

4.2 Surface Water

There are two high use stream management areas in the Kaipara River – North Shore area, the Waimauku Stream and the Kumeu River. These are both sub-catchments of the Kaipara River catchment (Fig. 21). There are currently no flow-monitoring sites or flow statistics on the Waimauku Stream. Flows are monitored on the Kaipara River at a site just upstream of the Waimauku Stream and the Kaipara River confluence (45311). Flows at this site remained well above MALF during 2004 – 2005 (Table 9).

Flows are monitored at a flow-monitoring site on the Kumeu River (45315). Flows dropped below the MALF on 4 occasions in the reporting period; once in February 2005 and 3 times in March 2005 (Table 9). The hydrograph for the site indicates gradually receding stream flows, likely as a consequence of the very low rainfall through from January to March 2005.

Table 9: Kaipara River – North Shore high use streams low flow statistics for 2004 – 2005

Stream Name	Site No.	MALF l/s	Date flow fell below MALF	Time below MALF	Lowest flow l/s
Kumeu River	45315	29.3	20/02/2005	1.9 hours	26.1
			16/03/2005	3.9 hours	29.1
			17/03/2005	3.0 days	23.2
			21/03/2005	3.8 days	23.7
Kaipara River	45311	144 ⁴	0	0	175.7

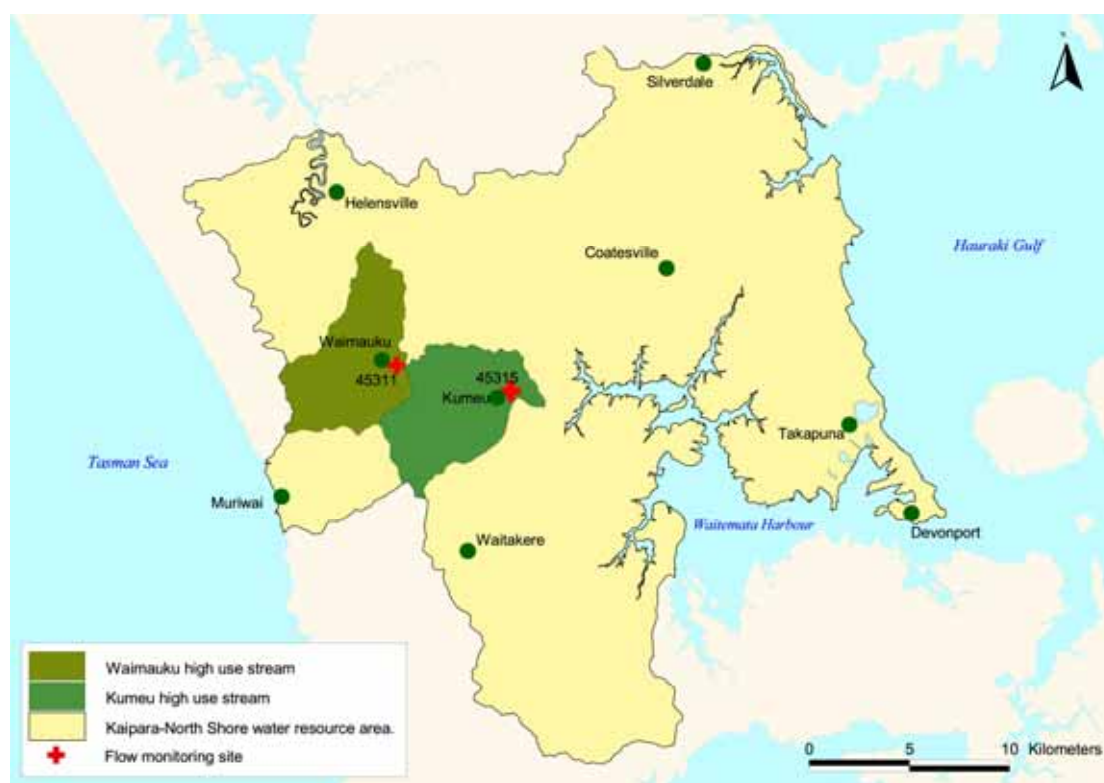


Figure 21: Kaipara River – North Shore water resource area, high use stream management areas and flow-monitoring sites.

⁴ The estimate of MALF has been revised from previous reports as a result of a review of the flow record for this site.

4.3 Groundwater

The Kumeu – Hobsonville Waitemata aquifer is the only high use aquifer in the Kaipara River – North Shore area (Fig 22). For management purposes it is divided into three zones based on density of demand for groundwater. Zone 1 is fully allocated (although use is less than availability), Zones 2 and 3 are not fully allocated and the aquifer as a whole is not fully allocated.

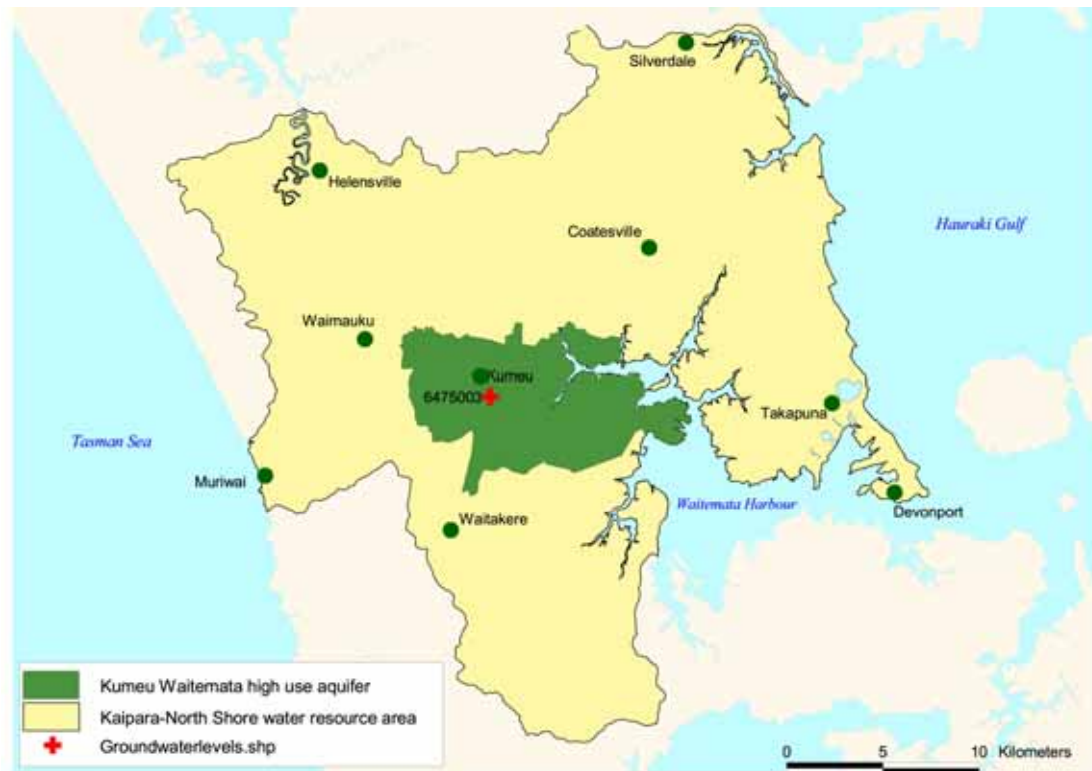


Figure 22: Kaipara River – North Shore water resource area, high use aquifer management area and groundwater monitoring site

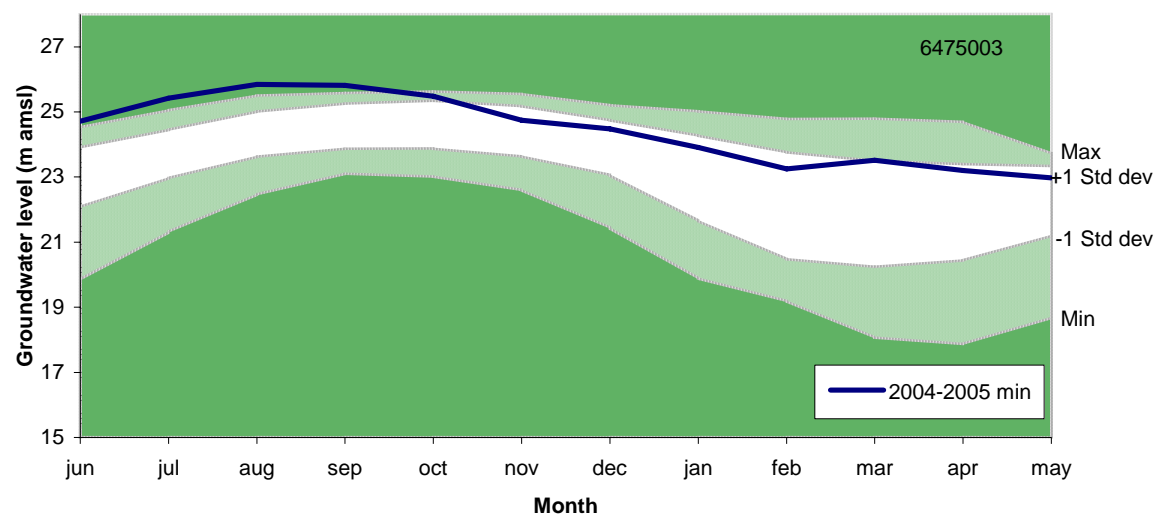


Figure 23: Groundwater envelope for Kumeu – Hobsonville Waitemata monitoring site at Selaks vineyard, Kumeu (6475003)

ARC monitoring site (6475003) at Selaks vineyard in Kumeu is used for long term baseline groundwater level monitoring (Fig. 23). Throughout the period June 2004 to May 2005, minimum monthly groundwater levels in this monitoring bore were well above monthly average levels. Groundwater levels from June to September 2004 were higher than have been previously monitored. This may reflect lower than average water use in the area around the monitoring bore as the same trend is not found in all other monitoring bores in the Kumeu-Hobsonville high use aquifer.

4.4 Water Allocation and Use

The Kaipara River – North Shore is the second most urbanised of the water resource areas, with major urban centres in North Shore and Waitakere. There are also significant levels of horticulture, farming and forestry beyond the urban limits (Crowcroft and Bowden, 2002).

The quantity of surface water allocated and used for industry appears to have increased significantly from last year (200,000 m³ to 500,000 m³ and 100,000 m³ to 300,000 m³ respectively). However, this is a result of the inclusion of an “allocation figure” for those abstractions from dams that do not have a consent condition regarding maximum total allocations. The number of surface water consent holders has decreased from 99 in May 2002 to 82 in May 2005.

Groundwater allocation to consent holders remains within groundwater availability, with the exception of Kumeu-Hobsonville area 1. This is historically a high water demand area. Groundwater availability was determined for the aquifer in the 1980's and at that time water use already exceeded availability. Groundwater allocation to consent holders reduced from over 200% of availability in the 1990's to 120% through consent expiry and replacement. Groundwater use was less than groundwater availability and groundwater levels indicate that the aquifer is not being adversely affected.

Groundwater usage was considerably lower than the quantity allocated (Table 10), a similar situation to last year (Fig. 24). Groundwater used and allocated for industry increased considerably from last year because a large user was previously not included in this water resource area. The number of groundwater consent holders dropped from 275 in May 2002 to 271 in May 2005.

Table 10: Kumeu-Hobsonville high use aquifer management area groundwater availability, allocation and use for 2003-2004 and 2004-2005.

Kumeu Hobsonville Aquifer sub area	Availability m ³ (000)	2003-2004		2004-2005	
		Allocation m ³ (000)	Use m ³ (000)	Allocation m ³ (000)	Use m ³ (000)
1	211	229	153	229	158
2	586	535	218	532	264
3	762	81	22	73	19

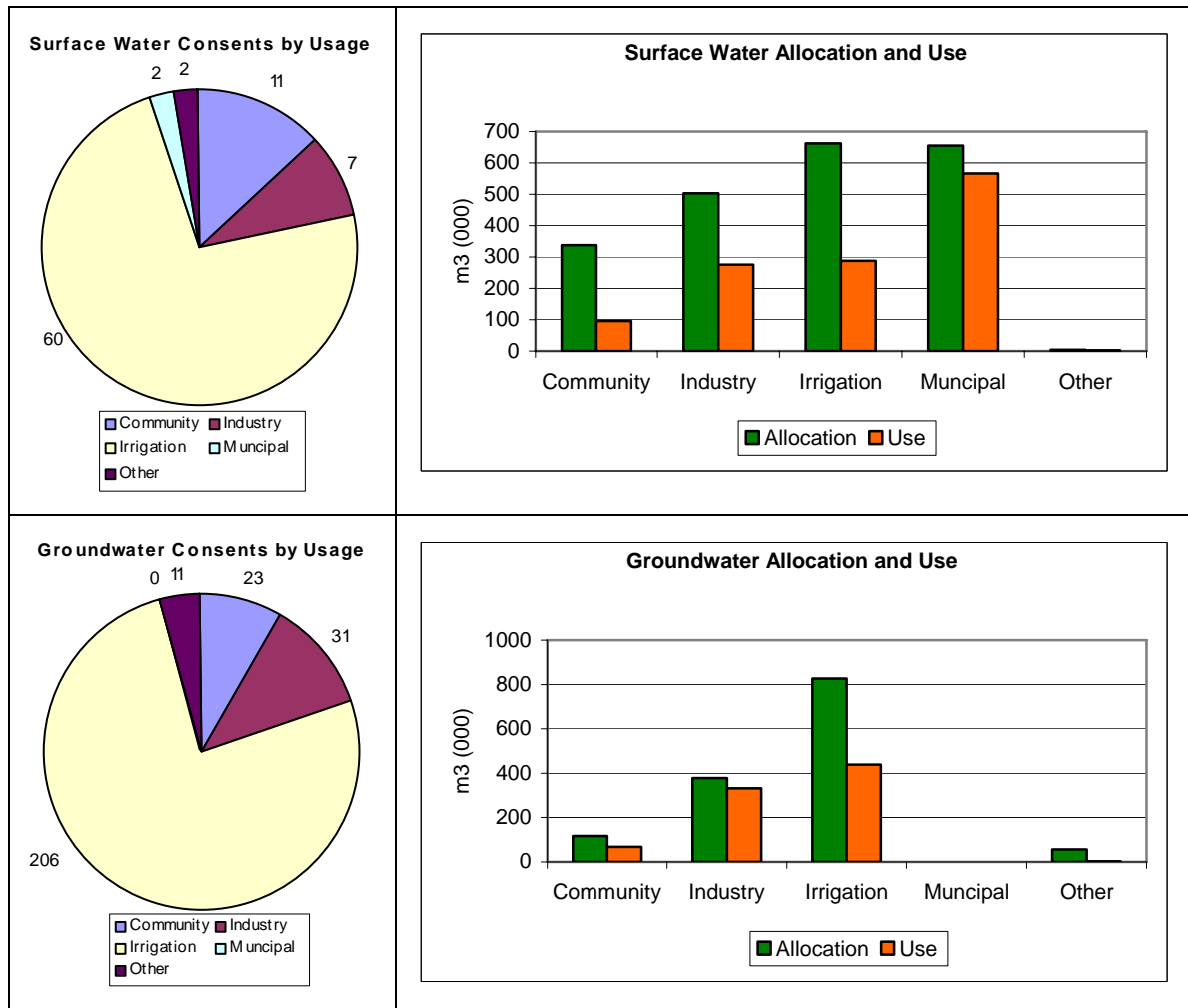


Figure 24: Surface water and groundwater allocation and use for Kaipara River – North Shore water resource area and the number of consents held for each purpose

5 Waitakere

5.1 Rainfall

Annual rainfall in the Waitakere area was approximately 20% below average in 2004-2005 (1589mm compared with annual mean of 1979mm). January – April 2005 was particularly drier than average, while May 2005 was wetter than average (Fig. 25).

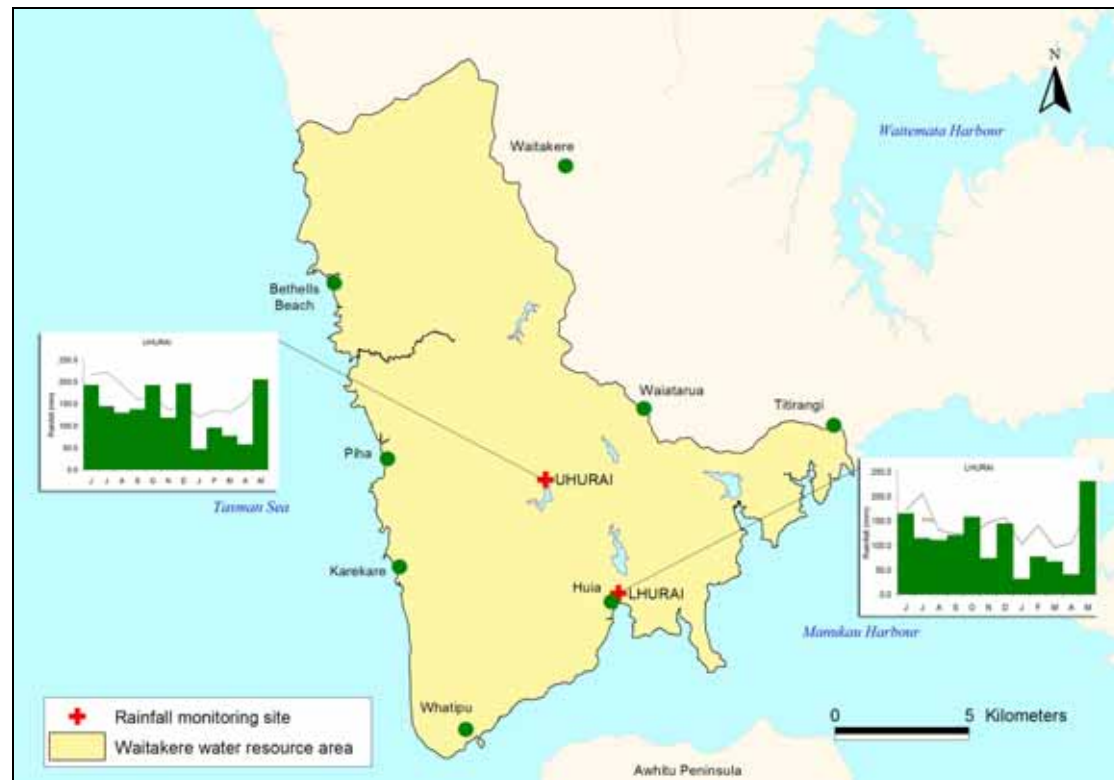


Figure 25: Total monthly rainfall (bars) and long term mean monthly rainfall (line) at 2 sites in the Waitakere water resource area

5.2 Surface water & groundwater

The Waitakere water resource area does not contain any high use stream or high use aquifer management areas. This area does, however, have the second highest water allocation in Auckland Region due to the surface water taken from dams by Watercare Services Ltd.

5.3 Water Allocation and Use

Watercare's water abstraction from large municipal supply dams in the Waitakere Ranges is the principal use of water in the area. These include the Waitakere Dam in the Waitakere River Catchment, the Upper and Lower Nihotupu dams on the Nihotupu stream, and the Upper and Lower Huia dams on the Huia Stream (Crowcroft and Bowden, 2002). The allocations for these consents represent 99% of the total water allocation in the Waitakere area (Fig. 26). Figure 27 shows that Watercare used approximately 15 Mm³ of water under their four resource consents. This is approximately 10 Mm³ less than last year. Watercare took 10 Mm³ more from the Hunua dams in 2004/2005. The surface water use and allocation excluding Watercare Ltd. data is also apparently less than the previous year. This is due to the removal of a consent that was mistakenly placed in this area. Similarly groundwater allocation and use (Figure 26) is significantly different from last year because one large industry user was mistakenly included in the Waitakere water resource area.

The number of surface water consent holders has decreased from 12 in May 2002 to 8 in May 2005. The number of groundwater consents has decreased from 99 in May 2002 to 82 in May 2005. The number of groundwater consent holders has stayed the same after the correction referred to above.

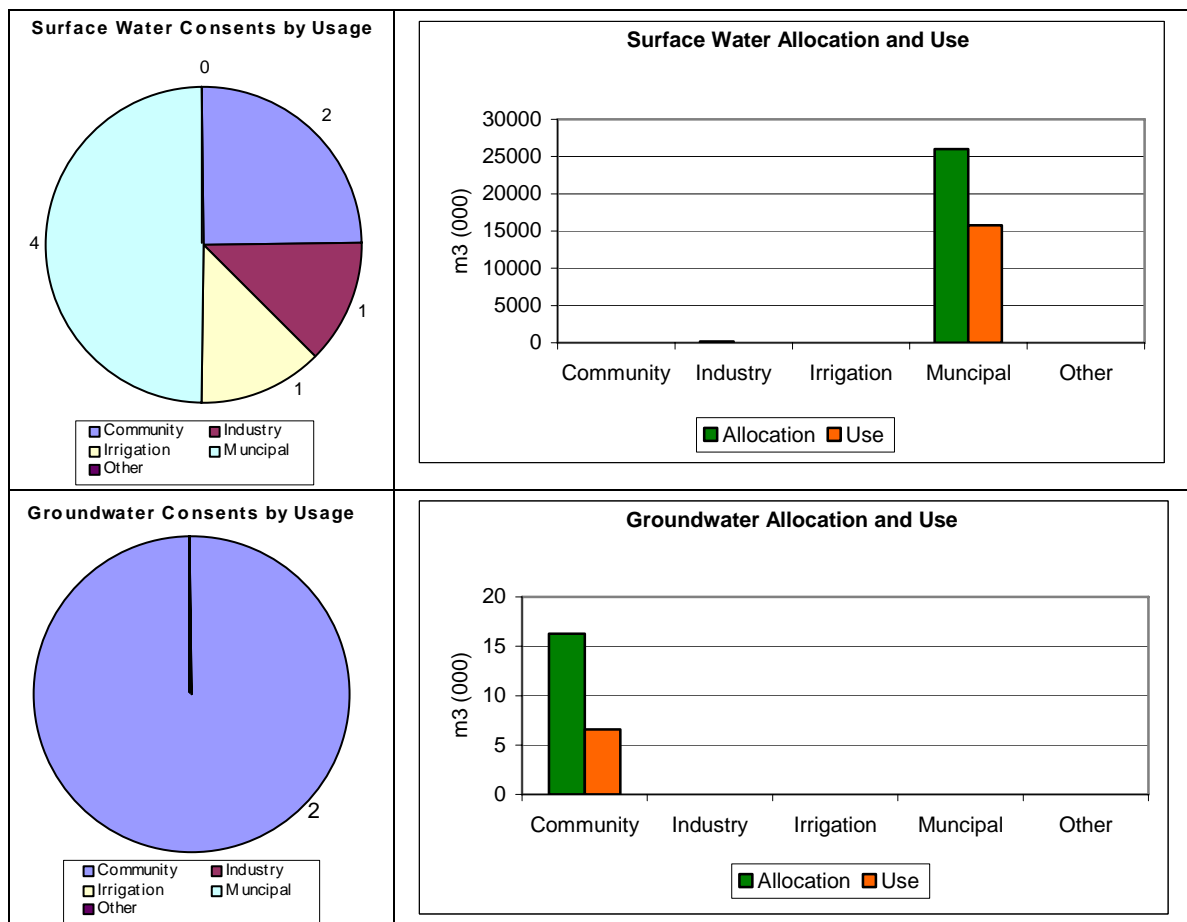


Figure 26: Surface water and groundwater allocation and use for Waitakere water resource area and the number of consents held for each purpose

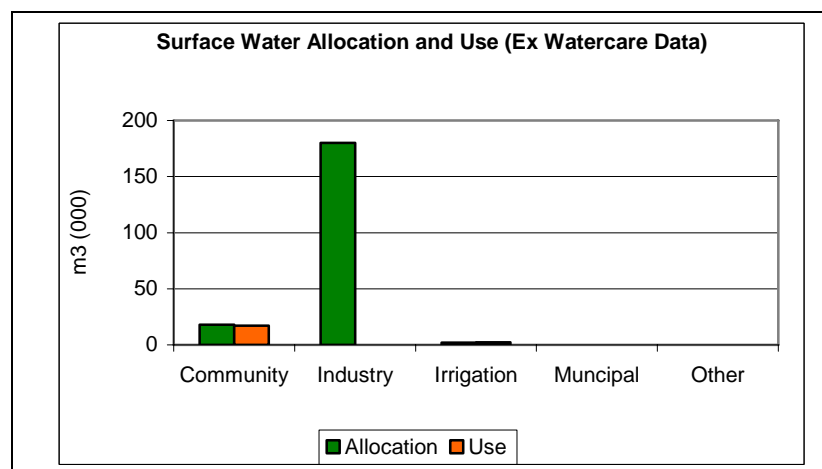


Figure 27: Surface water allocation and use for Waitakere water resource area excluding Watercare Services Ltd. Data

6 Gulf Islands

6.1 Rainfall

The Gulf Islands (Fig. 28) are some of the drier parts of the Auckland Region. Mean annual rainfall on Waiheke Island is around 1180mm but was just 914mm in the 2004-2005 year. The distribution of rainfall through the year was similar to other areas, with below average monthly rainfall to November 2004, a wet December and much lower than average rainfall from January –April 2005. The distribution of rainfall across the year is very important to the thousands of islanders who rely on roof tanks for catching and supplying water requirements.

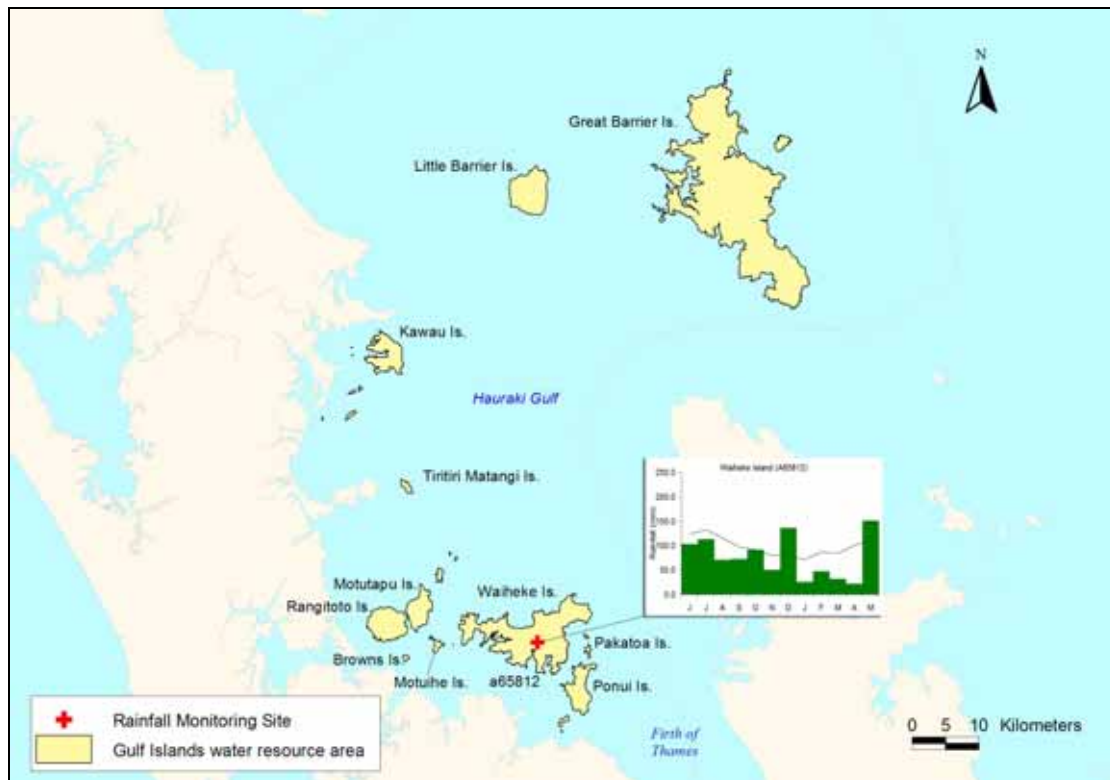


Figure 28: Total monthly rainfall (bars) and long term mean monthly rainfall (line) at 3 NIWA sites in the Gulf Islands water resource area

6.2 Surface water and Groundwater

There are no high use stream management areas on the Hauraki Gulf Islands water resource area (Fig. 29). All aquifers on Waiheke Island are classified as high use aquifer management areas but as yet are not monitored. In 2004 ARC initiated a 3-year study of the island's groundwater resources to determine how much is available and to develop a suitable water management regime.



Figure 29: Gulf Islands water resource area and high use aquifer management .

6.3 Water Allocation and Use

Most private homes use roof tanks to catch water for household use. Resource consents have been granted for water abstraction for water carrying (water tanker supplies), school supply, irrigation and hotel supply. There were 13 surface water consent holders in the Gulf Islands in May 2005 (Fig. 30). The number of groundwater consent holders increased slightly from 31 in May 2002 to 38 in May 2005. The large volume of groundwater allocation to “other use” includes consents for domestic and stock watering purposes.

Waiheke Island water demand is high but the few small streams and the low yielding aquifers limit supply. Water demand is forecast to increase and already numbers of applications to drill bores, predominantly for domestic supplies, have increased over previous years.

ARC is currently undertaking investigation of groundwater resources in the eastern side of the island.

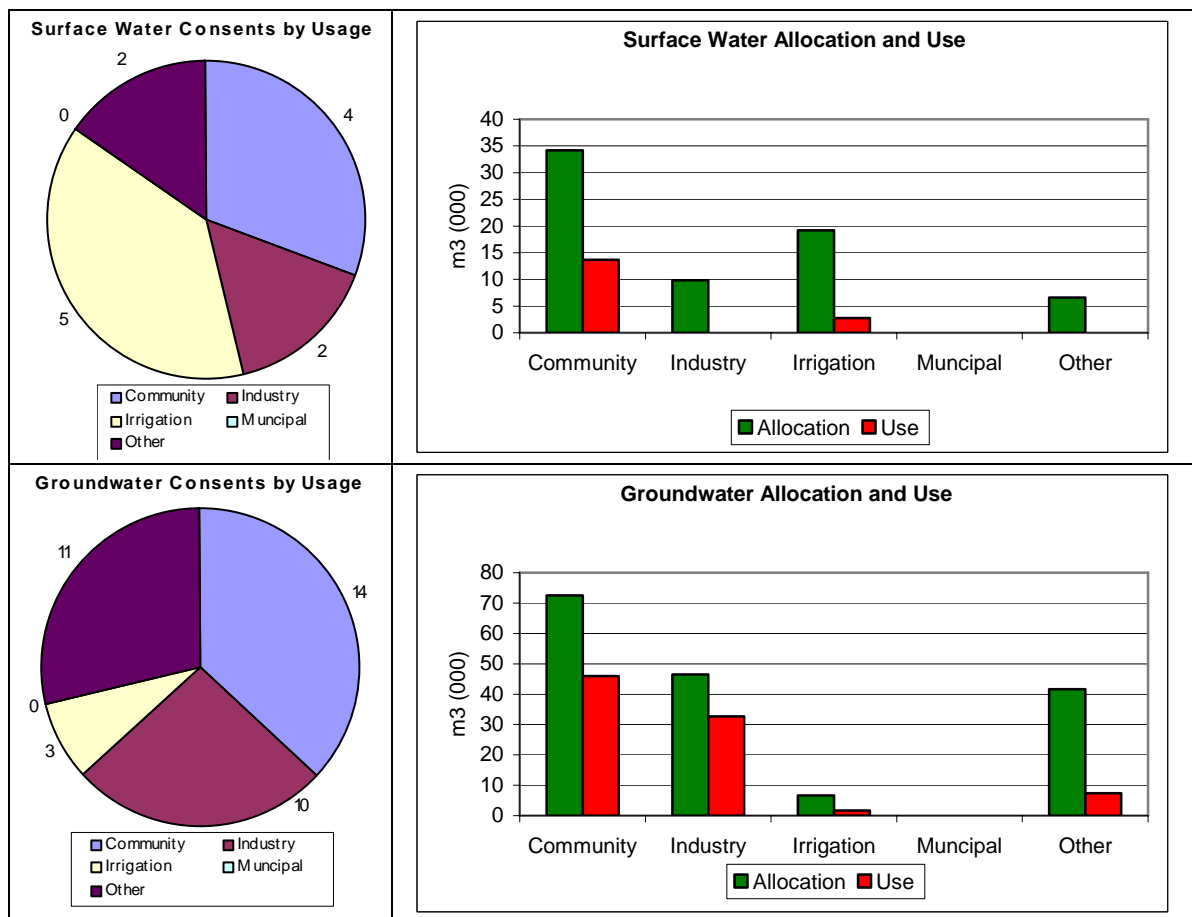


Figure 30: Surface water and groundwater allocation and use for the Gulf Islands water resources area and the number of consents held for each purpose

7 Auckland Central

7.1 Rainfall

Rainfall in the Central Auckland areas was closer to average monthly rainfall totals than other parts of the region. January and April 2005 were much drier than average, as was June and July 2004. Overall annual rainfall totals were 13-20% less than average across the 4 rainfall monitoring sites (Fig. 31, Table 13).

Table 11: Comparison of 2004 – 2005 rainfall with long term mean at 4 sites

Site number	Site name	Mean annual mean rainfall (mm)	Total rainfall (mm)	Deviation from average rainfall
649723	Onehunga at Rowe Street	1187	1027	-13%
649820	Pakuranga at Village	1152	919	-20%
658011	Beachlands at Anakena	1234		
740815	Puhinui at Botanic Garden	1210	965	-20%

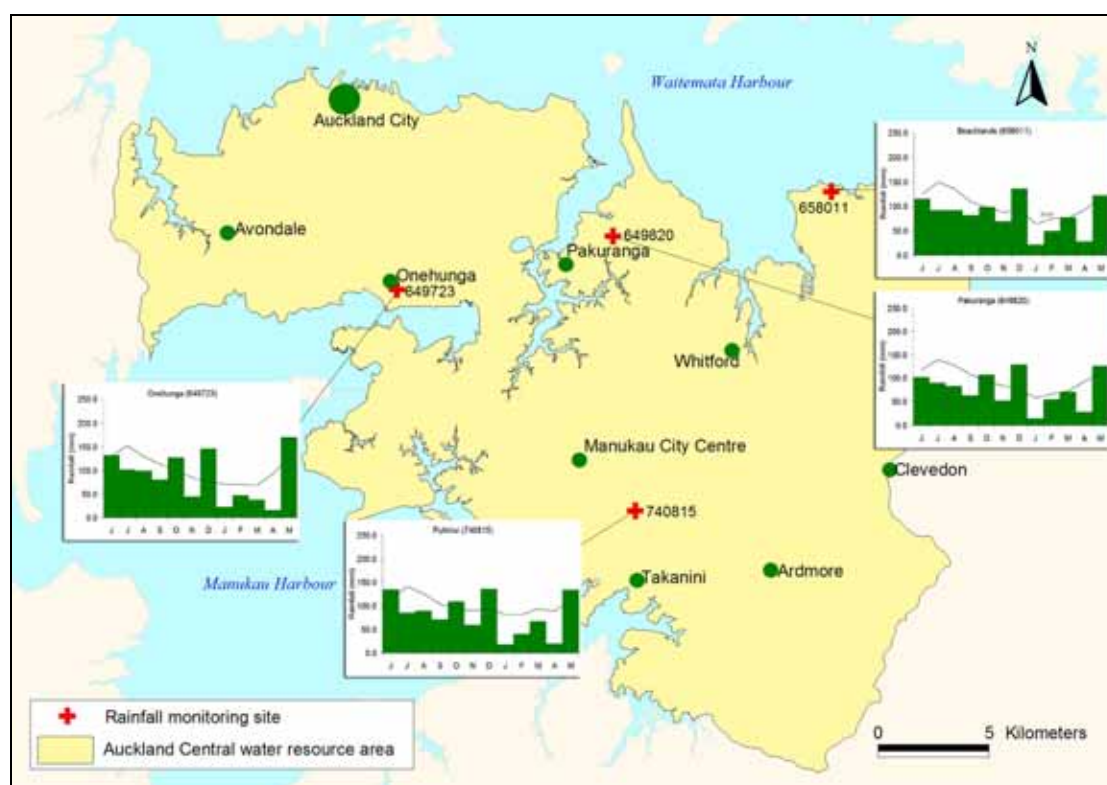


Figure 31: Total monthly rainfall (bars) and long term mean monthly rainfall (line) at 4 sites in the Auckland Central water resource area

7.2 Surface Water

There are three high use streams management areas in the Auckland Central water resource area, Puhinui, Hays Creek and Taitaia, a sub-catchment of the Wairoa River (Fig. 32). Stream flows are only monitored on the Puhinui Stream (43807), upstream of all consented water abstractors and down stream of some large storm water detention structures. During the 2004 – 2005 hydrological year, the lowest flow recorded for the Puhinui stream was 21.8 l/s; this is above MALF (13 l/s) for the site.

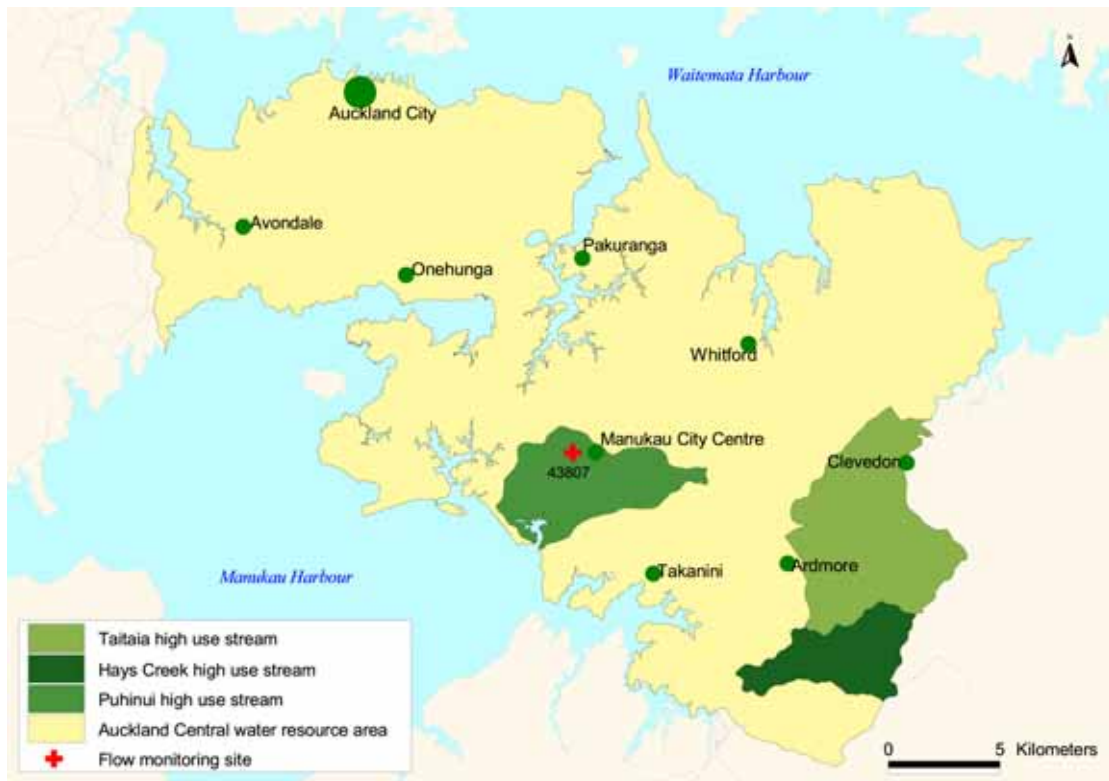


Figure 32: Auckland Central water resource area, high use stream management areas and flow-monitoring site

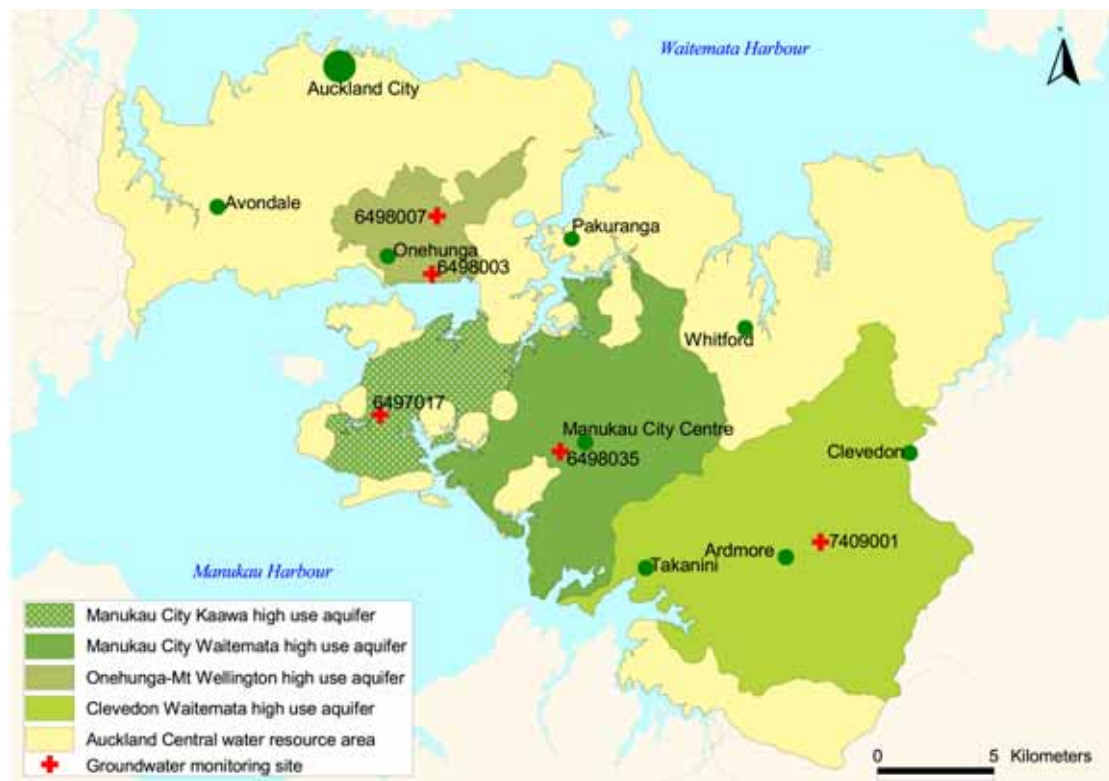


Figure 33: Auckland Central water resource area, high use aquifer management areas and groundwater monitoring sites.

7.3 Groundwater

There are four high use aquifer management areas in the Auckland Central water resource area (Fig 33). Groundwater allocation is within groundwater availability for the Onehunga – Mt Wellington Volcanic aquifer, Manukau Waitemata aquifer, Manukau Kaawa, and the Clevedon Waitemata aquifer. None of these aquifers are considered fully allocated. There is currently no water availability value for the Manukau Kaawa aquifer.

The isthmus volcanic aquifers are very responsive to rainfall events, particularly as most stormwater is discharged directly into the aquifers. They also respond relatively quickly to reduced rainfall recharge, as was the case in 2004/2005. Minimum monthly groundwater levels in both Central Park (Fig. 34) and Angle Street (Fig. 35) bores show water levels fell to, or close to, site monthly minima for summer and autumn.

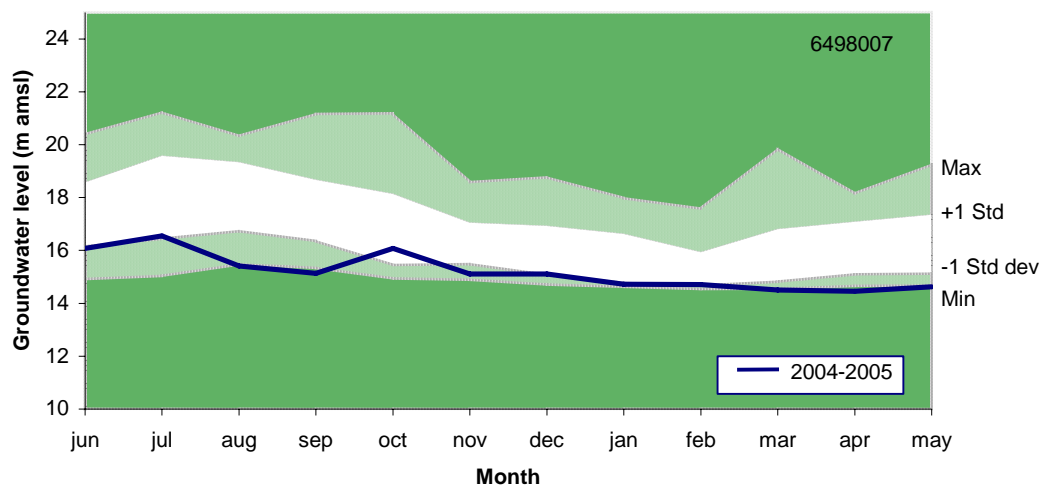


Figure 34: Groundwater envelope for Central Park (6498007) bore.

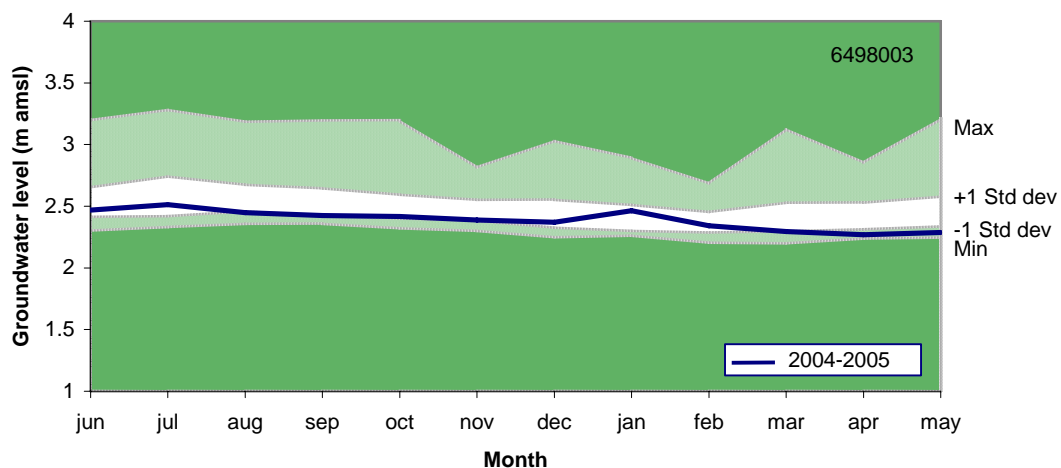


Figure 35: Groundwater envelope for Angle Street (6498003) bore

The Waitemata aquifer in Manukau is monitored at Lambie Drive (6498035). As in the previous year, groundwater levels for the 2004 – 2005 hydrological year at the site are higher than they have ever been (Fig. 36). The site was established in 1993 and groundwater pressures stand above ground level (artesian). Groundwater pressures have increased since 1993; this is thought to be due to reduced groundwater abstraction in the area.

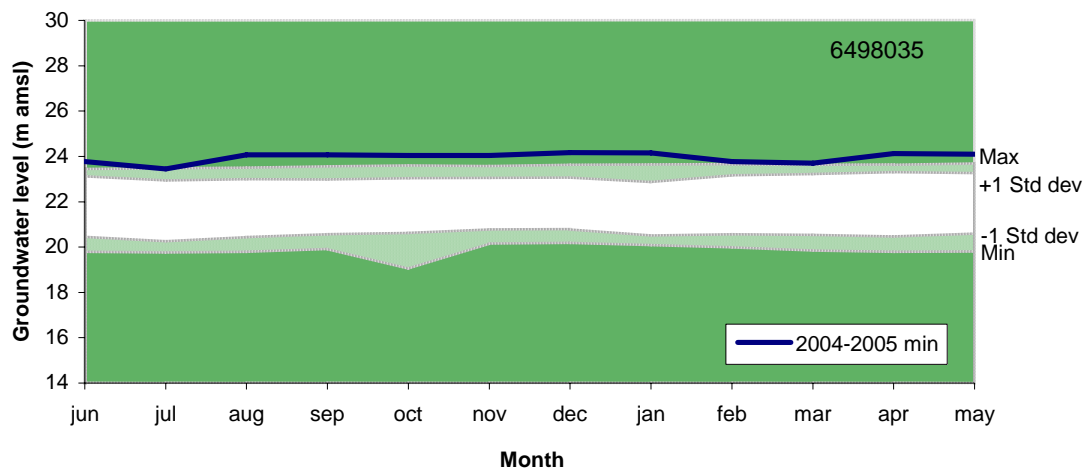


Figure 36: Groundwater envelope for Lambie Drive (6498035) bore

In the Manukau Kaawa aquifer groundwater levels are monitored at Amelia Earhart Drive (6497017). Monthly groundwater level monitoring in this bore began in August 2001 so there is insufficient data to formulate a meaningful groundwater envelope for this site. Figure 37 shows the site record since monitoring began. The absence of a summer water level decline since 2002/2003 is due to surrender of two large irrigation take consents.

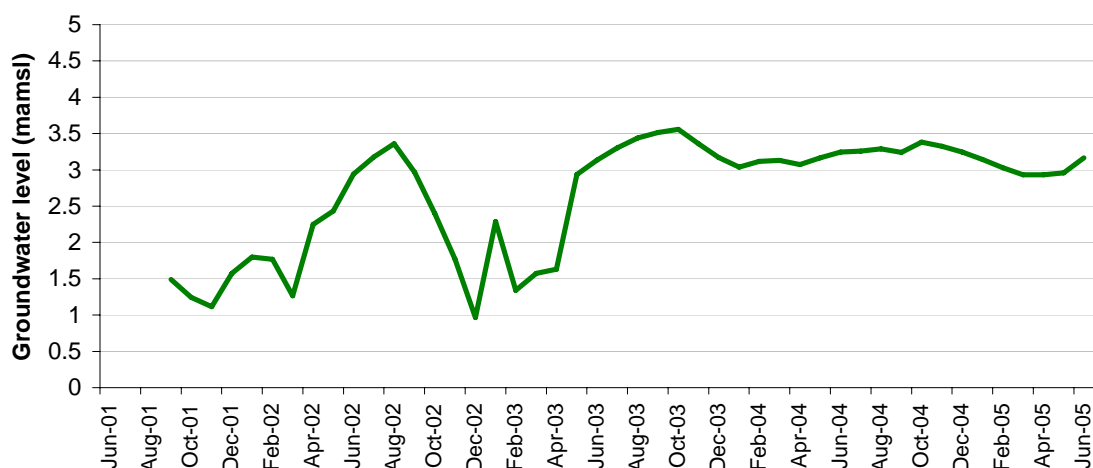


Figure 37: groundwater levels in Amelia Earhart bore.

7.3.1 Clevedon Waitemata Aquifer

Groundwater levels in the Burnside bore (7409001) during 2004-2005 followed a normal seasonal trend, although dipped lower than projected in autumn 2005. This was due to the lower than average summer and early autumn rainfall and the increased demand for groundwater at this time (Fig. 38)

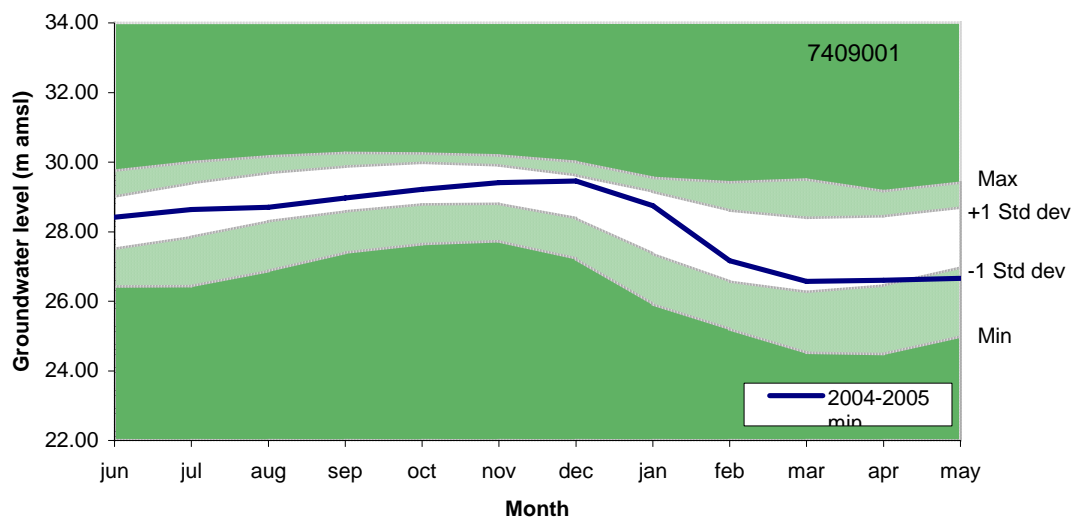


Figure 38:: Groundwater envelope for Burnside Road (7409001) bore

7.4 Water Allocation and Use

Auckland Central is a predominantly urban area; most of Auckland's population live and work within the Auckland Central water resource area (Crowcroft and Bowden, 2002). Most water abstraction is from 5 high use aquifers (Table 14). The main surface water abstraction is Watercare, who have consent to take water from Hays Creek Dam.

Table 12: High Use aquifers, groundwater availability, allocation and use in Auckland Central.

Management area	Aquifer	Availability m ³ (000)	2003-2004		2004-2005	
			Allocation m ³ (000)	Use m ³ (000)	Allocation m ³ (000)	Use m ³ (000)
Clevedon	Clevedon					
	Waitemata - East	379	157	67	157	97
Manukau	Clevedon					
	Waitemata - West	964	877	462	877	534
Onehunga – Mt. Wellington Volcanic	Manukau – Waitemata	660	304	163	357	125
	Onehunga – Mt. Wellington. Volcanic	15,038	9,092	5,936	9,354	5,683
Manukau Kaawa	Manukau Kaawa	-	167	56	167	60

Surface water usage and allocation is similar to last year, although approximately 300,000 cubic metres more water was taken for municipal supply. Groundwater industrial use was less than half the allocation. Most of the industrial use relates to quarry activities that are either not currently occurring or present water requirements are much less than the allocation. The number of surface water consent holders has stayed relatively similar (38 in May 2002 and 39 in May 2005). The number of groundwater consent holders has decreased since May 2002 from 275 to 201 in May 2005.

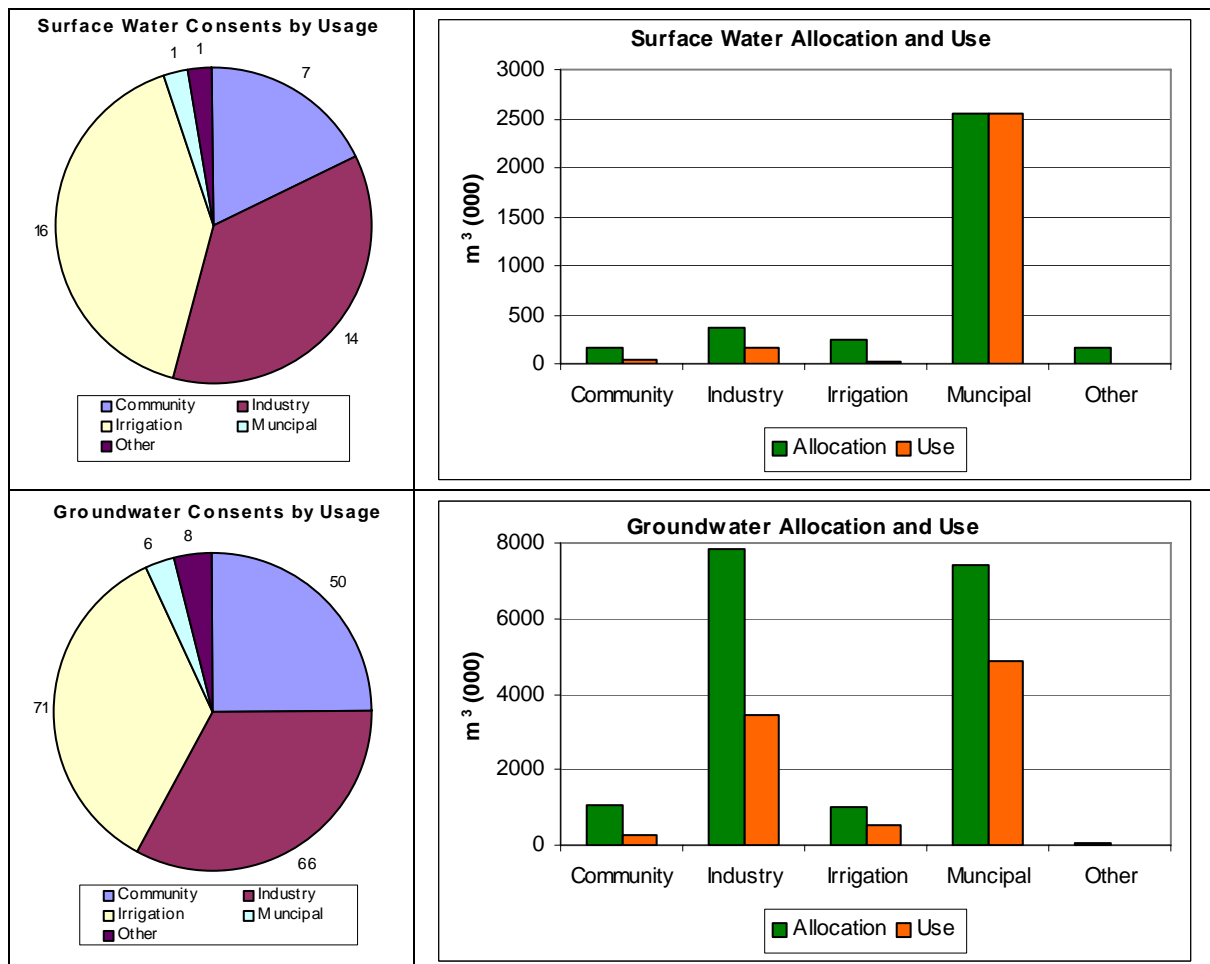


Figure 39: Surface water and groundwater annual allocation and use for Auckland Central water resource area and the number of consents held for each purpose

8 Hunua

8.1 Rainfall

Annual rainfall in the Hunua water resource area was closer to average than all other parts of the Auckland Region (Table 15). However the monthly distribution of rainfall was less consistent. December 2004 and May 2005 were around 50% wetter than average while January and April 2005 were around 75% drier than average (Fig. 41).

Table 13: Comparison of 2004 – 2005 rainfall with long term mean

Site number	Site name	Mean annual mean rainfall (June-May) (mm)	Rainfall June 2004 - May 2005 (mm)	Deviation from average rainfall
750010	Wairoa at Hunua Nursery	1404	1396	0%
750213	Waihihi at Waharau Park	1369	1182	-14%

8.2 Surface Water & Groundwater

There are no high use streams management areas in the Hunua water resource area (Fig. 42). However, the Wairoa River level is monitored at Tourist Road (8516), down stream of Wairoa Dam and Cosseys Creek Dam, two dams belonging to Watercare Services Ltd. The consents for these dams do not have allocations but have conditions to maintain the Wairoa River flow above 380 l/s at the Tourist Road flow-monitoring site. In 2004 – 2005, the lowest measured flow at Tourist Road was 425 l/s, well above the minimum flow consent condition. There are no high use aquifers in the Hunua water resource area.

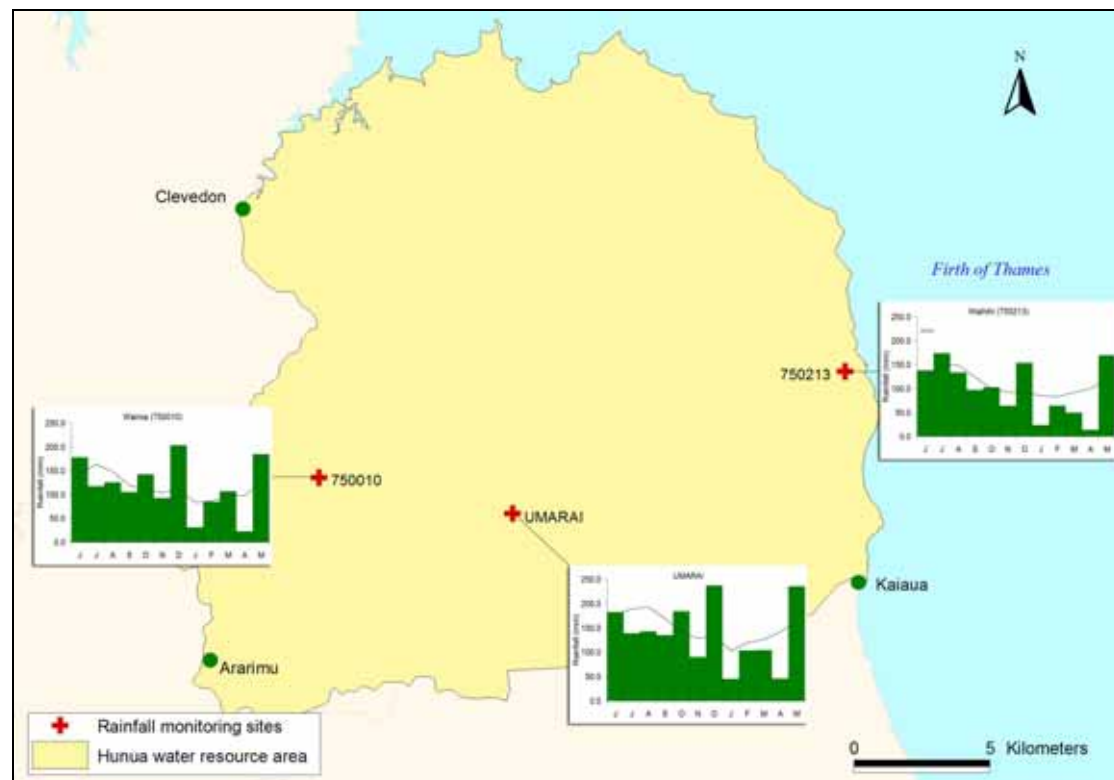


Figure 40: Total monthly rainfall (bars) and long term mean monthly rainfall (line) at 3 sites in the Hunua water resource area

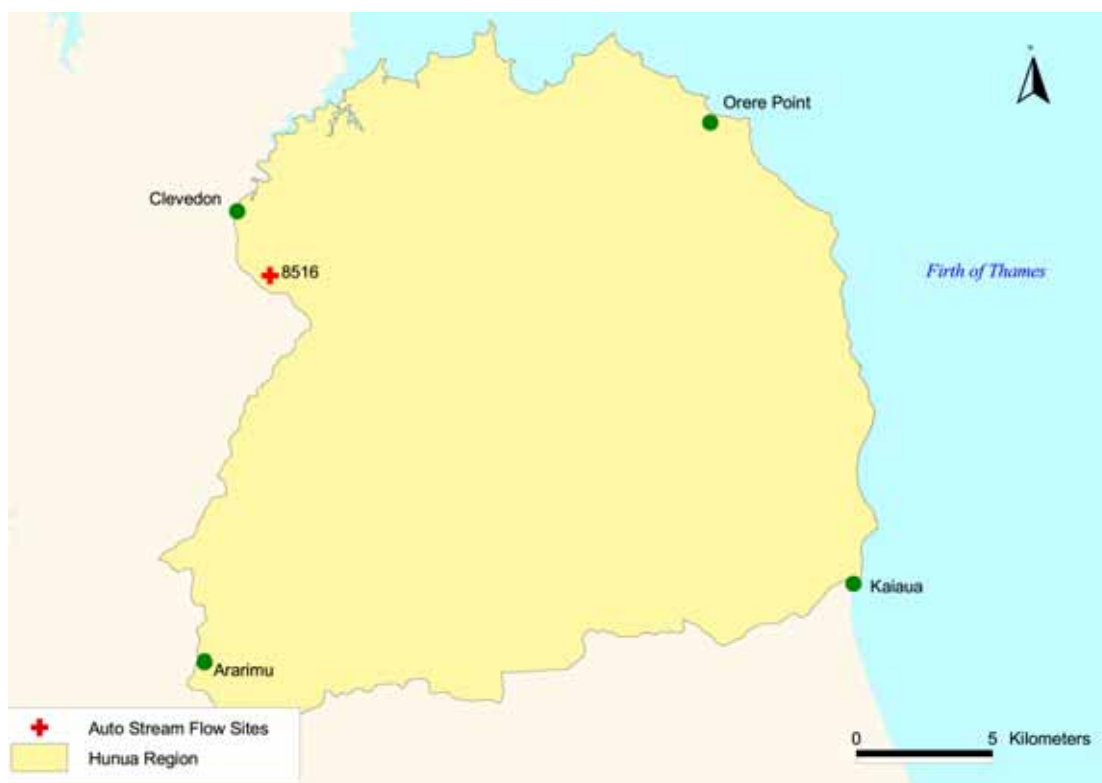


Figure 41: Hunua water resource area and flow-monitoring site

8.3 Water Allocation and Use

Watercare Services Ltd. takes 99% of the allocated surface water in the Hunua Water resources area for municipal supply (Fig. 42). Although Watercare Services Ltd. does not have specific allocations associated with its consents to take surface water, for the purposes of this report, water allocation is equal to water use for these consents. Watercare Services Ltd. has four dams in the area, Mangatangi, Mangatawhiri, Cosseys and Wairoa Dams (Crowcroft and Bowden, 2002). Compared to last year, Watercare Services Ltd. have used approximately 10 million more cubic metres of water. Irrigators use the balance of the surface water. This can be seen more clearly when Watercare Services Ltd. data is removed (Fig. 43). Water allocated for irrigation is less than last year because two consents, with a total allocation of 420,000 m³, were surrendered. Most groundwater allocated in the area is used for irrigation, however in 2004/2005 only 14% of the total allocation was used.

The number of surface water consent holders has decreased from 34 in May 2002 to 25 in May 2005. There were no groundwater consent holders in May 2002, however in May 2005 there were 9.

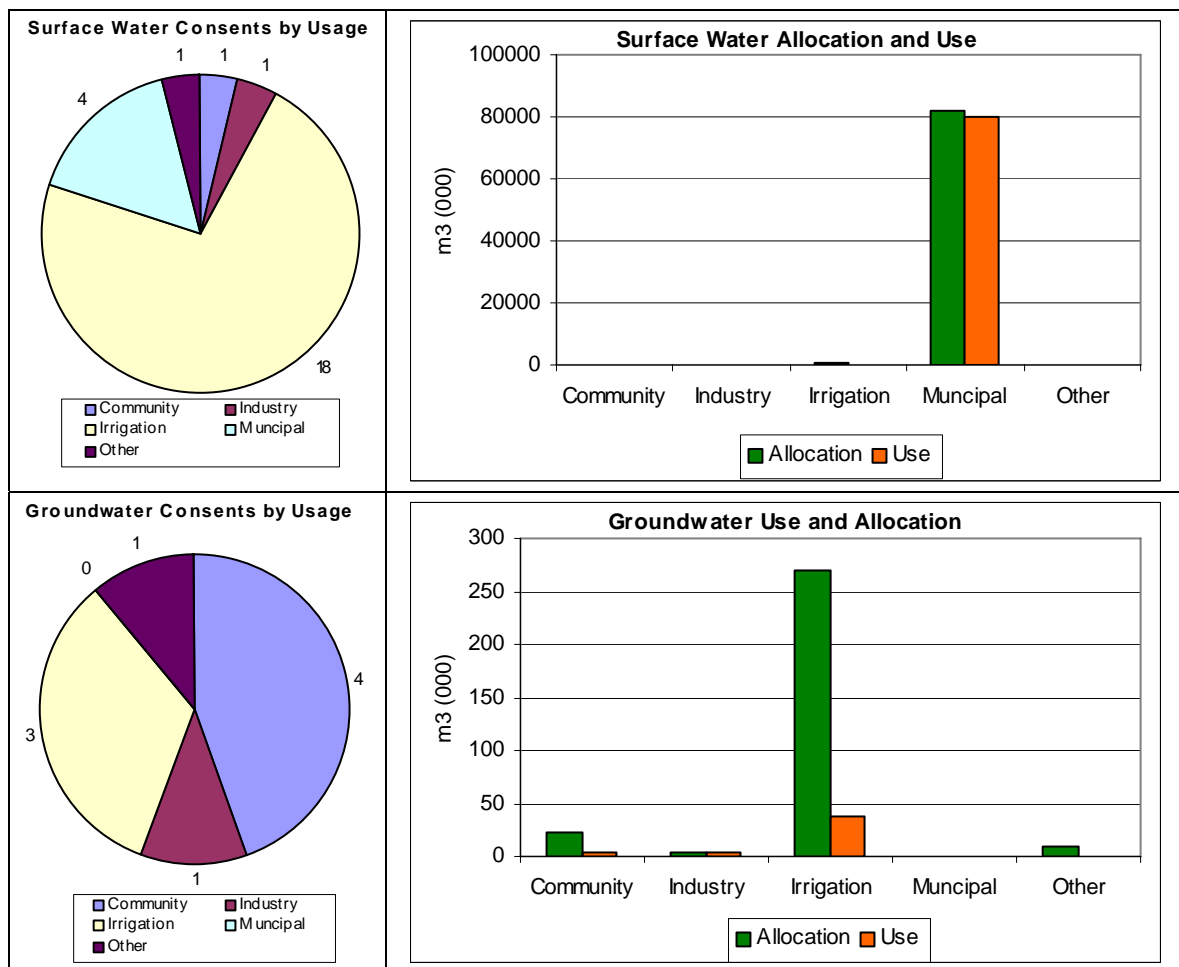


Figure 42: surface water and groundwater allocation and use for Hunua water resource area and the number of consents held for each purpose.

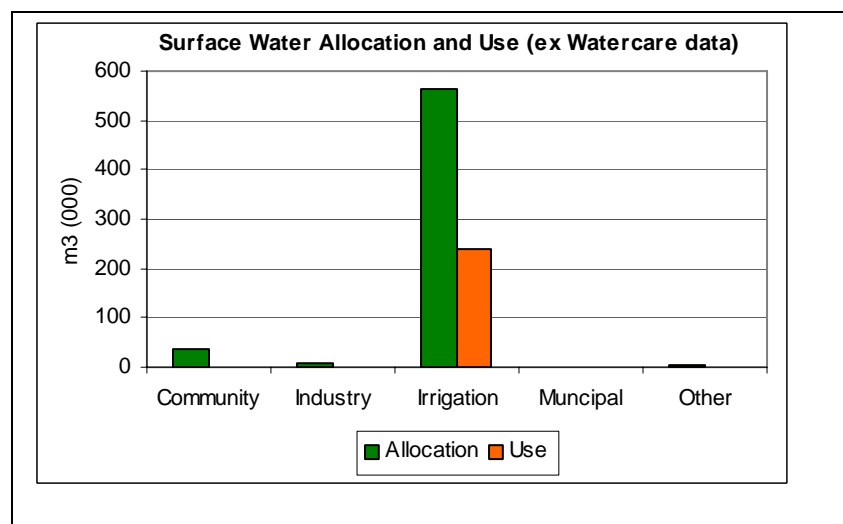


Figure 43: surface water and groundwater allocation and use for Hunua water resources area excluding Watercare Services Ltd data

9 South Auckland

9.1 Rainfall

South Auckland rainfall was closer to normal monthly totals through to November 2004 than other parts of the region. December 2004 was wetter than average and January 2005 drier than average, although the departure from normal monthly rainfall for these months was not as extreme as outside South Auckland. Autumn rainfall totals were slightly below average for the three rainfall sites, although April rainfall at Waitangi was less than 50% of normal (Fig. 45, Table 16).

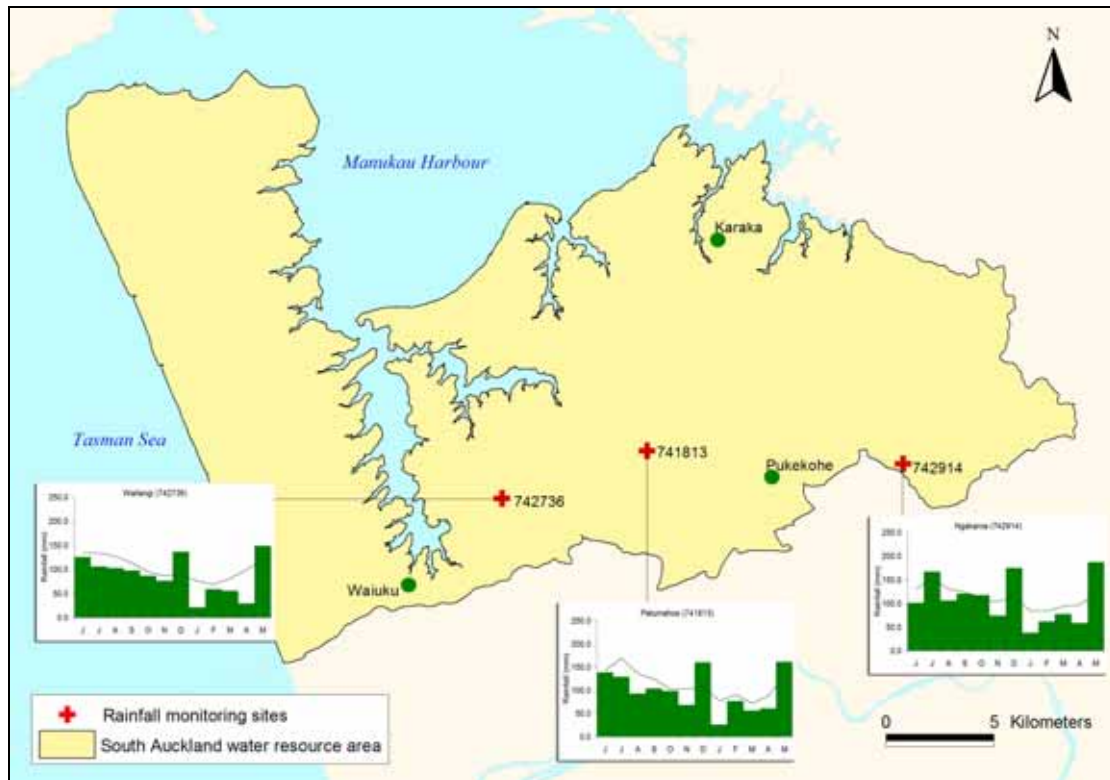


Figure 44: Total monthly rainfall (bars) and long term mean monthly rainfall (line) at 3 sites in the South Auckland water resource area

Table 14: Comparison of 2004 – 2005 rainfall with long term mean at 3 sites

Site number	Site name	Mean annual rainfall (mm)	Total rainfall May 2004- June 2005 (mm)	Deviation from normal
742736	Waitangi at Diver Rd	1242	1041	-16%
741813	Whangamaire at Culvert	1296	1168	-10%
742914	Ngakaroa at Donavans	1340	1281	-20%

9.2 Surface Water

There are three high use stream management areas in the South Auckland water resource area. These are the Ngakaroa, Waitangi and Mauku streams (Fig. 46). The Mauku stream does not have a flow-monitoring site but the other two streams do. Flows at Ngakaroa Stream dropped below the MALF once in January (for under 3 hours) and on 6 different days in March 2005. The hydrograph for this site shows marked drops in stream discharge during March, which suggests pumping from the stream is contributing to the very low flows. A minimum flow regime is likely to be imposed on consents on this stream in the near future.

This will control the effects of pumping on natural low flows. Flows on the Waitangi Stream fell below the MALF in February– May 2005. During April flows were below the MALF for most of the month. throughout the 2004-2005 hydrological year (Table 19).

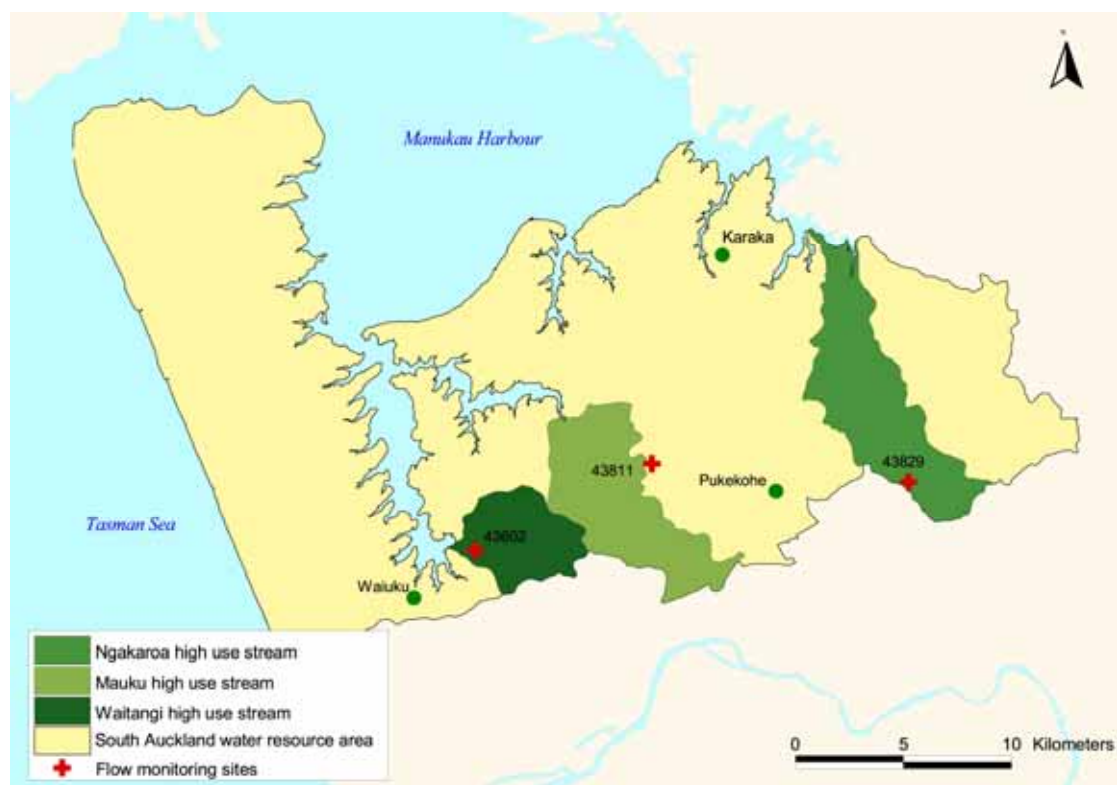


Figure 45: South Auckland water resource area high use stream management areas and flow-monitoring sites

Table 15: South Auckland high use streams low flow statistics for 2004 – 2005

Stream Name	Stream No.	MALF l/s	Date flow fell below MALF	Time below MALF	Lowest flow l/s
Ngakaroa	43829	8.67 ⁵	30/01/2005	2.8 hours	8.3
			05/03/2005	4.8 hours	8.3
			06/03/2005	3.5 hours	8.3
			16/03/2005	15.2 hours	6.4
			18/03/2005	1.6 days	5.3
			18/03/2005	6.3 hours	6.9
			20/03/2005	15.1 hours	6.0
			21/03/2005	12.1 hours	5.2
			22/02/2005	1.6 hours	34.1
			23/02/2005	2.3 hours	30.2
Waitangi	43602	38.6 ⁶	26/02/2005	16.5 hours	38.3
			06/03/2005	22.6 hours	36.6
			08/03/2005	16.2 days	31.4
			31/03/2005	4.1 hours	12.8
			31/03/2005	1.7 days	36.2
			03/04/2005	6.6 days	35.7
			10/04/2005	5.6 days	30.6
			15/04/2005	16.9 days	28.1
			02/05/2005	12.1 hours	34.5
			05/05/2005	11.1 days	29.5

⁵ This flow is based on data affected by pumping. The natural MALF is estimated at 12 l/s

⁶ As above. The natural flow is 40 l/s

9.3 Groundwater

There are three high use aquifer management areas within South Auckland, the Franklin Volcanic aquifer (which includes Pukekohe basalt, Glenbrook basalt and Bombay basalt), the Franklin Kaawa aquifer (also known in previous reports as South Auckland Kaawa) and the Drury Sand-Volcanic aquifer (Fig. 46).

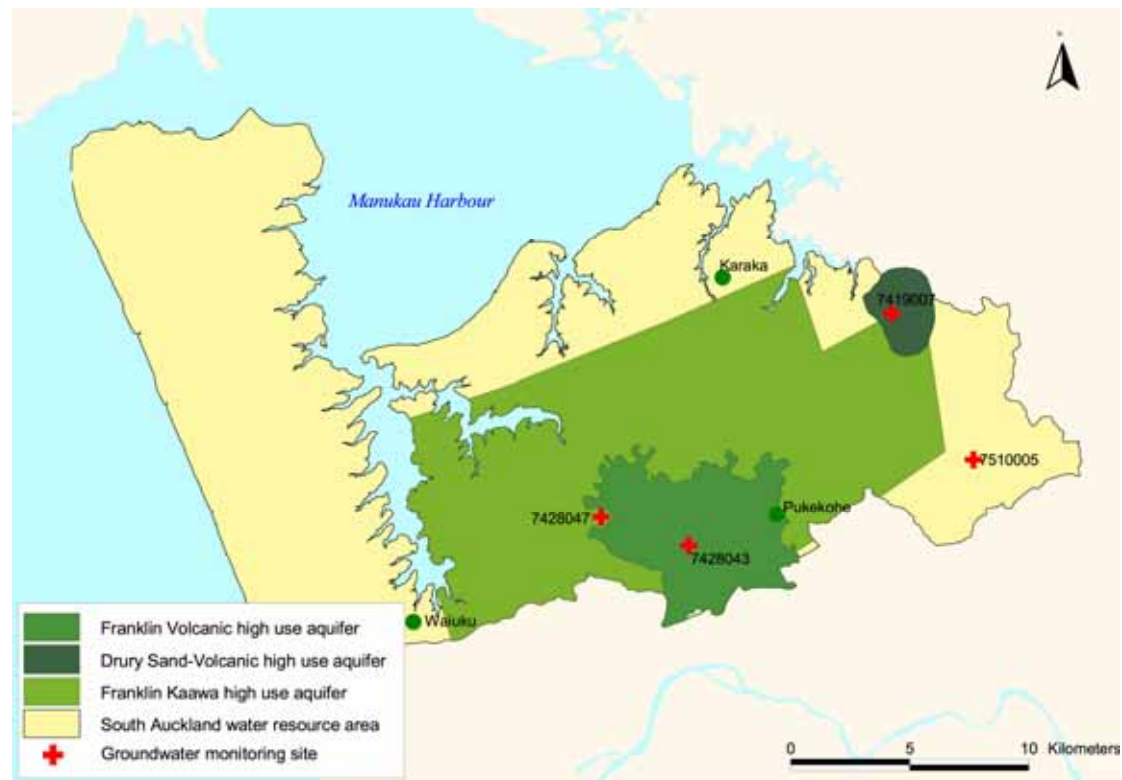


Figure 46: South Auckland water resource area, high use aquifer management areas and groundwater monitoring sites

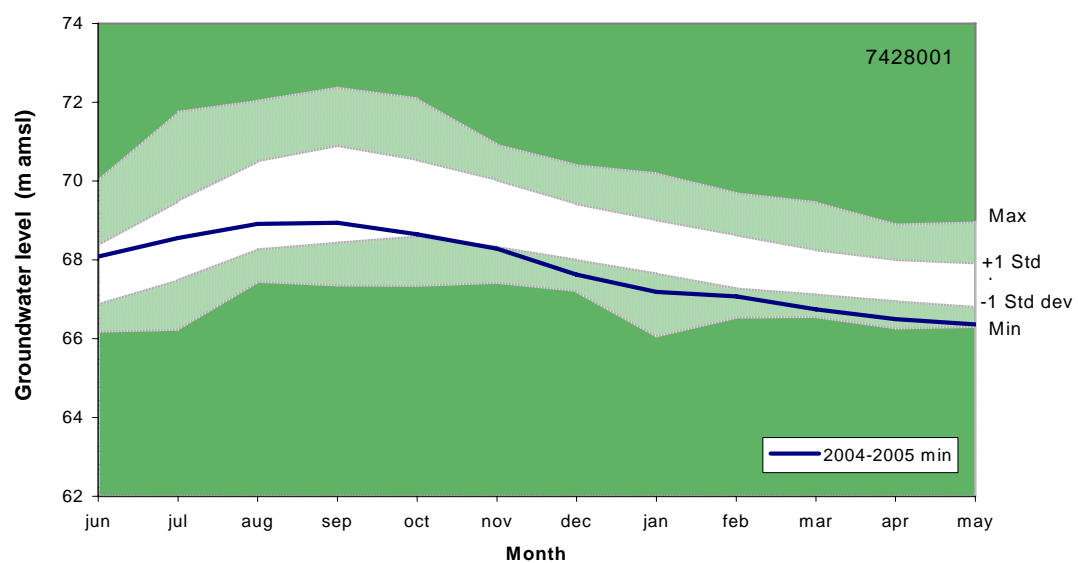


Figure 47: Groundwater envelope for DSIR bore (7428001)

The Franklin Volcanic aquifer monitoring site, DSIR (7428001) is used for long term baseline monitoring. During 2004-2005 minimum groundwater levels in the bore dropped steadily from September 2004 to May 2005, falling to almost the minimum May groundwater level on record for the site (Fig. 47).

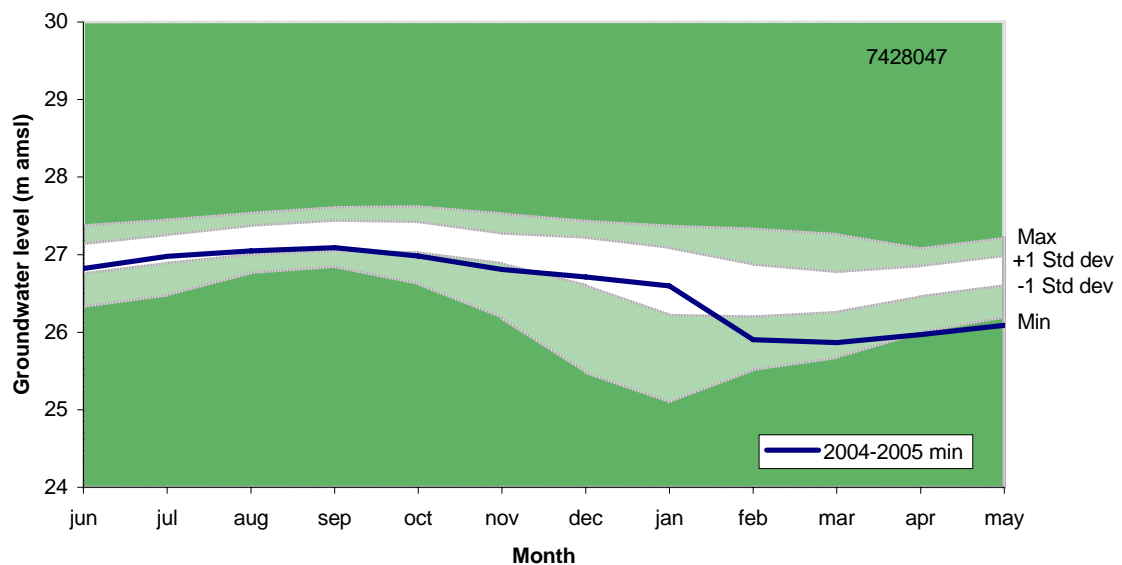


Figure 48: Groundwater envelope for Mauku bore (7428047)

The Kaawa aquifer has several groundwater monitoring sites but the Mauku bore (7428047) is used for long term groundwater monitoring. Figure 48 shows that minimum monthly groundwater levels for the 2004-2005 period followed a normal seasonal trend for the site. However in January 2005 water levels dipped much faster which is a likely result of decreased rainfall and increased water abstraction. Water levels at the Mauku site generally increase slowly from January/February however this was barely evident in the 2004-2005 water levels. May minimum monthly groundwater level was the lowest on record for the site.

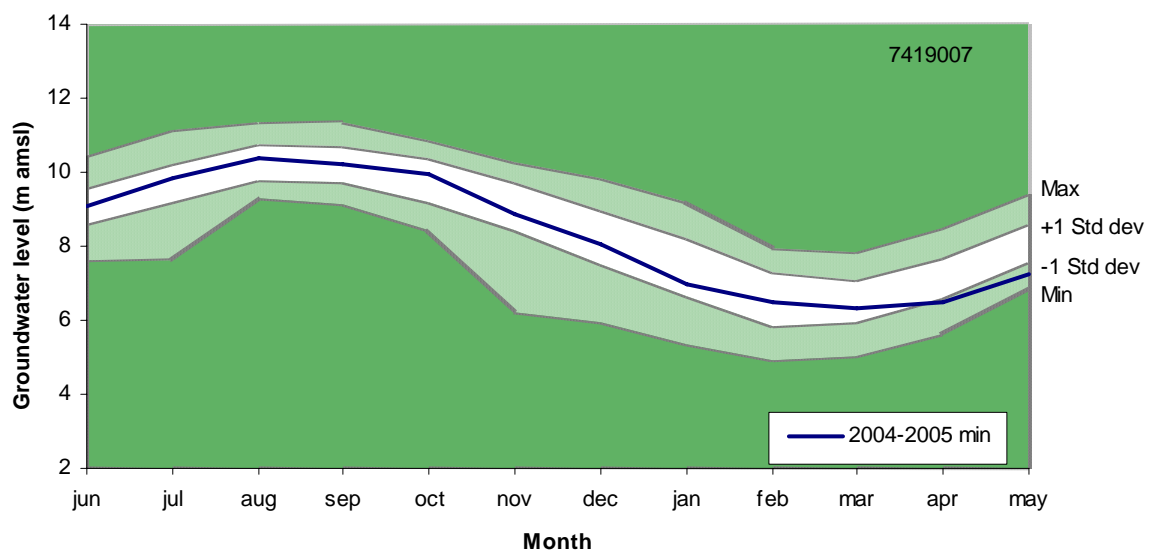


Figure 49: Groundwater envelope for Fielding Road Bore (7419007)

Groundwater levels in the Drury Sand volcanic aquifer are monitored at Fielding Road (7419007). Groundwater levels show a typical seasonal variation in response to rainfall recharge and abstraction. During the 2004-2005 year groundwater levels remained within the expected range for the site (Fig. 49).

9.4 Water Allocation and Use

Market gardening is a major land use in South Auckland, in particular around Bombay and Pukekohe and much of the growing area is irrigated. Other horticultural uses, such as glasshouses are also a feature of the area.

Table 18 lists high use aquifers, allocation and use in South Auckland. Applications for resource consent in the Glenbrook/Waiiau Pa Kaawa and Pukekohe Kaawa aquifer that are currently being processed total the remainder of groundwater availability in these two aquifers. Applications for resource consent to take groundwater for municipal supply accounts for the majority (by volume) of these applications.

Groundwater irrigation use increased by approximately 600,000 m³. The increased use was by several consent holders who took more than last year, including a large consent that exceeded their allocation and has applied for a change of consent conditions. Groundwater allocated for municipal purposes has apparently increased. This is due to the inclusion of abstraction consent conditions on two Franklin District Council consents that did not previously have maximum abstraction conditions (Fig. 50).

Surface water allocation and use is similar to last year (Fig. 50). The number of surface water consent holders has decreased from 136 in May 2002 to 116 in May 2005. The number of groundwater consent holders has also decreased from 468 in May 2002 to 445 in May 2005.

Table 16: High use aquifers with assessed availability, shown against allocation to Resource Consent Holders and use figures for 2004 – 2005.

Aquifer	Availability m ³ (000)	2003-2004		2004-2005	
		Allocation m ³ (000)	Use m ³ (000)	Allocation m ³ (000)	Use m ³ (000)
Bombay – Drury Kaawa	718	327	183	341	239
Glenbrook/Waiiau Pa Kaawa	1,560	1249	679	1,249	939
Karaka Kaawa	617	530	176	520	171
Pukekohe Kaawa	1,860	1,247	1,203	1,247	1,425
Pukekohe West Kaawa	1,780	476	109	466	203
Waiuku Kaawa	2,450	162	79	1,002	331
Pukekohe Central Volcanic	856	535	183	535	245
Pukekohe North Volcanic	420	140	143	116	92
Pukekohe South Volcanic	650	128	10	129	73
Pukekohe West Volcanic	420	276	151	276	219

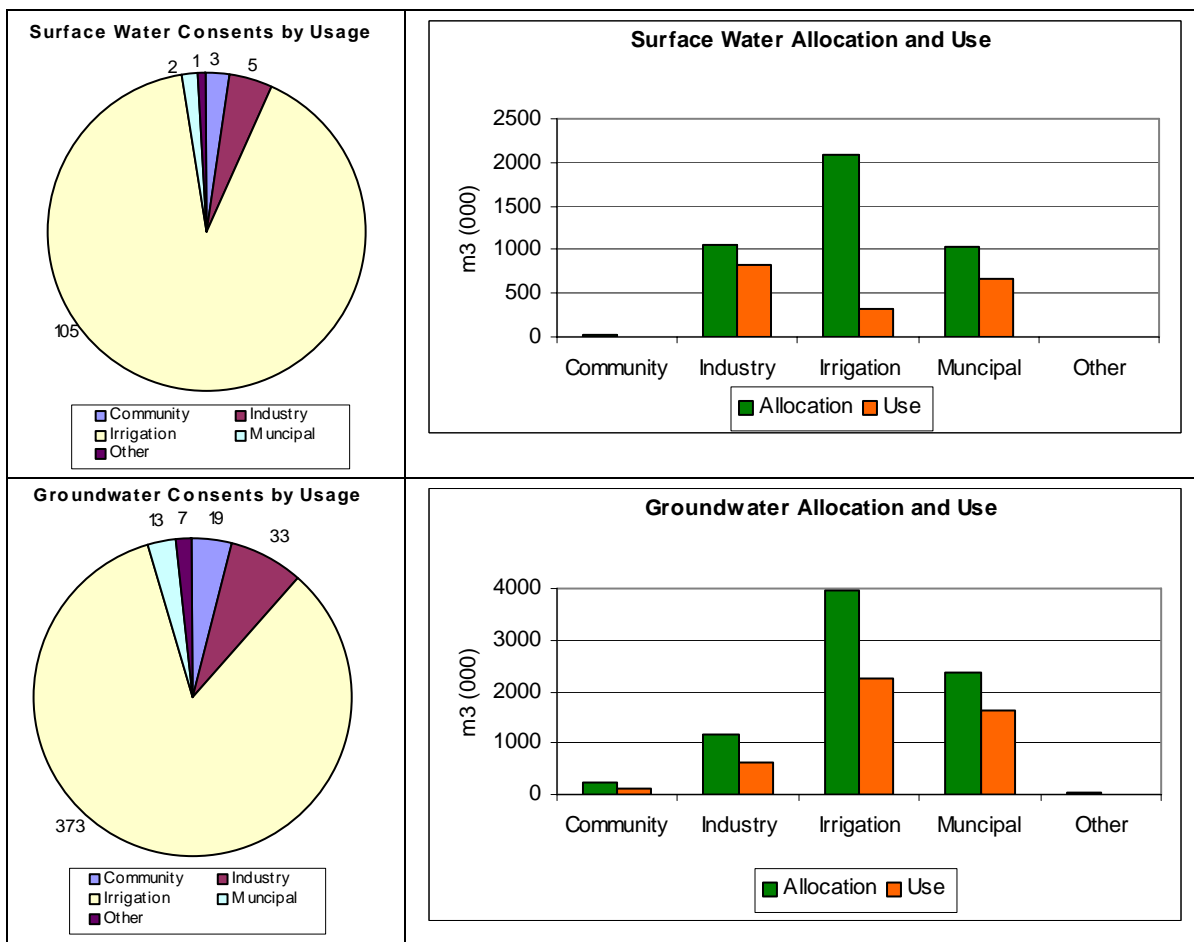


Figure 50: Surface water and groundwater allocation and use for South Auckland water resource area and the number of consents held for each purpose.

10 Conclusion

The 2004-2005 hydrological year was 20% drier than average. Summer and autumn were particularly dry and this had the effect of reducing some stream flows to below their MALF. Similarly water levels in volcanic aquifers fell to close to minimum groundwater levels in late summer and autumn.

There are 26 high use aquifers and 13 high use streams in the Auckland Region (PARP: ALW). Currently Omaha, Waiwera and Parakai high use aquifers are fully allocated. Most high use aquifers have groundwater availabilities set, within which groundwater is allocated. Groundwater allocation to consent holders remains within groundwater availabilities, with the exception of Kumeu-Hobsonville area 1. The Kumeu-Hobsonville aquifer has a long history of high water demand. When groundwater availabilities for this aquifer was determined groundwater use already exceeded that value. Through the consent process groundwater allocation to consent holders has reduced from over 200% of availability in the 1990's to 120%. Groundwater use was less than groundwater availability and groundwater levels indicate that the aquifer is not being adversely affected.

Applications for consent to take the remaining availability in the Glenbrook/Waiiau Pa Kaawa and Pukekohe Kaawa high use aquifers are being processed. It can be expected that these aquifers will also become fully allocated in the near future.

Flows in high use streams in the Region ran below mean annual low flows in three of the seven monitored high use streams. Low flow periods were coincident with low rainfall periods and high water demand, especially for municipal supply.

The major use of water in the region is for municipal supply. The total abstraction for this purpose increased by 3 Mm³ over the previous year. The largest supplier of bulk water for reticulation is Watercare, who take water from within the Auckland Region and the Waikato River to meet water demand. Water use for irrigation in 2004/2005 was higher than the previous year, which is likely a reflection on the lower than average rainfall.

References

- ARC, 1999: Auckland Regional Policy Statement. Auckland Regional Council.
- ARC, 2001: Proposed Auckland Regional Plan: Air, Land and Water. Auckland Regional Council
- Crowcroft, G.M. & Bowden, D.T., 2002: Auckland water resource quantity statement 2002, TP 171, Auckland Regional Council.
- MAF Production Survey 2002 <http://www.maf.govt.nz/statistics/primary-industries/index.htm>
- NIWA Climate Summary for 2005
http://www.niwasience.co.nz/ncc/cs/aclimsum_05