

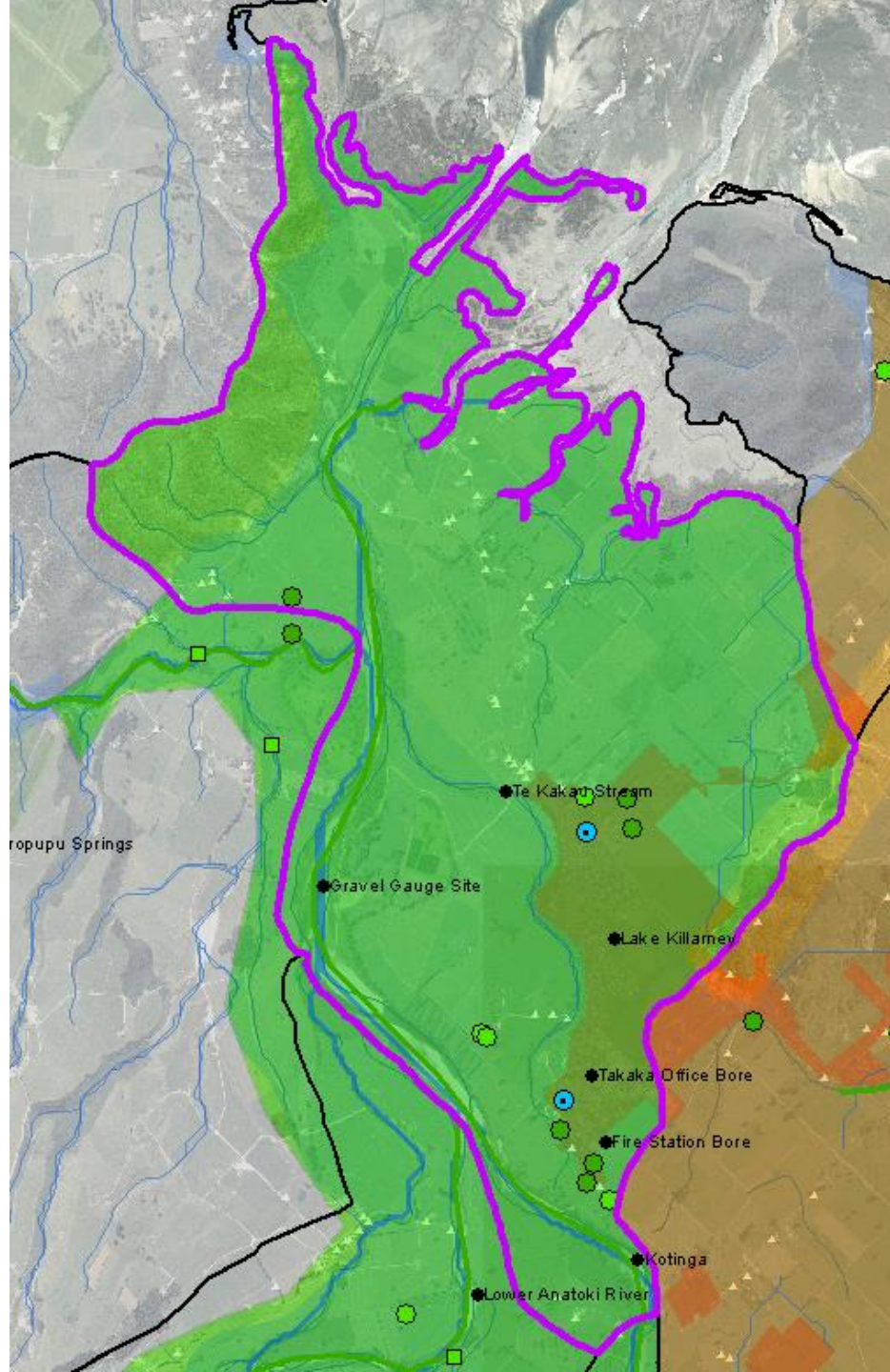


Takaka FLAG

Takaka Township Allocation Summary

15 April 2016

Takaka Township Zone



Key:

- Surface water take
- Groundwater take
- △ Take from storage
- Community supply
- Irrigation take
- Industrial take
- Domestic/stock use

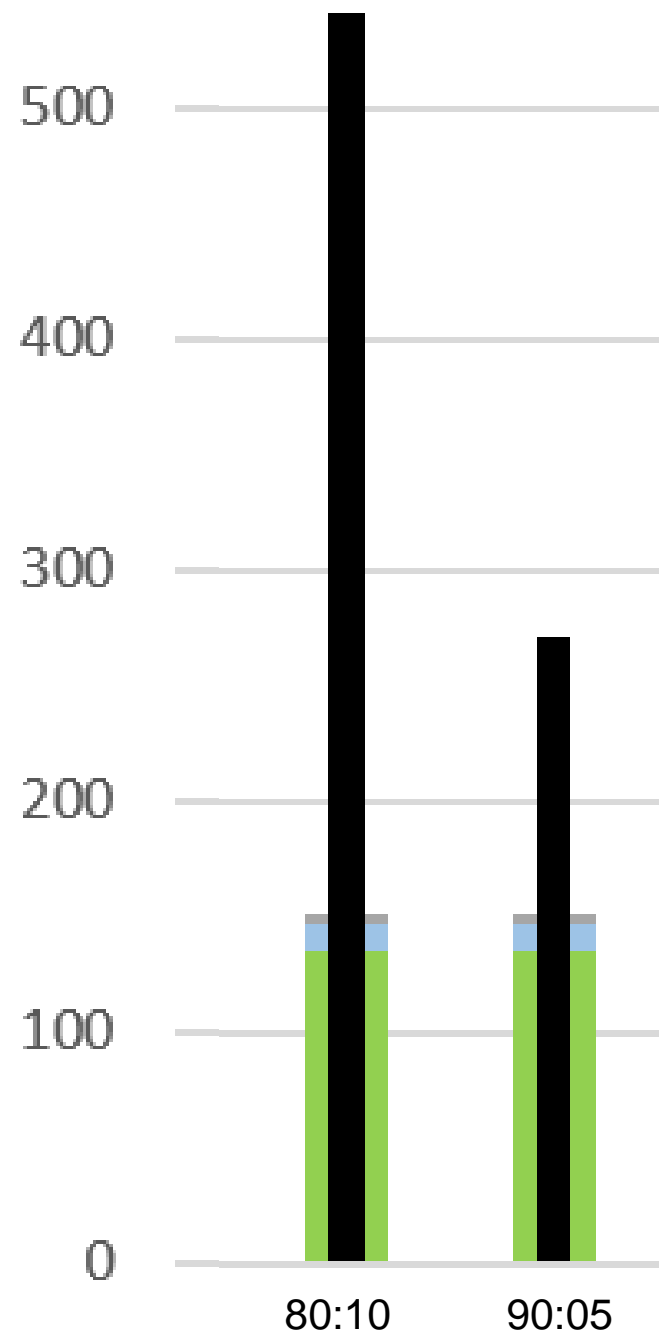
Water Allocation Recommendations

- 80:10 regime recommended by Roger and Joseph
- Applies to surface water takes from Lower Takaka River and groundwater in the Takaka Gravel Aquifer
- Allocation limit = **541*** l/s (10% of MALF at gravel crusher)
- Existing takes are all from groundwater = 135l/s, so **406l/s available**
- 50% rationing and cease take triggers for **new surface water** takes only
- No cease take for groundwater – unless these are also in the **coastal margin** and then subject to a salt intrusion trigger
- Alternative suggestion of **90:05** regime

*revised by TDC hydrologist - MALF slightly lower than previously advised

Regime comparison

- Minimum flows (average days per year below MF)
 - **80:10** (MF@4331) = 7.2 days/yr
 - **90:05** (MF@4873) = 12 days/yr
 - **Difference of 5 days per year**
- Security of supply (% of time above cease take trigger):
 - **80:10** (CT@ 4602) = 97.3%
 - **90:05** (CT@ 5008) = 96.3%
 - **Difference of 1%**



Takaka Township Zone

Water Demand				
Existing Takes		Waiting List		Future Irrigation
Surface	0	Surface	0	
Ground	135	Ground	0	
Total	135	Total	0	Total
		Existing & Waiting	135	
			Max Demand	135

Flow Statistics and Default Allocations				
Statistic	Methodology	% of 5yrLF	l/s	Location
7 day Malf			5414	Gravel Crusher
1 day Malf				
1 in 5 Year Low Flow (7 day)			4248	Gravel Crusher
1 in 10 Year Low Flow (7 day)			3863	Gravel Crusher
Allocation default Lower Limit (AL)	10% of 5yr Low Flow	10%	425	Gravel Crusher
Allocation default Upper Limit (AL)	33% of 5yr Low Flow	33%	1402	Gravel Crusher

Opportunity for C type takes to storage (over last hydrological year)			
Median flow (l/s)			?
% of time flow above median flow			?
Volume of water above median flow for year (million m3)			?

Significance of Ecological Values[#]

[#] as assessed by Dr. Roger Young (Freshwater Ecologist, Cawthron - Coastal and Freshwater Group Manager)

Available Water	Suggested Option				(status quo*)
	90%-10%	90%-5%	80%-20%	80%-10%	
Regime Option (MF%-AL%)					
Minimum Flow Percentage of Malf	90%	90%	80%	80%	na
Minimum Flow l/s (MF)	4873	4873	4331	4331	na
Allocation Percentage of Malf	10%	5%	20%	10%	na
Total allocation l/s (AL)	541	271	1083	541	none
% of demand met by allocation limit					
% of Existing met	100.0%	100.0%	100.0%	100.0%	100.0%
% of Waiting List met	na	na	na	na	na
% of Future Irrigation met	na	na	na	na	na
Water available beyond maximum demand (AL - ET +WL+FI)	406	136	948	406	na

Low Flow Management

Regime option	90%-10%	90%-5%	80%-20%	80%-10%	status quo
Risk to instream values (Roger Young's advice)	Low	Low	low-mod	low-mod	na
Rationing Trigger (50% cut, MF+AL)	5414	5143	5414	4873	na
Cease Take Trigger l/s (MF + 50%AL)	5143	5008	4873	4602	na
Average days below Minimum Flow (MF) per yr (1999-2015 data)	12	12	7.2	7.2	na

Security of Supply (based on data from 1975-2015 - Nov-April inclusive)

Regime option	90%-10%	90%-5%	80%-20%	80%-10%	status quo
% of time flows are above rationing trigger	95.3%	96.0%	95.3%	96.6%	na
% of time flows are above cease trigger	96.0%	96.3%	96.6%	97.3%	na

Comparison to last 16 years data (from 1999/2000 to 2014/2015)

Regime option	90%-10%	90%-5%	80%-20%	80%-10%	status quo
Average days of cease take per year	14.3	13.2	12	9.4	na
Number of years (and no. of events) with cease takes > 3 days	10 (20)	9 (17)	9 (18)	7 (15)	na
Number of years (and no. of events) with cease takes > 5 days	8 (13)	7 (12)	7 (11)	7 (10)	na

nd = no data available

na = not applicable



Allocation below sustainable limits



TRMP direction on allocation considerations

- Allocation method:
 - Define **sustainable** allocation regime
 - Calculate amount of water available - considering SOS
 - Identify triggers for rationing
- **Security of supply** (policy 30.2.3.21):
 - Seek a higher security of supply (ie a lower allocation limit) where:
 - **Where demand is low**
 - Knowledge about cumulative effects is not complete
 - Water augmentation scheme enables higher SOS
- **Reservation of water** (30.2.3.6):
 - **Future community needs** to 2026
 - Irrigation of Maori perpetual lease land (not applicable)

Considerations for Takaka Township regime

Possible approach:

- Step 1: Define **ecologically sustainable** allocation limit
- Step 2: Define if there is a lower **culturally /spiritually sustainable** limit
- Step 3: Assess **demand and security**
 - Allow for waiting lists and future reservation of water
 - Reduce AL to achieve acceptable security of supply (including existing uses, waiting lists and reservations)
- Step 4: Refine allocation limit

Considerations for Takaka Township regime

- The recommended **ecologically sustainable** allocation limit is the 80:10 regime (541 l/s)
- **No lower cultural/spiritual limit?**
- **No waiting list**
- **Reservation of water** for urban growth?
 - Potentially very small in this context (eg 5 to 50 l/s)
 - Domestic demand dependent on various factors - need to define methodology to calculate
 - Commercial/industrial estimates very difficult – varies widely
- **Security of supply** difference between the two regimes is 1%
 - Is this sufficient justification to use lower AL?
- Knowledge of **cumulative allocation effects** for this zone:
 - Large flows (sw + gw), end of catchment, used a conservative approach to setting MF&AL – ie AL based on surface flows, but also covers groundwater takes
- No augmentation scheme (Cobb effects not considered)

Considerations for Takaka Township regime

- What are the reasons to choose 90:05 over 80:10?

Thoughts?

Water quality recap

- Suggesting we look at water quality questions together with other zones at the **13 May meeting**
- Work still to be done by staff on water quality:
 - Water quality data analysis and banding (report cards)
 - Developing water quality decisions table
 - Recommendations on management methods
 - Work on defining **FMU wide** management options such as regulation of land use practice (eg IEMP)

Takaka Township - Water quality

- No specific issues in Takaka Gravel Aquifer
- No specific issues in Lower Takaka River
 - Site for consideration of catchment wide sediment and *E.coli* loads
- Lake Killarney and Te Kakau Stream have water quality issues
 - Primarily driven by lack of shading and lack of flushing flows
- Suggested management includes:
 - Riparian planting of Te Kakau
 - Review of urban stormwater runoff issues as part of Takaka Catchment Management Planning (programmed to start 2016-17)
 - Good land use practice requirement to maintain or reduce nutrient inputs (FMU wide)



Water Quality Report Cards

- Report cards yet to be done
- Representative site: Lower Takaka
 - WQ mostly good, but E.coli issues with freshes
- Issues area: Te Kakau
 - This stream is likely to be a “D” for Dissolved Oxygen and macrophytes (which create the DO problem)



Questions / Discussion

