



# Takaka FLAG – Update to EPC

## Session 5: Water Allocation Methodology

23 March 2016

# Outline

- Brief outline of allocation methodology
- Interim FLAG decisions and options for catchments
- Remaining work

## Allocation Methodology – defines:

- **Minimum Flow** – the low flow to be maintained in order to protect instream ecological values during dry periods
- **Allocation Limit** – water available for abstraction, also selected to protect instream ecological values
  - where possible provide for demand at an acceptable security of supply (iterative process)
- **Cease Take triggers** – to protect the Minimum Flow and avoid effects of abstraction during dry periods
- **Rationing Triggers** – used where possible, usually 50% cuts, to reduce the frequency of cease takes
- **Security of Supply** – amount of time takes are likely to be ceased or reduced

# Minimum Flow Determination

- Use a **percentage of the MALF** (Mean Annual Low Flow)
- Defined by **freshwater ecology expert** (Dr Roger Young)
  - With input from TDC staff Joseph Thomas and Trevor James
  - Type of river environment – flow, channel shape, habitat, etc
  - Species expected to live instream and their specific needs
- Typically between **70-90% of MALF** depending on ecological values eg:
  - High ecological values >> low risk >> 90% MALF
  - Low ecological values >> moderate risk >> 70% MALF
- Approach is **used nationally**
  - Correlated to other more detailed and costly approaches
  - Does not require as detailed ecological information
  - Where we have this info in Takaka, it has been considered

# Allocation Limit Determination

- Use a **percentage of the MALF** (Mean Annual Low Flow)
- Defined by **freshwater ecology expert** (Dr Roger Young)
  - With input from TDC staff Joseph Thomas and Trevor James
  - Considers instream ecological values of waterway and Minimum Flow
  - Flow recession – how fast the water levels drop during dry periods
- Typically between **10-30% of MALF** depending on ecological values and flow recession of river, eg:
  - High ecological values, fast recession >> 10% MALF
  - Low ecological values, slow recession >> 30% MALF
- Approach is used nationally
- Considered in conjunction with Minimum Flow % and Security of Supply

# Cease Take and Rationing Triggers

- Cease take triggers are used to protect the Minimum Flow level during dry periods
  - Trigger level set at Minimum Flow + Allocation Limit
  - Eg if MALF= 200l/s, 80%MF=160 l/s and 10%AL= 20l/s, then the cease take trigger would be at 180 l/s
- Rationing triggers can only be used were the flow recession allows time for a step reduction
  - Eg if the time between the rationing and cease take triggers is only hours, then rationing is impractical
  - The rationing trigger level is set at MF+AL (eg 180l/s) and the cease take becomes MF + 50% of the AL (eg 170l/s)
- TRMP priority policies determine how rationing and cease takes affect different uses
  - Eg community water supplies rationed, but not typically ceased
  - Water Shortage Directions (Sec 329 RMA) can also be used

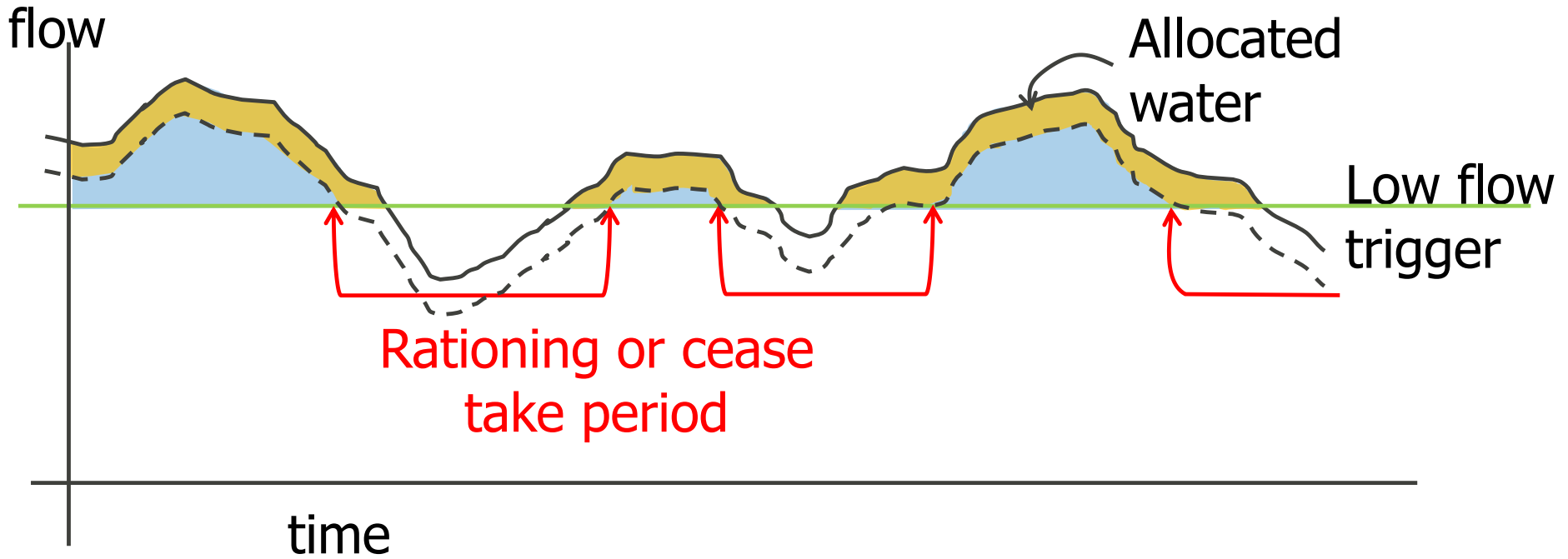
# Security of Supply

- Approach seeks to **maximise security of supply**:
  - Within ecological limits set by the Minimum Flow and Allocation Limit
  - Considering cease take and rationing frequencies
  - Considering level of water demand in each catchment

*Eg. If 20% of MALF is acceptable as an allocation limit based on ecological values, etc, but security of supply or demand is low, then the allocation limit may be set lower at 15% to achieve a better security of supply. **Less water is available, but more often***

- **TRMP** seeks higher security of supply where: (ie less water allocated)
  - **Knowledge** about cumulative effects on water bodies is not complete
  - Where **demand** for water resources is lower
  - Where abstractive users are supplied by a water **augmentation scheme** that enables higher security standards.

# Summary



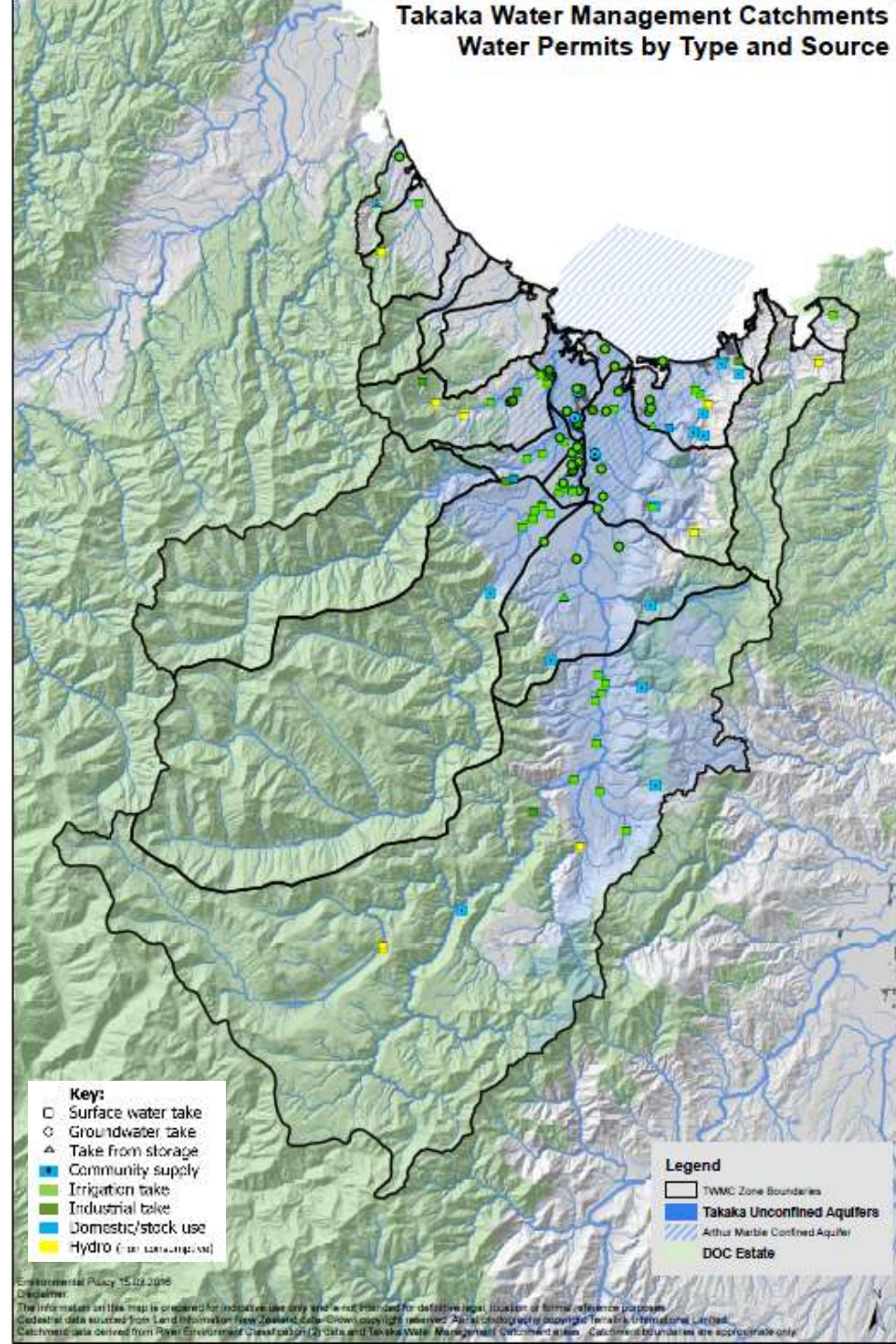


# Takaka FLAG – Interim Allocation Decisions



# Existing situation

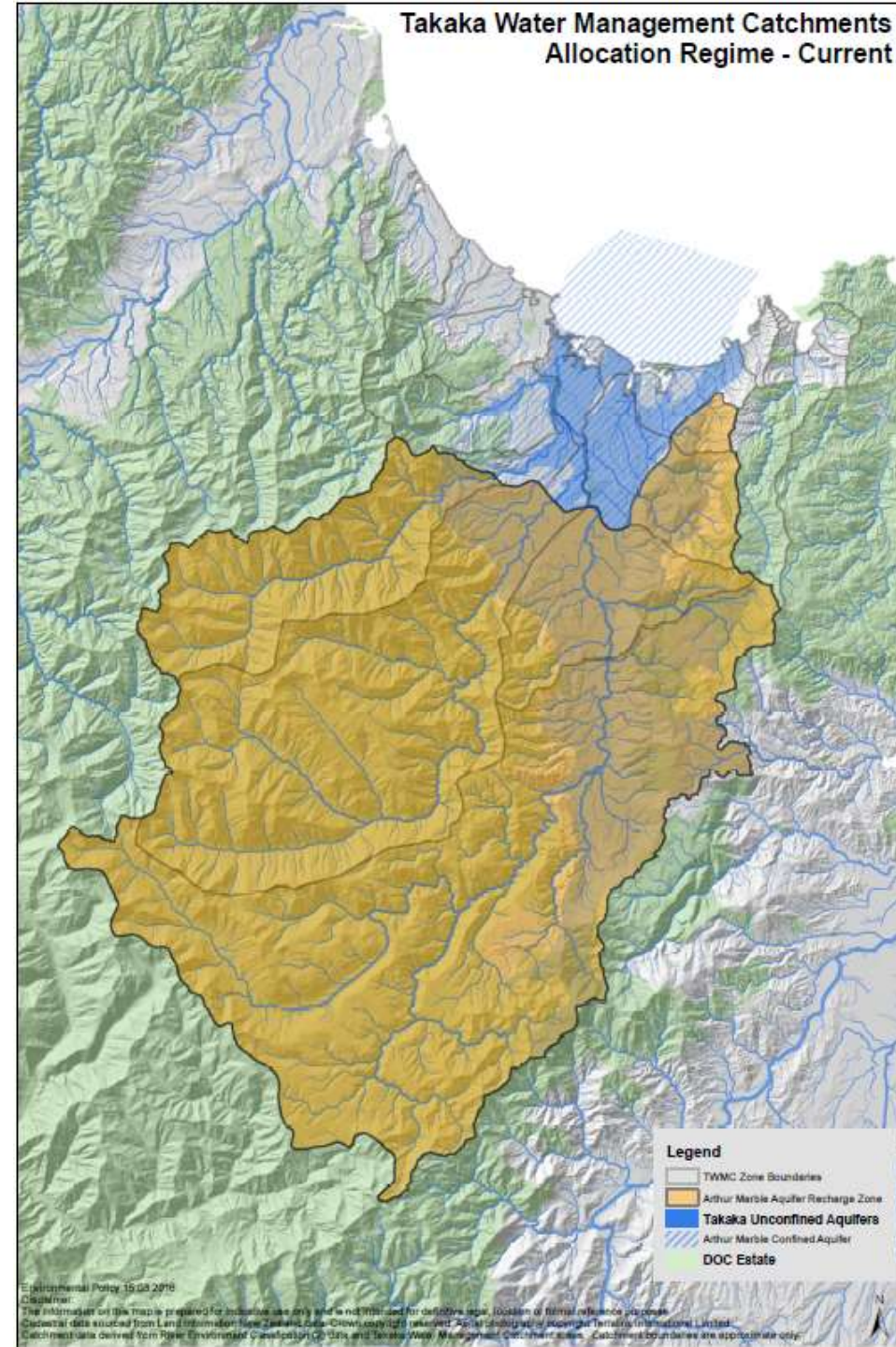
- In total water management area:
  - 1261 l/s consumptive takes
  - 68% from surface water, 32% from groundwater
  - No allocation regimes other than the Arthur Marble Aquifer (AMA) Recharge Zone
  - Some cease takes on a few individual consents, but otherwise no restrictions in dry periods





# Existing situation

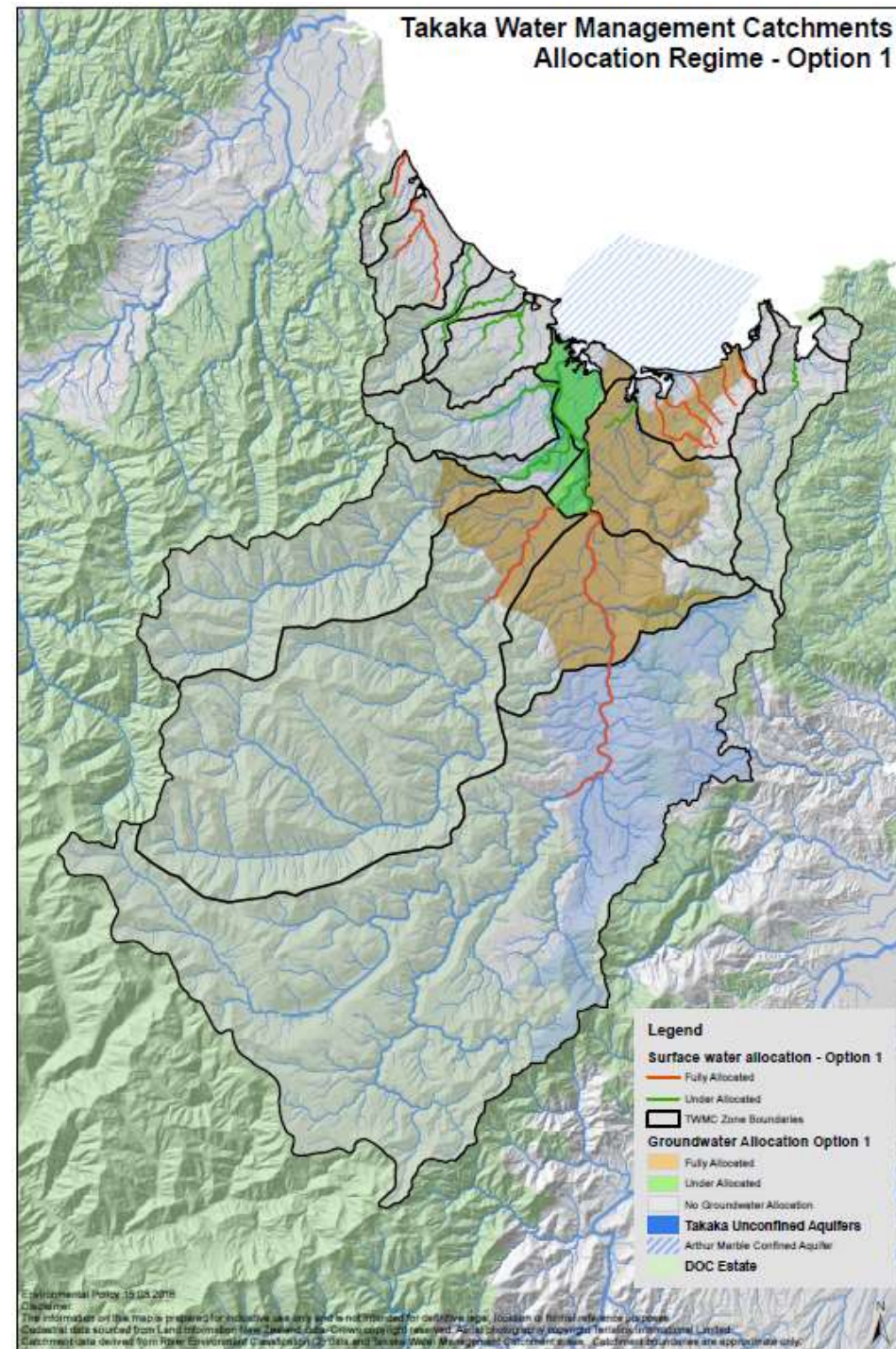
- Arthur Marble Aquifer (AMA) Recharge Zone:
  - Applies to surface and groundwater
  - Fully allocated
  - 498 of 500 l/s
  - Cease take on 3 main consented takes in Upper Takaka Zone
  - No cease takes on other consented takes in the AMA Recharge Zone





# Allocation Option 1

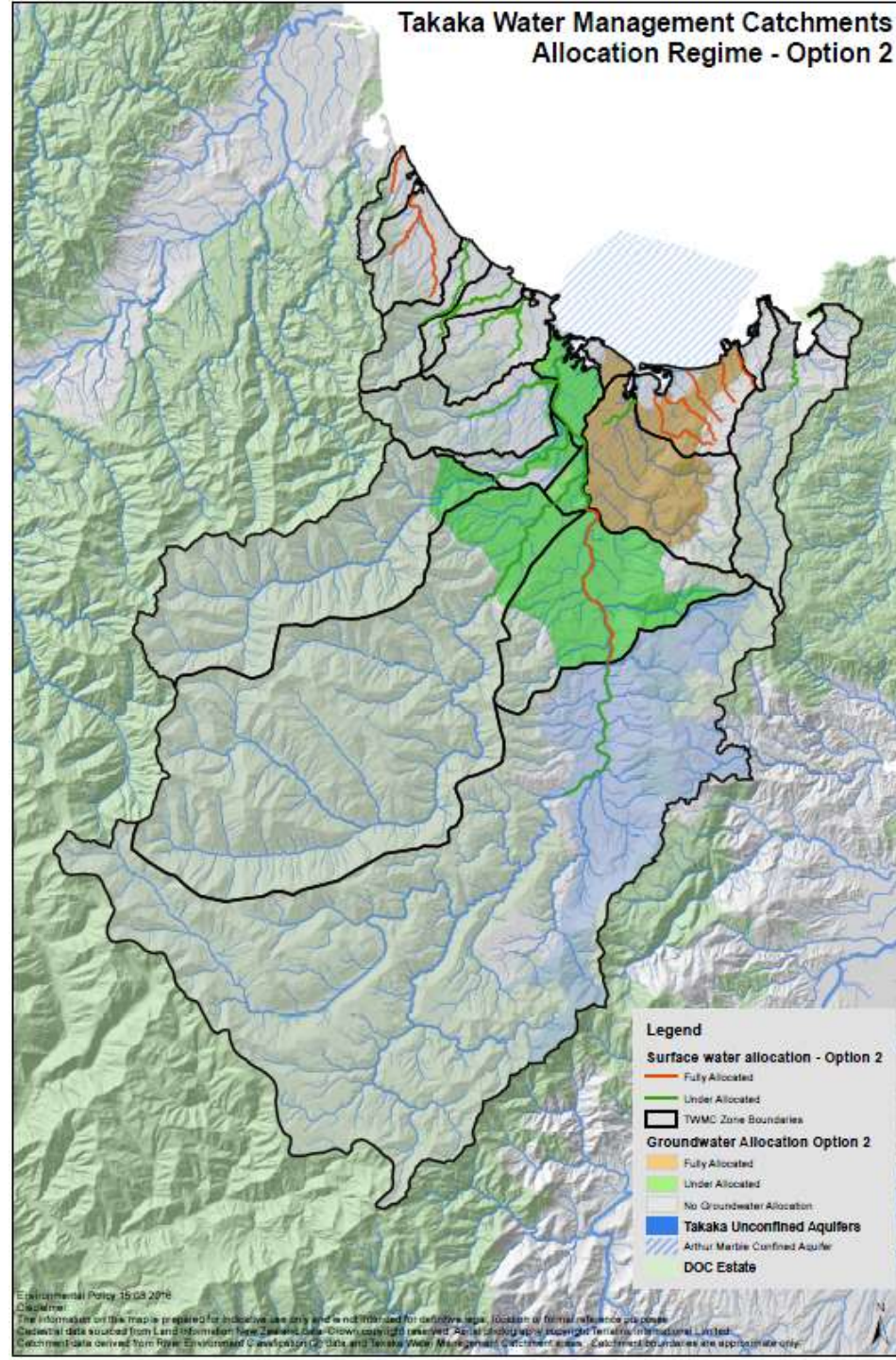
- Existing takes grandfathered in respective zones
- Further **surface water** takes only from main stem rivers with available water (green lines)
- Further **groundwater takes** from areas with available groundwater (green areas)
- **Cease takes on consented takes** (except those for community water supplies, domestic use and stock drinking water)
- AMA Recharge Zone regime based on **no new allocation** within contributing regimes - **Allocation limit retained at 500l/s**





# Allocation Option 2

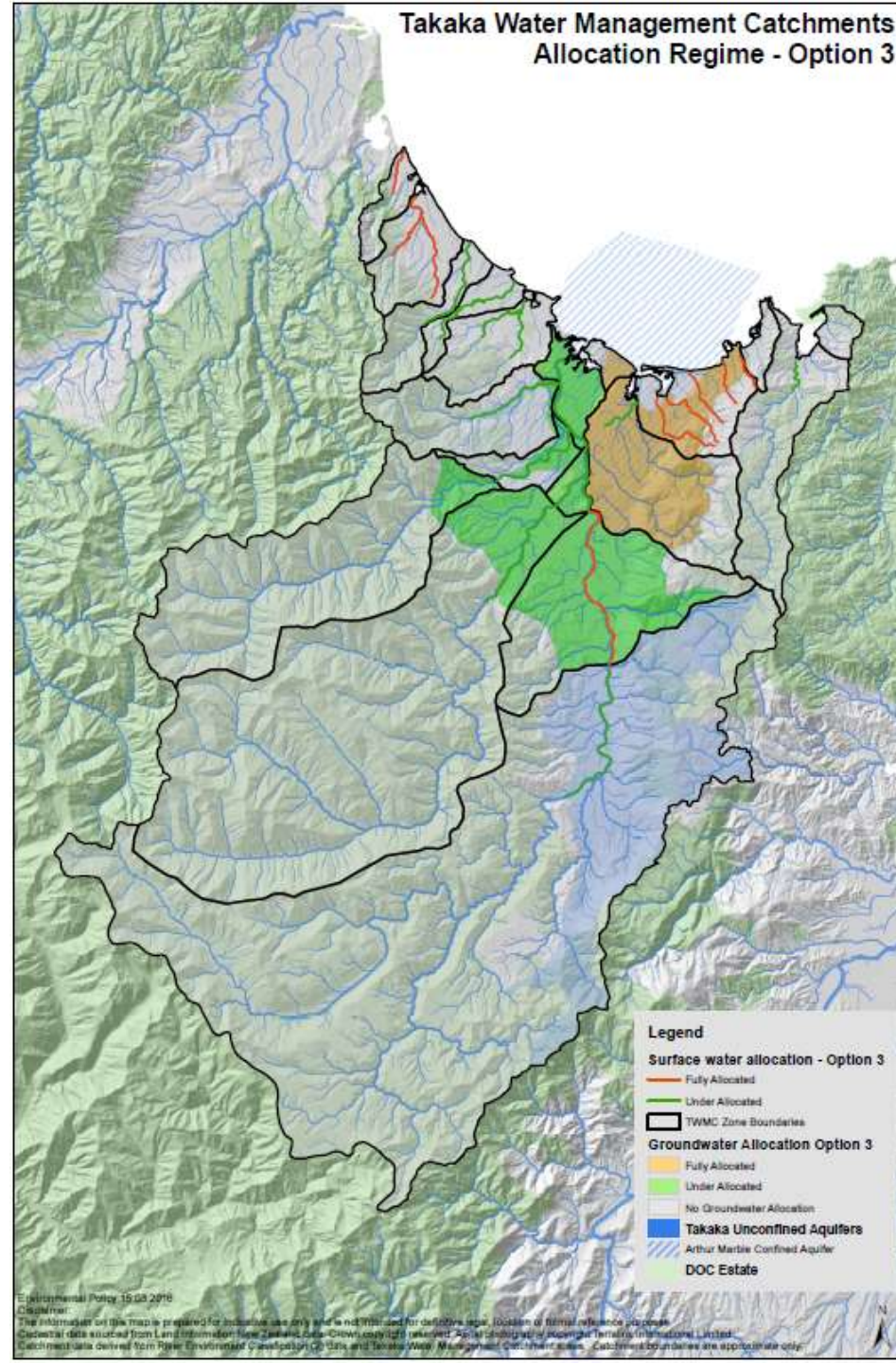
- Existing takes grandfathered in respective zones
- Further **surface water** takes only from main stem rivers with available water (green lines)
- Further **groundwater** takes from areas with available groundwater (green areas)
- **Cease takes on consented takes** (except those for community water supplies, domestic use and stock drinking water)
- AMA Recharge Zone regime based on Te Waikoropupu Springs 90%:10% MF:AL regime with **allocation limit of 766 l/s**





# Allocation Option 3

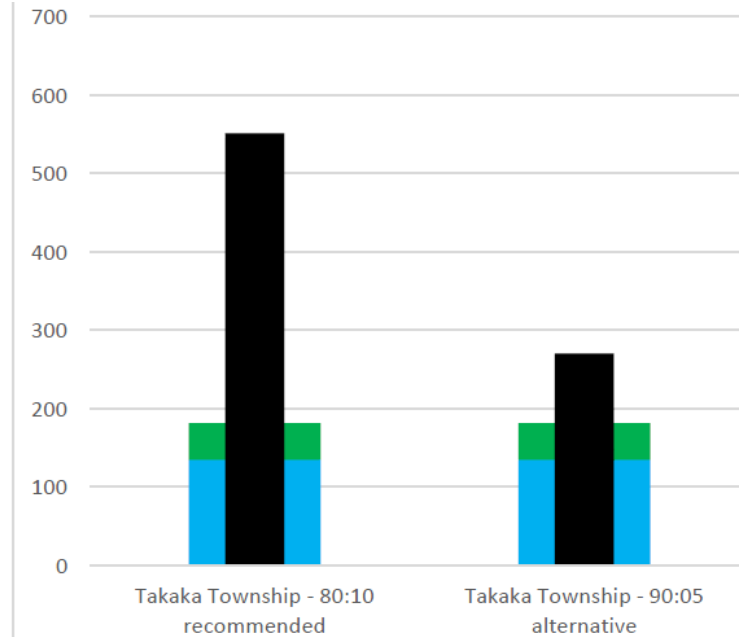
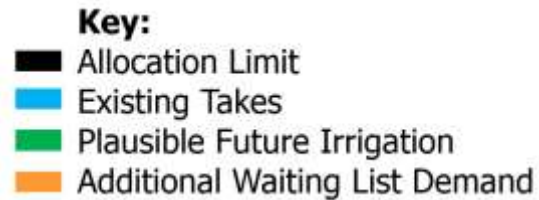
- Existing takes grandfathered in respective zones
- Further **surface water** takes only from main stem rivers with available water (green lines)
- Further **groundwater takes** from areas with available groundwater (green areas)
- **Cease takes on consented takes** (except those for community water supplies, domestic use and stock drinking water)
- AMA Recharge Zone regime based on allowing for existing takes and part of current waiting lists - **allocation limit between 500 and 766 l/s**



# Zone options considered

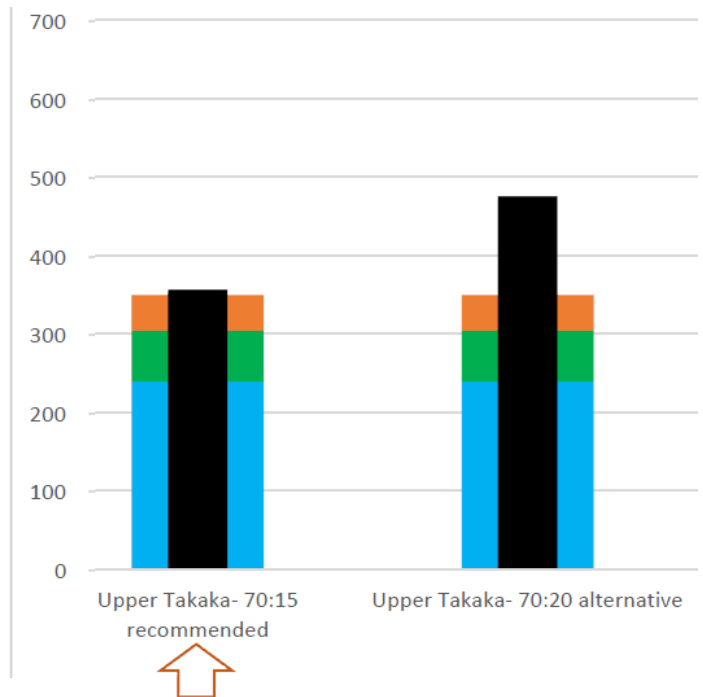
- Takaka Township Zone

- Lower Takaka River
- Regimes: 80:10 and 90:05
- Decision still to be confirmed
- Water available for allocation



- Upper Takaka Zone

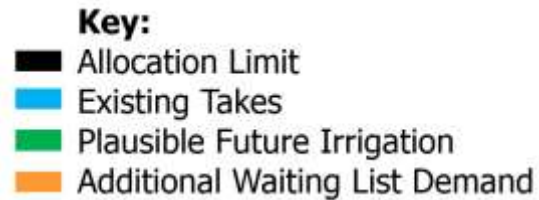
- Upper Takaka River
- Regimes: 70:15 and 70:20
- Water available for allocation



# Zone options considered

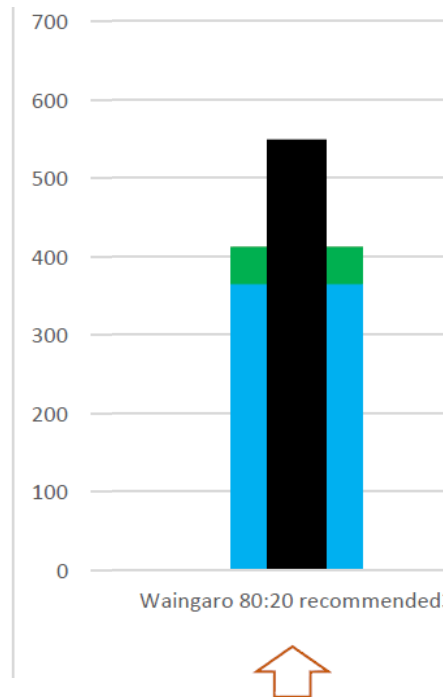
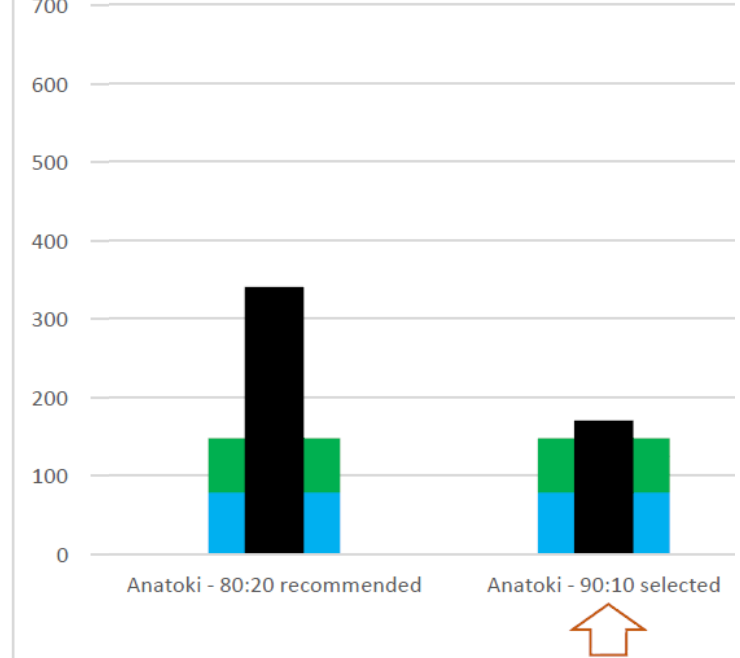
- Anatoki Zone

- Anatoki River
- Regimes: 80:20 and 90:10
- Water available for allocation



- Waingaro Zone

- Waingaro River
- Regime: 80:20
- Water available for allocation





# Zone options considered

- Western Coastal Catchments

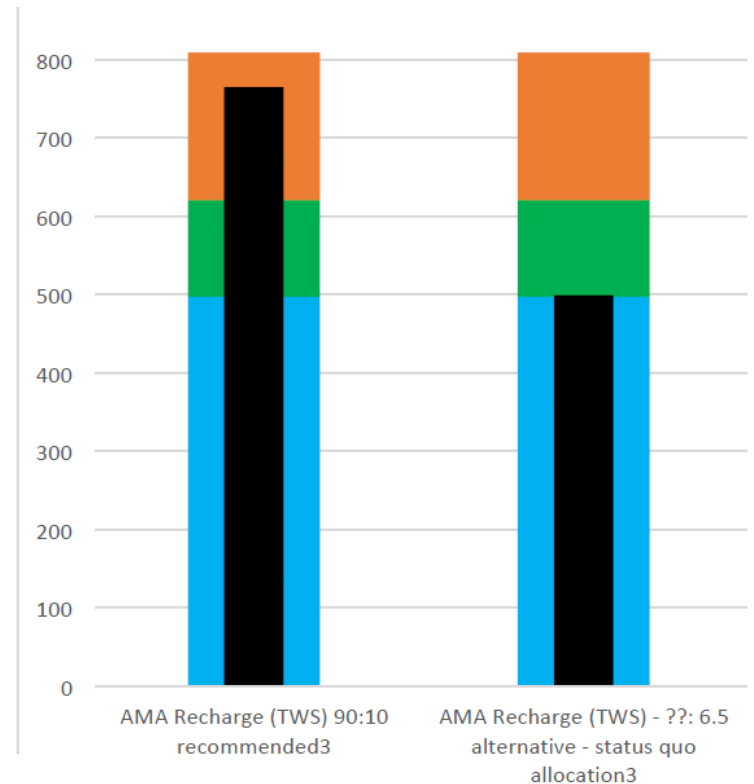
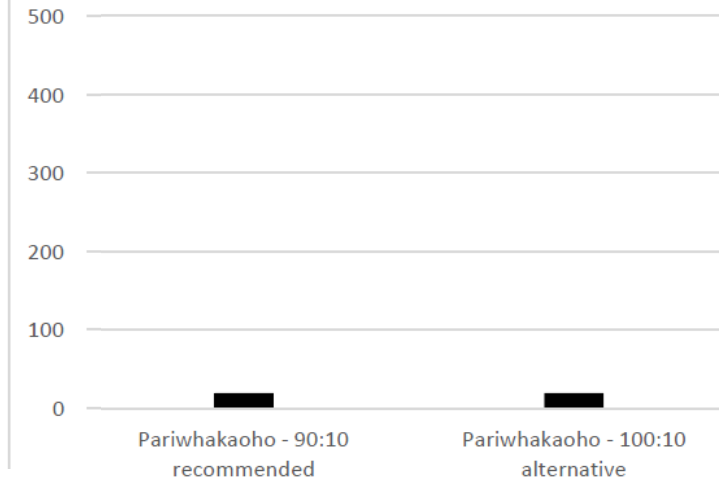
- Pariwhakaoho River
  - Regimes: 90:10 and 100:10
  - Limited water available for allocation

**Key:**

- Allocation Limit
- Existing Takes
- Plausible Future Irrigation
- Additional Waiting List Demand

- AMA Recharge

- Te Waikoropupu Main Spring
  - Regimes: 90:10 & status quo
  - Decision still to be confirmed
  - Either some water available or fully allocated



# Allocation: FLAG Remaining Decisions

- Interim decisions still required for:
  - Motupipi Zone
  - Takaka Township Zone (2 options being discussed)
  - AMA Recharge Zone (2-3 options)
    - Including Middle Takaka takes from the AMA
  - Confined AMA Zone
- **Review of all interim decisions (April-May)**
  - Decision consistency
  - Meeting management objectives
  - Remaining concerns or non-consensus in zones

Questions?