

---

# Utilities and Services Group

March 2010

---

## Parks

### Review of operations for the period ended 31 March 2010

#### 1. **Manager's comments**

The Whitireia Park Board met a couple of weeks ago to discuss plans to restore the area burnt by the recent fire. The meeting was also attended by officers from Greater Wellington Regional Council (GWRC), Department of Conservation (DoC), Porirua City Council and other interested groups. Although there was not a quorum to make a formal decision on the matter, the Board was very supportive of designating specific areas for planting by community groups and members of the public, while a sustainable land management plan was developed to inform the long-term land use in the park. This plan would be very beneficial toward planning for, not just the restoration of the burnt area, but also the rationalisation of farming, recreational activities and general ecological restoration across the entire park. GWRC has engaged Peter Hanford to develop the plan and it is intended that the plan will be completed in draft form by the end of May.

Chris Wootton has been appointed the new Park Ranger at Belmont Regional Park. Chris will be known to the Committee as he was the Principal Ranger, Western Sector. Chris is returning to his love of ranging "on the ground" and will be a great asset to the park. Mark Ross is the new Park Ranger, Queen Elizabeth Park. Mark comes to us from Dunedin, where he held similar roles both there and in Christchurch.

Periods of gale force winds during March resulted in many wind fallen trees. Several were cleared from East Harbour Regional Park, Battle Hill Farm Forest Park and Wainuiomata. Wind thrown trees that were found blocking access roads in Maymorn and the Akatarawa Forest were cleared.

#### 2. **Environmental Management**

##### 2.1 **Pest control**

Goat control operations have recently been completed in Hutt Water Collection Area (15 goats destroyed) and Kaitoke Regional Park (13 goats destroyed). A combination of hunting techniques was used within the Hutt Water Collection Area, including ground hunting with dogs, ground hunting with helicopter support to deploy and extract hunters in and out of hard to access areas, and aerial shooting of open alpine areas and slips. Using this combination of methods, hunters were able to cover most goat-prone areas in the catchment in a short amount of time. The result for the Kaitoke Regional Park hunt is interesting in that, although slightly more time was used and considerably more ground was covered than last years hunt, only around half as many goats were shot. This diminishing return is the desired result of keeping pressure on the goat population.

GWRC's Biosecurity Department has continued checking and rebaiting predator traps at Parangarahu Lakes Block. It is interesting to see that a lot more weasels than anything else are being caught, with 14 being caught this year so far, compared to only two stoats. Weasels are often thought of as being

less of a threat to native fauna than stoats, as their small size (around a third of the weight of stoats) restricts them from preying on most species of bird. However, small birds, geckos and weta do constitute part of a weasel's normal diet.

Contractors have recently completed pest plant control work targeting tradescantia at Wainuiomata Recreation Area and wild strawberry, broom, tradescantia and blackberry at Te Marua bush. The Parks Pest Plant Team has been controlling buddleia in Wainuiomata Catchment and buddleia and old man's beard in Speedy's Reserve and Korokoro Valley. Both these species are targeted at this time of year when their flowers make them easier to find.

## 2.2 Monitoring

Rodent monitoring in Battle Hill Bush, Queen Elizabeth Park, Korokoro Valley and East Harbour Regional Park was completed in February. Results showed that our control programmes are continuing to keep rat numbers down to low levels:

- Battle Hill Bush - 5 percent rat tracking; 5 percent mouse tracking
- Queen Elizabeth Park - 0 percent rat tracking; 70 percent mouse tracking
- Korokoro Valley - 8 percent rat tracking; 33 percent mouse tracking
- East Harbour Regional Park Mainland Island - 16 percent rat tracking; 64 percent mouse tracking
- East Harbour Regional Park control (outside Mainland Island): - 64 percent rat tracking, 12 percent mouse tracking

## 2.3 Processed permits

Five permits for collecting natural resources or carrying out research within the parks and forests were issued over the last two months, and four more are being processed at present. All permits are given to iwi to consider.

Applicant	Purpose	Location
Rimutaka Forest Trust	Stoat trapping	Wainuiomata/Orongorongo Water Collection Area
GNS Science	Seismic research	Akatarawa Forest
Individual	Watercress harvesting	Queen Elizabeth Park
Boffa Miskell	Ecological research for Transmission Gully	Battle Hill Farm Forest Park and Belmont Regional Park
Taupo Native Plant Nursery	Seed collection	Most parks and forests

Permits currently being processed are for two separate student research projects, both of which will be in East Harbour and Kaitoke Regional Parks; carbon monitoring research in Kaitoke Regional Park and the Hutt Water Collection Area (Landcare Research); and flax collection for weaving (Tenths Trust).

## **2.4 Wainuiomata Mainland Island**

Rodent monitoring completed in February has shown rat numbers within the Mainland Island to be staying relatively low. Although the rat tracking has risen a little from 2 percent last November to 4 percent, this rate is still low enough to allow successful breeding of native birds. In the control area, outside the Mainland Island, the rat numbers are still high at 96 percent. One stoat was recorded within the Mainland Island this monitor, in contrast to the November monitor when one was recorded in the control area.

## **3. Western sector**

Events continue in the parks. At Queen Elizabeth Park we have hosted corporate picnics, church groups, cultural group picnics and children's birthday parties over the month. It was great to see these users making the most of the end of the summer period. The New Zealand Equestrian Federation autumn event was held with over 150 riders using the cross country course, jumps and dressage. The Aero Modellers' Rally attracted model aeroplane enthusiasts from around the North Island.

The Porirua Grand Traverse was held. This takes participants of all ages and ability on a scenic and challenging tour through landscapes from high country farmland to native bush and rugged coastlines. It starts with a mountain bike ride over Battle Hill and Belmont, with views of the Orongorongos and Wellington Harbour, to the Kaikouras and Kapiti Island. The Capital Coast Adventure off-road motorbike rally also took place at the end of the month. This event is run every second year through both private and GWRC land. Battle Hill hosted eventing area trials at the beginning of the month, with hundreds of riders competing throughout the weekend.

On the maintenance front, the maintenance team and ranging staff have been busy at Queen Elizabeth Park, with weed work and releasing plants above the northern wetland being carried out in preparation for the very busy planting season ahead. At Queen Elizabeth Park we have reached the completion of laying a new farm water line over 2,000 m of the farm and have fixed more than 30 leaks around the farm. This has been an ongoing job and it is great to have this issue sorted.

At Battle Hill Farm Forest Park fertiliser has been applied by truck to parts of the farm. This is an important part of pasture management. Aerial spreading will be carried out later in the year to the rest of the farm. Also at Battle Hill the footbridge in the campground has been replaced and moved 20 m upstream to protect it from further erosion. This will also help to tidy up access over the stream and into the campground area. A contractor has completed drainage and maintenance work on Battle Hill's farm tracks, with the replacement of three culverts. The new culverts will help with drainage over the winter period. A contractor has also been removing trees in the spring paddock.

At Belmont Regional Park maintenance over this period has seen the cutbacks of the Dry Creek Loop Track and the Kelson Track. Rebenching of the Oakleigh Street to Korokoro Dam track has been completed, along with new water run-offs installed to manage water run-off over the winter period.

#### 4. Eastern sector

The Great Outdoors summer events programme wrapped up this month, apart from the final event on 1 April. The Karapoti Classic mountain bike event went well, with good weather and no injuries reported. The Rimutaka Rail Trail event was finally held following two cancellations because of poor weather. While this did result in lower numbers participating, it was still thoroughly enjoyed by the 60 attendees. George Gibbs (see photo, page 6) gave a talk about the formation of the Parangarahu Lakes area wetlands. The talks were part of the popular *Lighthouse and Lakes* event held on 21 March. Also in East Harbour Regional Park was the annual hill run also known as the *Lowry Challenge*. Approximately 250 participants took part in this popular event.

Walking tours in the Wainuiomata/Orongorongo area continue, with one tour being held during March. This was well attended and again proved popular. Guided walks also continue in Kaitoke Regional Park, with several school groups taking part.

Forest usage has remained steady with eight 4WD events involving 165 vehicles, seven motorcycle events involving 161 motorcycles and three training events. An additional event during this period was the *Big Coast*, an annual event held in Akatarawa Forest. While the weather was poor at the beginning of the event, it fortunately cleared and the day ended successfully.

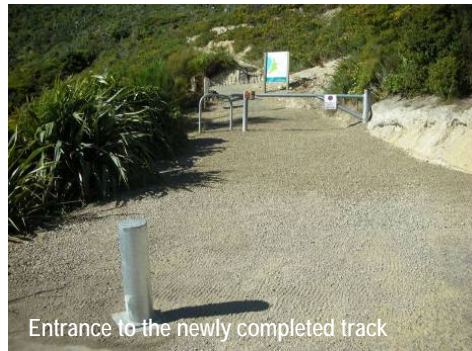
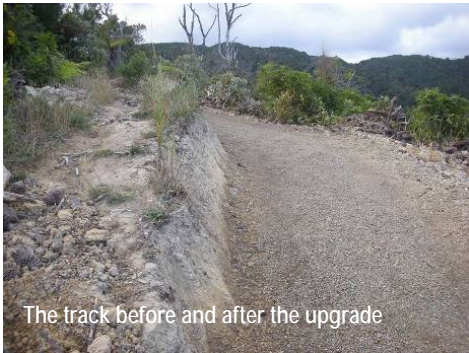
The annual Wainuiomata/Orongorongo and East Harbour Regional Park hunting ballots commenced during March, and winners were fortunate to receive good weather! To date we only have reports of one deer being shot but the ballot does not end until 21 April and we are hopeful of more successes for hunters before then.

Our maintenance team has been working hard on the Ferry Road Track in East Harbour Regional Park. This work was required to control water that was scouring the track and causing potential destabilisation of the hillside. The work involved grading and metalling, and removal of large tree stumps to create a much more user friendly and environmentally attractive asset.

Guests from Rimutaka Prison have been releasing plants at the front gate of the Wainuiomata Recreation Area by removing weeds.

East Harbour Regional Park's iconic symbol, the Pencarrow Lighthouse, is receiving a much needed foundation upgrade. The work is contracted by the New Zealand Historic Places Trust and will be completed this month.

### East Harbour Regional Park



### Wainuiomata Recreation Area



### Battle Hill Farm Forest Park



### Hutt Water Collection Area



# Marketing and Design

## Review of operations for the period ended 31 March 2010

### **1. Manager's comments**

Despite a very "average" summer, there has been another successful events programme, with excellent feedback from participants and volunteers alike. Many people from across GWRC have contributed and, once again, it has been a credit to the organisation, as well as a valuable promotional tool.

### **2. Water Supply**

#### **2.1 Water conservation, summer promotion**

Feedback to date from participating retailers has shown generally disappointing product sales during summer, including those linked with our promotion. Unsettled summer weather and weak consumer confidence were noted as likely reasons for this outcome. Despite this, most see their association with our water conservation promotion as worthwhile and are keen to continue their involvement.

#### **2.2 Taste complaints**

During March algae in the Stuart Macaskill storage lakes produced a taste-causing compound, which resulted in a spate of water taste complaints. We worked with Water Supply to manage customer, media and public enquiries arising from this problem.

#### **2.3 Water efficient showers pilot proposal**

Since our last report, EECA has advised that they have gone ahead independently with a pilot promotional project nationally in association with Green Plumbers and will also fully fund consumer testing of water efficient showers. We anticipate that their results and observations will be made available to us later this year.

#### **2.4 Water Supply Annual Report planning**

We have started planning for the 2009/10 Water Supply Annual Report. A draft content list has been circulated to Water Supply staff for comment and copy development will start once feedback has been received.

#### **2.5 Regional Water Strategy**

In conjunction with the Development and Strategy Department, we have reviewed the draft Regional Water Strategy and provided feedback to the project manager.

#### **2.6 Wholesale water supply customer service level agreement**

Further detailed review of the draft agreement has been undertaken with Water Supply operations staff in recent weeks to ensure all clauses remain relevant. Issues have been identified and some changes are being drafted. This work will be forwarded to Capacity shortly.

## **2.7 Landscaping**

Staff have planned and implemented bank repair works following the Plimmerton branch line water supply pipe failure last year. Some of the replanting is on a steep bank above Plimmerton School and will be carried out by contractors. Other planting will be done by the school community as part of Arbor Day celebrations.

## **3. Parks**

### **3.1 Brochures**

The *Hunting in the Akatarawa Forest* brochure has been updated and reprinted and *Walking in the regional parks* is currently being revised prior to a new print run.

Over the next three months the *Regional Parks* brochures will be included in a letter organised by our Transport Group to new residents of the Greater Wellington Region. There will be approximately 2,400 letters sent over the upcoming three month trial period.

### **3.2 Signage**

During 2009 DoC granted the Raumati South Residents' Association approximately \$35,000 for planting at Queen Elizabeth Park's Poplar Avenue wetland. Following discussions and agreement with the Residents' Association, initial design work has commenced on an information sign to show the community involvement, extent and special features of this wetland.

### **3.3 Events**

#### **3.3.1 Buggy walks**

The April buggy walk was held at Battle Hill, with 90 adults and children joining us for the Wetland Walk. The northerly breeze helped cool everyone down after the hill climb and the coffee afterwards was much appreciated by people staying on to enjoy the country sunshine. This was the last walk in the summer series, as well as being the last official Great Outdoors summer event.

The more urban winter series will start on 6 May at Karori Cemetery.

#### **2.2.2 Great Outdoors summer events**

The Great Outdoors summer events programme officially finished on 1 April following the three months of 66 events. Even though the weather provided us with a few challenges this summer, attendance was still good, with feedback being very positive. A separate report gives details.

#### **3.3.2 Volunteer/planting days**

During the period a group of seven from BNZ helped paint gates and toilets at Tunnel Gully and the entrance of the Rimutaka Rail Trail. Accor Hotels Wellington staff had a planting day at Kaitoke Regional Park. This is the third consecutive year they have volunteered there, building on their previous plantings.



## **4. Community liaison**

### **4.1 Recent meetings**

#### **4.1.1 Belmont Area Mountain Bike Association (BAMBA)**

Staff attended a meeting of the group at the Stratton Street classroom. BAMBA has been set up recently to represent the views of mountain bikers to GWRC. The aim of the group is:

*To maintain, enhance and develop Belmont Regional Park (BRP) assets and resources within BRP and the surrounding Western hills, by providing a premier destination for Mountain Biking as a recreational and competitive activity, and to successfully integrate this activity with those of other user groups while minimising impacts on the environment.*

BAMBA has obtained funding from various sources to carry out track maintenance and is asking for interested mountain bikers to indicate their support via online and other networks.

#### **4.1.2 Friends of Queen Elizabeth Park**

Staff organised a wetland and bush remnant walkover with the Boffa Miskell Landscape Architect (who has developed a landscape plan for the restoration project) and Friends who have been involved with the restoration of the area for over 20 years. Updated proposals for the area were discussed. This was followed with a regular Friends' meeting, at which the main agenda items were the Park Network Plan, the New Zealand Transport Agency proposal to run the new State Highway 1 expressway through the northeast corner of the park, dates and other plans for restoration plantings.

## **5. Research**

All data from the summer survey exercise was collated and findings are discussed in a separate report. Feedback has been reviewed with ranger staff. It has been heartening to see the many positive comments from park users. We have also been able to identify some meaningful, low cost improvements to help enhance visitors' park experience.

Fieldwork is under way for our parks *Community Usage and Awareness* telephone survey. While some of the questions have remained the same, we will be including new questions such as first time users' experiences (and how they match with expectations), reasons for any lapsed usage and preferred sources of information about parks.

## **6. Concessions**

Letters have been issued to Lord of the Rings (LOTR) tour operators requesting back payments and concession renewal information. We are following up external organisers' post-event details relating to those that were part of the Great Outdoors summer events programme.

A request for a 4WD fundraiser tour through Battle Hill Farm Forest Park, Belmont Regional Park and the Akatarawa Forest is being evaluated.

Work is under way on a new Concessions Application Management database that will significantly improve the application and approval processes, generate more prompt payments and enable more comprehensive reporting of concession activity across the regional park network.

## **7. Park management plans**

A series of maps was developed for the Councillor workshop on the regional park network management plan and amended following feedback from the workshop.

Staff have spent significant time contributing to and commenting on the background information, objectives, policies and other focus areas of the new management plan.

## **8. Environmental restoration**

Considerable time has been spent organising plant orders in the run-up to the planting season. With two major DoC grants, Honda TreeFund planting, celebrations of 10 years of care groups and the launch of Wairarapa Moana Wetlands, there is a lot of planting to take place this winter.

## **9. Landscape planning**

### **9.1 Kaitoke Regional Park**

#### **9.1.1 Rivendell site**

Many of the “Rivendell” scenes from the LOTR movie trilogy were filmed in the forested edge of this grassed river terrace and on the adjacent riverbed below. Following filming, the *Rivendell* buildings were removed and the sites planted in native vegetation. Organised LOTR tours regularly visit and the tour operators focus on one particular *Legolas* tree that featured in a publicity poster. Despite some remedial measures, the focus on the single tree is causing some wear and tear of the tree roots and its surrounds. It is also difficult for casual visitors who do not have the benefit of a guide to get much meaning from the location.

A plan is being developed to reduce the impact of the regular LOTR tours of the area, give greater meaning to the site and better present the beauty of the beech forest. This will be done through creating a *Rivendell* themed walk through open “forest glades” from the road to the focus tree, with a return along a more enclosed forest walk.

#### **9.1.2 Te Marua**

Staff have been working with the park ranger and Water Supply engineers to identify sites for proposed landform shaping, to dispose of spoil associated with raising the water storage lakes and seismic strengthening.

## **9.2 Queen Elizabeth Park**

### **Foredunes restoration**

Commissioned by the Environment Group and prepared by Coastline Consultants, a draft restoration plan reviewed the current one prepared in 2001 and recommended site work for the next five years. Two public meetings were held at the Paekakariki Surf Clubrooms, one in the evening and one in the morning. The morning presentation was followed by a walk on the dunes to discuss some of the issues and proposals. Councillor Nigel Wilson attended both presentations. The plan noted the severe erosion issues at the park and recommended that future planning allow for the shoreline continuing to recede, rather than undertaking preventive measures such as seawall construction or dune planting.

## **10. Water usage**

Charts detailing water sales for the year are on page 14.

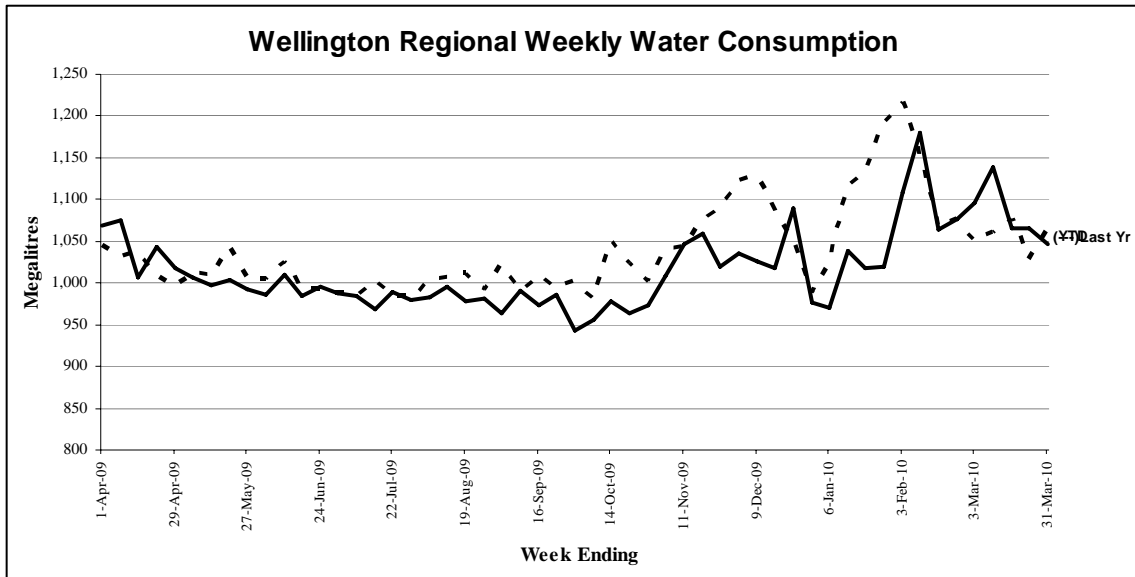


Figure 1 - Water sold over the last 12 months

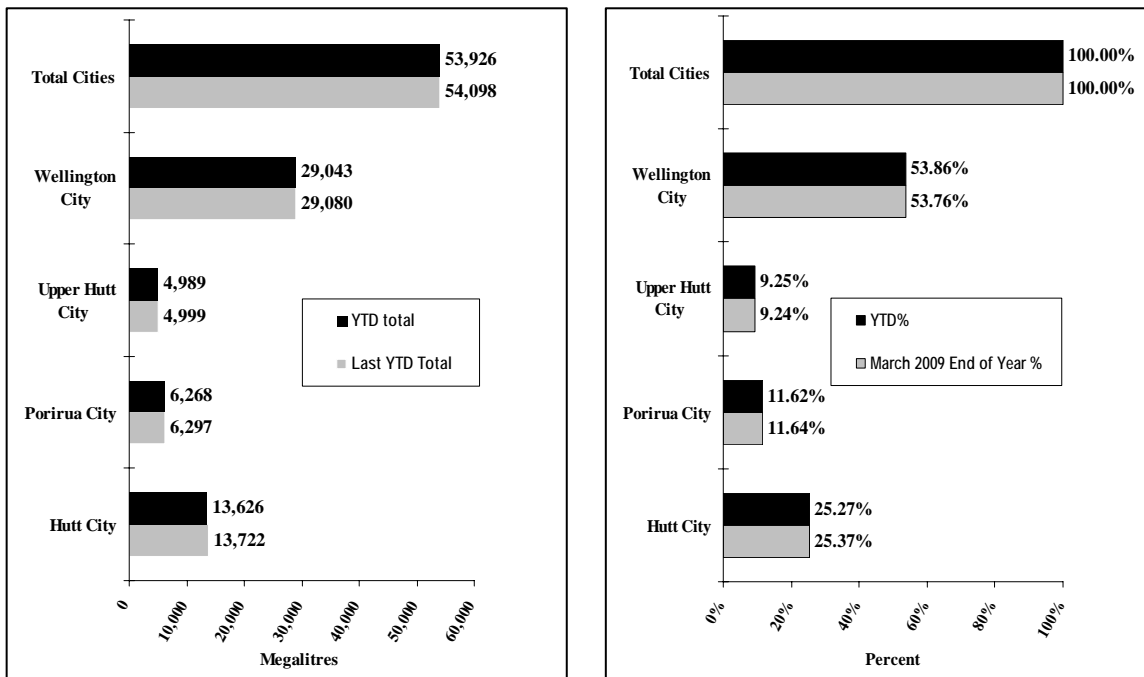


Figure 2 - Water sold during the metering year to date [April 2009 to March 2010]

# Water Supply

## Review of operations for the period ended 31 March 2010

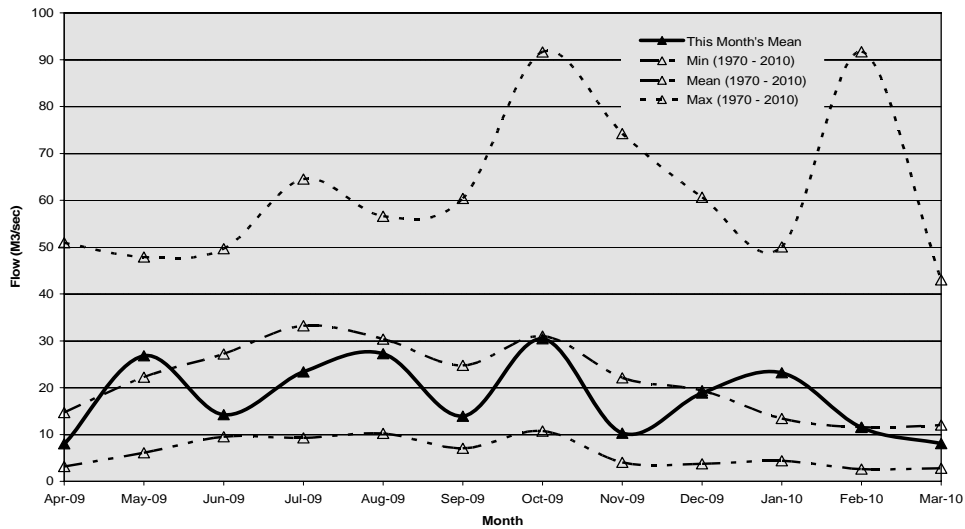
### 1. Supply situation

#### 1.1 General

Other than the taste complaints discussed below, there were no supply issues for the period. The Hutt River levels were lower than normal for the time of year and blending with lake water was still being carried out in early April.

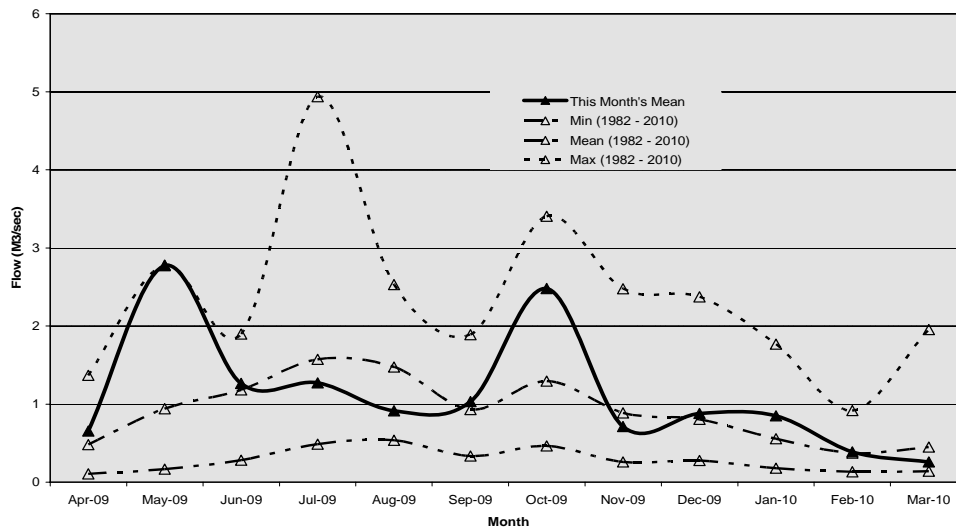
#### 1.2 Hutt River flows measured at Birchville

The mean flow in the Hutt River at Birchville was about the mean during February. During March the mean flow was below the long-term mean.



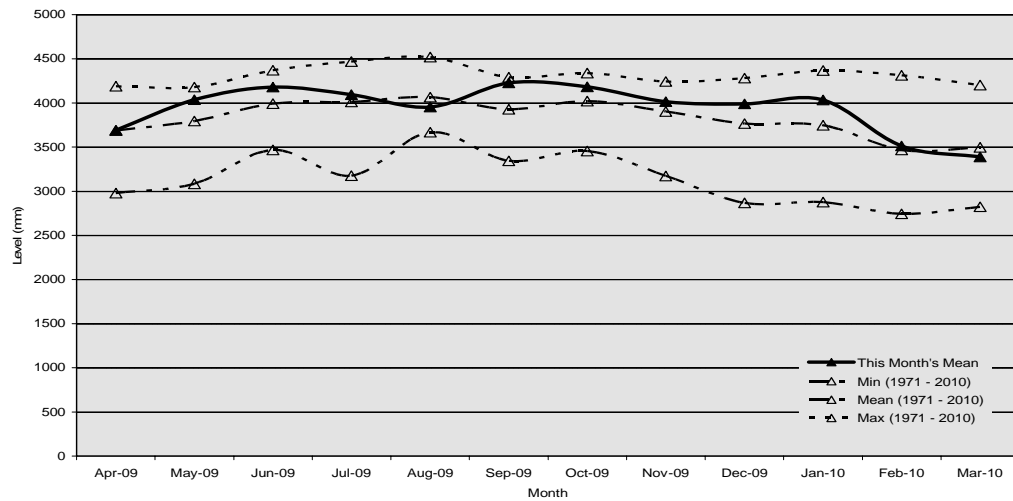
#### 1.3 Wainuiomata River flows measured at Manuka Track

The mean flow in the Wainuiomata River at Manuka Track was about the mean during February. During March the mean flow was below the mean.



## 1.4 Aquifer levels measured at McEwan Park

The water level in the Waiwhetu aquifer during February was about the mean. During March the water level was below the mean.



## 2. Taste complaints

In late February our customers, the four city councils, reported a sharp increase in the number of consumer complaints about the taste and smell of their tap water.

Taste and odour compounds in drinking water usually come from algae in the source water, either river or lake storage, and can be removed by adding a substance call Powdered Activated Carbon (PAC). The level of removal of taste and odour compounds is directly related to the amount of PAC added.

Our first response to the complaints was to start up our PAC dosing plant and analyse the raw water to determine the concentration of the taste and odour compounds. The rate of addition of PAC was set according to past experience.

When the results of the water analysis were returned, we found that:

- (1) It was our lake source that had high levels of taste and odour
- (2) That these levels were much higher than we had recorded before. Therefore, our PAC addition was insufficient to totally remove these compounds. Once we had the analysis results, the dose rate was corrected.

Since the initial spate of complaints, we have alternated between river and lakes sources a couple of times and the number of complaints has returned to normal levels that is very low.

## 3. Breakdown of centrifuge at Wainuiomata Water Treatment Plant

The centrifuge at Wainuiomata Water Treatment Plant had to be removed from service and sent away for major repairs.

The centrifuge is the final stage of the waste water recovery process and is used to dewater sludge so that it can be trucked to the landfill.

The repaired centrifuge was put back into service in mid-March.

#### **4. Winter operation**

An analysis of comparative operating costs for Wainuiomata and Waterloo Water Treatment Plants has shown that there are benefits in shutting down the Wainuiomata plant over the winter months and increasing output from Waterloo.

The savings in chemical and waste disposal costs at the Wainuiomata plant are about \$10,000 per month more than the additional operating costs, mainly power, at Waterloo. In addition we can free up approximately 450 work hours per month of technicians' time that can be utilised elsewhere.

A decision on whether to proceed will be made in May following further investigations.

## Development and Strategy

### Review of operations for the period ended 31 March 2010

#### 1. **Stuart Macaskill Lakes**

The design and documentation of work to strengthen and line the embankments of both lakes is continuing to programme.

An outline plan for the work will be formally submitted to the Upper Hutt City Council by GWRC as the requiring authority for this designated site. Information is being provided to Environment Waikato, as requested and on completion of design packages, to support the application for a building consent for the work under large dam legislation.

The current programme shows Lake 2 being drained from August 2010 and Tenders called at the same time. Construction work is programmed to commence in November 2010 and continue over two years. Lake 2 would be out of service for the summer of 2010/11 and Lake 1 over 2011/12.

Now that our Consultants have made progress in the detailed design of the works, a number of issues have been identified with the timeline and sequence of activities in the current construction programme. This has resulted in a review of the programme, which is the subject of a separate report to the Committee.

#### 2. **Reduced low flow at Kaitoke weir**

Flow rates in the Hutt River dropped sufficiently during March to allow survey samples of macroinvertebrates to be taken for analysis at two levels of low flow. Further sampling has been prevented by occasional rainfall raising the river level.

It is unlikely that conditions will allow any further sampling this calendar year. However, subject to laboratory results, the samples taken will provide a useful baseline that can be monitored against during the term of a consent change.

The documentation for a consent application is now being finalised.

#### 3. **Wainuiomata mini hydro power generation**

An order is being placed for the supply of a mini hydropower generator with Gilkes Ltd, a long-standing English company that supplied their first turbine to New Zealand in 1903 and has a substantial track record in both New Zealand and overseas.

Gilkes will be supplying a twin jet Turgo impulse turbine machine with synchronous generator. For the technically inquisitive, the Turgo was originally designed by Gilkes in 1920 to improve on the Pelton wheel turbine designed about 1880 by Mr Pelton by operating reliably at a high efficiency level across a wide range of flows. The synchronous generator means it does not need to be connected to the electrical grid to generate at the correct voltage and frequency, and its construction means less routine maintenance.



A resource consent has been granted to discharge surplus water into George Creek following power generation and for the construction of a discharge structure at the creek.

#### **4. Puketiro wind farm**

The replacement contract has been signed by GWRC and the documents are with RES for signing by themselves and their parent company in England.

Connection of the Puketiro wind farm to the national grid is commented on in Transpower's 2010 Annual Planning Report. The report identifies that the proposed wind farm can connect to one of the 220 kV circuits and that there are no transmission capacity issues with connecting the wind farm. The 220 kV transmission lines pass through the Puketiro and Akatarawa Forests meaning that, if Transpower's planning does not change, connection to the grid would not involve the Battle Hill forest slope down to Transmission Gully.

#### **5. Security of supply standard**

Since the late 1990s GWRC has been managing the wholesale water supply to a 2 percent security of supply standard (i.e., a shortfall in supply would not be expected to occur on average more frequently than one year every 50 years). The standard was consulted with the four city customers and approved by Council. Since that time, the standard has been used with our sustainable yield computer model and statistics population projections to plan the timing of water supply development.

Using the latest Statistics New Zealand population figures, our security of supply is currently 4.6 percent (approximately one in 22 years). Considering the number and cost of water supply development projects identified in the LTCCP to restore and maintain the security standard, it is timely to review whether the 2 percent security standard continues to be appropriate relative to best practice for bulk supplies of similar size and characteristics.

Consulting proposals have been sought to review and report on the security of supply standard. When completed, the results of this review will be discussed with our customers and reported back to the Committee.

## Emergency Management Review of operations for the period ended 31 March 2010

### 1. Civil Defence Emergency Management (CDEM) projects

#### 1.1 General

Although the CDEM Group Office is continuing to work on its four scheduled work programmes (a review of the CDEM Group Plan; a communications' review; GIS in emergency management and the external supply of resources), other external factors/developments are now starting to influence the final outcome of each. These influences are detailed below.

#### 1.2 A new emergency management information system (EMIS)

This web based emergency management system was recently approved by Government and will be implemented in the next few months (by October 2010). The new system will have a huge impact on our communications review, for example, a new digital radio communications system and an enhanced satellite communications system to form a backup platform for EMIS is planned to be introduced by 2013.

GIS in emergency management and the external supply of resources will be influenced by the new system as well.

#### 1.3 Sharing of services project

This project is nearing completion.

The proposed recommendations will have a major impact (all positive) on the new CDEM Group Plan because of changes in the structure, capacities and capabilities of CDEM in the Wellington Region.

### 2. Civil Defence Emergency Management Group (CDEM Group) activities

- Preparing order papers for CEG meeting – 12 April 2010
- Preparing order papers for CDEM Group meeting – 6 May 2010
- Keeping the CDEM Group Emergency Operations Centre in a state of readiness (weekly testing of communications equipment, data bases, information management systems, etc.)
- Developing and maintaining public education and information programmes (update of the *Are you Prepared* booklet, development of a new “step-by-step” preparedness booklet, planning for the *Get Ready Week* (previously *Disaster Awareness Week*) in mid-October, and planning for *Earth Rocks* over Labour weekend at Te Papa). We are also conducting a community preparedness survey (report will be available after 30 June) and we have completed tsunami evacuation zone maps for the entire Region

- Maintaining a robust communications system for emergency management in the Region (the system comprises 34 regional radios linking GWRC Emergency Management with the territorial authorities, New Zealand Fire Service, New Zealand Police, the three District Health Boards, the Ministry of CDEM, Radio New Zealand, GWRC Flood Protection and several lifelines organisations such as GWRC Water Supply and New Zealand Transport Agency, via five robust repeater stations and 16 regional satellite phones)
- Training and development of GWRC volunteer staff, controllers, recovery managers, etc. (we train approximately 50 GWRC volunteer staff per month in CDEM operations, planning and intelligence, logistics, communications, lifelines co-ordination, welfare co-ordination, liaison with emergency services, safety and security and CDEM administration).

Specialised training is provided for controllers, recovery managers and CDEM staff comprising CDEM legislation, crisis management and decision making, stress management, relationship building and maintenance, functions, roles and responsibilities of each position, the four Rs of risk reduction, readiness, response and recovery and the six critical needs of urban search and rescue, treatment and movement of the injured, welfare (shelter, food, water, counselling), medical/health arrangements, sanitation (debris, sewage and refuse disposal, disease control) and the restoration of lifelines services (water, access, communications, power, etc.).

- Planning and executing exercises to test the CDEM Group's capabilities and capacities (*Exercise Tangaroa* – a tsunami exercise planned for 20 October 2010 and *Exercise Phoenix VII* in mid-November 2010).

# Environment Management

## Report on the New Zealand Marine Energy Conference, April 2010

### 1. Introduction

Bruce Geden, Special Projects Co-ordinator, GWRC Environment Management, attended the fourth annual Aotearoa Wave and Tidal Energy Association (AWATEA) Marine Energy Conference held at Wellington on 19 and 20 April 2010.

GWRC attendance at the conference followed work GWRC performed on sustainable energy work programme areas identifying priority activities that GWRC could become involved with or be aware of within the Region. This work recognised the significant tidal current resource located in Cook Strait and potential utilisation of that resource.

### 2. Attendees

The conference was attended by about 175 attendees from 16 countries around the world, although slightly limited by Iceland's ash emissions. Their presence provided the conference with a broad international industry overview and an idea of New Zealand's status in marine energy.

Three regional councils were present, namely GWRC (potential tidal current resource), Northland (Kaipara project) and Waikato (potential wave resource).

### 3. Basic marine energy facts

- Water has an energy density of nearly 1,000 times air
- Power output is equal to the cube of the water velocity, i.e., doubling the water velocity equates to eight times the available power output
- Power output is equal to the square of the propeller blade length, i.e., doubling the blade length equates to four times the power output
- Seventy-five percent of the ocean's kinetic energy is in the top 20 metres from the surface

### 4. Conference highlights

Mike Underhill, EECA Chief Executive, opened the conference. This was supported by presentations on each of the New Zealand's current marine energy projects. Each of the international delegates also reported on the state of marine energy applicable to their countries.

The following summarises some of the key points made during the conference:

- New Zealand has about 8,000 MW of potential marine energy resources – 56 times Westwind's output!

- Much of the marine energy resource is located adjacent to population centres such as Waikato and Wellington. Some, like North Cape, is not.
- Given growth in New Zealand's electricity use of 1.5 percent per annum, together with our renewable electricity sources target of 90 percent by 2025 (15 years), a wide range of resources is needed to support hydro, geothermal and wind. Marine energy could be one of these.
- Marine energy device deployment is still approximately 10 years behind the wind energy industry at this stage.
- New Zealand currently has 19 marine energy projects at various stages.
- Because the Resource Management Act is a "one stop shop", it is considered a very good process, especially internationally. However, the risks around non-environmental issues or tactics clouding this process were recognised.
- International marine energy project investors may view the costly time delays and uncertainties associated with the Resource Management Act as too risky to fund
- Four "active" projects currently pending in New Zealand, namely:
  - Chatham Islands - along with existing wind turbines, this would provide 50 percent of their power needs using a proven technology instead of diesel fuel
  - Tory Channel - currently lodging consent for turbines on the channel floor; shorter distance to run the power cable back to North Island instead of Picton
  - Kaipara Harbour - full scale project currently at the Environment Court
  - Taranaki coast - just received consent for a prototype point source convertor
- Only passing mention was made of the Neptune trial in Cook Strait that has consent from GWRC
- Massive investment overseas into marine energy, especially around Europe and North America; mainly through central and state government grants, funds, or feed-in tariffs. Australia and South Africa are surprisingly low key on marine energy possibly because of the influence of their cheap coal resources.
- Seventy-six types of marine energy devices currently being trialled throughout the world - this list needs to be narrowed down to a handful before the industry can rely on a "standard" technology like wind does.
- The European Marine Energy Centre (EMEC) in north Scotland that trials new marine energy devices is very busy – EMEC is still interested in the Centre of Excellence concept for Wellington via Grow Wellington
- Pending foreshore and seabed legislation could potentially be another factor to consider in marine energy development in New Zealand if property rights are granted on the foreshore/seabed if no allowance is allowed for this industry.

- Floating offshore wind turbines emerging as the “new” energy resource, i.e., the next “low hanging fruit” -they would be sited many kilometres offshore where wind flows are laminar (smooth). Wellington potentially has huge wind resources out to sea. Note that the existing overseas ocean turbines are mounted on the sea floor.

For more detail, the conference presentations will soon be posted on AWATEA’s website, namely: <http://www.awatea.org.nz/>