what had been an abstract idea had physical dimension. Teachers and children began enthusiastically planning and preparing, making weta boxes, creating bug habitats and bringing frogs for release. The project, steered by school caretaker Denise (De) Welch, took off.

Help came from many directions. In the first instance, the project needed funding, the bulk of which came from Treemendous School Makeovers, a partnership between Project Crimson and the Mazda Foundation: to their delight, the school was one of four selected from 94 applications for 2010. An Air New Zealand initiative called Kids Restore New Zealand gave \$3000 for plants, while logs, mulch, soil and other materials as well as the means to shift it all came from a range of business and organisations.

The Taranaki Regional Council became involved and the Taranaki Tree Trust helped with advice and plants. The arched bridge, the centrepiece of the wetland, was a redundant piece of another Lions' project. It was about to be demolished but 'Thank you very much!' said the school. What a stroke of luck!

Saturday was the climax of all that planning. What a turnout! It was hopeless trying to count



everyone - just like birds, they yapped a lot and would not keep still, but it was estimated that there were well over 300 present. As well as the mothers and fathers, brothers and sisters, aunts and uncles, grandparents, neighbours, teachers and the littlest and largest pupils of the small school (roll approx 180), there were representatives from Project Crimson, the Mazda Foundation, Waitara Lions Club, local businesses, the Taranaki District Council as well as the 'PD boys' (who built the paths in the weeks prior). Everyone put on gumboots, rolled up sleeves and pitched in.

The day ticked like the inside of a clock. Everyone had a task and they were onto it!

The new wetland has several levels. At its highest point the soil is soft and soggy so that is where wetland trees, flaxes, herbs and grasses were planted. This revegetated area will become home to birds and insects. From there, the wetland flows with the water towards the furthestmost corner of the school, slowly deepening to the excavated pool that in time will contain frogs and possibly, fish. (One frog has reputedly already moved in).

After a welcoming powhiri, planting started - over a thousand in the first hour. Then the plantings were mulched with layers of newspaper, newsprint and card and with a thick bed of wood-chips on top of that. A team of students soaked the newspapers (and each

other) while a second team ferried it to the planting zone for yet third team who placed it around the plants, along with blank newsprint and cardboard. Barrow-loads of topsoil and chipped mulch were ferried along the paths; soil was raked into place; a short section of

Article continues over the page.

Wet & Wild is the National Wetland Trust's quarterly publication. We seek contributions, though published at the editor's discretion.

Each issue will be available on:

www.wetlandtrust.org.nz within two months of publication, where they can be downloaded as pdfs.

Membership forms can also be downloaded from the website.

A grateful thanks to Mighty River Power for sponsoring the National Wetland Trust newsletter.

Submit articles to the editor Shonagh Lindsay at: shonagh.lindsay@xtra.co.nz Contact the NWT on www.wetlandtrust.org.nz





Our students are eager to discover the world in their back yard - I heard a five year old telling her friend that her grandchildren will be able to climb a tree she had planted.'

By early afternoon, what had only four hours earlier been a muddy area of grass had magically become a swathe of wetland plants. People were still moving around, tinkering, adding finishing touches. The red bridge cast its reflection in the pond. The maimai, with its rustic ornamentation was complete. It will be interesting to watch everything grow, and it won't be just the plants.

Every school should have one.

The school welcomes enquiries from anyone doing anything similar and can be contacted at office@sjw.school.nz, ph 06 7547797 or Denise Welch at teamwelch@xtra.co.nz, ph 0276 900040. You can also find information on the websites for Mazda Foundation, the Tremendous School Makeovers, Project Crimson, Kids Restore NZ, Taranaki Regional Council and Taranaki Tree Trust.

Photo captions

Front page: Karlia Haskell and Tiana Atkinson-Kingi - good friends working together

Top: The team's 'photo opportunity'

Bottom left: Bridget Abernethy and Rudd Kleinpaste

Top right: Faith Schmanski and Tiaan O'Carroll were not deterred by a bit of mud!

Middle right: The mulch arrives

Bottom right: The project's sponsors

Article by Janet Hunt, author of **Wetlands of New Zealand: A Bitter-Sweet Story**, which won the Environment Award and the Montana Medal for Non-Fiction at the Montana New Zealand Book Awards.



NWT News

Wetland Trust Submission 'Taken on-Board'

The pleas of the National Wetland Trust to recognise wetlands in the proposed National Policy Statement (NPS) on Freshwater did not fall on deaf ears.

The Board of Inquiry set up to inquire into, and report on, the proposed national policy statement prepared by the previous government, has proposed greater emphasis on the role and value of wetlands in its recommendations back to the current government.

The proposed NPS released in 2008 had:

- * No reference to the word 'wetland' except in the definition of freshwater resource.

- * No reference to drainage, filling of wetlands or the effects of human land use activities that exacerbate pest, weed and stock impacts.

- * A focus solely on water, rather than ecosystems.

The National Wetland Trust submission presented by Karen Denyer, Bev Clarkson, Keith Thompson and Kerry Bodmin last August, concluded with some shameless 'eye-candy' - a series of stunning images of New Zealand wetlands that slowly changed from black and white into vibrant colour, to remind the Board of the beauty as well as the importance of our rare and special, yet seemingly forgotten places.

Our submission highlighted the scant reference to biodiversity and wetlands throughout the proposed version of the NPS. We also reminded the Board that wetlands aren't just affected by water takes and discharges (the key issues in the proposed NPS) but also other activities controlled by councils such as vegetation clearance, drainage and filling with spoil, and that there was a need to recognise that herbaceous wetlands can, and do, make a real and substantial contribution to managing human impacts on all of our water resources.

Our 'take-home message' to the Board was, if we want to protect the quality of fresh water, we need to protect wetlands.

And they heard our message!

In its report released in March, the Board stated what it considered to be the four national issues for freshwater, including,



importantly, the loss of wetlands.

They listed four goals to address those issues so that the national values of fresh water are safeguarded:

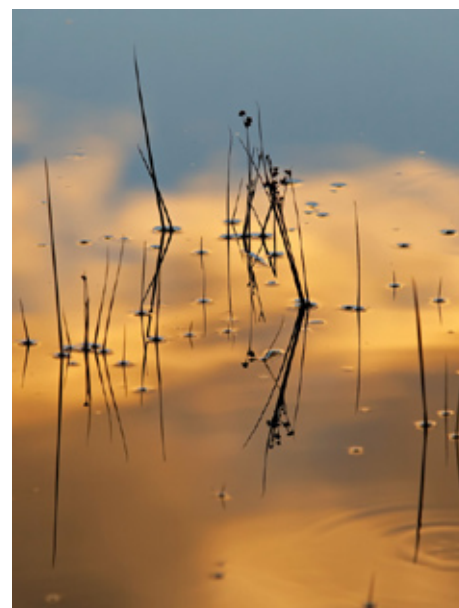
1. to phase out over-allocation of fresh water;
2. to phase out contamination;
3. to protect wetlands;
4. to improve the integration of management of fresh water.

Their recommendations include a requirement for all regional plans to require resource consent (as a discretionary activity) for any activity that involves taking, using, damming or diverting of fresh water or draining of any wetland.

The Board released its recommendations in March, but the final say rests with Environment Minister Nick Smith who has decided to delay his decision until he receives the report of the Land and Water Forum in July this year.

When (if?) it becomes operative, the NPS will require councils to give effect to the national significance of fresh water in their regional policy statements and regional and district plans. Councils must also have regard to it in day-to-day resource management activities relating to fresh water, including the consideration of resource consent applications, designations, or plan changes. It won't be a piece of legislation, and won't in itself fix all of New Zealand's water issues.

While the Board's response is a big win for wetlands, this is certainly not the end of the matter, or of the NWT's efforts to achieve increased recognition and protection of



wetlands in New Zealand.

Find out more on the MfE website:

<http://www.mfe.govt.nz/rma/central/nps/freshwater-management.html>

Photo captions

Above: two of our wetland images highlighting both their forgotten nature (black and white), and their beauty (vibrant colour).

Wetland Trails Progress

The Bay of Plenty wetland trail was launched during the NWT symposium in Rotorua. See our story on the trail on page 9.

The Waikato Region's Wetland On-line Directory was launched during World Wetlands Day at Lake Serpentine. It was funded by a Waikato Community Conservation Grant from DoC. This makes the third regional online wetland directory completed, Auckland and Wellington being the other two, and funded by their respective regional councils.

Our directory of wetlands to visit is growing region by region, with our fourth area recently sponsored by Northland Regional Council. We hope to have the Northland Region completed by the end of May – check out our website then: http://www.wetlandtrust.org.nz/directory_main.html

The Auckland, Waikato and Wellington regions have been completed. Come on Mainlanders, don't let the Northerners have all the fun! If you would like to tell us about a wetland worth visiting, sponsor a region, or suggest a potential sponsor please contact karen.denyer@wetlandtrust.org.nz

NWT news continues over the page.



Lake Serpentine Open Day 6 Feb 2010

It takes a special kind of person to get excited at the sight of a tiny, red thread-like larvae poking its head out of the stem of a wetland plant. But when Dr Bev Clarkson told a group at the National Wetland Trust's World Wetlands Day event that he's called Fred the Thread, was discovered only a few years ago, and lives inside the stem of a rare plant found in only 3 wetlands in the whole world, everyone crowded round for a look.

Dr Clarkson's guided walk to see a re-constructed peat bog, featuring the rare giant cane rush (*Sporadanthus*) and its moth larvae Fred, was one of many events at the Lake Serpentine open day attended by around 75 people last Saturday.

Keith (Bog Man) Thompson led a ramble through the mature kahikatea swamp forest and used an auger to dig up a sample of peat soil spanning thousands of years.

Tracey Edwards of NIWA hauled vegetation out of the lake with a specialised scientific tool (a garden rake!) to give folks a close up look at the special native plants that grow in these lakes, and a few nasty weeds that have found their way there too. Mike Lake and Amy McDonald from the Department of Conservation (DoC) had the audience hooked with their fish talk, while Judy van Rossem of Environment Waikato and Kate Scarlet entertained the kids with wetland-themed face painting and colour-in.

National Wetland Trust trustees Don Scarlet and Gordon Stephenson showed visitors the Trust's ambitious plans to build a National Wetland Centre on reserve land adjacent to the Serpentine lakes. During the event, Jan Simmons of DoC launched the Waikato Wetland Directory produced by the National Wetland Trust with funding from the Department.

http://www.wetlandtrust.org.nz/directory_waik.html

Young designer gets in on the act



As news of the Serpentine Wetland Centre plans spread, the Trust has been approached by several architects and building firms seeking to develop design concepts.

While most are well known companies with years of experience, one surprising offer the Trust received was from a relative novice – Tauranga high school senior, Ryan Mearns.

Tasked by his 7th form graphics teacher to develop a 'real building for a real client' Ryan decided the wetland centre would be an exciting and challenging project. While

his fellow students work on more common-place buildings, Ryan has already looked at the idea of a giant bird's nest and other unique concepts to grab visitors' attention.

Though not expected to keep his building plan within a fixed budget, it will be fascinating to see what ideas Ryan comes up with that could be incorporated into the final design. Appealing to the late teen demographic is a

real challenge for any educational facility, so having cool ideas 'straight from the horses mouth' will be invaluable.

Photo captions

Top above: Lake Serpentine

Middle above: Beijing Bird's Nest Stadium provides some inspiration for wetland centre plans.

Bottom above: Ryan Mearns surveys Lake Serpentine





Centre plans firm up

While the hunt for funding continues, the Trust has been busy developing a business plan, and interpretation concept plan for the National Wetland Centre using grants from Transpower, Trust Waikato and Environment Waikato. The business plan assesses the feasibility of the re-location to Lake Serpentine south of Hamilton, using tourist

and traffic numbers and estimated costs to show that the centre could become self-sufficient from gate take and added extras after a few years.

The interpretation plan proposes interesting and interactive exhibits and activities, including animal dress-ups allowing children to select the right beak, feet or fins to help their creature survive in different habitats – or to create their own animal for a novel habitat using the mix and match pieces.

For landowners and community groups, an interactive landscape programme can allow them to upload photos of their own property, and add plants, walkways and other features to help them plan a restoration project. International visitors aren't forgotten, with links to their homeland showing the birds that regularly fly from their home to New Zealand – something to think about on the comfortable plane ride home across the ocean.

Image above: Fun activities for kids at the wetland centre might include wetland themed face painting to learn about the range of species that live in wetlands

Funding from WCEET

The Trust recently applied to the Waikato Catchment Ecological Enhancement Trust for funds to build a predator-proof fence around East Lake at Serpentine. The WCEET fund was established by Mighty River Power to assist ecological restoration projects in the Waikato and Waipa River catchments, as part mitigation for the environmental effects of the Waikato River Hydro Scheme.

The WCEET Trustees were impressed with the plans to create a predator-free habitat for wetland birds, but being well-oversubscribed this year, were unable to fully fund it. Instead, they granted the NWT \$10,000 to continue to develop our plans for Serpentine's restoration and wetland centre.

Kaituna Kayak Trail Launched for World Wetlands Day



More than 200 people turned up at the Lower Kaituna Wildlife Management Reserve in the Bay of Plenty to celebrate World Wetlands Day with the official opening of a new kayak trail.

Sitting low in the water allows a new perspective on aquatic plants, while a quiet approach allows kayakers to get close to shy wetland birds.

The 2- 3 km trail includes a number of portages, requiring paddlers to carry their boats over a narrow walking track (2-3

metres) to join adjacent waterways. Most of the trail follows channels and ponds within the shallow wetlands with no currents or major obstacles.

For those who prefer to stay on terra firma, a walking track accompanies the kayak trail for most of its length – ideal for families with the younger ones travelling by buggy or walking with one adult, while another adult takes the older ones for a paddle alongside.

Signs mark out the route along the trail and further information about the wetland

is available on a series of information panels.

The Lower Kaituna Wildlife Management Reserve is jointly managed by DOC, Fish & Game and EBOP and provides walkers, hunters, bird-watchers, and now kayakers with opportunities for fun and free outdoor recreation. It is also home to the rare Australasian bittern, as well as shy wetland birds such as the fernbird and marsh crake.

Access to the trail is from the car park on Pah Road, off State Highway 29 about five minutes east of Te Puke.

Water supply to the Kaituna wetland is via a managed floodgate which connects it to the Kaituna River. Kayakers can check water levels, which fluctuate based on tide and weather conditions, at <http://www.envbop.govt.nz/MonitoredSites/cgi-bin/hydwebserver.cgi/sites/details?site=297&treecatchment=22>. A water level of over 760mm is recommended for kayaking in the wetland.

Kayakers, check, clean and dry your equipment before and after visiting the reserve, to prevent the spread of aquatic pests such as salvinia and didymo.



Long-fin eel under threat



New Zealand's wetlands have been under the spotlight since the RMA recognised their significant ecological values back in 1991. Since then, a raft of local and regional policies have been developed, with mixed success.

A key feature of wetlands that is sometimes overlooked, is their role as crucial habitat for our endangered native fish, including the endemic longfin eel (tuna). Tuna, like the rest of our native freshwater fish, have ended up with a rough deal in every way possible.

They are coping it not just from changes in land use and pollution but also from multiple failures of government departments: The Ministry for the Environment failed by taking 20 years to come up with a National Policy Statement on Freshwaters; the Ministry of Fisheries are implicit in the harvest of the threatened endemic the longfin eel; the Department of Conservation administer the commercial harvest of threatened whitebait species (juveniles of giant and shortjaw kokopu) and have recently granted concessions to commercial eel fishers which allow harvest of longfin eels within the conservation estate.

(The Minister of Conservation recently confirmed in Parliament that three eel concessions, all located within the West Coast

Tai Poutini Conservancy, have been granted and two recent applications for concessions for commercial eel harvest have been received by the Wellington Hawkes Bay Conservancy.)

How can it be that a threatened endemic species can be commercially harvested? And why would DoC allow this to happen within the Conservation Estate given that they have classified the eels (correctly) as threatened with extinction?

The answer is complex but starts with the New Zealand Freshwater Fisheries Act of 1983 - which reads like something out of a Monty Python skit! The first paragraph of the Act states emphatically that the native fish, Grayling, cannot be caught or killed for any purpose, but what it fails to mention is that Grayling have been extinct since the 1950s - so we can rest easy knowing that they are now protected 30 years after extinction!

The next paragraph which is entitled "No killing of Indigenous Fish" states that no one may kill native fish - but this is subject to paragraph three: "Taking of indigenous fish" that then states that you can catch and kill indigenous fish for "research purposes or for human consumption..."

The whole act offers no genuine protection for indigenous fish at all, except for the one

species that is already extinct!

The longfin eel fishery is showing all the classic signs of impending collapse: recruitment has dropped by 75% since the 1970s, the size of eels caught and the total amount caught has declined ever since records have been kept, and now male eels dominate in commercially fished rivers by an order of magnitude (because there is a minimum size and female eels are larger so get taken out as soon as they reach this limit). Ministry of Fisheries introduced a quota management system (QMS) supposedly to protect eels but the fishermen can't meet the quota limits set, mainly because longfins are disappearing faster than the quota can be dropped. So it's a 'Claytons' QMS and, bizarrely, in the South Island both shortfin and longfin eels are treated as one species - a recipe for disaster.

Longfin eels, like the rest of our unique freshwater fauna, are all adapted to the pre-human environment of New Zealand - when the waterways were cool, shaded, clear, low in nutrients and sediment and there were huge areas of wetlands. We have removed 70% of the forests, 90% of the wetlands, dammed the rivers, pumped in nutrients over and through farmland and out of pipes from dairy sheds, industries and towns and cities. The native fish and invertebrates now find themselves in an alien world of warm, nutrient rich, flow controlled water. Little wonder that our rivers, lakes and wetlands are being taken over by invaders from Asia and Europe where they evolved in the sorts of conditions which now prevail in our altered freshwaters.

The decline in the longfin eel population illustrates how the multitudes of factors which are changing the freshwater environments of New Zealand impact upon particular fish species. While commercial fishing isn't the only cause of their decline it is an impact which can be removed right now. You can help by signing the petition on the Forest and Bird web site <http://www.forestandbird.org.nz/what-we-do/publications/media-releases/groups-join-forces-save-the-longfin-eel> - which calls for a moratorium on commercial Longfin eel harvest.

Now that more than two thirds of our freshwater fish species, our freshwater crayfish, and freshwater mussel are on the threatened species list surely it's time to call these government departments to account. If we don't act now we will have nothing left in a few years!

Article by Mike Joy, Senior Lecturer, Massey University

Ras Al Khor...a little slice of nature in a megatropolis



The images that the name 'Dubai' conjures up are of towering architectural masterpieces, thriving souk shopping hubs and outrageous oil-based prosperity.

In the shade of the recently opened Hotel Khalifa (or Burj Dubai), the city rumbles with construction activity. Concrete, glass and steel reign supreme and this keen naturalist sought out what seemed to be the last vestige of nature in this urban desert.

In 2007, the United Arab Emirates ratified the RAMSAR Convention, joining more than 150 other nations recognizing the value of their internationally important wetland sites. The first site in the UAE to be recognized under the Convention was the recently opened Ras Al Khor Sanctuary. Situated at the headwaters of Dubai Creek (in Arabic meaning 'head of the creek'), the Sanctuary is a highly recommended location to while away a stopover.

The Sanctuary lies some distance from the city, which I walked (possibly not a recommended way to travel on reflection!). The roaring heat of Dubai has likely sent many a tourist scampering back to their air-conditioned hotel room, but braving it is well worthwhile to experience the bizarre sight of a lush estuarine setting, with the phenomenal urban architecture of Dubai sitting immediately in the background.

The Sanctuary, protected in 1998, covers approximately 6.2 square kilometers and hosts more than 260 animal species including the Greater Flamingo, Black-winged stilt, Grey Heron, Western Reef Heron and the White-eared Bulbul. Birdlife International considers Ras Al Khor to be an Important Bird Area, with population levels peaking in January. A visit on a Friday will see your viewing area restricted to just outside the perimeter fence, but any other day will allow you and small groups free entry

into the three huge and tastefully designed hides, with their extensive viewing areas and interpretive panels.

So should you find yourself tiring of Dubai's famous shopping, the fabulous zoo and various desert-related activities, then a trip out to the Sanctuary is highly recommended. The area is surrounded on most sides by freeway and parking is available at each entry point.

The serenity of the mangrove forests and the grace of the flamingoes is a striking contrast to the tumult of the nearby concrete jungle. Since the RAMSAR Convention's 1971 signing in nearby Iran it has seen scores of the world's best wetlands given rightful recognition. Considering the function of Ras Al Khor as a critical oasis for wildlife in the UAE, it is most certainly a deserving case.

Article by Marie Brown, NWT Trustee

Mining a threat to our wetlands?

The National Wetland Trust is preparing a submission to the government on the proposed removal of conservation land from Schedule 4 of the Crown Minerals Act to pave the way for mining in ecologically significant areas.

While no wetlands are proposed for removal from the schedule, the effects of mining operations can impact on wetlands. Mining can alter hydrology from dewatering, increase pollution, sedimentation, ground water acidification, noise and vibration.

One of the proposed sites in this round of reviews is in the catchment of the largest



freshwater in the Auckland Region, home to nationally endangered brown teal and Australasian bittern, and one of the largest fernbird populations in the country.

Of even greater concern is the potential that this is the thin end of the wedge. The discussion paper indicates further Schedule 4 reviews are planned. Could the coal deposits in our internationally significant Ramsar sites at Awarua-Waituna and Whangamarino be included in a future round of Schedule 4 cuts?

See: http://www.crownminerals.govt.nz/cms/pdf-library/minerals/conferences-1/020_papers_25.pdf for information on the potential to mine lignite in or near the Ramsar site.

Whangateau Harbour... Auckland's Estuarine Gem



The Whangateau Harbour is recognized as the most unspoiled mainland estuary in the Auckland Region.

The waters are often remarkably clear; there are large beds of shellfish, very healthy saltmarsh and seagrass habitats, and firm sandflats even in the upper reaches of the harbour. In combination these are indicators of high environmental values missing from most other mainland estuaries in the Auckland Region.

Thanks partly to its small catchment area, and the fact that subdivisions to date have been on flat sandy areas rather than hill slopes with clay soils, impacts from silt and fertilizer runoff have been less than in other estuaries.

With the right weather conditions the water in the harbour is a pure, clear snorkeller's paradise. Water clarity is aided by the filtering action of large numbers of cockles. These near-

pristine waters give snorkellers stunning looks at shoals of cruising mullet, parore, flounder, feeding barnacles and little fish hiding among the mangroves. The Whangateau Harbour is similar to what other estuaries in the Auckland Region must have been like in historical times.

But as with many of our coastal treasures this area is under threat from subdivisions, silt run-off, sewage disposal, and the willful destruction of the natural waterfront leading to erosion and subsequent dumping of rock and concrete rubble to try to prevent further erosion. The saltmarsh fringe and 40+ year old mangroves are being destroyed at an alarming rate.

Early in 2009 a parasite in combination with a bacterium, perhaps triggered by heat stress, killed 70 to 80% of the cockles in the Whangateau. The problem was greatest for the larger sizes. The Ministry of Fisheries has recently closed the beds for three years to give the smaller cockles time to reach a

good breeding size before harvesting may recommence. Despite the huge loss, such is the size of the shellfish resource that there are still more cockles here than in any other estuary closer to Auckland.

The Whangateau HarbourCare Group is committed to keeping this very special harbour in the best condition possible for the well-being of wildlife and marine life and for the enjoyment of present and future generations. The HarbourCare Group has prepared a 10-Point Protection Plan for the Whangateau Harbour.



We believe that if these points were actioned, the future high quality of the Whangateau environment would be given its best chance.

The following is a summary of the main points. You can see the complete document including discussion of the reasons for each of the points by visiting www.whangateauharbour.org.

1. The whole catchment of Whangateau should be in the Rodney District Council proposed Green Buffer Zone, not part of the Mixed Rural Activity belt.
2. No further subdivision should be allowed on the slopes of the Whangateau catchment, including the proposed Omaha Park development.
3. Extreme care must be taken during imminent and future pine harvesting in the north and northwest catchment of Whangateau, and to encourage future reversion to native vegetation.

4. Protection of estuarine vegetation, particularly salt marsh, should be encouraged (or the current law enforced) along the Whangateau Harbour side of Point Wells, both north and south of the Omaha Causeway.

5. Mataitai, Taiapure, or Community Fisheries Plan in the Whangateau Harbour.

6. Scientific Reserve status for the southern arm of Whangateau, south of the Omaha Causeway (Waikokopu creek) by extending the existing Omaha Taniko Wetlands Scientific Reserve down to low water.

7. A no-fishing zone should be established around Horseshoe Island and the channel and sandstone reefs towards Point Wells.

8. Sewage input to the Jones Road treatment station should be limited to that from the Whangateau Catchment only.

9. Vehicles and tractors should be kept off the sand flats, or restricted to specific routes, because they damage shellfish beds.

10. Mangrove control should be limited to annual removal of seedlings from new areas and adjacent to beaches and utility areas. Existing areas of old established mangroves should be retained in their present state.

Article by Margaret Simpson and images by Roger Grace

Bay of Plenty Wetland Trail Launched



The newest national wetland trail was launched in Rotorua during the National Wetland Restoration Symposium in March.

Taking in seven wetlands including an estuary, a relic kahikatea swamp forest, lowland swamps, and the newly restored Matata Lagoon, the 115 km driving trail will introduce you to some of the best wetland remnants on the Rangitaiki Plains. Each stop has a short walk, and a quiz

has been included to make this a fun event for the whole family.

Pick up a copy of the brochure from the Whakatane Visitor Centre or download it from the Visiting Wetlands page on our website.

The trail was produced with generous support from NZ Lottery, Environment Bay of Plenty, and Mazda Foundation.



www.weedbusters.org.nz

Japanese honeysuckle

Japanese honeysuckle (*Lonicera japonica*) is the scourge of restoration

projects as it can rapidly smother both new and established plantings. It tolerates moderate shade, frost, salt, damage, wet or dry conditions, and a wide range of temperatures. It grows in most soil types and although it doesn't seed very prolifically, the very long stems layer profusely, taking root wherever they touch the ground and forming new plants.

What does Japanese honeysuckle look like? It is evergreen with long, tough, wiry stems that twine clockwise, are purplish and hairy when young, and turn woody as they mature. Its shiny dark green (occasionally yellowish) leaves are wavy-edged to lobed when produced in cold climates, otherwise they are entire. Pairs of 2-lipped, sweetly scented tubular white flowers (2-5 cm long) that age to yellow are produced from September to May, and are followed by egg-shaped, glossy black berries (5-7 mm



diameter) each containing seeds (2mm).

How does it spread? It is spread by birds, possibly possums, roading machinery, dumped vegetation, soil and fill along with roadsides, wasteland, plantation forest, hedges and shelterbelts.

What damage does it do? Climbs over and smothers most plants from ground to medium canopy. Can cause canopy collapse and subsequent invasion of grasses or ground vines. Provides support for faster growing weedy vines (e.g. morning glory, moth plant).

Which habitats is it likely to invade? Forest margins, shrublands, disturbed forest, coastal areas, river systems, wetland margins, fernland, and inshore islands.

What can I do to get rid of it?

1. Dig out small sites (all year round).

Dispose of roots and stems at a refuse transfer station, burn or bury deeply.

2. Cut and paint stumps within 10-15 minutes of cutting, paint cut surfaces with a liberal dose of triclopyr 600 EC (100ml/L) or Yates Woody Weedkiller (200ml/L).

3. Cut and paint stumps (all year round): metsulfuron-methyl 600g/kg (5 g /L) or Tordon Brushkiller (200ml/L) or Vigilant gel. Leave vines in trees to die, dispose of cut stems at a refuse transfer station, burn or bury deeply.

4. Cut the vines at a convenient height in winter and spray the regrowth in the spring with glyphosate (10ml/L + penetrant) or metsulfuron-methyl 600g/kg (2g/10L + penetrant).

5. Spray (summer-autumn) with glyphosate (10ml/L) or metsulfuron-methyl 600g/kg (5g/10L + penetrant) or clopyralid (50ml/10L) or Tordon Brushkiller (60ml/10L).

What can I do to stop it coming back? It is hard to kill. Stumps resprout, stems layer, but it is a very shy seeder, so sites usually remain clear after treatment. Check for any new sprouts 6-monthly until clear. Replant bared areas if seedlings are a problem.

National Wetland Symposium

More than 200 attendees enjoyed the latest National Wetland Symposium held in Rotorua (March 3-5) at the Novotel.

This year's symposium was designed as a training and networking opportunity for landowners, iwi, people committed to wetland restoration, policy makers and wetland scientists from all over New Zealand. The event began with a tour to visit the diverse wetlands of the Bay of Plenty region followed by two days of presentations, practical demonstrations and a soap box forum for the wider community to share their views.

The presentations are now available on the NWT website, Restoration Symposia page.

In keeping with the alternating North Is – South Is focus, the next symposium in 2012 will be hosted by the Southlands Wetlands Working Party in partnership with the National Wetland Trust. This will be the 5th symposium in what has become a significant event in the wetlands calendar.

The SWWP is made up of representatives from Environment Southland, Invercargill City Council, Southland District Council, Gore District Council, DOC, Fish & Game, Federated Farmers, QEII, NZ Landcare Trust and also includes several farmers representing landowner interests. The role of the group



is to promote the protection, values and management of wetlands.

The SWWP members are keen to showcase some of the major restoration projects in the region as well as keep the practical and technical focus of previous symposia. Attendees will also be able to visit the newly expanded Awarua-Waituna Ramsar wetland.

Launch of Wetland Restoration Handbook.

The keenly awaited publication 'Wetland Restoration: A Handbook for New Zealand Freshwater Systems' was launched at the National Wetland Symposium in Rotorua on Wednesday 4th March.

The 280 page, richly illustrated handbook was jointly edited by two NWT Trustees, NZ Landcare Trust Regional Coordinator Monica Peters and Dr. Beverley Clarkson, Wetland Ecologist for Landcare Research. It contains contributions from leading scientists from across the country and tackles a comprehensive list of issues.

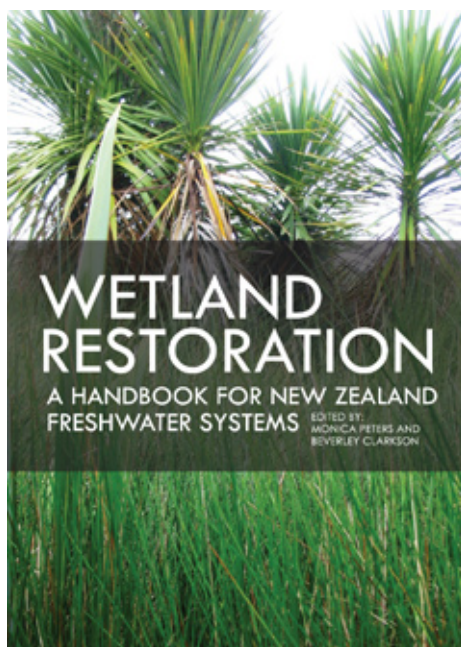
The publication is divided into three key sections:-

- Beginning a wetland restoration project.
- Action on the ground.
- Measuring the results and protecting the wetland.

Each section is further divided into clearly ordered subsections making it easy for the reader to find relevant information. Demand for the handbook has already been high with

all available copies sold at the launch event. Additional copies are being printed and will be available shortly from Manaaki Whenua Press (price \$45.00 + \$7.00 p&p). Further information regarding the handbook is available from Dr Bev Clarkson.

ClarksonB@landcareresearch.co.nz



Wetland Events

Remember to let us know of any wetland events you are running and we'll help promote these on our website and newsletter. Email your event to enquiries@wetlandtrust.org.nz.

Wetland Plants in New Zealand

This is an improved facsimile reprint of Johnson and Brooke's classic work on the important and diverse wetland plant species of New Zealand.

Designed as a field guide *Wetland Plants in New Zealand* illustrates both native and naturalised plants of bogs, swamps, estuaries, and lakes, and covers the New Zealand botanical region, i.e., the three main Islands, the Kermadecs, the Three Kings, the Chathams, and the subantarctic islands including Macquarie. It covers ferns and their allies, conifers, stoneworts, and flowering plants. Mosses, liverworts, and lichens are not treated in this work.

Superb line drawings complement the text which describes key features, distributions, and habitats. **Note:** The original 1989 edition was reissued with amendment in 1998 as a spiral-bound facsimile reprint, including a new three-page section (plus references) of corrections and plant name changes. The 1998 version was re-issued in 2007, and was again reproduced in 2009 with a new cover and with the benefit of improved technology, and is perfect bound. Manaaki Whenua Press www.mwpress.co.nz

Wetlands to visit



This is a new regular slot in our newsletter profiling wetlands that are accessible to the public. We are developing an on-line directory of wetlands people can visit and are still seeking sponsorship for many regions. Visit: http://www.wetlandtrust.org.nz/directory_main.html

If you wish to sponsor your region or let us know about a wetland open to the public contact: karen.denyer@wetlandtrust.org.nz

Waihora Lagoon, Pureora Forest, Central North Island.

The serene Waihora Lagoon framed by majestic kahikatea and rimu is an easy 10 minute stroll through mature native forest to a short boardwalk. Emerging onto a small raised platform the vista that unravels before you will

reveal...well, it depends if it's been raining or not!

Head up after rain and you'll see a dark lagoon reflecting the towering green and golden kahikatea and rimu trees that surround it. Tannin leached from forest leaves stain the clear water a black tea colour, giving the lagoon a moody, mysterious quality.

If it's been dry, the rain-fed lagoon disappears, leaving a damp, lush meadow in a pretty forest glade.

Either way, it's a peaceful spot to relax and have a picnic. Listen out for kaka, tui, kereru, robin, and maybe even a flock of whiteheads. With most of our flat land developed and kahikatea swamp forests down to their last 2% nationwide, forested lagoons like this are a rarity, so enjoy this special place.

Access is off SH32. Heading south from Mangakino, turn right up Waihora Road just beyond the Tihoi Trading Post. Waihora Road is a gravel track through farmland that gets a bit

scoured out in places - you'll need a high wheel base vehicle. About three km up the road forks left to the carpark.

If you want a more challenging access, there are several tramping tracks and huts in the forest, and the Waihora Stream to the south is a good spot to look for the endangered blue duck. Check with DoC for track options and hut passes. Their "Pureora Forest Park" brochure has maps, accommodation and other information.

Visit www.wetlandtrust.org.nz to find out more on our Visiting Wetlands page.

Photo captions

Top left page: Awarua-Waituna Ramsar wetland, image by Janet Gregory; **Above:** Waihora Lagoon, image by Karen Denyer



Wet & Wild

CARBON NEWS CRITIQUED



NWT Trustee and wetlands ecologist Keith Thompson compiles a Carbon News email newsletter, extracting items from the internet/media and posting his comments on their relevance in the issues surrounding climate change, land use and the importance of wetlands. Here we publish several with Keith's comments.

Spanish wetlands shrouded in smoke as overfarming dries out peat

Las Tablas de Daimiel National Park which was once a 'paradise' now on fire and churning out tonnes of CO₂. They are meant to be Spain's most important inland wetlands, but yesterday the lagoons at Las Tablas de Daimiel national park were not just dry, they were burning. Stilted walkways stood on baked earth and rowing boats lay stranded on the ground. Observation huts revealed no birds, just an endless stretch of reeds rooted in cracked mud.

Only 1% of the park's surface remains wet, but the real catastrophe is happening underground. "If you see smoke it is because the dried-out peat under the ground has begun to self-combust," a park worker warned visitors.

Occasionally, the fire breaks to the surface, sending up puffs of white smoke.

Scientists warn the wetlands are losing the lining that once retained water, with deep cracks opening up in the worst areas. Park authorities worry the damage may prove irreversible.

The aquifer which once fed the lagoons now lies 50ft below them. Farmers near the park have sunk thousands of wells, some 300ft deep, and have spent years pumping out more water than goes in. Furthermore, the Guadiana river, which used to flow into the Tablas de Daimiel, has disappeared.

Extreme case of farming damage, like Kalimantan in Indonesia (burning of swamp forests to grow oil palm), but still a good reminder of where the priorities lie when agriculture meets wetlands. We haven't recently had anything quite so devastating in New Zealand, but there is still a great deal of ignorance here about wetland (particularly peatland) management.

Even today, peat fires are about five times more frequent than they were 150-200 years ago and perched water tables due to over-draining are common. Most lowland wetlands and shallow water bodies are impacted by drainage. Wetlands sequester

carbon; drainage oxidises it again. Burning is only an extreme example of oxidation.

<http://www.guardian.co.uk/environment/2009/oct/19/las-tablas-water-wetlands-burn>

Scientists say climate change mitigation strategies ignore carbon cycling processes of inland waters

In the paper, The Boundless Carbon Cycle, published in the September issue of Nature Geoscience, scientists from the University of Vienna, Uppsala University in Sweden, University of Antwerp, and the U.S. based Stroud™ Water Research Center argue that current international strategies to mitigate manmade carbon emissions and address climate change have overlooked a critical player - inland waters. Streams, rivers, lakes, reservoirs, and wetlands play an important role in the carbon cycle that is unaccounted for in conventional carbon cycling models.

Dr. Tom J. Battin of the department of Freshwater Ecology at the University of Vienna and lead author of the paper states that "While inland waters represent only 1% of the Earth's surface, their contribution to the carbon cycle is

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disproportionately large, underestimated, and not recognized within the models on which the Kyoto protocol was based."

The team of scientists points out that all current global carbon models consider inland waters static conduits that transfer carbon from the continents to the oceans. In reality, inland waters are dynamic ecosystems with the potential to alter the fates of terrestrial carbon delivered to them including: burial in sediments leading to long-term storage or sequestration; and metabolism in rivers and subsequent outgassing of respired carbon dioxide to the atmosphere.

"Twenty percent of the continental carbon sequestration actually occurs as burial in inland water sediments," said Dr. Lars Tranvik, Professor of Limnology at Uppsala University in Sweden.

"River outgassing of respired carbon, contributes carbon to the atmosphere in an amount equivalent to 13% of annual fossil fuel burning," said Dr. Anthony K. Aufdenkampe, a scientist at the Stroud Water Research Center. Because the amount of atmospheric carbon is well known and conservation of matter requires a balanced global carbon budget, this previously unaccounted for source of carbon to the atmosphere implies the existence of an additional continental carbon sink such as higher rates of biomass accrual in forests.

"A larger accumulation of carbon in forest ecosystems that could offset the outgassing from rivers would be more consistent with current independently-derived estimates of carbon sequestration on the continents," said Dr. Sebastian Luyssaert of the department of Biology at University of Antwerp in Belgium.

The authors feel that a Boundless Carbon Cycle – that accounts for carbon transfers between the land-freshwater boundary, the freshwater-atmosphere boundary, and regional boundaries within continents – presents opportunities and challenges for scientists and policy makers alike. They stress the need for collaborative scientific investigations augmented by new observatories and experimental platforms for long-term research to improve insights into carbon cycles across terrestrial and aquatic ecosystems.

For policy makers, the authors note that riverine transport presents a book keeping challenge as carbon in rivers that escapes burial or outgassing flows downstream, traversing geographic regions and political boundaries,

and thus altering regionally based carbon accounts.

Wetlands are this transition zone and their importance in this respect has always been overlooked, in New Zealand too, because they are inter-disciplinary and inter-jurisdictional. Not only do they process carbon themselves, but they also receive carbon (as biomass) from land-based ecosystems (natural, agricultural, industrial and urban).

This is a point that the authors of the Boundless Carbon Cycle don't make clear. Moreover, changes to the quantities of nutrients reaching wetlands and shallow water bodies from the land have greatly changed both sequestration and decomposition rates for carbon in wetlands.

This also needs much more serious investigation by scientists and understanding and recognition by land managers. Wetlands are more often than not the most critical component in the dynamics of the land – water continuum.

http://www.eurekalert.org/pub_releases/2009-09/swrc-ssc090109.php

Restored Wetlands Considered for Carbon Offsets

Some data suggests that wetlands could store six times more carbon per acre than forests, according to Ron Sass, a professor at Rice University, reports the Houston Chronicle.

Marsh plants help absorb CO₂. As the plants die, they fall below the water level and are buried, trapping the carbon.

Wetlands help filter and cleanse water, and they provide habitat for a variety of fish, amphibians and birdlife. They also provide buffers against hurricanes and flood surges.

On the other hand, freshwater marshes often release methane, a gas that is worse on the climate than carbon dioxide. Saltwater marshes emit negligible amounts of methane, the article notes.

The fact that wetlands are more affected by short-term climate change than forests also is an issue. Wetlands are more prone to drying up because of drought, or being completely flooded, due to changes in the climate.

Because of this, some are saying that wetland

carbon offsets should be sold on a shorter-term basis of only 10 years or less, compared to the sometimes 30-year contracts that go with forest offsets.

Forest offsets are making headlines for the big names and mega-bucks associated with them.

Generalisations like this (all too common in the media) can damage perceptions of the values of wetlands, for example wetlands do produce methane, but they always have done – and there aren't as many wetlands now as their used to be.

Also, in an agricultural landscape, much of this is likely to be due to enhanced rates of methanogenesis (methane production by Archaea bacteria) driven by allochthonous (external input) ammonium or nitrate. In other words, wetlands process other people's nutrients.

Forests produce some methane too, although the mechanism isn't fully understood. The article is also wrong to extrapolate from very limited examples to all wetlands: stable wetlands such as bogs and fens will sequester carbon consistently over far longer time scales than forests (particularly plantations).

<http://www.environmentalleader.com/2009/10/13/restored-wetlands-considered-for-carbon-offsets/>

Freshwater species worse off than land or marine

Jeremy Hance, mongabay.com , October 15, 2009

Scientists have announced that freshwater species are likely the most threatened on earth. Extinction rates for freshwater inhabitants are currently four to six times the rates for terrestrial and marine species. Yet, these figures have not lead to action on the ground.

"Few are aware of the catastrophic decline in freshwater biodiversity at both local and global scale. Threats to freshwater biodiversity have now grown to a global scale," says Klement Tockner of the Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin.

Freshwater species provide key services for humans; their loss affects the availability of clean water, disease regulation, and subsistence agriculture and fishing. These

Carbon News continues over the page.



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species are also important carbon sequestrators: freshwater ecosystems and species absorb and bury about seven percent of the annual carbon added to the atmosphere every year, according to Tockner.

"Despite their pivotal ecological and economic importance, freshwater ecosystems have not been of primary concern in policy making," Tockner says. "Only recently did the European Union take the initiative to improve this situation through the EC Biodiversity Strategy. And in the U.S., recent Supreme Court decisions have made wetlands and small streams more vulnerable to loss."

Threats are only expected to worsen for freshwater species as human consumption of freshwater continues to expand—exceeding limits in many parts of the world—and climate change causes more and longer droughts.

"The pace of extinctions is quickening," warns Tockner, "especially in hot spot areas around the Mediterranean, in Central America, China and throughout Southeast Asia."

This is certainly correct and there are three main reasons: loss and modification of freshwater habitat (physical reduction of area as well as changes to hydrology), eutrophication processes, and introduction of aggressive alien species.

All of these have happened, and are still happening, in New Zealand too. Unfortunately, 'loss of species' is not seen by many (including government) as being important unless they are iconic or cuddly (kauri or kiwi, for instance).

There is poor understanding of the fact that loss of keystone species, or significant changes to relative abundances, can seriously damage a wetland's functioning. We need a biodiversity strategy that focuses more on ecological dynamics, but we also need one (and one with real teeth) which transcends departmental boundaries.

The Ramsar 'Wise Use Principles' would be a good way to start, because it provides a framework for collaboration between disciplines and between communities. I don't know an exception to the 'rule': 'A species-diverse wetland is a healthy wetland'.

http://news.mongabay.com/2009/1015-hance_freshwater.html

Government torpedoed own flagship water reform group

1 April 2010 Joint Media statement release - EDS, Ecologic, Fish & Game, Whitewater NZ and Forest & Bird



Five leading environmental and outdoor recreation groups said today that the Government legislation on water conservation orders passed yesterday under urgency has sent a torpedo into the Government-backed national forum working on water management reform.

The groups said the Government's legislation to replace Environment Canterbury includes provisions that reduce the statutory protection of iconic rivers, opening them up for dams and irrigation use.

The water bodies immediately affected are the Rakaia, Rangitata and Ahuriri Rivers and Lakes Coleridge and Ellesmere, along with the application for protection of the Hurunui River, which was awaiting a hearing in the Environment Court.

The five groups said this change was pushed through parliament without any warning or consultation with the Land and Water Forum, which the Government set up last year to work on water management reforms that would be good for the economy and the environment.

"The Land and Water Forum has been the best environmental and governance initiative of this Government to date, but that is now in jeopardy

following this major breach of trust from the Government," Environmental Defence Society (EDS) chair Gary Taylor said.

The five groups – EDS, Ecologic, Fish & Game, Whitewater NZ and Forest & Bird – said it is hard to see how the forum can continue as a collaborative and trusting process after yesterday's law change.

"Changing the rules for water conservation orders was not needed to fix any problems at Environment Canterbury. This Bill was used as cover to smuggle in a change in the law equivalent to allowing mining in national parks," Ecologic executive director Guy Salmon said.

Fish & Game chief executive Bryce Johnson said: "A water conservation order is a national park for a river – there are only 15 in existence, but they provide bottom-line protection to just a few of our most precious and iconic wild waterways."

Whitewater NZ patron Hugh Canard said: "Conservation orders are a national-level protection tool – just like national parks – and so it is utterly wrong to change their protection through a law about one region. Is the Government really saying that not one of our wild rivers is worth protecting?"



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Forest & Bird general manager Mike Britton said: "The changes to the water conservation orders are as significant as the Schedule 4 mining issue – and to make it even worse the law has been changed with no consultation and no Select Committee process at all."

"The new law is a giant kick in the guts for the thousands of Kiwi hunters and anglers who have collectively invested millions of dollars through the Fish & Game Council and other environment groups in securing protection for the select few rivers and lakes with conservation orders," said Bryce Johnson.

"I would like to know whether industry groups – with whom we have worked so well within the forum – have been lobbying behind the forum's back, despite the Ministers' directive that that was not to happen. Or has the Government simply taken upon itself to leave the forum high and dry?"

Mike Britton said: "Forest & Bird considers the forum to be the sole good initiative of this Government on conservation, but its actions yesterday in unilaterally gutting our main river protection law seeks to destroy the only progress that was being made to protect our unique natural environment."

The Land and Water Forum was established in 2009 by the Government to allow the three key sectors with an interest in water management – commercial, public and iwi – to reach consensus on reforms. It is funded by the Government and based on the Scandinavian model of 'collaborative governance' promoted by the National Party.

"The Government cannot ask stakeholders to behave in a collaborative manner unless it is prepared to behave in the same way itself," said Guy Salmon.

Contacts:

Gary Taylor, Environmental Defence Society chair: 021 895-896 or 09 810-9594
Guy Salmon, Ecologic executive director: 021 548-336
Bryce Johnson, Fish & Game NZ CEO: 021 397-897
Hugh Canard, Whitewater NZ patron: 03 332-3414
Mike Britton, Forest & Bird general manager: 021 783-776

Water Conservation Orders

1. Water conservation orders (WCOs) were enacted as the 'Wild and Scenic Rivers' amendment to the Water and Soil Conservation Act in 1981 and were retained in the Resource

Management Act 1991. WCOs are considered the 'national parks' of water management in NZ. They recognise and provide for 'outstanding amenity or intrinsic values' of waters, either in their natural state or where the waters are outstanding even if modified.

2. The purpose of a WCO is to give primacy to the preservation or protection of recognised outstanding freshwater resources; rivers, lakes or wetlands. Preservation orders are made out for freshwater bodies in their natural state, while protection orders are for modified waters, which can still be utilised provided management of their waters sustains the recognised outstanding resource.

3. The Environment Canterbury (Temporary Commissioners and Improved Water Management) Act has changed both the decision-making process and the criteria for WCOs in Canterbury.

Ministers have previously approved WCOs following an inquiry and recommendation by the Environment Court. This process was independent of the regional council in recognition of WCOs' national status. The recommendation will now be made by Environment Canterbury Commissioners appointed by the Minister, without any rights of appeal to the Environment Court.

The criteria for deciding WCOs were previously set out in Part IX of the Resource Management Act and the key test was whether the water body had 'outstanding amenity or intrinsic values'. Now the test to be applied both to new applications and to proposals to amend existing WCOs is no longer the matters in Part IX, but whether the protection of a water body promotes 'sustainable management', while also considering the previously non-statutory Canterbury Strategic Water Study.

The effect of the change is to give economic values a prominent role in the decision process, treating the river not as the equivalent of a national park, but rather as a 'working river'. The priority to conservation which was asserted in the Court of Appeal decision on the Rakaia River case disappears.

In addition, the draft Hurunui WCO, which has almost completed its statutory process and is currently before the Environment Court, will be sent back for reconsideration by the new Environment Canterbury Commissioners against the new statutory test.

4. More general information and the list of

existing WCOs: [http://www.mfe.govt.nz/issues/water/freshwater/water-conservation/and-for-an-analysis-of-the-Act-by-Maree-Baker-and-Lauren-Semple-\(Anderson-Lloyd\)-click-here-\(http://www.andersonlloyd.co.nz/news/environment-canterbury-temporary-commissioners-and-improved-water-management-act/\)](http://www.mfe.govt.nz/issues/water/freshwater/water-conservation/and-for-an-analysis-of-the-Act-by-Maree-Baker-and-Lauren-Semple-(Anderson-Lloyd)-click-here-(http://www.andersonlloyd.co.nz/news/environment-canterbury-temporary-commissioners-and-improved-water-management-act/).

The Land and Water Forum

The Land and Water Forum was announced by the Government in June 2009 as the primary process for recommending a way forward on water management in New Zealand. The Minister for the Environment and the Minister of Agriculture and Forestry have asked the Forum to advise on how water should be managed in New Zealand. The Forum is due to report to the Ministers by 31 July 2010.

Environment Minister Nick Smith said on 8 June 2009: "Today's announcements are about Government setting the direction of water reform and setting up a process with stakeholders and Māori to develop solutions. This approach reflects a new style of collaborative environmental governance outlined in National's 2006 Bluegreen vision document and 2008 election policy."

The Forum comprises a range of primary industry groups, environmental and recreational NGOs, iwi and other organisations with an interest in fresh water and land management.

The Forum's task is to:

- Conduct a stakeholder-led collaborative governance process to recommend reform of New Zealand's fresh water management;
- through a consensus process, identify shared outcomes and goals for fresh water and related land management;
- identify options to achieve these outcomes and goals;
- and produce a written report which recommends shared outcomes, goals and long-term strategies for fresh water in New Zealand.

More information on the Forum: <http://www.landandwater.org.nz/>

Photo above: View of the Rakaia River, sourced from <http://travel.webshots.com>





The National Wetland Trust was established in 1999 to increase the appreciation of wetlands and their values by all New Zealanders. Our first major task is to build a wetland interpretation centre for people to learn more about wetlands and experience their special qualities. For more information visit our website: www.nationalwetlandtrust.org.nz

Other Trust aims are to:

- Increase public knowledge and appreciation of wetland values;
- Increase understanding of wetland functions and processes;
- Ensure landowners and government agencies commit to wetland protection, enhancement and restoration.

The trust has thirteen elected trustees representing: iwi, landowners, tourism and farming industries, local government authorities, Fish and Game Councils, the Department of Conservation, NGOs, Crown Research Institutes, and universities.

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