



ENVIRONMENTAL MANAGEMENT GROUP

Technical report

ISSN 1174 3077



SAFEGUARDING YOUR ENVIRONMENT + KAITIAKI TUKU IHO



Water Management Review

Prepared By:
Environmental Management
Services Ltd

February 2006
EMT 06/11
HBRC plan No. 3886

Environmental Management Group Technical Report

Environmental Monitoring Section

Water Management Review

Prepared by:
Environmental Management Services Ltd - Napier

Reviewed by:

Approved:
Murray Buchanan, Group Manager – Environmental Management

February 2006
EMT 06/11
HBRC PLAN NUMBER 3886

EXECUTIVE SUMMARY

The sound management of Hawke's Bay's fresh water resources is a key strategic issue for the Hawke's Bay Regional Council. Council wishes to ensure that water management issues relevant to Hawke's Bay are being addressed in a timely, competent and efficient manner. It accordingly commissioned this independent Review.

The Review process was based on initial briefings by senior staff followed by literature and internet reviews of Government agencies and non-government organisations to identify and document national and local current and emerging water management issues. Relevant Council documents were reviewed and interviews held with Council staff and external stakeholders. Separate workshops were held with the Councillors and Maori Committee members and other iwi representatives. Comments were then received on the draft Report from senior Council staff and Councillors.

A large number of recommended actions have been identified under a range of issue headings. These recommendations are collated in the Table that follows and have been assigned a priority of Low, Medium or High. The prioritisation was based on a subjective desk top assessment of the degree of environmental risk posed by the issue, together with the views of the staff, councillors, iwi representatives and external stakeholders on those matters.

Despite the large number of recommended actions, the overall approach of the Council to water management is appropriate and well targeted to Hawke's Bay's water management issues, albeit with a small number of notable exceptions as highlighted below.

Importantly, the majority of areas of potential improvement identified by this Review had already been targeted by Council staff as requiring further work and it is now simply a matter of concluding the necessary actions in a timely and robust manner. Notably, the drawn out resolution of appeals on the PHBRRMP may have contributed to the Council "losing ground" in terms of utilising some state of the art water management approaches now being undertaken elsewhere in the country.

The Review concluded that the following water management issues for Hawke's Bay are the main priorities for Council action:

- Establishing groundwater allocation limits;
- The managed distribution of surface water to various activity types within established allocatable volumes;
- Earthworks management;
- Stormwater management;
- Managing and regulating land use change and land use intensification;
- Facilitating hapu level iwi input into water management processes and the development of iwi management plans.

However, it is expected that the Council will now debate the findings of this Review and appropriately form their own view on what the priority issues are.

Table 1: Recommended Actions¹

No.	Priority	Recommended Action	Responsibility
Surface Water Quality			
1	Medium	Clearly identify which lakes, rivers or reaches of rivers are being managed for contact recreation purposes and include those details in the PHBRRMP, or some other publicly available Council document.	Monitoring
2	High	Initiate a comprehensive water quality monitoring programme and associated public warning system for all inland lakes and rivers which are identified as being managed for contact recreation purposes.	Monitoring
3	Medium	Investigate the reasons for water quality degradation in the 6 - 7% of rivers region wide where water quality is either declining for non-flow related reasons or where macroinvertebrate health is poor.	Research
4	Medium	Develop management responses for the 6 – 7% of degraded rivers region wide once the reason for the degradation is understood.	Policy
5	High	Ensure that management systems are in place for non degraded rivers which ensures that they are protected from any identified causes of declining water quality in degraded rivers.	Policy
6	Low	Better communicate the fact that surface water quality within Hawke's Bay is generally good and ranks well on a national scale.	Education
7	Low	Investigate options adopted elsewhere in NZ to cater for iwi concerns regarding sewage discharges to inland waterways and determine in consultation with iwi if such measures would be appropriate for Hawke's Bay.	Policy
8	Medium	Use water quality and benthic ecology information to identify streams that are degraded as a result of excessive nutrients, high water temperature and	Research

¹ Note that the lightly shaded sub-headings in the table are indicative only and the body of the report contains more detailed headings under which the various recommendations are grouped.

No.	Priority	Recommended Action	Responsibility
		algae growth.	
11	Medium	Identify which degraded streams would benefit from enhanced riparian vegetation (and associated restrictions on stock access).	Research
12	High	Develop specific, measurable and time bound objectives for streams targeted for riparian management for inclusion in the LTCCP and PHBRRMP.	Policy
13	Medium	Evaluate the effectiveness of the new regulatory regime (rule 7 of the PHBRRMP) in achieving riparian management objectives.	Monitoring
14	Medium	Consider the introduction of targeted regulation in existing priority areas where education and financial incentives have not delivered the desired riparian management outcomes to date.	Policy
15	Low	Produce a guideline document that summarises the benefits of riparian vegetation as outlined in literature and combines this with Hawke's Bay monitoring information to show the benefits of riparian vegetation in the Hawke's Bay context and provide guidance on riparian planting design.	Education
16	Medium	Ensure that stock access to streams is factored into any further educational or regulatory initiatives undertaken to promote riparian management.	Policy
17	Low	Retain the current non-regulatory approach to accelerated hill country erosion involving the provision of advice and grant assistance to farmers.	Policy
18	High	Review Council's past hill country erosion management interventions and determine which have most effectively contributed to achieving Council's desired outcomes. Ensure that future efforts utilise the most effective methods of management intervention.	Research
19	Medium	Investigate whether the declining surface water quality that is evident in the 7% of streams monitored under the regional SOE programme is due in part to excessive fertiliser use on hill country properties.	Research
20	Medium	Determine the extent to which the increase in phosphorous levels in some rivers is due to excessive fertiliser use and associated diffuse runoff from hill	Research

No.	Priority	Recommended Action	Responsibility
		country properties.	
21	Medium	Identify priority areas (these may be the same as those used under the Regional Landcare Scheme) where the further management of fertiliser use on hill country properties would be beneficial.	Research
22	Medium	Consider further regulatory provisions specifically targeted at fertiliser use over and above a reliance on the Code of Practice for Fertiliser Use.	Policy
23	High	Obtain existing research, monitoring and investigation reports from other councils in NZ who have or are addressing earthworks management.	Policy
24	High	Using existing earthwork research, monitoring and investigation reports from other councils, develop and implement a targeted research and consultative programme to quantify the scope of the earthworks management problem in Hawke's Bay. This should involve further discussions with territorial authority and HBRC staff and the targeted monitoring of a range of earthworks activities (from large scale subdivisions to individual building sites).	Policy
25	Medium	Examine a range of subdivision consents granted by the region's territorial authorities on erosion prone sites to determine the extent to which controls for sediment run-off are included.	Policy
26	Medium	Collate any existing earthworks regulatory provisions in the region's district plans and assess their adequacy and consistency in comparison to regional level provisions in other areas (such as those used by the ARC).	Policy
27	Medium	Identify any regulatory gaps or regional inconsistencies in the approaches taken at a territorial authority level and initiate a regional plan development or regional plan variation accordingly utilising existing provisions from other regions as far as possible.	Policy
28	Medium	Discuss any lack of enforcement of existing territorial authority regulatory provisions with the appropriate territorial authorities with the aim being to develop a joint strategy for ensuring that any problem areas are resolved. This could include joint monitoring, coordination and integration of	Policy

No.	Priority	Recommended Action	Responsibility
		compliance staff actions, even or transfers of powers from the territorial authorities to the HBRC.	
29	High	Continue with the existing LTCCP and annual plan stormwater projects.	Policy
30	High	Become fully conversant with the latest stormwater management research and policy development initiatives in other regions, particularly in Auckland, before proceeding further with the development of provisions for the PHBRRMP.	Policy Research
31	High	Address potentially overlapping roles and responsibilities with the region's territorial authorities prior to proceeding further with the development of stormwater management provisions for the PHBRRMP.	Policy Consents
Groundwater Quality			
32	Low	Continue with the existing LTCCP and annual plan onsite sewage treatment projects.	Policy Research
33	Low	Become fully conversant with the onsite wastewater research and policy development initiatives in other regions, particularly in Auckland, Bay of Plenty and Waikato, before revising the existing framework in the PHBRRMP.	Policy Research
34	Low	Address potentially overlapping roles and responsibilities with regard to onsite wastewater management with the region's territorial authorities.	Policy
35	Low	Develop for a simple onsite wastewater regulatory framework that delineates (maps) areas where certain systems are or are not allowed and uses rules that are based on simple performance standards rather than subjective and difficult to measure environmental outcomes.	Policy
36	Medium	Consider whether the findings of the 2002-2003 investigation of shallow groundwater nitrate levels and the 2002 national pesticide project indicate a need to review the current groundwater quality management framework in the PHBRRMP.	Research

No.	Priority	Recommended Action	Responsibility
Groundwater Quantity			
37	High	Define and map the location of the “productive aquifers” referred to in Policy 75 of the PHBRRMP.	Research
38	High	Develop objectives and policies for the aquifers outside the coverage of Policy 75 of the PHBRRMP.	Policy
39	Medium	Consider proactively advocating groundwater takes in preference to surface water takes in areas of the Ruataniwha Plains where the surface water flows are subject to natural or induced low levels and consider if similar management intervention is required in other parts of the region.	Policy Consents
40	Medium	Continue long term baseline monitoring of aquifer levels.	Monitoring
41	High	Urgently complete the proposed computer model of the Heretaunga Plains aquifer.	Research
42	High	If required for the operation of the proposed model of the Heretaunga Plains aquifer require real time telemetering of abstraction information to Council for large takes or takes located within critical aquifer areas - on an appropriate cost sharing basis with consent holders.	Policy Consents
43	Medium	Articulate policies 30 and 42 of the PHBRMP to resource users and ensure those policies are implemented at the time consents are granted.	Consents
44	Medium	Consider stepping back to a monthly or annual water take meter reading frequency in non-critical areas.	Research Consents
45	High	Urgently produce an updated State of the Environment document that clearly states where groundwater levels are declining, the likely cause of any decline, and whether or not that decline is considered to be of concern.	Research
46	High	Decide what if any management interventions are required to arrest declining aquifer levels.	Research Policy

No.	Priority	Recommended Action	Responsibility
47	High	Fully review the groundwater management approaches adopted by other regional councils and determine whether or not allocatable volumes of abstraction and aquifer abstraction cessation levels should be established for Hawke's Bay aquifers.	Policy
48	High	Establish the necessary research, investigation and policy development projects and budgets to deliver a robust groundwater allocation framework for Hawke's Bay.	Policy Research
Surface Water Quantity			
49	Medium	Continue long term baseline monitoring of river levels.	Monitoring
50	Low	Continue to use IFIM to establish minimum flow for rivers, but consider undertaking an assessment of iwi cultural values in relation to low flows and determine whether or not the IFIM derived values cater for those values.	Research
51	Low	Reemphasise to iwi and conservation interests that NZ derived habitat preference curves for native fish have been used in the setting of Hawke's Bay minimum flows.	Research
52	High	Assess the implications of using a Q ₉₀ flow as the management level for setting allocatable volumes of abstraction and undertake consultation regarding that potential change with user groups and conservation interests.	Research
53	Medium	Assess and report on the comparative advantages and disadvantages of other methodologies developed by NIWA, other CRI's, or other regional councils for determining the allocatable volume of abstraction – particularly methodologies which allow abstractors to input to the level of risk associated with the allocatable volume.	Policy
Land Use Intensification			
54	High	Identify the adverse effects associated with land use change and intensification that are occurring now that are not being appropriately controlled by the region's territorial authorities.	Policy Research

No.	Priority	Recommended Action	Responsibility
55	High	Identify if any adverse effects associated with land use change and intensification are due to deficiencies in existing District Plan provisions or due to deficiencies in the way existing District Plan provisions are administered.	Policy
56	High	Discuss with the region's territorial authorities their willingness to either change or vary their District Plans, or their actual implementation; to alleviate any identified deficiencies in District Plan content or implementation.	Policy
57	Medium	If necessary, develop appropriate regional plan provisions to avoid or mitigate identified adverse effects associated with land use change and intensification with an emphasis in the first instance on permitted activity rules as the initial tier of regulatory intervention.	Policy
Water Allocation			
58	High	Adopt a more up to date model for determining the crop water requirements in Hawke's Bay.	Research Consents Policy
59	Medium	Decide whether the more up to date model for determining the crop water requirements in Hawke's Bay should be used to proactively and immediately review all existing irrigation allocations or whether that would be dealt with upon the expiry and renewal of existing consents.	Policy
60	Medium	Investigate the feasibility of a regulatory process for 'reclaiming' presently allocated water that is not being used without needing to wait for consents to expire or be surrendered.	Policy
61	High	Consider prioritising the distribution of allocatable water, particularly in terms of providing for community health and wellbeing.	Policy
62	High	Consider prioritising the cessation of abstractions at times of low flow, particularly in terms of community health and well being and social and	Policy

No.	Priority	Recommended Action	Responsibility
		economic disruption.	
63	Medium	Determine whether existing minimum flows and allocatable volumes adequately cater for surface water bodies traditionally important to iwi in the region.	Research
64	Medium	Jointly scope with consent applicants the necessary water availability research in areas where Council knowledge of the resource is sparse.	Research Consents
65	Medium	Develop a policy through the LTCCP process to subsidise or compensate resource users who investigate water resource availability in areas outside of the main aquifers and rivers, particularly where that information subsequently enters the public domain and is of benefit to Council and future resource users.	Policy Research
Administration			
66	Low	Review current and historical Council practice to determine any common themes or trends with regard to consent durations.	Consents
67	Low	Develop a consent durations policy for inclusion in the PHBRRMP that better reflects current Council practice (including catchment and aquifer expiry dates) and any significant national trends and leading case law principles.	Policy
68	High	Consider appointing an iwi liaison officer with skills and qualifications in technical and policy matters to act as a conduit between Council and hapu.	Policy
69	High	Establish an agreed charge out rate to recompense iwi representatives for their input to resource consent application consultative processes – with the payment to be made directly from applicant to iwi.	Consents
70	Medium	Consider actively supporting the development of an iwi resource management plan(s) for Hawke's Bay consistent with MfE guidelines on such documents.	Policy
Operations			

No.	Priority	Recommended Action	Responsibility
71	Low	Continue Council's current passive facilitation role with regard to promoting water storage and irrigation of supplying hydrological information to private sector interests upon request.	Monitoring
72	Low	Complete the assessment of potentially irrigable land in Hawke's Bay so that the ultimate potential irrigation demand can be compared to existing and known allocatable volumes of abstraction from rivers and aquifers – thereby enabling any ultimate shortfall to be identified.	Research
73	Low	Review approaches taken elsewhere with regard to promoting water storage and irrigation, particularly the Marlborough District Council's facilitation work in their Southern Valleys area.	Policy
74	Low	Identify priority areas where aquatic weeds will be removed from watercourses after they are cut.	Operations
75	Low	Investigate and trial alternatives to mechanical cutting such as the use of low impact aquatic herbicides.	Operations
76	Low	Scope and execute the proposed river beach raking research programme on "specific species requirements for pool and riffle requirements and tributary access" in consultation with conservation groups.	Operations

TABLE OF CONTENTS

EXECUTIVE SUMMARY

GLOSSARY OF ACRONYMS

1 INTRODUCTION 2

2 REVIEW PROCESS 2

3 REVIEW SCOPE 2

4 GROUPING OF ISSUES 4

5 WATER QUALITY ISSUES 4

5.1 DECLINING SURFACE WATER QUALITY IN LOWLAND RIVERS AND LAKES 4

5.1.1 *Current Management Approach* 5

5.1.2 *Discussion* 6

5.1.3 *Recommended Actions* 6

5.2 RIPARIAN MANAGEMENT 7

5.2.1 *Current Management Approach* 7

5.2.2 *Discussion* 8

5.2.3 *Recommended Actions* 9

5.3 STOCK ACCESS TO WATERCOURSES 9

5.3.1 *Current Management Approach* 9

5.3.2 *Discussion* 10

5.3.3 *Recommended Actions* 10

5.4 HILL COUNTRY RUNOFF 10

5.4.1 *Current Management Approach* 10

5.4.2 *Discussion* 11

5.4.3 *Recommended Actions* 11

5.5 URBAN AND PERI-URBAN EARTHWORKS 12

5.5.1 *Current Management Approach* 12

5.5.2 *Discussion* 12

5.5.3 *Recommended Actions* 13

5.6 URBAN STORMWATER MANAGEMENT 14

5.6.1 *Current Management Approach* 14

5.6.2 *Discussion* 14

5.6.3 *Recommended Actions* 15

5.7 ONSITE WASTEWATER TREATMENT 15

5.7.1 *Current Management Approach* 15

5.7.2 *Discussion* 16

5.7.3 *Recommended Actions* 16

5.8 CONTAMINATED SITES 16

5.8.1 *Current Management Approach* 16

5.8.2 *Discussion* 17

5.8.3 *Recommended Actions* 17

5.9 DECLINING WATER QUALITY IN AQUIFERS 17

5.9.1 *Current Management Approach* 18

5.9.2 *Discussion* 18

5.9.3 *Recommended Actions* 19

5.10 GROUNDWATER AND SURFACE WATER INTERACTIONS 19

5.10.1 *Current Management Approach* 19

5.10.2 *Discussion* 19

5.10.3 *Recommended Actions* 20

6	WATER QUANTITY ISSUES	20
6.1	KNOWLEDGE OF THE GROUNDWATER RESOURCE	20
6.1.1	<i>Current Management Approach</i>	20
6.1.2	<i>Discussion</i>	21
6.1.3	<i>Recommended Actions</i>	21
6.2	DECLINING GROUNDWATER LEVELS.....	22
6.2.1	<i>Current Management Approach</i>	22
6.2.2	<i>Discussion</i>	22
6.2.3	<i>Recommended Actions</i>	22
6.3	GROUNDWATER ALLOCATION	22
6.3.1	<i>Current Management Approach</i>	23
6.3.2	<i>Discussion</i>	23
6.3.3	<i>Recommended Actions</i>	24
6.4	KNOWLEDGE OF THE SURFACE WATER RESOURCE.....	24
6.4.1	<i>Current management approach</i>	24
6.4.2	<i>Discussion</i>	24
6.4.3	<i>Recommended Actions</i>	24
6.5	SURFACE WATER ALLOCATION	25
6.5.1	<i>Current Management Approach</i>	25
6.5.2	<i>Discussion</i>	25
6.5.3	<i>Recommended Actions</i>	26
7	LAND USE INTENSIFICATION	26
7.1.1	<i>Current Management Approach</i>	26
7.1.2	<i>Discussion</i>	27
7.1.3	<i>Recommended Actions</i>	28
8	ADMINISTRATIVE ISSUES.....	28
8.1	WATER DISTRIBUTION POLICY	28
8.1.1	<i>Current Management Approach</i>	28
8.1.2	<i>Discussion</i>	29
8.1.3	<i>Recommended Actions</i>	31
8.2	RESEARCH FUNDING.....	31
8.2.1	<i>Current Management Approach</i>	32
8.2.2	<i>Discussion</i>	32
8.2.3	<i>Recommended Actions</i>	32
8.3	CONSENT DURATIONS	32
8.3.1	<i>Current Management Approach</i>	33
8.3.2	<i>Discussion</i>	33
8.3.3	<i>Recommended Actions</i>	34
8.4	IWI INVOLVEMENT IN DECISION MAKING	34
8.4.1	<i>Current Management Approach</i>	35
8.4.2	<i>Discussion</i>	35
8.4.3	<i>Recommended Actions</i>	36
9	OPERATIONAL ISSUES	36
9.1	PROMOTING WATER STORAGE AND IRRIGATION	36
9.1.1	<i>Current Management Approach</i>	37
9.1.2	<i>Discussion</i>	37
9.1.3	<i>Recommended Actions</i>	38
9.2	WEED CONTROL IN URBAN WATERWAYS.....	38
9.2.1	<i>Current Management Approach</i>	38
9.2.2	<i>Discussion</i>	38
9.2.3	<i>Recommended Actions</i>	38
9.3	RIVER BEACH RAKING.....	39
9.3.1	<i>Current Management Approach</i>	39
9.3.2	<i>Discussion</i>	39
9.3.3	<i>Recommended Actions</i>	39

10	OTHER MATTERS	39
11	PRIORITY ISSUES.....	40
12	REFERENCES.....	41

TABLES

- 1 RECOMMENDED ACTIONS

APPENDICES

- 1 CONSULTATIVE INPUT RECEIVED
- 2 BRIEF
- 3 AGENCY WEBSITES VISITED
- 4 INITIAL LIST OF ISSUES

GLOSSARY OF ACRONYMS

ARC	Auckland Regional Council
CRI	Crown Research Institute
EMS	Environmental Management Services Ltd
HDC	Hastings District Council
IFIM	Instream flow incremental methodology
IPO	Interdecadal Pacific Oscillation
LGA	Local Government Act
LTCCP	Long Term Council Community Plan
NCC	Napier City Council
NIWA	National Institute and Water and Atmospheric Research
NZ	New Zealand
PHBRRMP	Proposed Hawke's Bay Regional Resource Management Plan
REC	River environment classification
RMA	Resource Management Act
RRP	Regional Resource Management Plan
SOE	State of the Environment

1 INTRODUCTION

The Hawke's Bay Regional Council has identified as one of its key strategic issues the ongoing management of the quality and quantity region's fresh water resources. The Council commits substantial resources to fresh water management and it decided to commission a review of its water management activities and direction. The Council considered it important to ensure that the present, medium and longer term water management issues relevant to Hawke's Bay were being addressed in a timely, competent and efficient manner.

2 REVIEW PROCESS

The Review process followed was:

- Initial briefing with the Chief Executive and Group Manager Environment;
- Literature and internet review of Government agencies and non-government organisations to identify and document national and local current and emerging water management issues;
- Review of Council documents (statutory statements and plans, work programmes, state of the environment reports);
- Interviews with senior Council staff;
- Workshop with the Councillors;
- Workshop with Maori Committee members and other iwi representatives;
- Interviews with external stakeholders, including territorial authority, conservation, industry and primary production representatives;
- Preparation of a draft Report;
- Receipt of comments on the draft Report;
- A workshop with Councillors;
- Report finalisation.

A list of the Government agency and non-government organisation websites examined for issues is provided in Appendix Three.

3 REVIEW SCOPE

The Review deals with fresh water quality and quantity, but excludes coastal water quality, flood management and emergency management activities.

The approach taken was to firstly identify a list of water management issues potentially relevant to Hawke's Bay, based on a review of literature, agency websites and HBRC statutory documents. The full initial list of issues is presented in Appendix Four of this report.

Consultation was then undertaken with council staff, councillors, Maori Committee members and external stakeholders. This enabled the initial list of water management issues to be narrowed down to those where the author considered that the Council could potentially consider an alternative or additional management approach at this point in time. The issues identified include both those causing effects on freshwater in some way or another, and the actual effects themselves.

An overview of the comments received during the review process is presented in Appendix One. That overview is not intended as a verbatim summary of the different views expressed.

For each issue the current HBRC management approach is briefly summarised and discussed. Where appropriate, reference is made to the approaches being taken to those issues in other regions. It is acknowledged that such an assessment process is subjective. However, this report was peer reviewed by two other personnel within EMS, both of whom also have senior management experience in regional councils in NZ².

It should be noted that the issues addressed in this Report are not described at length or with a great deal of associated technical detail. That is not the purpose of this Review and indeed such technical details are well catered for in other documents available nationally and also in the Council's own various statutory and non-statutory documents. Similarly, the Council approach to each issue is only briefly summarised as the content of its various statutory and non-statutory documents that collectively outline that approach run to many hundreds of pages.

Where the assessment of the HBRC management approach to an issue indicated that the Council should either consider an alternative management approach, or it appeared that the issue was not currently being addressed (namely a management "gap" existed), then recommended actions were developed. Some of these recommended actions reaffirm existing Council projects or programmes.

Importantly, it was well beyond the scope of this Review to determine what the future HBRC management approach should be for the issues identified for further action. The resolution of many of those matters will require a substantial amount of scientific and technical work, policy development and community consultation. However, where the author or peer reviewers were aware of practices already being undertaken in other regions that could be of benefit to HBRC, then those alternative management practices were noted.

Finally, the issues requiring further Council action have been assigned a priority in terms of timing (namely the urgency or otherwise of undertaking the action). The prioritisation was based on a subjective desk top assessment of the degree of environmental risk posed by the issue, together with the views of the staff, councillors, iwi representatives and external stakeholders on those matters. A short list of top priority recommended areas for action was also compiled.

² Dr Brent Cowie, formerly Director Resources at the Manawatu Wanganui Regional Council and Graeme Ridley, formerly Manager Consents and Compliance and Manager Stormwater and Sediment at the Auckland Regional Council.

4 GROUPING OF ISSUES

In order to make the Review process manageable the water management issues have been grouped as follows:

- Water quality issues
- Water quantity issues
- Land use intensification
- Administrative issues
- Operational issues

Initially climate change was singled out as a separate issue, but during the Review process it became evident that climate change impacted on most of the other issues as a major potential influence, rather than being an issue that should be considered in isolation. Council staff also advised that a recent analysis of long term river flow records had not shown any trends attributable to climate change. However, they noted that Hawke's Bay did appear to be coming out of an interdecadal dry period and could now be entering a 10 to 20 year wetter period.

This highlights the differences between climate change with climate variability (or more accurately the Interdecadal Pacific Oscillation or IPO). The period from about 1973 to 1998 was dominated to a greater extent by westerly flows. Since 1998 there has been a change to more easterly dominated conditions. The 25 years prior to 1973 were also dominated by more easterly conditions. This has major ramifications for regions such as the West Coast and Bay of Plenty, but will be more neutral for Hawke's Bay. Climate change on the other hand potentially affects everybody.

5 WATER QUALITY ISSUES

5.1 Declining surface water quality in lowland rivers and lakes

Declining water quality in lowland rivers and lakes has been identified as a significant national issue. Nationally water quality is declining despite most significant point source discharges now being well controlled. The primary cause is thought to be diffuse runoff associated with agricultural land use and land use intensification (increased stocking rates and increased fertiliser use). Contaminants of particular concern are nutrients (nitrogen and phosphorous), sediments and faecal coliforms.

Declining surface water quality can lead to:

- Declining water clarity;
- Public health risks;
- Habitat loss in streams (invertebrates and fish);
- Nuisance aquatic plant growth (periphyton and algae);
- Excess sediment loads causing damage to abstraction pumps and blocking irrigator nozzles.

However, some of the most recent publicly available monitoring information for Hawke's Bay³ states "*average nutrient concentrations and water clarity for most Hawke's Bay*"

³ The State of Our Environment, Hawke's Bay, Summary 1998 -2003, Hawke's Bay Regional Council.

rivers “are often below national averages. Comparisons of mean nutrient concentrations with the national rivers water quality network indicate the Hawke's Bay water quality compares quite favourably”. Only 7% of the 96 sites monitored showed declining water quality in terms of water chemistry⁴ for reasons that were not related to changes in river flow levels. The 2003 report concluded that the trends in water quality were related to river flow changes and not human induced changes.

Council also monitors 30 sites for macroinvertebrate health (an excellent indicator of overall river quality) and only 7% of sites sampled indicated moderate or severe pollution. Three sites showed deterioration in macroinvertebrate health over time and the reason for that trend was unknown.

High algal biomass concentrations frequently occur in Hawke's Bay rivers during summer low flows and around 43% of the time this was reportedly due to high instream nutrient levels. However, with regard to those high algal concentrations the 2003 report stated “in the majority of cases [this] is a reflection of the stable hydrology experienced during the last 5 years, and not excessively high nutrient concentrations”.

These largely positive water quality monitoring results could in part be due to the fact that widespread land use intensification has not occurred in the majority of Hawke's Bay given that most of the region is best suited to extensive pastoral farming rather than dairying or intensive cropping (other than the Heretaunga and Ruataniwha Plains which are well suited to those more intensive land uses).

5.1.1 **Current Management Approach**

The Council has set itself the statutory objective of managing surface water for aquatic ecosystem purposes generally and for contact recreation where appropriate in its Proposed Hawke's Bay Regional Resource Management Plan (PHBRRMP). It has also established water quality guidelines for temperature, dissolved oxygen, nutrients and water clarity that apply region wide and for total suspended solids and indicator bacteria on a river specific basis⁵.

In terms of public health Council monitors around 30 sites each year for 20 weeks over the bathing season. Water samples are taken in accordance with water quality guidelines⁶. In the 2005/06 year Council expanded this programme to include testing water samples from popular shellfish gathering areas for faecal coliforms. Council works with the Medical Officer of Health to issue bathing and shellfish gathering warnings when appropriate.

The 2004 State of our environment Annual Summary report noted that water quality at twelve beaches, seven rivers, one lake and seven estuaries is tested. The results are shown in terms of compliance with guidelines.

⁴ HBRC monitors water quality for dissolved reactive phosphorous, water clarity, ammoniacal nitrogen, nitrate nitrogen and faecal coliform bacteria. The 2003 report stated 7 sites showed declining water chemistry for unknown reasons.

⁵ Objective 39 and Policy 71 of the PHBRRMP.

⁶ Ministry for the Environment/Ministry of Health (2003). Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas. Ministry for the Environment and Ministry of Health, Wellington, June.

5.1.2 *Discussion*

Despite commonly held perceptions to the contrary, it appears that with a few exceptions actual surface water quality within the Hawke's Bay region is good. Furthermore, the Council's existing statutory management approach to surface water quality is comprehensive and well tailored to local conditions, particularly in terms of dealing with point source discharges. Consequently, the concerns held by some people regarding general surface water quality may be unfounded. However, there are a small number of rivers showing declining water quality and the reasons for that decline should be investigated and practical actions put in place to arrest that trend. This would be particularly important if the declining water quality in that small number of rivers was linked to land use intensification and change. This is discussed further in section 7 of this Report

In terms of public health⁷, it is not clear which inland waterways are being managed for contact recreation and it also unclear if all of those inland waterways form part of Council's regular monitoring programme for contact recreation.

There remains some residual concern amongst Maori Committee members that effluent discharges to inland waterways are not being managed as well as they could be.

5.1.3 *Recommended Actions*

Actions that the Council could take to enhance its surface water quality management approach are:

- a. Clearly identify which lakes, rivers or reaches of rivers are being managed for contact recreation purposes and include those details in the PHBRRMP or some other publicly available Council document.;
- b. Initiate a comprehensive water quality monitoring programme and associated public warning system for all inland lakes and rivers which are identified as being managed for contact recreation purposes;
- c. Investigate the reasons for water quality degradation in the 6 - 7% of rivers region wide where water quality is either declining for non-flow related reasons or where macroinvertebrate health is poor;
- d. Develop management responses for the 6 – 7% of degraded rivers region wide once the reason for the degradation is understood;
- e. Ensure that management systems are in place for non degraded rivers which ensures that they are protected from any identified causes of declining water quality in degraded rivers;
- f. Better communicate the fact that surface water quality within Hawke's Bay is generally good and ranks well on a national scale;
- g. Investigate options adopted elsewhere in NZ to cater for iwi concerns regarding sewage discharges to inland waterways and determine in consultation with iwi if such measures would be appropriate for Hawke's Bay.

An examination of the LTCCP and Annual Plan projects for 2005/06 identified a number of projects relevant to the above actions including project 411 involving simplified habitat surveys in lowland streams, project 412 involving measuring ecosystem health on soft bottom streams, and project 431-02 relating to public health water quality monitoring.

⁷ And noting Objective 39 of the PHBRRMP provides for contact recreation.

5.2 Riparian Management

Riparian management has been recognised as an issue at a national level.

The loss of riparian vegetation can exacerbate surface water quality problems in small streams (less attenuation of diffuse runoff), exacerbate surface water temperature increases (due to a lack of shade), contribute to a loss of invertebrates (less food available from leaf litter), and contribute to instream siltation (due to the destabilisation of stream banks). The lack of riparian vegetation also reduces the amount of cover available for fish and so potentially reduces the quality of habitat available. Riparian vegetation can also provide biodiversity, amenity and natural character benefits; however those matters are outside the scope of this Review.

There are two elements to riparian management that need to be considered. Firstly there is a difference between ensuring existing riparian vegetation is **retained** versus **restoring** degraded riparian habitat. In the past the national approach has focused on the latter through the grant activities of regional Councils in particular. Secondly, there can often be a strong link between retention and/or restoration of riparian habitat and restricting stock access. This is discussed further in section 5.3 below.

Some of the most recent publicly available monitoring information for Hawke's Bay⁸ notes that *"in 2001 the Council started the systematic monitoring of riparian condition, and future monitoring will show any changes in the quality of the waterways"*. There was no presentation of the results of that monitoring in publicly available reports, however it is understood that Council staff have prepared reports on specific rivers such as the Puhokio and Waitahora Streams.

From section 5.1 of this report it is evident that the surface water in Hawke's Bay can exhibit high algal biomass during low flows and localised macroinvertebrate degradation. These conditions can be exacerbated in small streams by water temperature increases, nutrient inflows, and a lack of invertebrate habitat and food sources. A lack of riparian vegetation can contribute to all of these factors on first to third or fourth order⁹ streams – but not on larger rivers where the influence of riparian vegetation is less dominant.

5.2.1 Current Management Approach

Council has recently modified its approach to riparian management and has moved away from focusing solely on priority catchments. The current approach involves identifying community "champions"¹⁰ no matter where they are located in the region and supporting their initiatives. The rationale for this approach is to drive community wide changes in practice rather than just in known problem catchments.

However, Council does not appear to have any specific statutory objectives related to riparian management in its PHBRRMP. It does have related objectives to manage land in a sustainable manner to avoid compromising water quality. Council states¹¹ that it will use non-regulatory methods as the principal means of addressing non-point source discharges to waterways.

⁸ The State of Our Environment Hawke's Bay, Summary 1998-2003

⁹ First order streams are head water streams. Second order streams are those formed by the joining of one or more first order streams. Third order streams occur where second order streams converge and so on. Most on farm streams are generally first or second order streams.

¹⁰ Community members willing and able to implement riparian management.

¹¹ Policy 45 of the PHBRRMP

These non-regulatory methods include the development of soil conservation farm plans and the provisions of financial assistance for on farm soil conservation activities through Council's Regional Landcare Scheme. In 2005/06 there is \$275,000 of external grant funding available of which \$100,000 is targeted to riparian management¹². Financial assistance is available at a rate of 50% across the region and up to 90% of the costs of "riparian – stream retirement" activities in the previously established priority catchments if the retired area is covenanted and if at least both banks of the stream are retired over a 100m or greater length. Five priority streams¹³ have been identified, but Council staff advise that these no longer drive the programme. These non-regulatory council activities are targeted to the restoration of riparian vegetation.

Until very recently Council relied on non-regulatory methods for achieving the retention of existing riparian vegetation. However, the resolution of appeals on the PHBRRMP have resulted in changes to rule 7 (vegetation clearance) that will prohibit the clearance of riparian vegetation within 5 metres of rivers in a defined portion of the region or within 5 metres of any river with a bed width in excess of 2 meters (subject to a range of exceptions). It would be appropriate to monitor the effectiveness of that new regulatory approach over time.

5.2.2 Discussion

There is an opportunity for Council to develop more specific, measurable and time bound objectives relating to riparian management¹⁴. These objectives would be linked to the rivers and streams where monitoring has shown there are problems with water quality in terms of nutrients, temperature and algae growth and where the streams are small enough to benefit from riparian planting. It may be that such streams would include the five priority streams listed in the *Regional Land Care Scheme – Guidelines for Applicants* document. Council should also consider targeted riparian management on selected existing high quality streams as a means of ensuring that the high quality attributes of those streams are maintained in the future.

The overall approach would therefore involve a mix of enhancing degraded streams and preserving high quality streams.

The type of objectives envisaged could include achieving the retirement of defined reaches or streams, or percentages of streams, in specified catchments or areas within defined time periods. This is the type of approach taken in the Dairying and Clean Streams Accord for dairy areas that Council is a party to and it is therefore not a particularly new or innovative approach.

As part of its review of the approach to riparian management, Council should consider the introduction or targeted regulation (for both the retention of existing vegetation and the restoration of vegetation in denuded areas) in areas where education and financial incentives have not delivered the desired outcomes to date. For the benefit of councillors and other interested parties, a concise document outlining the benefits of riparian vegetation in the Hawke's Bay context should be produced.

¹² This includes grant funds and the provision of advice.

¹³ Huatokitoki, Mangakuri, Ngahape, Pouhokio and Maraetotara.

¹⁴ The May 2005 Audit Office review of the management of fresh water resources in Otago and Manawatu Wanganui concluded that many of those council's statutory objectives were not measurable and did not provide a basis for setting policy direction. Many of the existing HBRC statutory objectives would suffer from that same criticism.

5.2.3 **Recommended Actions**

Actions that the Council could take to enhance the current riparian management approach are:

- a. Use water quality and benthic ecology information¹⁵ to identify streams that are degraded as a result of excessive nutrients, high water temperature and algae growth;
- b. Identify which degraded streams would benefit from enhanced riparian vegetation (and associated restrictions on stock access)¹⁶;
- c. Develop specific, measurable and time bound objectives for streams targeted for riparian management for inclusion in the LTCCP and PHBRRMP;
- d. Evaluate the effectiveness of the new regulatory regime (rule 7 of the PHBRRMP) in achieving riparian management objectives;
- e. Consider the introduction of targeted regulation in existing priority areas where education and financial incentives have not delivered the desired riparian management outcomes to date;
- f. Produce a guideline document that summarises the benefits of riparian vegetation as outlined in literature and combines this with Hawke's Bay monitoring information to show the benefits of riparian vegetation in the Hawke's Bay context and provide guidance on riparian planting design.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions, other than project 411 involving simplified habitat surveys in lowland streams and project 412 involving measuring ecosystem health on soft bottom streams.

However, Council staff advised that actions (a) and (b) had largely been undertaken for the Ruataniwha Plains, but not for the entire region.

5.3 **Stock Access to Watercourses**

Stock access to streams, either by way of direct entry from unfenced paddocks bordering streams or by way of regular stock crossings (where farm races cross streams) can exacerbate surface water quality problems in small streams through the disturbance and erosion of stream banks, sedimentation of the bed and the direct deposition of faeces, urine and mud into the streams. The main stock of concern are cattle, deer and pigs as they like to wallow in streams. Stock access to riparian areas can also lead to significant degradation of riparian habitat and vegetation.

Stock access to streams has been recognised as an issue at a national level.

5.3.1 **Current Management Approach**

Council currently has no statutory objectives specifically in relation to stock access to streams, although stock access is identified as an issue¹⁷. The LTCCP does not contain

¹⁵ Either existing state of the environment information or additional information gathered from monitoring investigations undertaken during times of summer low flow when water quality would be most prone to degradation.

¹⁶ Taking into account the effects of the *Willow Sawfly* on existing willow and poplar vegetation, although this may be difficult to achieve given that a programme is already underway to restore flood protection and that much of this involves hard structures.

any reference to undertaking research on this issue or to the development of associated objectives or policies.

5.3.2 *Discussion*

As discussed under 5.1.2 above the surface water quality in Hawke's Bay is generally good, with a few notable exceptions. Consequently, it would appear that there is no need to undertake specific further work with regard to stock access to streams (as would perhaps be the case if the surface water quality in Hawke's Bay was demonstrably poor). Instead, the issue of stock access to streams should be factored into the further work recommended above for riparian management, particularly in terms of actions (a) and (b). If a targeted regulatory approach to riparian management is adopted (action 5.2.3(e)) then the exclusion of stock from priority streams should be part of that policy package. Some other regional councils have used S17 of the RMA to force farmers to bridge frequently crossed streams – this may be an option that HBRC could investigate further.

5.3.3 *Recommended Actions*

Actions that the Council could take with regard to stock access to streams:

- a. Ensure that stock access to streams is factored into any further educational or regulatory initiatives undertaken to promote riparian management.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above action, although Council is a party to the Dairying and Clean Streams Accord.

5.4 **Hill Country Runoff**

An issue that has been raised at both the national level and locally is the increasing contaminant loads to watercourses arising from hill country runoff. This results from land use intensification, increased fertiliser use, hill country erosion and stream bank erosion, vegetation removal, and a lack of riparian vegetation.

The issues of riparian management and stock access to streams have already been discussed. Land use intensification insofar as it relates to land use change is discussed under section 7 of this report. Therefore, the sub-issues of hill country runoff that require further consideration here are:

- fertiliser use;
- accelerated hill country erosion; and
- vegetation clearance.

5.4.1 *Current Management Approach*

In terms of fertiliser use Council has no specific statutory objectives, policies or guidelines that apply to fertiliser use, but it does have a rule that applies region wide. Permitted activity rule 11 in the PHBRRMP essentially authorises fertiliser discharges that are undertaken in accordance with the Code of Practice for Fertiliser Use.

In terms of accelerated hill country erosion and the clearance of vegetation Council has specific statutory objectives, policies, guidelines (narrative environmental standards) and

¹⁷ Issue 3.10.1(b) in the PHBRRMP.

rules relating to these sub-issues¹⁸. The vegetation clearance rules have been amended through mediation on appeals lodged against the PHBRRMP. The rules preclude vegetation removal within 5m of perennial streams in hill country areas and require the revegetation of cleared areas where the clearance would increase the risk of soil loss.

Council also has substantial education, advocacy and financial incentives available through its Regional Landcare Scheme. The Landcare Scheme comprises a budget (2005/06) of \$1.01 million of which \$350,000 comprises environmental grants targeted to soil conservation outcomes. The overall Scheme is targeted at identified broad priority areas¹⁹ based on a region wide assessment of land use capability compared to actual current land use. It should be noted that these grants that pay only part of the soil conservation activity costs – the remainder is contributed by the landowner.

5.4.2 *Discussion*

The Council approach to hill country erosion and vegetation removal is comprehensive and robust. However, it would be timely to review the range of past Council interventions (grants, advice, regulations) and determine which of them have most usefully contributed to achieving the desired outcomes. This will enable future efforts to be targeted to the methods that yield the best return on Council's expenditure.

Additional intervention might be appropriate in terms of fertiliser use. In that regard there is mounting concern at a national level that some farmers over fertilise, particularly with phosphate²⁰. This has several undesirable environmental consequences²¹. If fertiliser applications are too high and can be reduced, this can lead to both cost savings and environmental benefits. The Dairying and Clean Streams Accord is attempting to address this issue with regard to dairy farm nutrient budgeting.

Consequently, despite the fact that surface water quality in Hawke's Bay appears to be generally good, the potential over application of fertiliser is an issue that Council should address further.

5.4.3 *Recommended Actions*

Actions that the Council could take with regard to hill country runoff:

- a. Retain the current non-regulatory approach to accelerated hill country erosion involving the provision of advice and grant assistance to farmers²²;

¹⁸ Objective 11, Policy 3, Policy 67(1), 67(3), rules 7 and 8 of the PHBRRMP.

¹⁹ Coastal unstable areas, siltstone areas, plains areas and pumice lands

²⁰ Monitoring in dairy catchments has shown that the plant available phosphate (Olsen P) is typically twice what it needs to be for optimum plant production on many dairy farms, and nitrogen levels are also often much higher than they need to be. It should be noted that there is also anecdotal evidence that while fertiliser companies offer nutrient budgeting services, given their goal is to sell more fertiliser, they still advise farmers to apply more fertiliser than is really necessary.

²¹ Phosphate is highly mobile, and when applied over and above what is necessary for plant growth will eventually enter watercourses. As most NZ rivers and streams are phosphate limited, this run-off will result in the elevated growth of macrophytes and algal communities. Nitrogen similarly enters streams, and will promote algal and macrophyte growth where the watercourse is nitrate limited. Most estuaries are believed to be nitrate limited, so nitrate discharges will accelerate the eutrophication of estuaries. Many lowland lakes are already eutrophic, and ongoing nutrient run-off accelerates this eutrophication. Nitrate-nitrogen contamination of shallow groundwater is an issue of major concern in some regions. In Canterbury for example, it is considered the single most adverse effect of intensifying land use.

²² This does **not** imply that regulatory approaches should be discounted.

- b. Review Council's past hill country erosion management interventions and determine which have most effectively contributed to achieving Council's desired outcomes. Ensure that future efforts utilise the most effective methods of management intervention;
- c. Investigate whether the declining surface water quality that is evident in the 7% of streams monitored under the regional SOE programme is due in part to excessive fertiliser use on hill country properties;
- d. Determine the extent to which the increase in phosphorous levels in some rivers is due to excessive fertiliser use and associated diffuse runoff from hill country properties;
- e. Identify priority areas (these may be the same as those used under the Regional Landcare Scheme) where the further management of fertiliser use on hill country properties would be beneficial;
- f. Consider further regulatory provisions specifically targeted at fertiliser use over and above a reliance on the Code of Practice for Fertiliser Use²³.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions.

5.5 Urban and Peri-urban Earthworks

Urban and peri-urban earthworks occur in relation to infrastructure provision (roads, pipe and cable networks), subdivision formation and building site preparation. Earthwork activities can involve substantial vegetation removal, land disturbance and the complete loss of natural watercourses (as these are piped or channelised). If these activities are not managed appropriately then significant sediment runoff can occur, initially to stormwater and drainage systems and ultimately into natural watercourses and estuarine and open coastal receiving environments. The direct loss of terrestrial habitat can also occur although that is outside the scope of this Review.

5.5.1 *Current Management Approach*

At the time of writing, urban and peri-urban earthworks are currently unregulated by the HBRC and there are no specific objectives, policies, guidelines or rules that address this issue. The reason for this is that Rule 7 of the PHBRRMP as notified addressed soil disturbance, but the Decisions version of the Plan (June 2001) deleted reference to soil disturbance from Rule 7. Consequently, while any discharge of sediment to a watercourse (whether directly or by way of stormwater drains) would require consent under s15 of the RMA the HBRC does not currently enforce this regulatory requirement.

5.5.2 *Discussion*

In other regions such as Auckland, Northland and the Bay of Plenty the regional council has a comprehensive policy and regulatory framework for managing land disturbing activities. The HBRC should reconsider its approach to this issue.

In that regard it is understood that the resolution of appeals on the PHBRRMP will result in the reinstatement of "soil disturbance" to Rule 7 of the Plan. This will provide some regulatory controls over earthworks. The matter of earthworks controls was considered by

²³ This could involve for example the requirement to undertake nutrient budgeting on farms in identified priority areas or the specification of a further "Environmental Guideline – Land" that relates to an optimum Olsen P, within the range of 25-35, being achieved on priority area farms within a particular time frame.

Council in December 2005. It was recommended that Council continue to favour a non-regulatory approach to earthwork where it was not clear if they fell within the scope of the post-appeal version of Rule 7.

It would be timely to review the non-regulatory presumption in favour of earthworks. The first step should involve a review of the region's district plans to identify and document any existing rules or guidelines relating to urban earthworks. It would also be beneficial to examine a range of subdivision consents granted by the region's territorial authorities to determine whether or not any controls are being imposed on sediment runoff. This will reveal whether existing problems are caused by the lack of a management framework or the lack of enforcement of existing district level provisions. If additional regulatory provisions are required at a regional level then there are ample examples from other regions that could readily be transferred to Hawke's Bay.

HBRC has recently initiated the development of an educational programme targeting the region's earthworks consulting firms and contractors. This should increase the awareness of contracting and consulting firms to land disturbance issues and appropriate management methods.

5.5.3 **Recommended Actions**

Actions that the Council could take with regard to urban and peri-urban earthworks are:

- a. Obtain existing research, monitoring and investigation reports from other councils²⁴ in NZ who have or are addressing earthworks management;
- b. Using existing earthworks research, monitoring and investigation reports from other councils, develop and implement a targeted research and consultative programme to quantify the scope of the earthworks management problem in Hawke's Bay. This should involve further discussions with territorial authority and HBRC staff and the targeted monitoring of a range of earthworks activities (from large scale subdivisions to individual building sites);
- c. Examine a range of subdivision consents granted by the region's territorial authorities on erosion prone sites to determine the extent to which controls for sediment run-off are included;
- d. Collate any existing earthworks regulatory provisions in the region's district plans and assess their adequacy and consistency in comparison to regional level provisions in other areas (such as those used by the ARC);
- e. Identify any regulatory gaps or regional inconsistencies in the approaches taken at a territorial authority level and initiate a regional plan development or regional plan variation accordingly utilising existing provisions from other regions as far as possible;
- f. Discuss any lack of enforcement of existing territorial authority regulatory provisions with the appropriate territorial authorities with the aim being to develop a joint strategy for ensuring that any problem areas are resolved. This could include joint monitoring, coordination and integration of compliance staff actions, even or transfers of powers from the territorial authorities to the HBRC.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions.

²⁴ For example the NSCC has recently completed a report on small site sediment runoff and the ACC has quantified urban sediment runoff rates generally.

5.6 Urban Stormwater Management

Urban stormwater management comprises two elements - stormwater quantity management (flood control and land drainage) and water quality (contaminant runoff) management. Stormwater quantity management is beyond the scope of this Review.

Urban stormwater runoff can contain high levels of contaminants including microbiological bacteria, sediments, heavy metals, polyaromatic hydrocarbons, pesticides and herbicides. The primary sources of contamination are industrial and commercial site runoff, general roof runoff, residential runoff (decaying vegetation and faecal matter from bird and dog droppings), heavily trafficked road runoff, and earthworks. Elsewhere in the country urban stormwater runoff has been shown to be significant contributor to the contamination of urban streams, drains and estuarine or coastal receiving environments. It is widely recognised that the "first flush" of rainfall (about the first 10-15mm) contains the highest contaminant loadings, particularly when it occurs after a dry period.

5.6.1 Current Management Approach

In Hawke's Bay the HBRC and to a more limited extent the HDC and NCC have undertaken urban drain sediment sampling which has shown contaminant levels to be generally elevated above aquatic guideline values, with contaminant accumulation hotspots adjacent to commercial and industrial areas.

The PHBRRMP has no provisions relating to stormwater management. These were withdrawn following opposition from the region's territorial authorities and the Council now relies on the very limited provisions in the earlier Regional Water Resources Plan. That earlier Plan does not address stormwater quality issues.

However, Council has clearly signaled its intention to address this policy and regulatory gap. The LTCCP has a performance target for 2005/06 which states "*prepare and notify for public submissions new provisions in the RRMP for stormwater*". Desired Achievement (3) for the Council's annual plan project 392 is to "*publicly notify any change to the RRMP covering stormwater policies and rules by 31 March 2006*".

In terms of research and investigations, Desired Achievement (1) in the annual plan project 412 is "*to continue a programme of environmental investigations to characterise the effects of urban stormwater discharges on sensitive environments in the region, as part of the review of the stormwater provisions of the Regional Plan*".

5.6.2 Discussion

Council appears to be well aware at both the staff and political level of the inadequacy of its current management approach to urban stormwater. Council has projects in place to both quantify the problem (sensitive receiving environments) and construct a policy framework in the PHBRRMP.

In terms of additional Council work, it would be prudent to ensure that the latest research and policy development initiatives in other regions are reviewed prior to beginning the policy development work in Hawke's Bay. For example, multi-party research in the Auckland region has shown that contaminant sources traditionally thought to be important (heavily trafficked roads) are now less important, and that most heavy metal contamination derives from roof runoff, particularly from zinc and galvanised iron cladding and copper spouting. Furthermore, traditional treatment measures (wet ponds, swales, sand filters) are now considered less important than source control (painting roofs, use of appropriate building material cladding).

It is also clear that a joint territorial authority and regional council approach to the matter is essential, given the potential duplication or overlap of statutory functions that arise in dealing with this issue. Respective roles should be discussed and agreed (if possible) prior to policy framework development to avoid contention, litigation and wasted policy development effort.

5.6.3 **Recommended Actions**

Actions that the Council could take with regard to urban stormwater management are:

- a. Continue with the existing LTCCP and annual plan stormwater projects;
- b. Become fully conversant with the latest stormwater management research and policy development initiatives in other regions, particularly in Auckland, before proceeding further with the development of provisions for the PHBRRMP;
- c. Address potentially overlapping roles and responsibilities with the region's territorial authorities prior to proceeding further with the development of stormwater management provisions for the PHBRRMP.

5.7 **Onsite Wastewater Treatment**

Small or remote settlements are serviced by onsite sewage treatment systems. These have traditionally utilised septic tanks and more recently package treatment systems with associated land disposal or discharge to ground. If not adequately designed and maintained, these systems can lead to groundwater contamination, which in turn can contaminate surface water resources. Onsite sewage treatment is particularly problematic in low lying areas with high winter water tables such as can occur adjacent to coastal or estuarine areas.

5.7.1 **Current Management Approach**

Onsite sewage treatment is identified as an issue²⁵ in the PHBRRMP; however there are no specific objectives that address that particular issue (other than general groundwater quality objectives). The existing policy²⁶ is to regulate new and existing sewage disposal systems over the Heretaunga and Ruataniwha Plains unconfined aquifers. Further policy²⁷ establishes performance measures for systems over the Heretaunga Plains unconfined aquifer and establishes a five year timeframe for compliance. Separate policy also establishes standards for systems in areas with high water tables. Permitted activity rules²⁸ are established for new and existing systems. These rules establish a mix of performance standards and receiving environment standards.

The LTCCP has a performance target for 2005/06 which states "*prepare and notify for public submissions new provisions in the RRMP for onsite wastewater*" and the Desired Achievement (2) for the annual plan project 392 is "*to publicly notify any required change to the RRMP covering onsite domestic wastewater disposal in coastal communities by 30 December 2005*".

²⁵ Issue 3.8.1

²⁶ Policy 3.8.13

²⁷ Policy 3.8.17 to 3.8.22

²⁸ Rules 35 and 37

5.7.2 *Discussion*

The intended policy development process is appropriate and should be preceded by a thorough review of the latest approaches being promulgated in other regions, particularly Auckland, Bay of Plenty and Waikato. In some of those regions the current approaches are embodied in Plan provisions based on the negotiated resolution of appeals and are not readily evident from the publicly available documents.

Any revised policies and rules that are developed for Hawke's Bay should be region wide, simple, pragmatic and based on performance measures that the "drainage community" can readily understand and consistently interpret and implement. Environmental outcome conditions on permitted activity rules do not readily lend themselves to consistent application.

The current PHBRRMP's focus is on the Heretaunga Plains and areas with high water tables. It would be helpful to actually map areas of concern and to specify certain types of systems that are not allowed in those areas, or that are at least categorised as non-complying activities. Furthermore, as with urban stormwater management, a joint territorial authority and regional council approach to the matter is essential, given the potential duplication or overlap of statutory functions that arises in dealing with this issue. Respective roles should be discussed and agreed (if possible) prior to policy framework development to avoid contention, litigation and wasted policy development effort.

5.7.3 *Recommended Actions*

Actions that the Council could take with regard to onsite sewage treatment are:

- a. Continue with the existing LTCCP and annual plan onsite sewage treatment projects;
- b. Become fully conversant with the onsite wastewater research and policy development initiatives in other regions, particularly in Auckland, Bay of Plenty and Waikato, before revising the existing framework in the PHBRRMP;
- c. Address potentially overlapping roles and responsibilities with regard to onsite wastewater management with the region's territorial authorities;
- d. Develop for a simple onsite wastewater regulatory framework that delineates (maps) areas where certain systems are or are not allowed and uses rules that are based on simple performance standards rather than subjective and difficult to measure environmental outcomes.

5.8 **Contaminated Sites**

Contaminated sites, arising from historical land use practices, can give rise to contaminated stormwater runoff and also contaminated groundwater. Such sites can be small and localised (such as former gas works sites, timber treatment plants, and on-farm stock dip sites) or large scale and widespread (such as former horticultural land).

5.8.1 *Current Management Approach*

The potential impact of contaminated sites is recognised as an issue²⁹ in the PHBRRMP. However, no specific objectives are developed for contaminated land, other than the

²⁹ Issue 3.8.1(a)

general groundwater quality objectives³⁰ relating to no degradation of existing water quality in the Heretaunga and Ruataniwha Plains, and maintenance or enhancement of groundwater quality in productive aquifers. Specific policy³¹ guidance is provided in relation to assessing the risks posed by contaminated sites, and site remediation “*will be required to ensure that the final level of contamination is appropriate for the current, proposed or any permitted use of that land*”.

Narrative environmental guidelines³² are provided in relation to soil contamination, requiring the avoidance of acute or toxic health effects and reductions in long-term land use potential. Rules are provided for discharges from closed landfills and also for general discharges to land.

5.8.2 Discussion

Council has an adequate existing policy and regulatory framework for contaminated sites. While the LTCCP does not contain any performance targets in relation to contaminated sites, annual plan Project 401 contains three Desired Achievements (5) to (7) relating to reviewing site remediation reports, investigating known sites, and administering a database of known sites. These work programme actions are an appropriate means of implementing the existing policy framework. It would not be practical to attempt to proactively identify contaminated sites and that can only occur through site investigations triggered by changes to more sensitive landuses for areas that were potentially contaminated in the past. The Council database of past “at risk” landuses should be adequate for the purpose, particularly as it has been disseminated to the region’s territorial authorities.

5.8.3 Recommended Actions

No new or further actions are recommended in relation to contaminated site management.

5.9 Declining Water Quality in Aquifers

Aquifer water quality is of significant importance in Hawke’s Bay, particularly the Heretaunga Plains and Ruataniwha Plains aquifers which are used extensively for potable supply. Land use activities can impact on groundwater quality, as can contaminated surface water.

The “Hawke’s Bay state of the environment Update 2002” states that “*Most of Hawke’s Bay groundwater is readily suited to drinking and irrigation, as determined from the Regional Council’s 48 groundwater quality monitoring sites*”. However, it went on to conclude that “*the water quality data obtained showed that manganese and faecal coliforms (used as a surrogate for E.coli which is not monitored) exceed the maximum values set for the protection of public health in the NZ Drinking Water Standards at a few of the Regional Council’s groundwater quality monitoring sites*”.

Manganese was exceeded in 13% of sites and faecal coliforms in 6% of sites. In 2001 these figures were 8% and 10% respectively. Manganese levels are derived from natural geological conditions whereas faecal contamination arises from land use activities and inappropriate onsite sewage systems.

³⁰ Objectives 21 and 22

³¹ Policy 22

³² Policy 67, Table 5

“The State of Our Environment Hawke's Bay Annual Summary 2004” report had very little to say on groundwater quality. It did state however “*Council sampled water from 144 shallow wells across Hawke's Bay in 2003. This showed that most groundwaters have little nitrate with only 8 wells exceeding health drinking water standards (near Takapau and coastal areas).*” Consequently it seems that Hawke's Bay does not (yet) experience the widespread elevated levels of nitrate-nitrogen now found in many other shallow aquifers around NZ, most notably beneath much of the Canterbury Plains.

5.9.1 **Current Management Approach**

Groundwater quality is recognised as a regionally significant issue³³ in the PHBRRMP. Specific objectives³⁴ relate to no degradation of existing water quality in the Heretaunga and Ruataniwha Plains, and maintenance or enhancement of groundwater quality in unconfined or semi confined productive aquifers such that it is fit for human consumption and irrigation without treatment. Specific policy³⁵ guidance is provided on managing discharges which could impact on groundwater quality. Narrative environmental guidelines³⁶ are provided in relation to the objective noted above, however the national guidelines referred to are out of date and the references should be updated.

The “Hawke's Bay state of the environment Update 2002” noted that “*a national project to characterise the risks to both groundwater and surface water and soil buildup of pesticide use on 22 crops across the country has been designed and approved with substantial assistance from HBRC staff. The project commenced in July 2002*”. The results of these this study and the groundwater nitrate study discussed in the 2004 Annual Summary Report are not reflected in the PHBRRMP.

5.9.2 **Discussion**

The LTCCP does not contain any performance targets in relation to groundwater quality, other than to continue state of the environment monitoring. Annual Plan Project 425 has Desired Achievements relating to the ongoing monitoring of groundwater quality and the review of the monitoring programme.

Council has a generally adequate existing policy and regulatory framework for groundwater quality. However, more certainty is required regarding the management objectives for aquifers outside of the main Heretaunga and Ruataniwha Plains areas. Outside of those main aquifer areas only “*productive aquifers*” need to be managed for potable use and irrigation supply. However, it is unclear where those “productive aquifers” are and if shallow unconfined groundwater would meet potable standards. Consequently, Council should identify the productive aquifers targeted by policy 75 of the PHBRRMP and then develop objectives and policies for the remaining areas. There is also an opportunity for Council to utilise the results of its shallow groundwater studies cited above in the PHBRRMP.

³³ Issue 3.8.1

³⁴ Objectives 21 and 22

³⁵ Policies 16 to 22

³⁶ Policy 75, Table 10

5.9.3 **Recommended Actions**

Actions that the Council could take with regard to groundwater quality are:

- a. Consider whether the findings of the 2002-2003 investigation of shallow groundwater nitrate levels and the 2002 national pesticide project indicate a need to review the current groundwater quality management framework in the PHBRRMP;
- b. Define and map the location of the “productive aquifers” referred to in Policy 75 of the PHBRRMP;
- c. Develop objectives and policies for the aquifers outside the coverage of Policy 75 of the PHBRRMP.

5.10 **Groundwater and Surface Water Interactions**

Groundwater and surface water interact from both a quantity and quality perspective. Water abstracted from groundwater close to streams can affect stream flows. General groundwater abstraction can also reduce natural spring flows. Similarly, surface water abstractions can reduce stream flows and subsequently aquifer recharge. Contaminants can be transferred from surface water to groundwater where recharge occurs, and vice versa where aquifer outflows occur. For the sake of brevity both quality and quantity issues are addressed here.

5.10.1 **Current Management Approach**

Council does not appear to have identified groundwater and surface water interactions as a regionally significant issue and it does not have any specific objectives on that matter. It does however have a policy³⁷ relating to managing the effects of groundwater takes on surface water bodies which requires groundwater takes within 400m of a surface water body to be assessed as a surface water take, thereby pulling those takes into the surface water allocation regime (allocatable volumes and minimum flow restrictions). Council has also established an Environmental Guideline³⁸ for groundwater quantity that requires that groundwater takes should not cause a reduction in the flow of rivers or the levels of springs and lakes. Other than minor surface and groundwater takes of 20m³ per day, all takes are discretionary activities.

5.10.2 **Discussion**

The LTCCP does not contain any performance targets in relation to surface and groundwater interactions and there are no annual plan Desired Achievements relating to this issue.

Council has a generally adequate existing policy and regulatory framework for dealing with the impacts of groundwater takes on surface water flows. Water quality issues are dealt with under the general groundwater and surface water management framework, which is appropriate. However, it may be beneficial to proactively advocate groundwater takes in preference to surface water takes in areas of the Ruataniwha Plains where the surface water flows are subject to natural or induced low levels. There may also be other parts of the region where such measures would be appropriate.

³⁷ Policy and 34 and 44

³⁸ Policy 77 and Table 11

5.10.3 **Recommended Actions**

Actions that the Council could take with regard to groundwater and surface water interactions are:

- a. Consider proactively advocating groundwater takes in preference to surface water takes in areas of the Ruataniwha Plains where the surface water flows are subject to natural or induced low levels and consider if similar management intervention is required in other parts of the region.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions.

6 **WATER QUANTITY ISSUES**

In the context of this report groundwater and surface water quantity management relates to the sustainable management of water abstractions, particularly with regard to aquifer levels and river low flows. Consequently, the relevant issues have been simply grouped as follows:

- Knowledge of the groundwater resource;
- Declining groundwater levels;
- Groundwater allocation;
- Knowledge of the surface water resource;
- Surface water allocation.

The issue of declining groundwater levels has been singled out as it has been identified as a nationally significant issue and some national level documents³⁹ cite it as an issue in Hawke's Bay.

6.1 **Knowledge of the groundwater resource**

As noted previously in this report, groundwater management in Hawke's Bay is vital, given the heavy reliance on groundwater (particularly in the Heretaunga and Ruataniwha plains) for potable supply, primary production (irrigation) and commercial and industrial uses.

6.1.1 **Current Management Approach**

Council runs a groundwater level monitoring network that dates from 1968. The most recent "The State of Our Environment Hawke's Bay Annual Summary 2004" report does not contain any substantive conclusions regarding the long term trends evident from that substantial monitoring record – particularly with regard to whether or not the resource is being managed sustainably.

Monitoring long term groundwater levels is one means of assessing sustainable use as any over abstraction⁴⁰ will result in declining aquifer levels over time. The 1999 state of the environment Update noted that "*in terms of the main aquifers therefore, the monitoring information to date shows that they are heavily influenced by climatic conditions, and that no long term decline in water levels is obvious*". It also concluded "*At this stage our best information suggests that we are not exceeding our long term sustainable use of the main*

³⁹ Including the 2005 MfE report to the OECD review panel.

⁴⁰ Where abstraction exceeds the rate of recharge or aquifer through flow leading to a mining of the groundwater resource.

body of our aquifers". However, the 2002 Update noted as a gap "*investigations to characterise safe yields from aquifers, notably in the Ruataniwha and Heretaunga Plains*".

6.1.2 **Discussion**

Council needs to continue its long term baseline monitoring of the main aquifer levels, given its heavy reliance on that information to assess whether or not the aquifer systems are being sustainably managed.

A Heretaunga Plains model is currently under development with a target completion date of mid 2006⁴¹. The timely completion of that model is vital. In order to make the model useful, Council needs real time knowledge on the volumes actually being taken by significant groundwater abstractions. Other regions (such as Manawatu Wanganui and Auckland) require medium to large abstractors located in critical aquifer areas⁴² to meter their takes and to telemeter that real time information to the Council. In that case the consent holder usually pays for the meter while the telemetry equipment is usually paid for by the Council. This is seen as a suitable cost sharing arrangement. HBRC should consider adopting a similar approach.

Conversely, in areas not under allocative pressure, or where seasonal allocations to individual consent holders are being underutilised, a less frequent reading of existing meters could be appropriate. In that regard policies 30 and 42 of the PHBRRMP currently set out criteria for requiring water measuring devices for water take consents. These policies clearly state that measuring devices will only be required in certain priority areas for surface water (policy 42) and for medium and greater groundwater takes (policy 30). These policies need to be articulated to resource users and consistently implemented by Council staff.

Little if any monitoring or research occurs on of aquifers outside⁴³ the main plains areas other than that undertaken by consent applicants and consent holders. Given the lack of municipal and large scale industrial use made of those more remote aquifers, it is probably appropriate for consent applicants to initiate research into sustainable yields. Once that research is undertaken it becomes freely available as a classic public good (in economic terms) and adds to Council's pool of knowledge on the regional groundwater resources. However, the individual's often substantial financial outlay to undertake the research is not recoverable from future users. It may be more equitable if the Council were to significantly subsidise such research. This is discussed further in section 8.2 of this report.

Finally, at the very least the Council should be collecting some long term water level information from the outlying aquifers (i.e. from selected bores) as that would show any trends in groundwater levels.

6.1.3 **Recommended Actions**

Actions that the Council should take with regard to the knowledge of the groundwater resource are:

- a. Continue long term baseline monitoring of aquifer levels;
- b. Urgently complete the proposed computer model of the Heretaunga Plains aquifer;

⁴¹ See Annual Plan project 410 Desired Achievement 2.

⁴² Such as where interference effects are problematic or where salt water intrusion is a real risk.

⁴³ Such as Lake Poukawa, the upper Ngaruroro catchment, and in and around Wairoa.

- c. If required for the operation of the proposed model of the Heretaunga Plains aquifer require real time telemetering of abstraction information to Council for large takes or takes located within critical aquifer areas - on an appropriate cost sharing basis with consent holders;
- d. Articulate policies 30 and 42 of the PHBRMP to resource users and ensure those policies are implemented at the time consents are granted;
- e. Consider stepping back to a monthly or annual water take meter reading frequency in non-critical areas⁴⁴.

6.2 Declining Groundwater Levels

The issue of declining groundwater levels has been identified as a nationally significant issue and some national level documents⁴⁵ cite it as an issue in Hawke's Bay. There appears to be conflicting perceptions locally and nationally regarding whether or not groundwater levels in the Hawke's Bay region are showing a long term decline. Declining groundwater levels can be significant as that demonstrates a potentially unsustainable use of the aquifer and it can exacerbate supply problems for existing bores.

6.2.1 *Current Management Approach*

As part of this Review Council staff advised that there is a clearly identified pattern of long term decline in the Heretaunga Plains aquifer, but it was not considered to be an issue and wouldn't threaten existing takes for the next 30-50 years at least. Council staff were less certain about the Ruataniwha aquifer systems as those systems operate differently.

6.2.2 *Discussion*

Given the conflicting messages in Council's own State of the Environment documentation (see section 6.1 above) it would be appropriate to clarify the factual situation and then to make comment on what conclusions can be drawn from that factual situation.

6.2.3 *Recommended Actions*

Actions that the Council should take with regard to declining groundwater levels are:

- a. Urgently produce an updated State of the Environment document that clearly states where groundwater levels are declining, the likely cause of any decline, and whether or not that decline is considered to be of concern;
- b. Decide what if any management interventions are required to arrest declining aquifer levels.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions.

6.3 Groundwater Allocation

Sustainable groundwater management is of vital importance to the Hawke's Bay region. If an aquifer is over allocated (namely if too great a volume of abstraction is authorised either by way of permitted activity rules or by way of resource consents) then the aquifer will essentially be mined and groundwater levels will decline. The Heretaunga Plains

⁴⁴ This could be facilitated by preparing a groundwater priority area policy similar to policy 42 of the PHBRRMP for surface water takes.

⁴⁵ Including the 2005 MfE report to the OECD review panel.

groundwater aquifer has been identified by the Ministry for the Environment⁴⁶ as a national water body of highest economic value for existing and potential domestic and industrial use.

There are two main issues to consider in terms of groundwater allocation. The first is the technical and policy management regime used, while the second relates to use of the water and the “first in first served” management approach. That second issue is discussed under section 8.1 of this report.

6.3.1 *Current Management Approach*

Council has not developed sustainable yields or volumes of allocation for any of its aquifer systems. If it has, then that information is certainly not reflected in the PHBRRMP. At the moment groundwater abstractors are sometimes required to undertake pump tests and associated investigations in order to assess the drawdown effects (interference effects) on existing bores. In some cases potential abstractors are also required to attempt to assess the sustainable yield of the aquifers they intend to draw from.

6.3.2 *Discussion*

Other regional councils have established formal water allocation regimes for aquifer systems. Examples include:

- Wellington Regional Council has established maximum volumes of abstraction for some of its aquifers⁴⁷ in its Regional Freshwater Plan;
- Horizons Regional Council has developed allocatable volumes for its main aquifers based on a nominal “capture zone” of 5km per bore that relates to the interference effects (as predicted from pump tests) and the estimated rate of recharge of those aquifer systems. Account is also taken of groundwater dependant ecosystems and permitted groundwater abstraction. This results in a groundwater allocation volume per overlying land area expressed in units of m³/km²/year.
- Auckland Regional Council has established water availability limits (m³/year) for 22 aquifers in its region and has included these maximum volumes in its Regional Plan: Air Land and Water. The Plan also contains maps showing the lineal extent of each of those aquifer systems. The ARC has also included aquifer groundwater levels for three sensitive aquifers whereby abstraction ceases when those levels are reached.
- Canterbury Regional Council has determined allocatable groundwater volumes based primarily on rainfall recharge. This has been set out in the Council’s Natural Resources Regional Plan and has received recent favourable comment from the Environment Court.

These few examples show that other Council’s have adopted a more structured approach to groundwater allocation and management than the HBRC. In some cases that approach has been incorporated into regional plans. Consequently, it is timely for HBRC to consider establishing allocatable volumes of abstraction and aquifer abstraction cessation levels for some or all of the aquifers under its control. If Council decided that a more structured approach was appropriate then there are existing technical approaches and

⁴⁶ MfE, July 2004

⁴⁷ For example takes of water from the Lower Hutt Groundwater Zone (Taita Alluvium/Waiwhetu aquifers) are not allowed to exceed 32.85 million cubic metres per year and takes are required to cease when the 24 hour mean groundwater level of the aquifer at McEwan Park falls below 1.4 metres above mean sea level.

policy frameworks in existence in other regions and there would be no need to “reinvent the wheel” in that regard.

6.3.3 **Recommended Actions**

Actions that the Council should take with regard to the allocation of groundwater are:

- a. Fully review the groundwater management approaches adopted by other regional councils and determine whether or not allocatable volumes of abstraction and aquifer abstraction cessation levels should be established for Hawke's Bay aquifers;
- b. Establish the necessary research, investigation and policy development projects and budgets to deliver a robust groundwater allocation framework for Hawke's Bay.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions.

6.4 **Knowledge of the surface water resource**

6.4.1 **Current management approach**

Council runs a surface water level monitoring network that incorporates over 40 automatic river level recorders throughout the region and a series of non-automatic recording sites. In addition over 35 minimum flow sites in the region's rivers are monitored each summer⁴⁸. The “Hawke's Bay state of environment Update 2002” discusses the long term trends evident from that substantial monitoring record noting “*as with rainfall data, few trends in river flow data are evident. Any change seems to be the result of a dry Interdecadal Pacific Oscillation phase over the last thirty years. The continuation of long term records will help identify trends in the future.*” The 2004 state of the environment Annual Summary report had little to say about river levels other than reporting on two flood events.

6.4.2 **Discussion**

Council needs to continue its long term baseline monitoring of river and stream levels and flows, given its heavy reliance on that information to assess whether or not the river systems are being sustainably managed. Flow data also provides an important input to other Council programmes such as those dealing with ecology, water quality and land use monitoring.

6.4.3 **Recommended Actions**

Actions that the Council should take with regard to the knowledge of the surface water resource are:

- a. Continue long term baseline monitoring of river levels.

⁴⁸ State of the Environment, HBRC, 1997

6.5 Surface Water Allocation

As with groundwater, there are two main issues to consider in terms of surface water allocation. The first is the technical and policy management regime used, while the second relates to use of the water and the “first in first served” management approach. The second issue is discussed under section 8.1 of this report.

6.5.1 Current Management Approach

Council’s current management approach is succinctly stated in the “Hawke’s Bay state of environment Update 2002”. *“During 1995-1999, the Regional Council’s Sustainable Low Flow Project reviewed stream Minimum Flows and determined limits on water availability. In order to balance the risks to the environment and the needs of stream users, an allocatable volume was defined as the difference between a ‘management level’ and the Minimum Flow. The ‘management level’ was set as the seven day averaged flow that would be exceeded 95% of the time during a six month summer irrigation period (November to April). Over a 25-year period, this means that a stream would be expected to be above its Minimum Flow for 95% of the time, and at or below its Minimum Flow 5% of the time”.*

The management approach outlined above and the actual minimum flows and associated allocatable volumes for 33 rivers have been incorporated into the PHBRRMP⁴⁹. The Plan establishes that abstractions will cease when the minimum flows are reached and that total abstractions authorised through resource consents will not exceed the allocatable volumes. At the time of writing appeals on some of those values were being resolved by way of Environment Court mediation.

The Council actively monitors flows at the minimum flow sites and institutes abstraction bans (or irrigation bans as they are more commonly called) when the minimum flows are reached.

6.5.2 Discussion

Council has a well developed technical approach to surface water management founded on minimum flows and allocatable volumes. The minimum flows are largely based on IFIM⁵⁰ studies which are nationally recognised as being the state of the art technique for defining the appropriate level of river flow that safeguards aquatic habitat and ecosystems. Council has used NZ derived habitat curves for native fish and is working with the Cawthron Institute and other regional councils to develop a NZ East Coast specific habitat curve for trout. The IFIM approach has been tested and endorsed at the Environment Court.

However, it would be timely for Council to “flesh out” iwi cultural values that could be part of the minimum flow setting and review process. Council staff advised that some work had already been undertaken in that regard. The flow reduction regimes in other regions have identified issues such as maintaining adequate flows in traditional healing or bathing pools or reaches or streams used for traditional food harvesting. The Karewarewa Stream running through Bridge Pa would be a case in point where such approaches could be used in Hawke’s Bay.

⁴⁹ Policies 73 and 74 and Table 9

⁵⁰ Instream flow incremental methodology.

Council also needs to confirm whether the Q_{95} management level is still appropriate for setting the allocatable volume of abstraction. If a Q_{90} value was used instead the allocatable volume on some rivers could potentially double. When addressing that matter Council should ask resource users to define the level of acceptable risk (irrigation bans) that they would be prepared to tolerate. Examples of that approach exist elsewhere and NIWA has developed a low flow decision making model that allows resource users to input the level of abstraction cessation risk that they are prepared to accept which in turn inputs into setting an allocatable volume of abstraction for the river.

6.5.3 **Recommended Actions**

Actions that the Council should take with regard to the allocation of surface water are:

- a. Continue to use IFIM to establish minimum flow for rivers, but consider undertaking an assessment of iwi cultural values in relation to low flows and determine whether or not the IFIM derived values cater for those values;
- b. Reemphasise to iwi and conservation interests that NZ derived habitat preference curves for native fish have been used in the setting of Hawke's Bay minimum flows (noting that minimum flows are not necessarily derived for native fish and depend on the ecological values of the particular stream);
- c. Assess the implications of using a Q_{90} flow as the management level for setting allocatable volumes of abstraction and undertake consultation regarding that potential change with user groups and conservation interests;
- d. Assess and report on the comparative advantages and disadvantages of other methodologies developed by NIWA, other CRI's, or other regional councils for determining the allocatable volume of abstraction – particularly methodologies which allow abstractors to input to the level of risk associated with the allocatable volume.

Existing annual plan project 411 appears to address some but not all of these matters.

7 **LAND USE INTENSIFICATION**

Land use intensification occurs when traditional land uses such as pastoral farming or dry land grazing give way to land uses such as process cropping, horticulture, and dairying. These more high value land use activities generally place increased demands on water supplies for irrigation purposes and also add to diffuse runoff problems due to increased fertiliser, herbicide and pesticide use.

7.1.1 **Current Management Approach**

Council's current management approach to land use intensification could be described as "hands off". This is reinforced by the presumption in section 9 of the Act that many activities on land can occur without the need for a resource consent unless a rule in a regional or district plan deems otherwise. Council has a wide ability to develop rules to control land use as set out in section 30(1)(c) of the RMA which gives Council the function of:

- (c) *The control of the use of land for the purpose of –*
 - (i) *Soil conservation:*
 - (ii) *The maintenance and enhancement of the quality of water in water bodies and coastal water:*
 - (iii) *The maintenance of the quantity of water in water bodies and coastal water:*

- (iii) *The maintenance and enhancement of ecosystems in water bodies and coastal water:*
- (iv) *The avoidance or mitigation of natural hazards:*
- (v) *The prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances:*

To date Council has not utilised its regulatory powers to address the effects of land use intensification. It does have some section 9 land use rules in the PHBRRMP that address the clearance of riparian vegetation and soil disturbance of steeply sloping land. However, these are relatively traditional soil conservation interventions that have been practiced by regional councils and their predecessor catchment boards for many decades nationwide.

However the project narrative for Annual Plan Project 392 Desired Outcome states “*To report to Council by 1 March 2006 on what options are available to develop provisions within the RPS to clearly define Council’s position in relation to landuse, landscape and urban development in the region.*”

7.1.2 **Discussion**

Any further regulatory intervention in terms of land use intensification should be targeted at restricting intensive land use practices in areas that are geologically or climatically unsuitable. The rationale would be to avoid the range of adverse effects listed in section 30(1)(c)(i) to (iv) of the RMA.

Council should reconsider its traditional hands off role in terms of managing land use change and land use intensification. This is foreshadowed by Annual Plan Project 392. Council’s potential role applies to urban development, urban sprawl and infill, and rural land use intensification. Any change to Council’s status quo position would however need to be carefully scoped and planned. This is especially important given the potential duplication of function between the HBRC and the region’s territorial authorities in terms of general landuse controls.

In 1997⁵¹ Council undertook an assessment of the sustainable land uses suitable for Hawke's Bay based on the NZ Land Resource Inventory prepared between 1973 and 1979. That report showed that only 13% of the region’s land area was suitable for intensive land uses such as horticulture, cropping or dairying. The remainder was suitable for pastoral farming, forestry or protection. This report could provide a basis for deciding where within the region intensive landuse should be precluded.

It may be that the best way to address land use intensification (or inappropriate land use) issues is through the District Planning process and through avenues such as structure planning and discussions with territorial authorities on zoning changes. If the territorial authorities are authorising a particular type of land use in accordance with existing District Plan provisions then it is very difficult for the HBRC or any other party to intervene. Consequently, a first step might be for the HBRC to take a much greater regional planning role and boost its involvement (in a partnership approach) with the region’s territorial authorities to ensure that inappropriate land use is not allowed by District Plan provisions. Direct HBRC intervention by way of overriding regional rules should only be utilised if the territorial authorities are not willing or able to address the HBRC’s concerns.

⁵¹ HBRC 1997

7.1.3 **Recommended Actions**

Actions that the Council should take with regard to the management of landuse intensification are:

- a. Identify the adverse effects associated with land use change and intensification that are occurring now that are not being appropriately controlled by the region's territorial authorities;
- b. Identify if any adverse effects associated with land use change and intensification are due to deficiencies in existing District Plan provisions or due to deficiencies in the way existing District Plan provisions are administered;
- c. Discuss with the region's territorial authorities their willingness to either change or vary their District Plans, or their actual implementation; to alleviate any identified deficiencies in District Plan content or implementation;
- d. If necessary, develop appropriate regional plan provisions to avoid or mitigate identified adverse effects associated with land use change and intensification with an emphasis in the first instance on permitted activity rules as the initial tier of regulatory intervention.

Existing Annual Plan Project 392 appears to address this issue but is restricted to the RPS. Any regionally consistent, meaningful and timely action will however require the promulgation of regional rules.

8 **ADMINISTRATIVE ISSUES**

There are a number of issues that have been loosely described as 'administrative issues' for the purposes of this report. It is acknowledged that these issues could have been described in other ways. The issues considered here are:

- Water distribution policy
- Consent durations
- Council's research role
- Iwi involvement in decision making

8.1 **Water Distribution Policy**

Earlier in this report groundwater and surface water allocation were discussed in terms of the technical procedures that Council has used to determine how much water is available for allocation to abstractive uses and how much should be left in aquifers and rivers to protect environmental values. This part of the report discusses how decisions are made regarding the distribution of the allocatable volumes of water. To distinguish this from the earlier technical issues the term 'water distribution policy' has been used.

8.1.1 **Current Management Approach**

Council's current management approach is to allocate the available water on a 'first in first served basis'. That approach is consistent with case law⁵² which has established that resource consent applications should be individually assessed on their merits in the sequential order in which they reach the stage where they are ready for notification (which loosely equates to order in which they are received).

⁵² Fleetwing Farms Ltd v Marlborough DC CA255/96

The PHBRRMP is however silent on this matter. Chapter 8 of the Plan sets out Administrative Matters that predominantly relate to the processing of resource consents, but no mention is made of how available resources will be distributed amongst potential resource users.

8.1.2 Discussion

As water resources become limited or fully allocated, then questions arise as to what the best end use of those resources is. Council's current approach is to let the users decide what the 'best use' of water is. The allocatable volume for a number of key rivers within the region has been exhausted and there is no additional water available for new applicants. This means that new applicants need to wait until an existing consent holder surrenders their allocation⁵³ or alternatively they have to attempt to purchase existing allocations.

In the past, existing water permits have been transferred between parties on the Ngaruroro River for considerable sums of money⁵⁴. The Hastings and Central Hawke's Bay District Councils were also able to "sell" the water allocated to old water race consents for considerable sums when those water races were shut down. This shows that a market for water exists and that to a limited degree water on fully allocated rivers is moving from traditional land use activities to more financially profitable end uses. However, this water 'market' largely operates outside of Council's control. The transfer of water take permits in rivers and aquifers are permitted activities under rules 59 and 60 of the PHBRRMP, subject only to some straightforward environmental safeguards.

Importantly, in August 2005 the RMA was amended in terms of the functions of regional councils. Section 30(1)(fa) was added to the Act:

- (fa) if appropriate, the establishment of rules in a regional plan to allocate any of the following:
 - (i) the taking or use of water (other than open coastal water):
 - (ii) the taking or use of heat or energy from water (other than open coastal water):
 - (iii) the taking or use of heat or energy from the material surrounding geothermal water:
 - (iv) the capacity of air or water to assimilate a discharge of a contaminant:

This makes it clear that Council can allocate water, to various uses or otherwise, through its regional plan provisions.

Consequently, it would be timely to reconsider Council's approach in light of the following matters:

- Council currently allocates water to crop irrigation based on the approach set out in the report titled "A Methodology for Determining Crop Water Requirements in Hawke's Bay" dated June 1997. That methodology was conceived nearly 10 years ago and while it was adequate at the time there are now more sophisticated models⁵⁵ available to determine crop water requirements. It is also relatively common knowledge that the Hawke's Bay's 1997 methodology over predicts the amount of irrigation water required for a crop by anywhere from 200% to 300% depending on the area and crop type;

⁵³ Through existing permit holders not renewing their consents.

⁵⁴ Many \$10,000s.

⁵⁵ Such as SPASMO – the Soil Plant Atmosphere System Model used by Hort Research

- Water allocated for irrigation purposes is hardly ever fully used. The “State of Our Environment Hawke's Bay Summary 1998-2003” had this to say about the record of actual water allocation use on the Ngaruroro River over the period 1996 to 2003 “*The Ngaruroro River showed maximum use was 37% of the amount allocated, with average use 10% of the amount allocated*”. Locking up available water in this way is inefficient and economically retarding for the region as a whole;
- Under s10(b) of the Local Government Act 2002 the role of the HBRC is “*to promote the social, economic, environmental, and cultural well-being of communities, in the present and for the future*” and that arguably denotes a more hands on approach to the distribution of available water may be appropriate. There is certainly no statutory barrier to such an approach;
- The present system of tradable permits on fully allocated rivers is relatively ad-hoc;
- When minimum flows are reached all takes are required to cease regardless of the actual use made of the water.

The low rate of use of allocated water is alarming. If the Ngaruroro River case study is symptomatic of all rivers in the region then significant economic development opportunities are currently being foregone due to the substantial over allocation of water to existing users. This points to an urgent need for the metering of abstractions on fully allocated rivers because if only a small proportion of the actual water allocated is being taken it precludes reasonable use by other potential users.

In terms of priority of use other councils are taking, or are considering taking, a more hands on approach to the distribution of available water. For example, Horizons Regional Council is developing a policy framework for the priority use of water whereby surface and groundwater will be reserved for public water supply purposes – including the anticipated growth in demand that will arise from population growth over the medium term. That council's stated priority of use for available water will therefore be habitat protection, community supply, stock water followed by agriculture and industry. Horizons do not intend prioritising between agricultural or industrial types – leaving that as a market decision.

Importantly, the Government appointed Waitaki Water Allocation Board. In September 2005 the Board released the final draft Waitaki Catchment Water Allocation Regional Plan which assigns specific allocatable volumes of water to defined activities namely:

- Town and community water supplies;
- Industrial and commercial activities;
- Tourism and recreational facilities;
- Agricultural and horticultural activities;
- Hydro electricity generation; and
- Any other activities.

The Plan does not allow trading between activities once the allocatable volume within an activity category is exhausted.

It is likely that the Waitaki Plan will become a precedent for other regions to follow.

The HBRC should also reconsider its approach to abstraction cessation. At the moment when a minimum flow is reached all abstractions are required to cease regardless of the use of the water and the social and economic effects that result. For example a large industrial take is treated on the same basis as a crop irrigation take. Other councils

approach this differently. Some, such as the Marlborough District Council, have a tiered approach with different classes of permits that are required to cease at different minimum flows. The abstractions with the highest social and economic value are generally required to cease last. Other councils require public water supply takes to be scaled back to accepted minimum values for public health and safety (such as that based on an allocation of 300 to 500 litres/person/day) or for stock health. Some require irrigation takes to cease before industrial takes in recognition of the comparatively greater social and economic disruption that arises when industrial users are required to cease operation compared to crop irrigators. Of course, such an evaluation will be heavily influenced by the number of irrigators affected in any particular case.

Council could also consider the concept of an “iwi allocation” of water on some traditionally important water resources within the region. This would ensure protection of traditional iwi cultural practices including spiritual and healing bathing and food gathering. The rivers where such an approach would be appropriate, together with the volume of water required, would need to be decided in close consultation with iwi. It is conceivable that in many cases the existing minimum flows set by Council for ecological purposes would also largely cater for traditional iwi values – but in some cases they may not.

8.1.3 **Recommended Actions**

Actions that the Council should take with regard to the distribution of allocatable volumes of water are:

- a. Adopt a more up to date model for determining the crop water requirements in Hawke's Bay;
- b. Decide whether the more up to date model for determining the crop water requirements in Hawke's Bay should be used to proactively and immediately review all existing irrigation allocations or whether that would be dealt with upon the expiry and renewal of existing consents;
- c. Investigate the feasibility of a regulatory process for ‘reclaiming’ presently allocated water that is not being used without needing to wait for consents to expire or be surrendered;
- d. Consider prioritising the distribution of allocatable water, particularly in terms of providing for community health and wellbeing;
- e. Consider prioritising the cessation of abstractions at times of low flow, particularly in terms of community health and well being and social and economic disruption;
- f. Determine whether existing minimum flows and allocatable volumes adequately cater for surface water bodies traditionally important to iwi in the region.

Existing Annual Plan Project 392 may address this issue.

8.2 **Research funding**

At various times throughout this report the role of Council in water resource management research has been discussed. A particular issue that has arisen is the balance between resource consent applicant or resource user funded research and Council funded research.

8.2.1 **Current Management Approach**

Council has previously spent, and continues to spend, large sums of money on investigating the main Ruataniwha Plains and Heretaunga Plains aquifers and the main rivers⁵⁶. This research is over and above the long term baseline monitoring of aquifer levels and river flows.

8.2.2 **Discussion**

It is appropriate that Council undertakes research aimed at understanding the water resources represented by Hawke's Bay's largest aquifers and rivers. However, apart from a study to test the validity of the River Environment Classification (REC) system for addressing low flows on ungauged rivers⁵⁷, the LTCCP and Annual Plan programme does not appear to stipulate any research on water resources in other areas such as Poukawa, the southern Hawke's Bay coastal catchments, and northern Hawke's Bay from the Esk to Wairoa and Mahia.

Any potential resource applicant in those more remote areas is required to quantify both the sustainable yield of the water resource and any potential adverse effects that might arise from its use. That is appropriate in the first instance, but Council should consider a policy of cost sharing for resource user funded investigations - perhaps on a 50/50 basis. The rationale for this suggestion is that once it is provided to Council the water resource information is freely available to the wider public and other subsequent resource consent applicants. The original private funder of the investigations has no ability to recoup their sunk costs. This is inequitable. Other councils address this issue by subsidising the investigations undertaken by consent applicants in situations such as these, or by reducing their consent application fees accordingly. There is some precedent for this in Hawke's Bay in the Poukawa area.

8.2.3 **Recommended Actions**

Actions that the Council should take with regard to water management research are:

- a. Jointly scope with consent applicants the necessary water availability research in areas where Council knowledge of the resource is sparse;
- b. Develop a policy through the LTCCP process to subsidise or compensate resource users who investigate water resource availability in areas outside of the main aquifers and rivers, particularly where that information subsequently enters the public domain and is of benefit to Council and future resource users.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions.

8.3 **Consent Durations**

The duration for which a consent is issued is often a matter of contention. The Act provides for consent durations of up to 35 years. Applicants generally seek long term consents and the length of consent granted can affect the economic viability of a project. Other parties such as conservation groups and iwi often seek shorter term consents.

⁵⁶ Annual Plan Project 410 for Groundwater Research has a \$150,000 budget in 2005/06 and Project 411 for Surface Water Resource Research and Investigations is \$178,000. This totals nearly \$330,000.

⁵⁷ See Annual Plan Project 411 Desired Outcome (5)

8.3.1 **Current Management Approach**

The PHBRRMP provides some guidance on consent durations. Policy 8.2.3.1 states that resource consents for activities other than land use activities will be granted for periods of 20 to 35 years. Policy 8.2.3.2 then lists four matters that could lead to shorter consents being granted.

8.3.2 **Discussion**

The existing policies in the PHBRRMP do not adequately cover existing Council practice. For example no mention is made of the use of common catchment or aquifer area expiry dates that are used by Council. These could usefully be tabulated in the Plan. There is no policy guidance on the appropriate consent durations for different types of activity, even though Council operates a number of 'rules of thumb' in terms of consenting certain activities for consistent periods of time shorter than the 35 year maximum provided for under the Act. Similarly, no distinction is made between geographic areas known to be under greater allocative pressure than other areas, or areas showing greater environmental degradation. The extensive case guidance on consent durations is not reflected in the PHBRRMP policy.

In August 2005 the RMA was amended and decision makers are now required to consider the value of investment in existing activities when considering consent "renewals". Section 104(2A) states (note section 124 applies to the exercise of consents whilst applying for new consents):

- (2A) When considering an application affected by section 124, the consent authority must have regard to the value of the investment of the existing consent holder.

While this new requirement is probably more relevant to the decision whether or not to grant "renewal" consents, it could also usefully be referred to in Council policy on consent durations.

In terms of actual practice nationwide, MfE undertook a survey⁵⁸ of consent durations in 2000. That showed that industrial and commercial take durations averaged 15 years, irrigation take durations averaged 26 years and municipal water supply take durations averaged 23 years. Consequently, at that time water abstraction consents were commonly being granted for 15 to 25 year periods.

In terms of case law, the most comprehensive decision thus far is *PVL Proteins*. There, the Environment Court reviewed six term decisions and, in the context of an air discharge application, drew together the following "indicators":

"[30] Uncertainty for an applicant of a short term, and an applicant's need (to protect investment) for as much security as is consistent with sustainable management, indicate a longer term. Likewise, review of conditions may be more effective than a shorter term to ensure conditions do not become outdated, irrelevant or inadequate.

[31] By comparison, expected future change in the vicinity has been regarded as indicating a shorter term. Another indication of a shorter term is uncertainty about the effectiveness of conditions to protect the environment (including where the applicant's past record of being unresponsive to effects on the environment effects compared with expenditure on repairs and maintenance or for profit). In addition, where the operation has given rise to considerable public disquiet, review of conditions may not be adequate, as it cannot be initiated by affected residents.

⁵⁸ MfE, Resource consent durations and reviews, September 2000

[32] *The Regional Council submitted that an activity that generates known and minor effects on the environment on a constant basis could generally be granted consent for a longer term, but that one which generates fluctuating or variable effects, or which depends on human intervention or management for maintaining satisfactory performance, or relies on standards that have altered in the past and may be expected to change again in future should generally be granted for a shorter term. We accept that in general those propositions might influence decisions on the term of discharge consents.*

[33] *On review conditions, the Regional Council submitted that they may be used in conjunction with longer terms where review is capable of addressing all issues of concern, but not where a consent-holder's financial viability might constrain controls intended to avoid, remedy or mitigate significant adverse effects on the environment.*

[34] *We accept that. It emphasises the value of careful identification of risk, and selection of a safeguard that is tailored to respond to the nature of the risk identified.*" [Footnotes omitted]

Finally, as a note of caution, Council should also be aware that long term consents can create problems in the future simply due to the fact that things move on from a policy and technical perspective. For example historical long duration catchment wide stormwater consents in the Auckland region are now proving to be extremely problematic and in some cases where the ARC has tried to get the consent holders to actually implement or enforce works the historic consents (granted in the 1970s) do not provide sufficiently clear or certain conditions to allow that to occur.

The development of a more comprehensive policy for consent durations would provide guidance to decision makers and also enable resource consent applicants to be forewarned of Council's likely approach to their application in terms of consent duration. This will improve certainty of outcome all round.

8.3.3 **Recommended Actions**

Action that the Council should take with regard to consent durations is:

- a. Review current and historical Council practice to determine any common themes or trends with regard to consent durations;
- b. Develop a consent durations policy for inclusion in the PHBRRMP that better reflects any relevant provisions of the RMA, current Council practice (including catchment and aquifer expiry dates), and any significant national trends and leading case law principles.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above action.

8.4 **Iwi involvement in decision making**

The matter of iwi involvement in decision making in relation to water resource management has been identified as a nationally important issue⁵⁹ and was also raised by several parties consulted as part of this Review. When considering this matter it is important to note that the changes made to the RMA in August 2005 clarified that there is no obligation on consent applicants or councils to consult with anyone – including iwi.

⁵⁹ See Issue 6 of the MfE document "Freshwater for a sustainable future: issues and options, December 2004"

Section 36(A) of the Act states:

36A. No duty under this Act to consult about resource consent applications and notices of requirement

- (1) The following apply to an applicant for a resource consent and the local authority:
 - (a) neither has a duty under this Act to consult any person about the application; and
 - (b) each must comply with a duty under any other enactment to consult any person about the application; and
 - (c) each may consult any person about the application.

However, applicants and councils may consult any person about the application and in some cases it will be appropriate practice to consult with iwi, particularly if the area is one where it is important to recognise the “relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.” (a RMA section 6(e) matter of national importance).

8.4.1 **Current Management Approach**

Council currently has no iwi liaison officer although there have been such staff positions in the past. Council does however have a Maori Committee which draws representation from the Taiwhenua under Nagti Kahungunu. Additionally, Council has appointed two members of the Maori Committee to each of the Asset Management, Biosecurity, and Environmental Management Committees and one Maori Committee member to the Regulatory Hearings Committee.

8.4.2 **Discussion**

Council should consider reappointing an iwi liaison officer suitably qualified and experienced in technical and policy matters. Such a person could act as a two way conduit between Council and hapu, principally explaining complex technical and policy matters to hapu and then taking hapu concerns and presenting them in a suitable technical and policy context to other council staff and councillors.

In other regions⁶⁰ councils have established, jointly with iwi, agreed charge out rates for iwi involvement in resource consent consultative processes. That approach is generally seen as fair and reasonable by all parties and it is something that the HBRC should consider – notwithstanding the fact that the RMA has been amended to confirm that consultation with iwi regarding resource consent applications is not a mandatory requirement.

Hawke's Bay has a general lack of formal Iwi Management Plans. Section 104 of the RMA no longer refers to iwi management plans as a matter to be taken into account when making decisions on resource consent applications. Nevertheless, well complied iwi management plans can usefully set out the water resource objectives and aspirations of iwi, acting as a useful guide to consent applicants and council officers and councillors. Those plans can identify areas that are of special interest to iwi which would assist Council and developers. Other Councils, such as Horizons RC and the ARC, have provided some funding towards the cost of preparing Iwi Resource Management Plans (although they acknowledge that this approach does have its problems).

In August 2004 the Ministry for the Environment commissioned a review of iwi resource management plans which concluded that the plans “*reviewed were generally well written*”

⁶⁰ Including Northland, Auckland, Manawatu Wanganui, Wellington. The Wellington RC has a very good process of this nature. They simply pay a set fee to recognised iwi for every consent to be reviewed irrespective of size and nature of consent.

*documents that largely followed the approach advocated in the MfE guidelines. They contained clear statements of the environmental or resource management issues of concern to iwi and the particular outcomes iwi sought in relation to those issues. In some cases those matters were contained within a larger and wider reaching document, while in other cases they were concisely stated in RMA specific documents. The language used within the IRMPs was often similar to that used in regional and district plans”.*⁶¹

8.4.3 **Recommended Actions**

Actions that the Council should take with regard to iwi involvement in decision making are:

- a. Consider appointing an iwi liaison officer with skills and qualifications in technical and policy matters to act as a conduit between Council and hapu;
- b. Establish an agreed charge out rate to recompense iwi representatives for their input to resource consent application consultative processes – with the payment to be made directly from applicant to iwi;
- c. Consider actively supporting the development of an iwi resource management plan(s) for Hawke's Bay consistent with MfE guidelines on such documents.

An examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to the above actions.

9 **OPERATIONAL ISSUES**

The initial list of water resource management issues attached as Appendix Three included a number of operational issues grouped under the heading of “Infrastructural Management”. The consultation undertaken as part of this Review has clarified that the few operational issues that need to be considered further are:

- Promoting water storage and irrigation;
- Weed harvesting in urban waterways;
- River beach raking.

9.1 **Promoting Water Storage and Irrigation**

For several years now there has been debate about whether or not the HBRC should become involved in the development of large scale water enhancement projects of regional benefit. Such projects might involve damming the tributaries of the Ngaruroro River to enable the harvesting of high winter flows, or the further utilisation of the prolific Heretaunga Plains aquifer outflows to the coast through deep bores in the Awatoto area.

The water provided by such schemes would most probably be used for irrigation or industrial activities. This is commonly seen to provide regional economic, social and environmental benefits arising from employment enhancement and population growth. The involvement of Council in such schemes would be enabled under the provisions of the LGA2002 which has significantly broadened the Council's potential role. Other Council's⁶² have adopted a proactive approach to this issue.

⁶¹ The MfE guidelines referred to are titled “*Te Raranga A Mahi Developing Environmental Management Plans for Whanau, Hapu and Iwi*” dated August 2000.

⁶² The Marlborough District Council is one that has taken a leading role in promoting a community irrigation scheme for the Southern Valleys, which is on the right bank of the Wairau River west of Blenheim .

Irrigation potential within Hawke's Bay has been recognised at the national level. The Ministry for the Environment⁶³ has reported that there is 3,500ha of land being irrigated now in the Tukituki/Ruataniwha Plains area with a further 31,500 irrigable hectares available. That further area has the potential to generate \$116 million of farm gate GDP per annum.

There are a range of activities that the HBRC could undertake⁶⁴ including:

- Provision of funding for initial feasibility studies;
- Project facilitation including information provision, education, and bringing potential stakeholders together;
- Assisting private developers with community consultation and awareness raising;
- Conducting cost and benefit studies;
- Underwriting scheme revenue capacity;
- Partial funding provider;
- Provision of financial guarantees for secondary security;
- Partial or full development role.

When considering any of these roles Council would need to be mindful of its role as the RMA regulator and the requirement to avoid any perceived or actual conflicts of interest. Council would be the consent authority for any dams or diversions required. Conflicts of interest could be dealt with by appointing independent commissioners to hear and decide any such applications.

9.1.1 **Current Management Approach**

It does not appear that Council has developed a formal management approach to this issue to date.

9.1.2 **Discussion**

Several studies on the involvement of councils in community irrigation projects have been undertaken by MAF Policy. These studies have concluded that "*there are no legislative constraints preventing councils from undertaking an investment role for a water enhancement scheme*".

Council has a project underway to assess potential irrigable areas within Hawke's Bay based on both existing pastoral land use and the possible intensification of pastoral land to horticulture, recognising limitations posed by altitude and temperature extremes. This will usefully determine the ultimate irrigation demand region wide which can then be compared to the known allocatable volumes for surface and groundwater. This will enable the need for any enhancement schemes to be determined.

While there does not seem to be any strong community demand for Council involvement in the promotion or development of large scale water harvesting schemes or community irrigation schemes, Council should continue to provide existing hydrological information to private developers – a form of project facilitation.

⁶³ MfE, July 2004

⁶⁴ MAF Technical Paper 2002/12

9.1.3 **Recommended Actions**

Actions that the Council should take with regard to promoting water storage and irrigation are:

- a. Continue Council's current passive facilitation role with regard to promoting water storage and irrigation of supplying hydrological information to private sector interests upon request;
- b. Complete its assessment of potentially irrigable land in Hawke's Bay so that the ultimate potential irrigation demand can be compared to existing and known allocatable volumes of abstraction from rivers and aquifers – thereby enabling any ultimate shortfall to be identified;
- c. Review approaches taken elsewhere with regard to promoting water storage and irrigation, particularly the Marlborough District Council's facilitation work in their Southern Valleys area.

Annual Plan Project 420 provides for the provision of hydrological information to external parties. However, an examination of the LTCCP and Annual Plan projects for 2005/06 did not identify existing programmes relevant to action (b).

9.2 **Weed Control in Urban Waterways**

Aquatic weed proliferation occurs in urban watercourses in response to favourable growing conditions primarily driven by nutrient inputs from land runoff. Weed clearance is important to maintain the drainage and flood conveyance capacity of urban watercourses. However, the subsequent weed disposal is problematic and expensive. Leaving the cut weed in the watercourses creates amenity issues and potentially water quality issues as the weed degrades and depletes dissolved oxygen levels in the water.

9.2.1 **Current Management Approach**

Council has an ongoing programme of weed clearance in urban waterways such as the Karamu and Clive. The management of plant pests in drainage systems is addressed in section 8.4 of the Council's "Code of Practice for River Control and Drainage Works 2003" (the Code). The Code states Council will "*control plant pests within channels that it maintains*" and that any sprays used will be used "*in accordance with manufacturer's instructions*". Section 8.2.2(c) of the Code states that aquatic weed blockage will be removed from the channel at appropriate intervals. It notes that any vegetative material removed from a drain will, "*if deposited on site, be placed where it is unable to flow back into the drain, and does not create an impediment to overland flow into the channel.*"

9.2.2 **Discussion**

Aquatic weed build up and removal continues to be problematic. It may be appropriate for Council to identify priority areas where aquatic weeds should be more intensively removed from watercourses. Alternatives to mechanical cutting, such as the use of low impact aquatic herbicides, should be investigated and trialled.

9.2.3 **Recommended Actions**

Actions that the Council should take with regard to weed harvesting are:

- a. Identify priority areas where aquatic weeds will be removed from watercourses after they are cut;

- b. Investigate and trial alternatives to mechanical cutting such as the use of low impact aquatic herbicides.

The LTCCP discussed maintaining existing drainage schemes, but does not appear to specifically address actions (a) and (b).

9.3 River Beach Raking

Many of the Hawke's Bay rivers convey a substantial amount of shingle as a result of ongoing erosion in their mountainous headwaters. In the absence of regular flood flows this shingle can accumulate on beaches in the rivers. Vegetation can then establish on the beaches leading to further silt and shingle accumulation. The formation of these beaches can lead to a rising of the overall bed profile and the concentration of the river flows on the adjacent bank. This process of aggradation can threaten the integrity of Council's flood protection and river management works.

9.3.1 *Current Management Approach*

Council actively rakes the beaches with heavy machinery to break up the armouring layer of stones on the top of the beach and to remove any vegetation build up. This allows the accumulated shingle to be more easily removed by the next flood. The Council's approach to beach raking is set out in section 7.2 of the "Code of Practice for River Control and Drainage Works 2003".

9.3.2 *Discussion*

The Code of Practice for River Control and Drainage Works 2003 sets out environmental constraints that have been previously agreed with conservation interests including the Department of Conservation and Fish and Game. These constraints include exclusion periods during bird nesting periods on specified lengths of river. The Code states that Council "*will study specific species requirements for pool and riffle requirements and tributary access*". This may go some way to meeting the residual concerns of conservation interests and it would be prudent to scope and execute that proposed research programme in consultation with conservation groups.

9.3.3 *Recommended Actions*

Actions that the Council should take with regard to river beach raking are:

- a. Scope and execute the proposed river beach raking research programme on "specific species requirements for pool and riffle requirements and tributary access" in consultation with conservation groups.

The LTCCP does not appear to address this specific issue.

10 OTHER MATTERS

As is inevitable with a Review that utilises a consultative process a number of issues were raised that while not directly relevant to the scope of this Review do have varying degrees of merit and could be considered further by Council. For that reason they have also been recorded in Appendix One.

11 PRIORITY ISSUES

Throughout this report a range of water management issues have been identified and discussed. Recommended actions have been identified. Those actions are tabulated in the Executive Summary together with an indication of whether they fall to be addressed as a research, monitoring, policy, consents, education or operations matter.

Clearly some recommended actions are more important than others. As part of the consultation procedure for the Review the councillors, Maori Committee members and external stakeholders were asked to identify the issues that they considered to be priorities. That subjective feedback, together with the author's own views, has been used to prioritise the actions tabulated in the Executive Summary under the categories of Low, Medium or High priority.

It is recommended that the table be used a starting point for a more formal Council prioritisation and annual plan project development process.

It should be noted that Council staff are currently (at the time of writing) developing various monitoring strategies for surface water, groundwater, land and wetlands, and biodiversity. Council staff also aim to produce an overall State of the Environment Strategy and a Research and Investigations Strategy. These strategies could very well implement many of the recommended actions in this Review, particularly if they are clearly linked back to the issues, policies and outcomes of the PHBRRMP.

In overall terms the following water management issues for Hawke's Bay are considered to be the main priorities:

- i Establishing groundwater allocation limits;
- ii The managed distribution of surface water to various activity types within established allocatable volumes;
- iii Earthworks management;
- iv Stormwater management;
- v Managing and regulating land use change and land use intensification;
- vi Facilitating hapu level iwi input into water management processes and the development of iwi management plans.

This short list of priority issues differs substantially from that developed by central Government and recorded in the Ministry for the Environment's "*Freshwater for a sustainable future: issues and options*" paper of December 2004. However, issues (i), (v) and (vi) above are very similar to Issues 4 and 6 in the MfE paper. Those centrally derived issues are:

- *Issue 4: Water is over allocated in some catchments, is not consistently allocated to its highest value use over time, and can be wasted.*
- *Issue 6: Maori participation in water management could be improved.*

12 REFERENCES

Annual Plan Narratives 2005/2006, Hawke's Bay Regional Council, February 2005

Environmental Code or Practice for River Control and Drainage Works, Hawke's Bay Regional Council, June 2003

Freshwater for a sustainable future: issues and options, A public discussion paper on the management of New Zealand's freshwater resources, Ministry for the Environment, December 2005

Hawke's Bay state of the environment update 1999, Hawke's Bay Regional Council, April 2000

Hawke's Bay state of the environment update 2000, Hawke's Bay Regional Council, November 2000

Hawke's Bay state of the environment update 2001, Hawke's Bay Regional Council, November 2001

Hawke's Bay state of the environment update 2002, Hawke's Bay Regional Council, November 2002

Long Term Council Community Plan, 1 July 2004 – 30 June 2014, Hawke's Bay Regional Council, undated

Managing waterways on farms: A guide to sustainable water and riparian management in rural New Zealand, Ministry for the Environment, July 2001

Physically Sustainable Land Uses in the Hawke's Bay, Hawke's Bay Regional Council, June 1997

Policy Framework for the Development of Large Scale Water Enhancement Projects in NZ, MAF Technical Paper 2002/14, December 2002

Proposed Auckland Regional Plan: Air, Land and Water Highlighted to Indicate Provisions Appealed, Auckland Regional Council, June 2005

Proposed Regional Resource Management Plan Includes the Regional Policy Statement Amended by Decisions, Hawke's Bay Regional Council, June 2001

Resource consent durations and reviews, Ministry for the Environment, September 2000

Riverbank management, Fish and Game New Zealand webpage

Role of Local Government in Community Irrigation Projects, MAF Technical Paper 2002/12, November 2002

State of the environment, Hawke's Bay Regional Council, 1997

State of the Environment Monitoring Network, Hawke's Bay Regional Council, May 1997

The State of Our Environment Hawke's Bay Summary 1998 - 2003, Hawke's Bay Regional Council, undated

The State of Our Environment Hawke's Bay Annual Summary 2004, Hawke's Bay Regional Council, undated

Water Programme of Action: Napier Public Meeting Notes, Ministry for the Environment, January 2005

Water Programme of Action: Napier Local Government Meeting Notes, Ministry for the Environment, January 2005

Water Programme of Action: Hastings Hui notes, Ministry for the Environment, January 2005

Water Programme of Action Potential Water Bodies of National Importance, Ministry for the Environment, July 2004

APPENDIX ONE – CONSULTATIVE INPUT

Declining surface water quality in lowland rivers and lakes

Some **conservation** representatives considered that it was not clear what the management objectives for the Hawke's Bay rivers were. However, the author notes that those objectives are clearly stated in the PHBRRMP⁶⁵.

The HBRC **councillors** did not consider surface water quality to be an issue that required further or additional work. **Resource users** thought that surface water quality in rivers outside the urban areas was generally good and that claims of widespread pollution were based on a few isolated examples.

The **Maori Committee** members highlighted their ongoing concern with the discharge of sewerage into the Central Hawke's Bay rivers from the Central Hawke's Bay District Council oxidation ponds. They found this to be culturally abhorrent and were also concerned about public health risks from bacteria and viruses. In other regions⁶⁶ solutions to that particular issue have been developed that involve the creation of artificial unlined rock wetlands that provide two to five days of effluent detention that allows the effluent to come into extensive contact with the earth. In fact some of the effluent discharges to ground through the base of the wetland and iwi perceive this as having a cleansing effect. Thereafter the effluent is passed through UV filters and diffuse rock filter discharge systems to the rivers. Such options would be worth exploring with Hawke's Bay iwi and the CHBDC.

Maori Committee members were concerned about phosphorous levels in rivers such as the Tukituki and that this could lead to a proliferation of algae growth. Council **staff** echoed that concern. The source of phosphorous inputs to surface water should be further investigated and mitigation options developed. Experience in other areas would however indicate that the primary source is likely to be from fertiliser use.

Riparian Management

The HBRC **councillors** did not consider this to be an issue that required substantial further or additional work, but did suggest that additional research needed to be undertaken on the actual benefits of riparian vegetation⁶⁷. **Maori Committee** members were concerned that the destruction of riverside willow trees by *Willow Sawfly* would lead to a reduction in available leaf litter derived food for instream fauna. This matter should be considered in any assessment of priority areas. They would also like to see a continuous ribbon of riparian planting from the mountains to the sea to act as wildlife corridors.

Stock Access to Waterways

The HBRC **councillors** and **staff** did not consider this to be an issue that required much further or additional work. **Staff** did note however that the Council was not unwilling to look at rules for stock access to watercourses and that they were currently gathering information to use in setting conditions for permitted activity rules. They also advised

⁶⁵ See Objective 27 of the PHBRRMP.

⁶⁶ Such as at Ohakune and Raetehi.

⁶⁷ There is however a vast array of information available on that matter in literature and numerous riparian guidelines have been produced by Government departments and other councils. This information should be summarised and combined with local information (such as from the Pakuratahi catchment, the McRae Trust property and local forestry company stream monitoring data) to produce a document outlining the benefits of riparian vegetation in the Hawke's Bay context

that the Te Karamu⁶⁸ report recommended riparian planting and stock exclusion from riparian areas.

The **Maori Committee** members thought that Council should have regulations that precluded stock access to streams. They cited the Council initiated fencing of whitebait spawning areas within the various flood control schemes as a good example of stock management. Some **resource users** agreed that major stock crossing of streams needed to be better managed – as envisaged by the Dairying and Clean Streams Accord. **Conservation** interests thought that stock access to rivers was a concern, particularly in the region's northern rivers.

Hill Country Runoff

The HBRC **councillors** did not consider hill country runoff to be an issue that required further or additional work. The **Maori Committee** members considered that fertiliser use was increasing dramatically and that it was potentially polluting streams through overland runoff.

Urban and Peri-urban Earthworks

The HBRC **councillors** considered that this issue needed urgent attention, particularly in terms of:

- Investigating the scale of the problem (if any) in Hawke's Bay;
- Resolving any conflict between territorial authority roles and responsibilities and a possible HBRC role;
- Considering the merits of regulatory approaches that focus on containment or avoidance of the problem.

Council **staff** and **Maori Committee** members also thought that the management of urban and peri-urban earthworks was an issue that had not been appropriately addressed by the HBRC to date. They noted that in other regions such as Auckland, Northland and the Bay of Plenty the regional council has a comprehensive policy and regulatory framework for managing land disturbing activities. The **Maori Committee** members noted that the concept of an earthworks shut down period over the winter months, such as practiced in Auckland and the Bay of Plenty, was an approach that HBRC should adopt. They were concerned about the smothering of small streams that arose from the unregulated earthworks in Hawke's Bay.

Urban Stormwater Management

The HBRC **councillors** considered that this issue needed urgent attention, particularly in terms of:

- Identifying contaminant sources (sewer overflows, road runoff, car parks and hardstand areas were mentioned);
- Identifying whether or not stormwater treatment was required and determining the value of riparian strips in the urban context.

Resource users considered that urban stormwater management was an issue that required further attention whilst **conservation** interests did not. **Territorial authority**

⁶⁸ Catchment Review and Options for Enhancement, 2004

representatives queried whether or not this was an issue in Hawke's Bay and what role road runoff played.

Onsite Wastewater Treatment

Both the HBRC **staff** and **councillors** thought that this issue required further attention. While the Council has an adequate existing policy and regulatory framework for onsite sewage systems it is also evident that the existing framework is not delivering the outcomes desired by **staff** and **councillors**.

The councillors saw small settlements as an issue, particularly older areas such as Mahia, Bayview, Bridge Pa and Jerviostown. Actions that the **councillors** thought necessary included:

- Better linking of water supply reticulation to the problems the extra water causes with onsite sewage disposal;
- “firming up the rules” and making it harder to achieve authorisation;
- Restricting or prohibiting further subdivision in problem areas.

Staff were concerned that cumulative effects weren't being addressed. They were also concerned with equity issues whereby existing septic tanks didn't need consent but better performing modern package treatment plants did. They also thought that Council needed to give strong direction to territorial authorities, advising them of areas where septic tanks were unacceptable and reticulation was necessary.

The **Maori Committee** members had an interesting perspective on this issue. They considered that Council was being too heavy handed and had unnecessarily precluded traditional septic tank systems in favour of more expensive package plants with surface or subsurface disposal. In their view these modern plants were problematic to manage and unaffordable to iwi landowners. They shared the **councillor's** concerns about increased grey water loads caused by water supply reticulation in areas such as Bay View.

Contaminated Sites

Councillors and **staff** did not consider this to be an issue that warranted further attention. The HBRC councillors did not consider contaminated site management to be an issue that required further or additional work. Council staff did not raise any issue of concern, other than noting that the Council did not have an active programme of identifying existing sites but rather dealt with sites that were identified by landowners as a result of land use change or site development.

Declining Water Quality in Aquifers

The HBRC **councillors** did not consider that groundwater quality was an issue that required further or additional work. Conversely, **Maori Committee** members were concerned about the impacts of landuse on groundwater quality, particularly in areas such as the Heretaunga Plains unconfined aquifer recharge zone. Council **staff** suggested that the actual and potential effects of land use activities on the major unconfined aquifers needed to be revisited. They also cited uncertainty regarding what Council's actual groundwater quality targets were, particularly with regard to “*productive aquifers*”.

External stakeholders, particularly those from **territorial authorities** were vitally interested in groundwater quality as an issue, due to the use of groundwater as the primary source of potable water for Napier and Hastings. The **territorial authority** staff considered that HBRC should undertake further research on the ability of the region's gravels to cope with land use derived contaminants, such as agricultural sprays. **Territorial authority** staff were concerned about salt water intrusion and whether or not that was an issue at current rates of abstraction, and more particularly how much additional abstraction could occur before it became a problem.

Groundwater and Surface Water Interactions

The **councillors** did not consider that this issue required further or additional work. Conversely the **Maori Committee** members thought that more research was needed on the relationships between aquifers and springs. Council **staff** considered this to be an issue on the Ruataniwha Plains and also for the Tukituki River. In that location they suggested a need to move existing and future takes from surface water to adjacent groundwater as the groundwater resource provided a buffer that reduced immediate impacts on stream flows.

Knowledge of the groundwater resource

The HBRC **councillors** considered that this issue did require some further work. They cited a 3m drop⁶⁹ in the Heretaunga Plains aquifer and asked whether or not that was a problem, suggesting that it wasn't, but that needed to be explained to the public. The **councillors** also considered that groundwater models were urgently needed for the Heretaunga and Ruataniwha Plains. Concern was expressed that Council did not have a "water budget" for the main aquifers, in terms of being able to quantify recharge, abstraction and aquifer through flow. This made it hard to sustainably manage the resource.

Maori Committee members were also concerned with the current level of knowledge about the groundwater resource – for both the main Heretaunga Plains and Ruataniwha Plains systems and other smaller systems. Some members stated that that disagreed with **staff** views on the recharge characteristics of the aquifers and how quickly they responded to river freshes and rainfall events. They also questioned the value of requiring the metering of mobile irrigation pumps given that Council hadn't as yet even quantified the rate of aquifer recharge in many cases.

External stakeholders were very concerned about the sustainable management of the Heretaunga Plains aquifer in particular. The **territorial authorities** noted that the security of supply it provided for potable water was vital. They were complimentary about the HBRC's long term aquifer level monitoring but bemoaned the fact that the Council did not have a useable groundwater model. Napier City Council staff advised that in the absence of a regional model they had commissioned their own model of the Heretaunga Plains aquifer system for the Napier area and they used this for their own water supply management purposes, particularly the siting of new production bores. However, they considered a regional model, regularly updated with pump test data received by the HBRC, was vitally important⁷⁰.

⁶⁹ It is unclear where that information was sourced from as it does not appear in the Council's publicly available state of the environment monitoring reports.

⁷⁰ HBRC staff noted that they are aware of the NCC model and that it is not relevant to the work they are doing and is limited in scale (just a local model) and in its sophistication. It was developed by Larry Luba to assist NCC with some consent applications for municipal supplies at Taradale and Meeanee.

Resource users thought that Council needed a better picture of how the region's aquifers functioned. This would potentially save consent applicants thousands of dollars on drilling exploratory bores. They thought Council's current research would benefit from being more closely aligned with the needs of present and future users.

Council **staff** also cited an urgent need for a groundwater model for the Heretaunga Plains initially, but also the Ruataniwha Plains. They noted that a Heretaunga Plains model was currently under development with a target completion date of mid 2006⁷¹. Concern was expressed about the lack of real time water abstraction information to feed into such a model, due to the general lack of telemetered flow gauges on ground and surface water takes. Some **staff** also questioned whether or not the Council had thought through the substantial database that would be required to run such a model.

There were some comments received from **resource users** about water quantity matters in aquifers outside⁷² the main plains areas. **Resource users** were also concerned with the widespread use of water meters on water takes. They noted that meters were unreliable; the gauges were often confusing to read as different brands had different scales, they could be easily manipulated by unscrupulous users, and having to read them weekly or fortnightly was onerous, particularly as Council didn't seem to make any use of the resultant data. They supported monthly or annual meter readings to ensure that overall allocated volumes weren't being exceeded. That type of approach could be suitable in areas not under allocative pressure or where seasonal allocations to individual consent holders were being underutilised.

Groundwater allocation

The **Maori Committee** members considered that the establishment of allocatable volumes for aquifers was important and noted that other regions had done so. They were also concerned about the potential cumulative effects of permitted activity takes in the absence of some overall allocative envelope. Some **resource users** were concerned that although Council had not set allocatable volumes for aquifers staff were advising that groundwater take applications would not be granted in some areas – although they still accepted applications in those areas.

Surface water allocation

Staff advised that the current level of financial resourcing for IFIM studies was adequate and immediate priorities were the Upper Tukituki and Upper Waipawa Rivers.

Some **conservation** representatives thought that habitat preference curves (part of the IFIM technique) for NZ native fish and trout should be used. They were also concerned that Council had a lack of knowledge about what native species were actually resident in the Hawke's Bay rivers. In response **staff** cited frustration that some conservation interests could seem to get past their "*more water good – less water bad*" attitude. **Maori Committee** members also suggested that minimum flows should be based on native fish requirements and not trout. However, Council **staff** advised that NZ derived habitat curves for native fish were used in the setting of Hawke's Bay minimum flows and that work was currently underway with the Cawthron Institute and other regional councils to develop a NZ East Coast specific habitat curve for trout.

Maori Committee members expressed strong concerns regarding perceived excessive allocations of surface water to single consent holders and the adverse effects that those

⁷¹ See Annual Plan project 410 Desired Achievement 2.

⁷² Such as Lake Poukawa, the upper Ngaruroro catchment, and in and around Wairoa.

takes caused on down stream users. They also thought that the IFIM process was reasonable, but they queried its use on braided rivers and also considered that minimum flow derivation processes should incorporate cultural values.

Some **resource users** queried the real benefits of setting and enforcing minimum flows. They noted that Hawke's Bay rivers often ran dry or very low naturally and that the flora and fauna in those rivers appeared to have adapted to that situation. This issue was also raised by some **staff**. They asked what the real and tangible effects of breaching minimum flows were. They noted that the minimum flow on the Ngaruroro River should have been 2,000l/s but a compromise with conservation groups saw it eventually set at 2,400 l/s.

Some **resource users** also queried the practice of setting minimum flow levels on the main stems of rivers (such as the Tukituki) and then applying that restriction to the tributaries as well. Others queried the outcomes that were sought to be avoided by imposing minimum flows could be achieved in other ways such as riparian shading or aeration, such that takes could continue for critical industries.

Council **staff** raised the issue of whether the Q_{95} management level was still appropriate for setting the allocatable volume of abstraction. They noted that if a Q_{90} value was used instead then the allocatable volume on some rivers could potentially double.

Land use intensification

The **councillors** considered land use intensification to be a major issue and that the Council clearly had a role to play that was currently unfulfilled. In particular they were concerned about urban sprawl and runoff from rural developments. They were also concerned about the increasing demand on available water resources that result from land use intensification. The **Maori Committee** members also considered that Council should have more involvement in managing land use change, particularly in terms of dairying and the impacts of viticulture and horticulture over the unconfined aquifer. They noted that the Dairying and Clean Streams Accord promoted by Fonterra was a good first step, but it needed to be backed by regulation. **Maori Committee** members noted that they often see land developers draining low lying land for development or intensification, only to see that land being irrigated the following summer. They thought that the natural water table could be better managed in that regard. They also considered that the region's territorial authorities were more focussed on urban issues and the HBRC needed to be more directive about where rural land use intensification was and wasn't appropriate. They thought that the region's territorial authorities did not adequately consider wastewater (both sewage and stormwater) management issues when approving subdivisions and farm park proposals.

Council **staff** had a range of views. Some were concerned about the incremental effects of infill and development on Council infrastructure such as drains. They noted that the territorial authorities tended to ignore Council concerns about the effects of new subdivisions on drainage capacity. Others thought that land use rules were required to protect groundwater quality, but noted that the spate of dairy conversions had slowed considerably in recent years. **Resource users** supported the view that the days of rapid dairy expansion were over.

Council **staff** were also concerned about increased demands on limited water resources and increased nutrient runoff in hill country areas as existing pastoral land use intensified or changed. They thought that there were also more subtle effects such as a proliferation of small dams restricting fish passage and potentially exacerbating low flows, and the nutrient enrichment of streams associated with diffuse runoff shifting the

range of aquatic species and diversity. **Staff** also raised the issue of managing peri-urban development in order to avoid reverse sensitivity on existing rural land use.

Conservation groups considered that there needed to be a “regulatory safety net” to avoid the adverse effects of intensification, but considered that landowners would oppose such regulations. They cited the difficulty in establishing soil conservation rules in the PHBRRMP. **Resource users** understandably had mixed views on this matter. Some thought land use intensification should be better regulated in order to avoid stresses on existing limited water resources. They noted with concern issues in other regions such as Canterbury where significant contamination of groundwater was linked to land use intensification.

Water Distribution Policy

The HBRC **councillors** were comfortable with the Council’s ‘first in first served’ approach to water allocation and did not want to be seen by the community to be picking winners. This approach was also supported by some **resource users** who noted that industries go through profitability cycles and what is the most economic end use today might not be so in the future. They considered that Council’s focus should be on the efficient end of use of water – not what it was used for. However others thought industrial activities provided a greater ‘added value’ use of scarce water compared to general crop irrigation, and that when water was scarce Council did indeed need to “pick winners’ and allocate water to the best end use. That was part of its leadership role.

Resource users were also keen to see that existing users were protected through some form of security of supply and that the investment in plant wasn’t jeopardised through future water allocation “claw back” exercises. **Resource users** did support affording priority to domestic supplies (public or community supply). **Conservation** interests were not overly concerned with the end use of water provided it was used efficiently and was not used for unsustainable activities.

The **Maori Committee** members were concerned with potential changes from the ‘first in first served’ system if that lead to the auctioning of water as that would preclude some less financially able potential users and could see water being locked up or banked for the future. They were however also concerned about unused allocations lying dormant and thought that any used water should go back into the “allocation pool” for use by other parties.

As part of this issue the **Maori Committee** members also thought that Council should consider include the concept of an “iwi allocation” of water. A number of the region’s water resources are under Treaty of Waitangi claim and under section 8 of the RMA the HBRC has a duty to take into account the principles of the Treaty of Waitangi. One of those principles is the “*The principle of active protection*” which denotes an obligation to actively protect the interests of Maori in their land and resources. This duty is reinforced by the RMA section 7 requirement on Council to recognise and provide for as a matter of national importance “*the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*” The **Maori Committee** members strongly supported the concept of an “iwi allocation” of water on some traditionally important water resources within the region. This would ensure protection of traditional cultural practices including spiritual and healing bathing and food gathering. The rivers where such an approach would be appropriate, together with the volume of water required, would need to be decided in close consultation with iwi. It is also quite conceivable that in many cases the existing minimum flows set by Council for ecological purposes would also largely cater for traditional iwi values – but in some cases they may not.

Research funding

The **Maori Committee** members thought that Council needed to be more involved in water management research. They also considered that if Council was directly involved in research (as opposed to leaving it to consent applicants to undertake) then the results would have more validity.

Territorial authority staff considered that water management research in Hawke's Bay was too much driven by consent applicants and that the HBRC needed a more proactive research programme. **Resource users** didn't think it was fair for larger industries to be required to undertake research when they sought consents just because they were financially well resourced – compared to individual private applicants. **Resource user** representatives, some of who had previously funded substantial groundwater research programmes in support of their own consent applications, favoured a cost sharing arrangement with Council.

Consent Duration

A number of the parties spoken to as part this Review raised consent duration as an issue. The **Maori Committee** members thought water abstraction consents were being granted for too long. Some **resource users** thought greater use of short term consents could be made in lieu of expensive consent applicant funded groundwater investigations (a kind of “suck it and see” approach).

The **councillors** were comfortable with the current approach to consent duration. They thought this embodied an assessment of relevant effects and intergenerational issues. Conversely, the **Maori Committee** members considered that whilst developers needed surety, consent durations of 20 years or more were too long for water takes. They considered that such consents should be limited to 10 years. That ensured that the resource was not tied up for inter-generational periods and there would be a better chance of iwi being around to participate in the renewal process several times – thereby enabling accumulated knowledge and experience to be utilised.

Iwi involvement in decision making

The **Maori Committee** members spoken as part of this review were appreciative of both the continued existence of the Maori Committee and the appointment of members of that Committee to various other Committees of Council. However, the lack of an iwi liaison officer was seen as a deficiency. They were also concerned about the situation where Council staff advised developers and consent applicants to liaise with iwi, but then said that any recompense of iwi for their time was a matter of negotiation between the parties. In other regions⁷³ the council has established, jointly with iwi, agreed charge out rates for iwi involvement in resource consent consultative processes.

The **Maori Committee** members considered that there was a strong need for Council to better engage with hapu on water resource management issues. In particular they saw the need for a Council iwi liaison officer who was suitably qualified and experienced in technical and policy matters. Such a person could act as a two way conduit between Council and hapu, principally explaining complex technical and policy matters to hapu and

⁷³ Including Northland, Auckland, Manawatu Wanganui, Wellington. The Wellington RC has a very good process of this nature. They simply pay a set fee to recognised iwi for every consent to be reviewed irrespective of size and nature of consent.

then taking hapu concerns and presenting them in a suitable technical and policy context to other council staff and councillors.

The **Maori Committee** members also considered that the lack of formal Iwi Management Plans within the Hawke's Bay region was a serve limitation.

Promoting Water Storage and Irrigation

The **councillors** considered that the involvement of the HBRC in water harvesting schemes would need to be predicated on the promotion of water conservation and the effective use of the available water. They thought that it was important for the Council to provide leadership in this area, but that their role should be limited to research and information provision (such as on river flows, areas suitable for damming, and areas of land suitable for irrigation and associated land intensification). Some **councillors** thought that the Council's role should be focused on the promotion of small farm scale water harvesting schemes as opposed to large community schemes. Council **staff** had mixed views on this subject. Some didn't consider there was any demand for community irrigation schemes in Hawke's Bay. Some thought that Council could promote storage dams to a feasibility stage after which the project would be picked up by the private sector. Alternatively Council could package together existing hydrological information and research for developers to use. Other **staff** expressed concern over potential water harvesting schemes, noting that bypassing peak flows to storage eliminated the rejuvenating and flushing effects of floods. This could impede silt and shingle movement down the rivers with resulting averse effects on aquatic ecology and river bed aggradation.

Some **staff** thought that Council didn't know how much land in Hawke's Bay was potentially irrigable and therefore what the ultimate irrigation demand was. They did not know if the MfE figures were accurate and what further irrigable area was available outside of the Ruataniwha and Tukituki catchments.

Conservation groups had no strong views, but thought that some limited Council role where it offered financial or regulatory 'carrots' for water harvesting would be beneficial as it could assist with retaining existing minimum flows. **Resource users** similarly had mixed views. Some supported initiatives that would assist Hawke's Bay's economic growth and development. They also supported water harvesting at times of high flow, but they thought any Council role should be limited to providing the private sector with technical support and the results of investigations and research. Others saw no need for Council involvement unless it was requested by land owners.

Weed control in urban waterways

The **councillors** queried whether or not Council should be doing more weed removal in urban drains, particularly around high public use areas such as Park Island. At a minimum they though the public needed to be better informed of when weed clearing occurred. They were also concerned about the amenity effects of decaying weeds. The **Maori Committee** members considered this to be a significant issue, particularly in the Clive River and Karamu Stream. They thought that the weed accumulation in the Clive was preventing elver and inanga migration and that the areas needed to be weeded and the weed removed from the watercourses. Council **staff** acknowledged that weed harvesting was problematic, particularly in the Karamu system. Their concern was that the cut weed accumulated on in stream structures and caused an impediment to flood flows. They noted that the use of new aquatic weed chemicals could be useful and that the lower Clive was programmed for dredging in the 2007-08 financial year.

River Beach Raking

Conservation groups queried the Council's strategic approach to beach raking and the "trigger" for raking certain areas. They were concerned about the effect on historical pool and riffle sequences and considered that the Council should undertake ecological monitoring to assess the impacts of the raking.

Other Matters Raised

- i Iwi suggested using traditional Maori names for certain watercourses as those names denote the history of the particular watercourse and the events that occurred alongside them;
- ii Iwi suggested involving young Maori in river enhancement and restoration programmes;
- iii Resource users are very supportive of the level of Council communication undertaken with them, though both personal visits by senior staff and the regular Council brochures and information publications received;
- iv Council is seen as being ready and willing to listen to the views of stakeholders and interested parties as evidenced by the nature of this Review;
- v Resource users appreciated the Council approach of discussing matters with them, but they wanted to see stricter enforcement for those few individuals who "crossed the line". In the absence of strong enforcement the incentive to comply with regulations was weakened;
- vi Resource users liked having a single point of contact with Council staff – a liaison person who could deal with their enquiries and concerns. That person also got to know the industry or activity they dealt with over time;
- vii Resource users thought that some consents and compliance staff did not seem to appreciate commercial and business realities and what the real costs of some of their information requests incurred. They thought a judicious application of the "80/20" rule to information needs would be beneficial rather than requiring detailed information in all cases;
- viii It was unclear to some parties if Council used information from previous consent applicants to assess new applications or simply made new consent applicants repeat earlier investigative work (or work undertaken for similar activities in other parts of the region), especially given the high turnover of regulatory staff;
- ix There was general support for the activities of Council land management staff in terms of the education and advisory role they played;
- x Some conservation interests were unclear on how the Regional Landcare Scheme operated and what its priorities were;
- xi Some parties were concerned that the public notification of consents stirred up interest in people who weren't actually affected. They would like to see a greater use made of limited notification or direct service of applications;
- xii Staff were concerned that clean fills were not being managed properly, but noted that this was probably a compliance and enforcement issue;
- xiii Some staff were concerned that Council did not appear to be monitoring the effectiveness of its regional plan provisions.

APPENDIX TWO – THE BRIEF

STRATEGIC REVIEW OF WATER MANAGEMENT BY HAWKE'S BAY REGIONAL COUNCIL

BACKGROUND

Council has identified as one of its key strategic issues the ongoing management of the regions fresh water resource and, in particular, water quality and quantity. The Council currently commits substantial resources to this issue in terms of policy initiatives, environmental monitoring, regulatory, flood management, and other specific activities such as the Land management programmes. Council wishes to undertake a strategic review of its management of this critical resource to ensure that it is dealing with both the present, medium and longer term issues that will arise in regard to the management of this resource given its importance to the economy of the region and the ongoing quality of life of the community.

PURPOSE

The purpose of this review is to assess the approach to and adequacy and competency of the Council's management of the quality and quantity of fresh water resources throughout the region.

METHODOLOGY

The review will comprise of the following stages:

1. Initial Meeting and Contract Set Up

A meeting will occur between HBRC and the consultant to ensure there is full understanding as to the purpose of the project and key issues related to it.

2. Web scan

Time is allowed to scan web pages of key government departments (Ministry for the Environment, Ministry of Research Science and Technology, Ministry of Agriculture and Forestry, Transit New Zealand, Internal Affairs, Ministry of Economic Development) and any other relevant Government entities, Local Government New Zealand and key industry players (Carter Holt Harvey, PPCS Richmond, HEINZ Wattie, Federated Farmers, Fonterra, Pan Pac etc), to check for current and relevant emerging water management issues that should be taken account of during this review. This process will be designed to set the context for the review. Any issues that arise as a result of the scan will be "road tested" during the interview phase.

3. Receive and Review Documents

Council's current documents related to fresh water management will be provided which will then be reviewed and analysed in terms of direction, effectiveness and outcomes. These will include:

- Proposed Regional Resource Management Plan
- Copy of relevant State of the Environment reports

- Relevant monitoring programmes
- Relevant research programmes
- Relevant Annual Plan projects
- Council's Long Term Council Community Plan
- River management code of practice.

4. Meetings with relevant stakeholders

A template of questions will be prepared and agreed with Council which will be used at meetings with relevant stakeholders. These meetings are to be used to obtain the views of stakeholder groups and parties as to their opinion of the current management of the fresh water resource by the Council and to identify the issues which the community considers are emerging or likely to emerge in the future. The groups to be contacted and meetings proposed are as follows:

Environmental -

- 1) Department of Conservation, Fish & Game, Forest & Bird; ECOED
- 2) Tangata Whenua - Morrie Black from Ngati Kahungunu Iwi Incorporated and Marei Apatu from Heretaunga Taiwhenua.

Agri businesses -

- 3) Mike Glazebrook, Simon Beamish, Peter Barry, Dean Nikora, Brownriggs

Industrial Users -

- 4) PPCS Richmond Takapau, HEINZ Wattie, Pan Pac

Local Authorities -

- 5) Napier City Council (Johan Ehlers) and Hastings District Council (David Fraser).

Meetings are also to be held with various internal groups, which are as follows:

- 6) Murray Buchanan
- 7) Liz Lambert, Helen Codlin, Colin McLellan and Terry Jamieson
- 8) Graham Sevicke-Jones, Larry Withey and Garth Eyles
- 9) Mike Adye, Gary Clode and Graeme Hansen
- 10) All Councillors
- 11) Council's Māori Committee

It is also intended to meet with external parties directly involved in water issues:

- 12) Stewart Cameron from NIWA and Russell Bayliss from Bayliss Bros.

5. Report Preparation

As a consequence of the meetings, review of documents, web scan and consideration of relevant issues a draft report will be prepared.

6. Draft Report Meeting

The draft report will be discussed with Murray Buchanan and Andrew Caseley of the Council. The report will then be revised based on the feedback received.

7. Presentation

A presentation will be made to Council on the draft report and based on further feedback at that meeting the report will then be finalised and issued for public information and consideration.

APPENDIX THREE – ORGANISATIONAL WEBSITES VISITED

Department of Conservation

Federated Farmers

Fish and Game NZ

Local Government NZ

Ministry for the Environment

Ministry of Agriculture and Forestry

Ministry of Economic Development

Ministry of Science Research and Technology

Royal Forest and Bird Protection Society

Transit NZ

APPENDIX FOUR – INITIAL LIST OF ISSUES

WATER QUALITY

Water quality objectives, standards, guidelines and targets.

- Are these unambiguous and achievable?

Declining surface water quality in lowland rivers and lakes

- Primarily from diffuse runoff associated with land use change and land use intensification (stocking rates, fertiliser use). Contaminants of concern are nutrients (nitrogen and phosphorous), sediments and faecal coliforms. This leads to:
 - Declining water clarity;
 - Public health risks;
 - Habitat loss in streams (invertebrates and fish);
 - Nuisance aquatic plant growth (periphyton and algae)

Loss of riparian vegetation and riparian management

- Can exacerbate water quality problems (less attenuation of diffuse runoff) and also leads to surface water temperature increases (lack of shade) and loss of invertebrate food (from leaf litter).

Stock access to watercourses

- Contributes to declining water quality (cattle, deer and pigs primarily)

Hill country runoff increasing contaminant loads to watercourses

- Resulting from land use intensification, increased fertiliser use, erosion, vegetation removal, and a lack of riparian vegetation.

Urban and peri-urban earthworks

- Currently unregulated by HBRC. Can contribute significant sediment loads to streams, drains and estuaries.

Urban stormwater contamination

- Urban stormwater runoff contains high levels of heavy metals, PAHs, hydrocarbons, pesticides and herbicides. Shown to be significant contributor to contamination of urban streams, drains and estuarine receiving environments elsewhere in NZ.

Declining water quality in aquifers

- Primarily from diffuse runoff associated with land use change and intensification.

Groundwater and surface water interactions

- Contaminated surface water can affect groundwater quality, particularly in shallow or unconfined aquifers (and vice versa)

On site sewage treatment

- Can lead to groundwater and surface water contamination.
- Interaction with TAs.

Contaminated sites

- Can contaminate groundwater and surface water.

WATER QUANTITY (not flooding)

Establishing equitable surface water allocation regimes

(minimum low flows and allocatable volumes of abstraction).

- Methodology used – is it appropriate?
- Risks to users
- Risks to instream values
- Hierarchy of use (picking winners vs first in first served)

- Transferable permits
- Auctioning or selling water (e.g. old water races)
- Water conservation measures
- Efficient use of water
- Information on water use (real time data)

Declining long term groundwater levels and/or pressures

- Over abstraction.
- Climate change affecting recharge.

Establishing equitable groundwater water allocation regimes

(allowable rates and volumes of abstraction and bore separation distances).

Competition between water users

- Irrigation, public water supply, industrial and commercial users compete for limited surface and groundwater resources.

Groundwater and surface water interactions

- Groundwater takes can affect adjacent surface water (and vice versa)

Water harvesting at times of high flow

- Permissive regulatory regime?
- Council role – if any.

INFRASTRUCTURE MANAGEMENT

Promoting water storage and irrigation (and possibly power) schemes

- Council role – if any?
- Could do nothing or be information provider, funding underwriter, or developer and total funder.

River gravel extraction

- Excess gravel in Ruataniwha rivers causes stream drying.
- Effects on water quality.

Weed harvesting in urban drains

- Water quality effects?

Willow removal on rural streams

- Undertaken for flood management –water quality effects?

Barriers to fish passage

- Resulting from structures in watercourses.

Urban stream enhancement

- Benefits for water quality?

Aquifer recharge system

- Does it work – should it be expanded?

Old unused bores

- What risks do these pose?

LAND USE CHANGE

Managing or regulating land use change

- Rural intensification.
- Urban growth.
- Promoting areas where intensification is appropriate.
- Precluding intensification in inappropriate areas.

Research linking land use to surface and ground water quality

- What's being done?
- Is it adequate?

CLIMATE CHANGE

Planning for and managing likely changes in Hawke's Bay

- *Hawke's Bay predicted to become 3^oC warmer and 20% drier by 2070*
- *Longer dry periods but increased heavy rainfall events*
- *Floods up to four times as frequent by 2070*
- What is Council doing about this?

ADMINISTRATION

Implementing national initiatives

- National Water Conservation Orders – Mohaka.
- National Environmental Standards – water quality, allocation limits.
- Water bodies of national importance.

Local regulation

- Permitting small scale activities – minimal regulation.
- User certainty – short term vs long term consents.
- Council research vs consent applicant research.
- Treaty issues.
- Iwi involvement in decision making.

Non-regulatory methods

- Do education and financial incentives work?
- Do they provide sufficient certainty of outcome?