

HAWKE'S BAY REGIONAL COUNCIL
ENVIRONMENTAL MANAGEMENT COMMITTEE

Wednesday 14 July 2010

SUBJECT: LOW FLOW MONITORING REPORT 2008-2009

REASON FOR REPORT

1. This paper provides a summary of the Low Flow Monitoring Report 2008-2009 and the low flow monitoring undertaken during 2009-2010 summer.
2. The executive summary of the report "Low Flow Monitoring Report 2008-2009" is included in Appendix 1.

Background

3. Minimum flows have been established on rivers and streams via Policy 74, Table 9 of the RRMP. Minimum flows are set to ensure sufficient water is left in a river to help maintain identified river values.
4. Minimum flows are set for specific points (known as minimum flow sites or low flow sites) on rivers where the flow can be monitored.
5. Some rivers/streams have additional abstraction cut-off levels set at flow levels above the minimum flow that relate to high flow allocation consents. All minimum flows and additional cut-off levels are commonly referred to as low flow limits.
6. Rivers may naturally reach minimum flow conditions over extended dry periods. Abstraction however can speed up the recession of the river and extend ban periods. Measuring ban days is particularly important for enabling water users to assess the security of water supply. In turn water users may implement measures to mitigate interruption of supply such as storage, developing water efficient practices and rationing/rostering which will help reduce exposure to abstraction bans.

The Low Flow Monitoring Programme

7. River flows are continuously monitored throughout the year by the HBRC hydrology team. Low flow conditions typically occur during (although not confined to) the summer months (November-April) when the region regularly experiences dry periods with low rainfall and river flows. This is characteristic of the east coast of both the north and south islands.
8. River flows at low flow sites across the region, are assessed on a daily basis. When a river flow is measured nearing its low flow limit, the HBRC communicates to relevant consent holders that a low flow ban is approaching. If conditions persist and the river recession continues, reaching its low flow limit or below, the HBRC issues an abstraction ban notifying the relevant consent holders to cease abstraction. When river flows recover above the low flow limit, the HBRC will cancel the abstraction ban notifying all related consent holders.
9. A low flow assessment meeting is held weekly to assess current and predicted river flows, abstraction bans and forecasted weather. Changes to abstraction bans are communicated to the relevant consent holders via email, fax, or phone. River flows constantly fluctuate, and the daily assessment of river flows means abstraction bans can also change on a daily basis. Abstraction bans and related river flows are also presented on the HBRC Low Flows web page. This web page is updated as the situation changes.

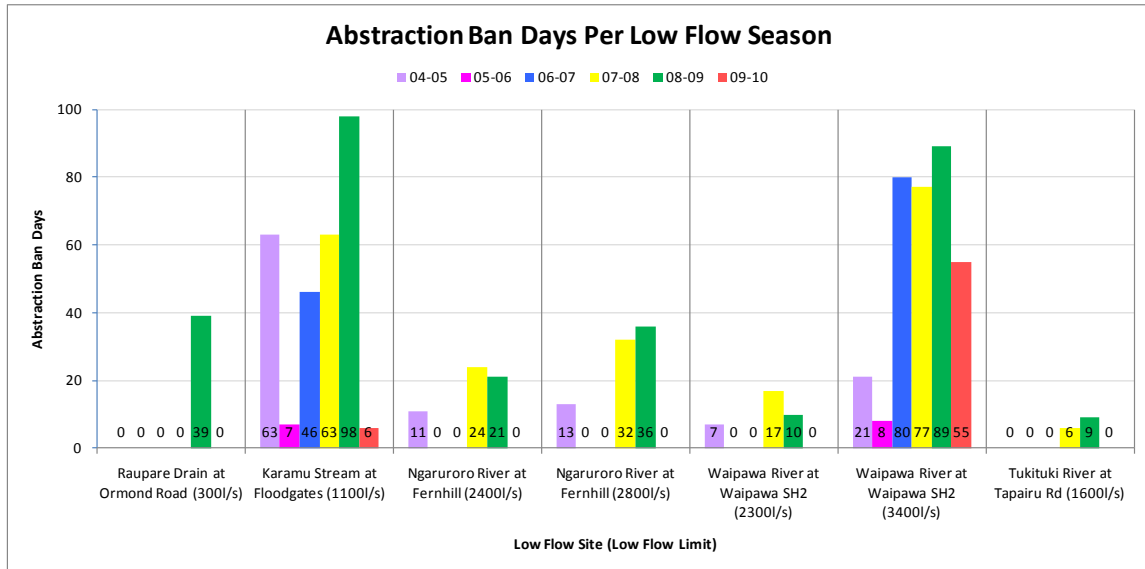
10. Abstraction bans have been recorded since 1994. These records detail the start and end of every abstraction ban for all minimum flows at all sites. From these records, the number of ban days has been calculated for each ban.
11. Thirty low flow sites across Hawke's Bay were monitored during 2008-2009 and again in 2009-2010. Maps of these sites are included in Appendix 2 (2008-2009) and Appendix 3 (2009-2010).

Low Flow Monitoring Report

12. Low flows are reported:
 - 12.1. Weekly (as a result of the weekly assessment meeting) on the HBRC Low Flows web page at www.hbrc.govt.nz
 - 12.2. Daily (only when changes to abstractions bans are required between weekly assessment meetings) on the HBRC Low Flows web page at www.hbrc.govt.nz
 - 12.3. Monthly on the HBRC Low Flows web page at www.hbrc.govt.nz
 - 12.4. Annually in an HBRC technical report (executive summary for 2008-2009 report included in Appendix 1)
13. In addition, media releases are issued several times each summer as conditions develop.
14. For the 2008-2009 low flow monitoring season, the following statistics are detailed in the report:
 - 14.1. The 2008-2009 low flow season started in November 2008 with the last ban ending in July 2009, spanning a total of 227 days
 - 14.2. Rivers and streams were placed on ban for a combined total of 1926 days
 - 14.3. The Karewarewa Stream in the Karamu catchment was on ban for the greatest number of days, totalling 224
 - 14.4. February 2009 had the highest number of total ban days (417) and also the greatest number of low flow sites on ban (21 of a total of 30)
 - 14.5. Graphs showing abstraction ban days per low flow site and abstraction ban days per month for 2008-2009 are included in Appendix 2
 - 14.6. Report recommendations are made to ensure that the low flow monitoring programme continues to develop and adapts to changes in consenting processes and increasing water resource pressures.
15. Statistics for the 2009-2010 low flow monitoring season are also identified below. The 2009-2010 report will be completed by August this year:
 - 15.1. The 2009-2010 low flow season started in November 2009 with the last ban ending in May 2010, spanning a total of 180 days
 - 15.2. Rivers and streams were placed on ban for a combined total of 1142 days
 - 15.3. The Karewarewa Stream in the Karamu catchment was on ban for the greatest number of days, totalling 117
 - 15.4. April 2010 had the highest number of total ban days (366)
 - 15.5. May 2010 had the greatest number of low flow sites on ban (18)
 - 15.6. Graphs showing abstraction ban days per low flow site and abstraction ban days per month for 2009-2010 are included in Appendix 3.

Comparison to Previous Years

16. The following graph compares the number of ban days for low flow limits at five sites over previous low flow seasons. River flows and rainfall across the region have regularly been below normal during the summer months (Nov-Apr) over recent years, with the exception of 2005/2006 summer. The number and length of abstractions bans during each summer is ultimately dependant on the climate and state of the river flows. The number of ban days for most of the sites in the graph below, show peaks in ban days during the 2007/2008 and 2008-2009 seasons, which corresponds with well below normal river flows experienced during these seasons.



17. Rainfall and river flow conditions also vary between catchments and coupled with different resource pressures, there are always variations in the time and duration of abstraction bans between catchments, shown in the graph by the differing numbers of ban days between sites for the same season.
18. This report records the general ban day statistics in rivers and streams around the region over the last few years.
19. Underlying these statistics is the critical importance to arrive at a robust balance of competing users and uses (environmental, economic, social and cultural). Further, this information will play a critical part in guiding other interventions to increase security of supply, such as irrigation storage infrastructure.

DECISION MAKING PROCESS

20. Council is required to make a decision in accordance with Part 6 Sub-Part 1, of the Local Government Act 2002 (the Act). Staff have assessed the requirements contained within this section of the Act in relation to this item and have concluded that, as this report is for information only and no decision is to be made, the decision making provisions of the Local Government Act 2002 do not apply.

RECOMMENDATIONS

1. That the Committee receives and notes the report titled “Low Flow Monitoring Report 2008-2009”.

**ROB WALDRON
RESOURCE ANALYST
HYDROLOGY**

**ROB CHRISTIE
TEAM LEADER
HYDROLOGY**

**GRAHAM SEVICKE-JONES
MANAGER ENVIRONMENTAL SCIENCE**

LOW FLOW MONITORING REPORT 2008-2009

EXECUTIVE SUMMARY

Minimum flows have been established on rivers and streams subject to abstraction throughout Hawke's Bay. Minimum flows are set to ensure sufficient water is left in a river to help maintain identified river values.

When a river reaches or falls below its minimum flow, an abstraction ban is issued by the Hawke's Bay Regional Council and all consented water abstractions with the relevant minimum flow condition attached must cease.

During 2008-2009, thirty low flow sites across Hawke's Bay were monitored. Abstraction ban data for the 2008-2009 has been collated and presented within this report.

The 2008-2009 low flow season started in November 2008 with the last ban ending in July 2009, spanning a total of 227 days. Rivers and streams were placed on ban for a combined total of 1926 days.

The Karewarewa Stream in the Karamu catchment was on ban for the greatest number of days, totalling 224.

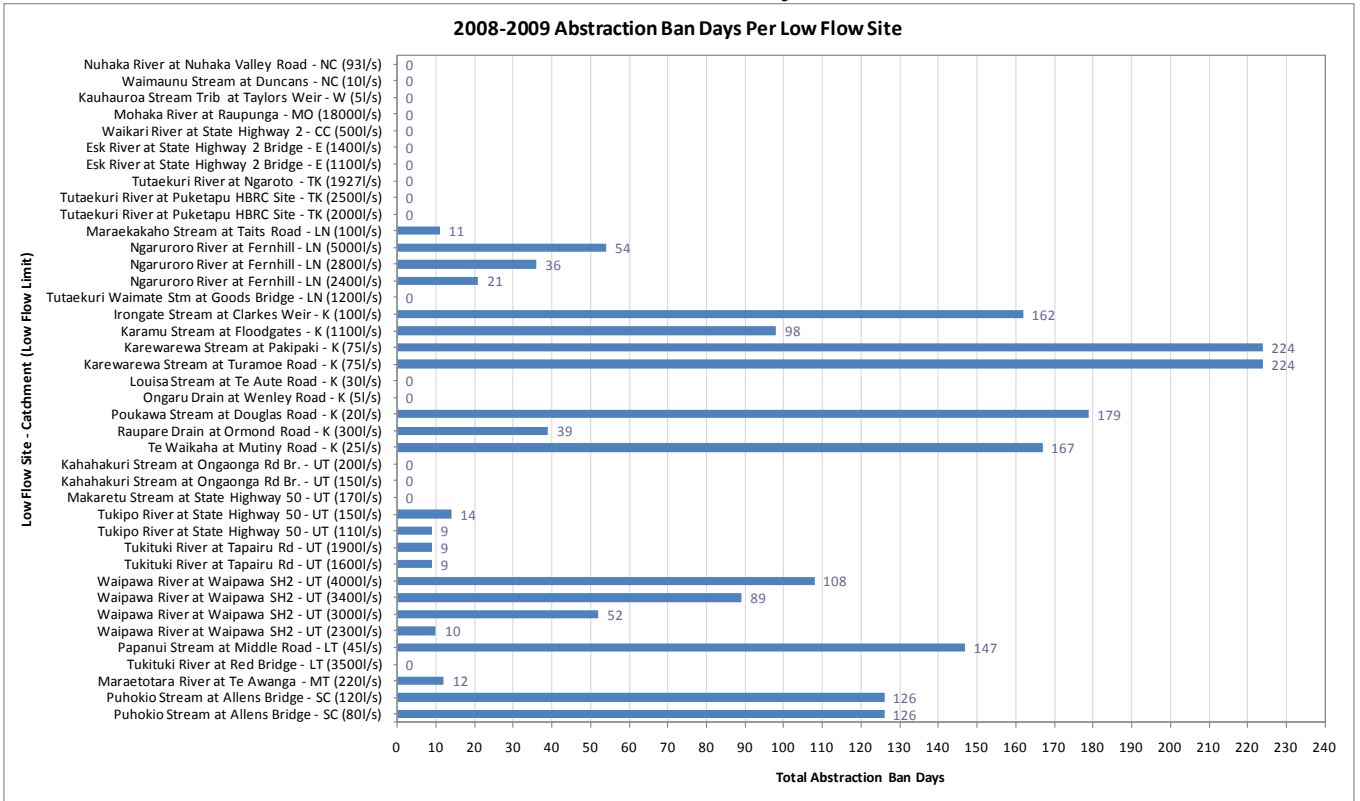
February 2009 had the highest number of total ban days (417) and also the greatest number of low flow sites on ban (21).

Recommendations are made to ensure that the low flow monitoring programme continues to develop and adapts to changes in consenting processes and increasing water resource pressures.

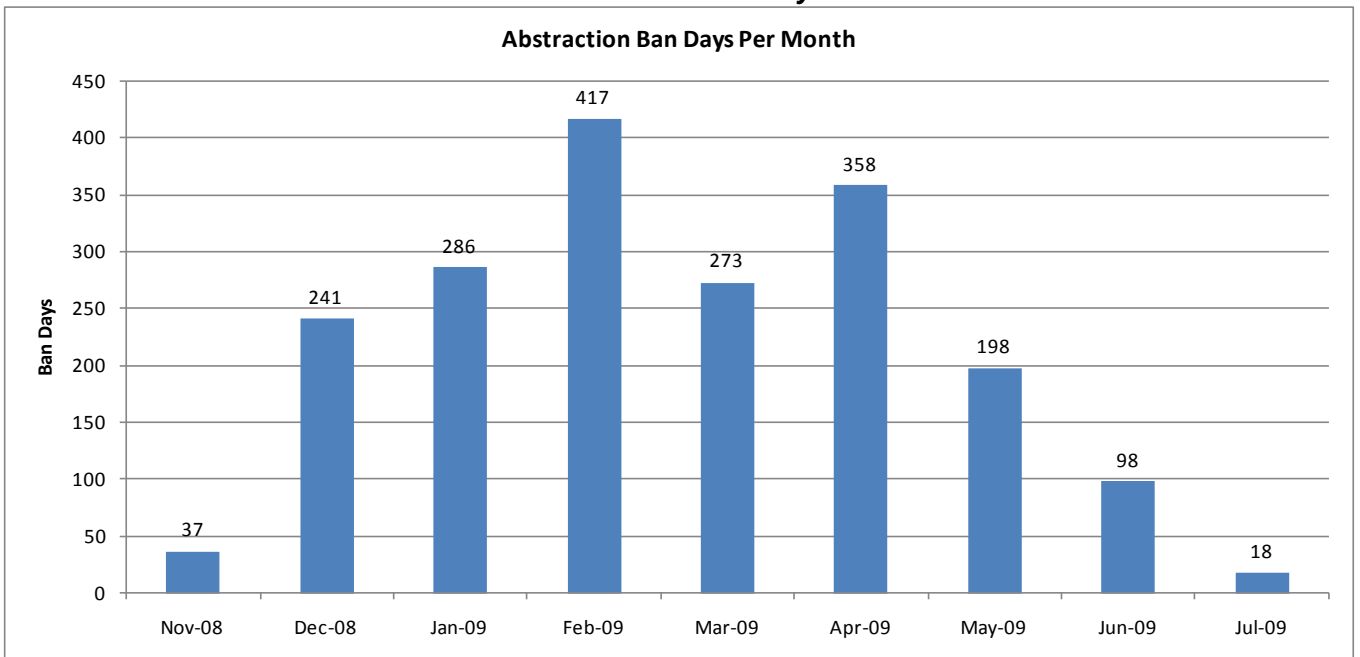
2008-2009 Low Flow Monitoring Sites



2008-2009 Total Abstraction Ban Days Per Low Flow Site



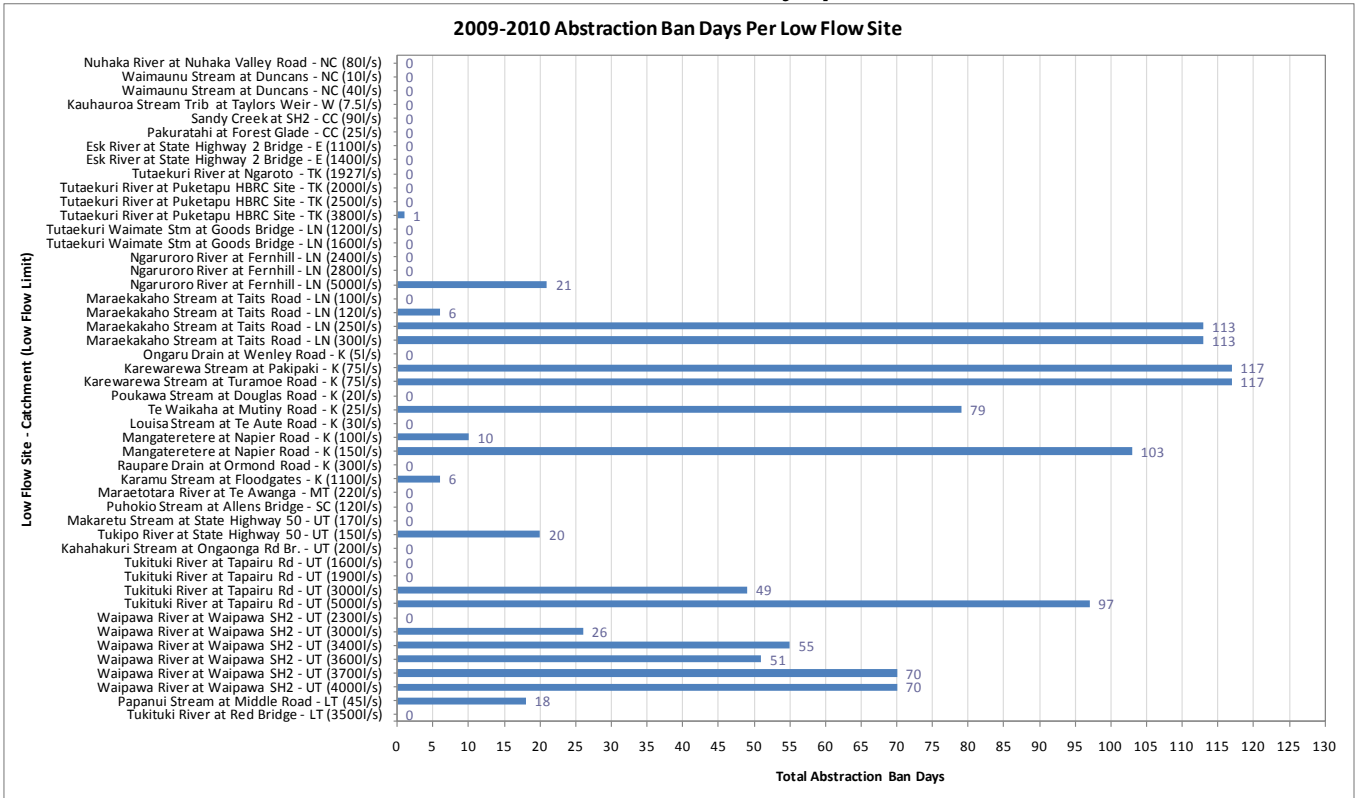
2008-2009 Abstraction Ban Days Per Month



2009-2010 Low Flow Monitoring Sites



2009-2010 Total Abstraction Ban Days per Low Flow Site



2009-2010 Abstraction Ban Days per Month

