



Summary of Allocation Methods

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Presentation Scope

- **Allocation process overview**
- **Low flow management approach**
- **Current approaches used in the Plan**
- **The Allocation Triangle**
 - Determining minimum flows
 - Security of supply
 - Allocation limits
- **Summary - pulling it all together**

Process: Water Quantity and Quality

- First iteration – water allocation (quantity)
- Second iteration – water quality
- Done in this order as:

potential allocation >>potential land use>>potential impacts on water quality

- The water quality iteration may then change the quantity considerations (allocation regime) to ensure water quality objectives are also met
- Groundwater and surface water are both considered in setting minimum flows and allocation limits

What does the allocation process do?

- Uses the values we want to protect to determine **minimum flows**
- Identifies what is available, above the minimum flow, to allocate to water users in a way that gives them a desired **security of supply** (ie how often their water supply is reduced or cut off)
- Identifies **how water is managed during dry periods** to balance the needs of water users with the need to protect the values

Assessment drivers at trigger locations



Allocatable volume for local water takes

Downstream swimming needs*

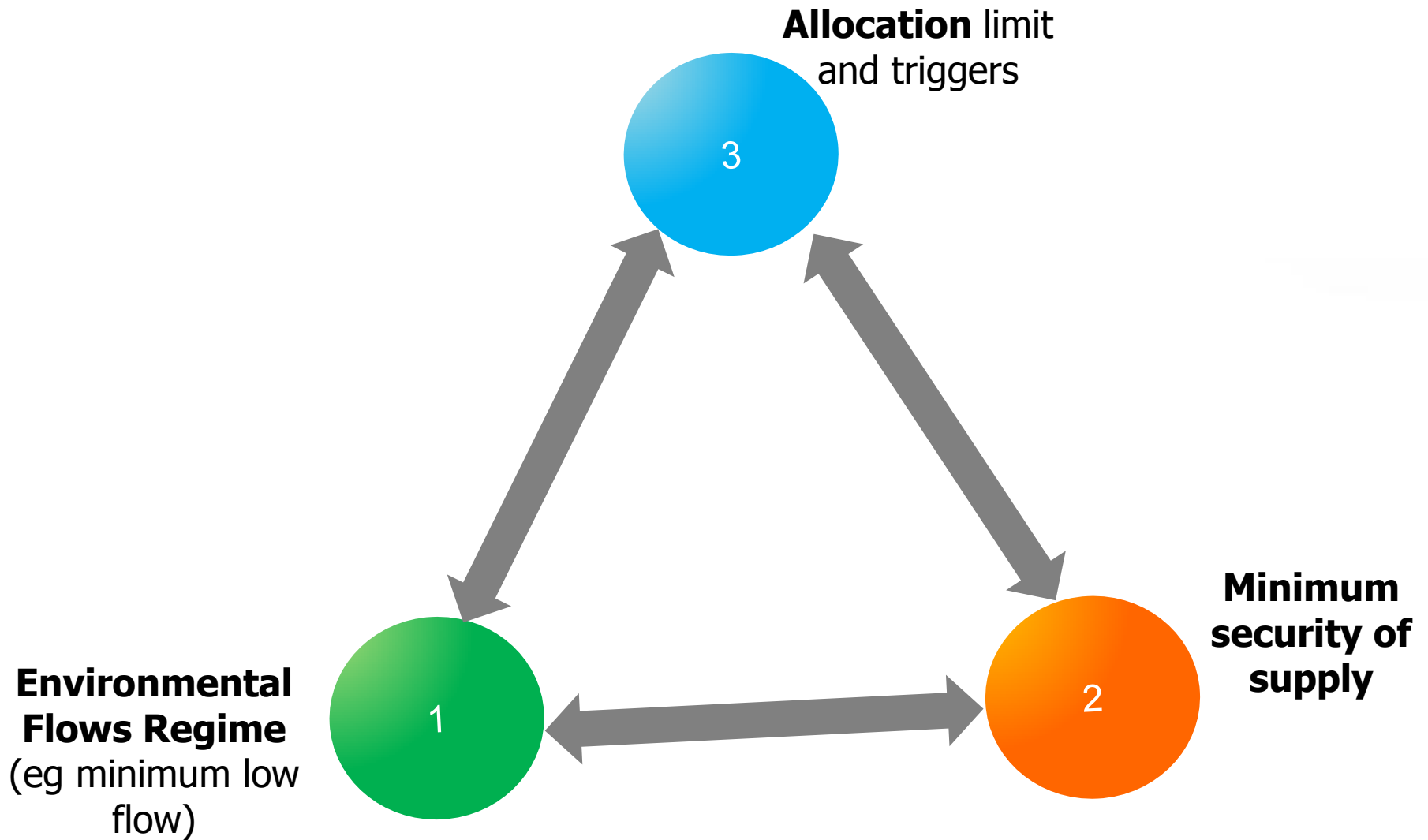
Downstream recharge to gravel aquifer*

Local and downstream ecology needs

Local
recharge to
aquifer

**these values might be provided for within the ecological needs minimum flow level*

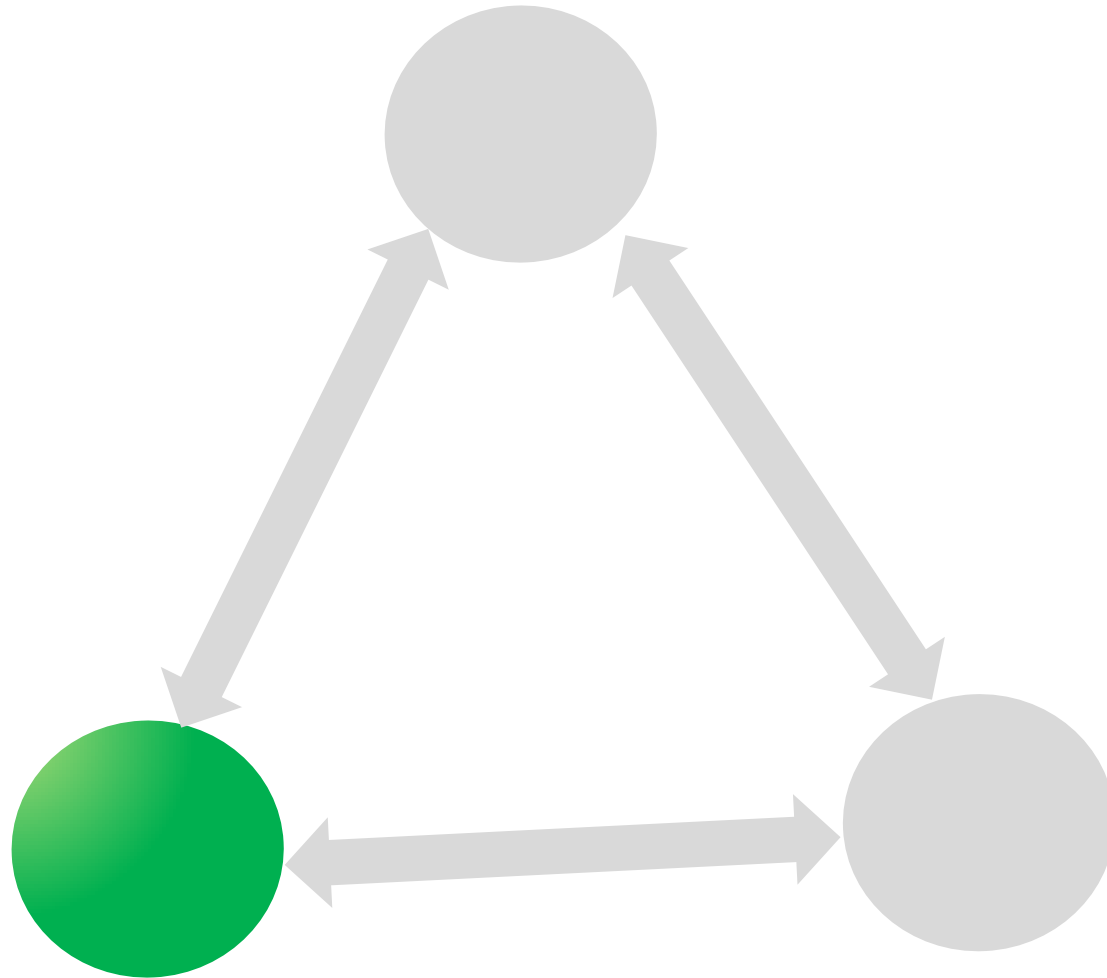
Allocation Triangle



Identifying the Environmental Flow Type

(how we manage low flows in dry times)

**Environmental
Flows Regime**
(eg minimum low
flow)

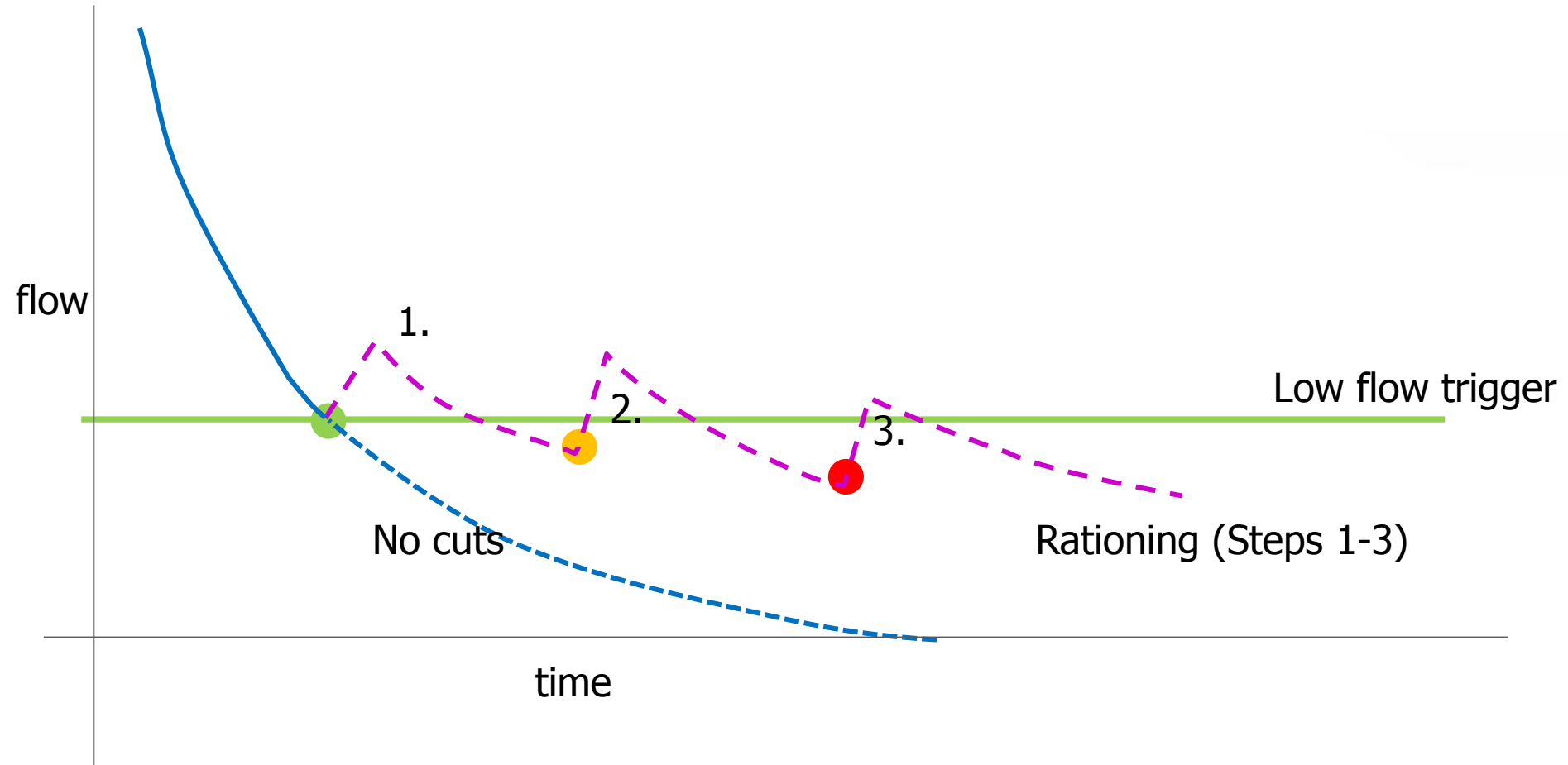


What kind of low flow management approach?

- We need to determine what kind of management approach will be used when river flows are low during dry times
- Will the **minimum low flow** be:
 - A trigger for starting rationing or rostering?
 - A trigger for ceasing takes?
 - A level we manage flows above - through earlier rationing or cease take - to minimise lower flows occurring?
- Different regimes will have different impacts and implications for:
 - economic uses of water
 - river flow and the values dependent on this.

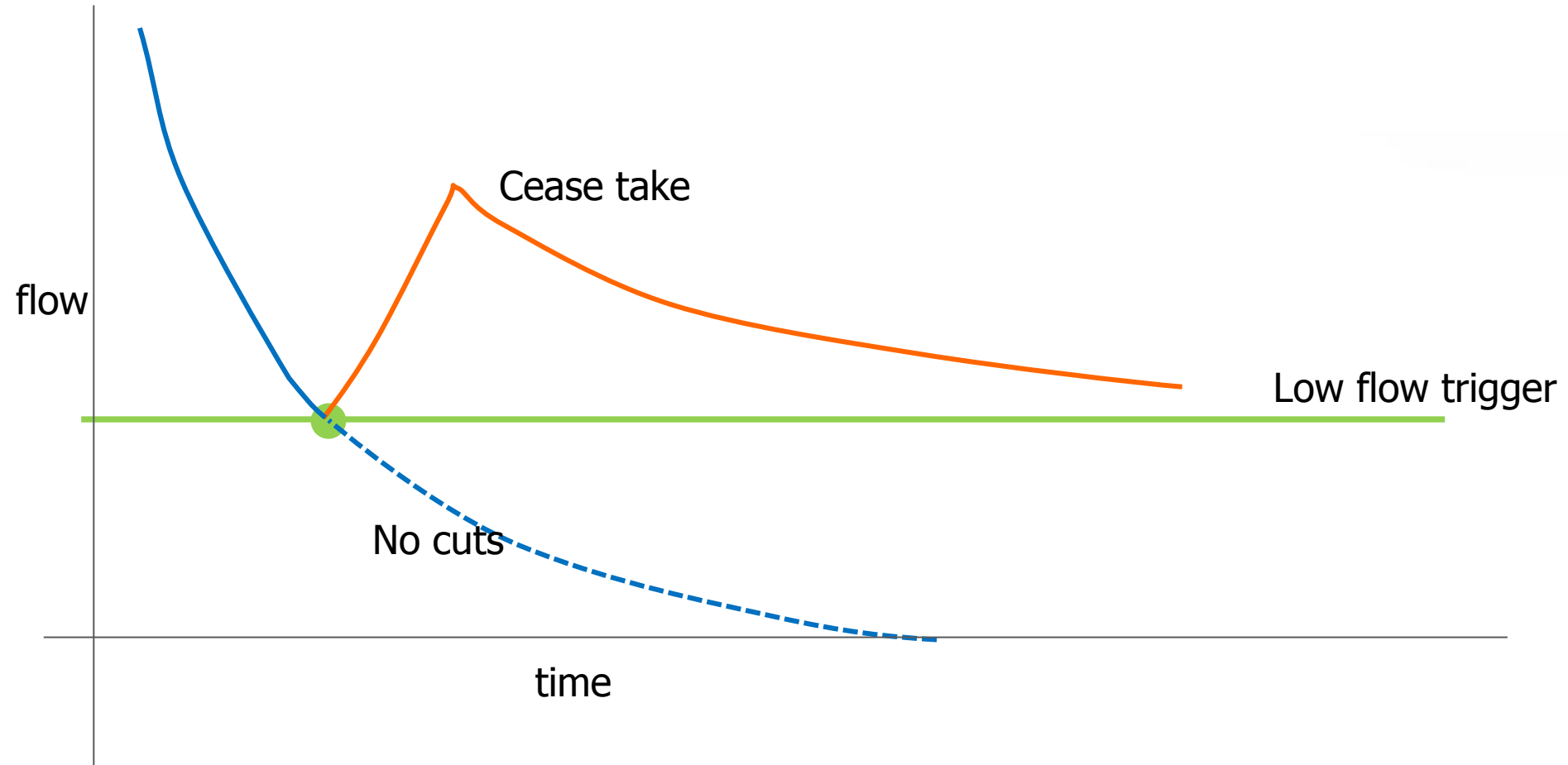
What kind of low flow management approach?

- How do these different approaches affect river flows?



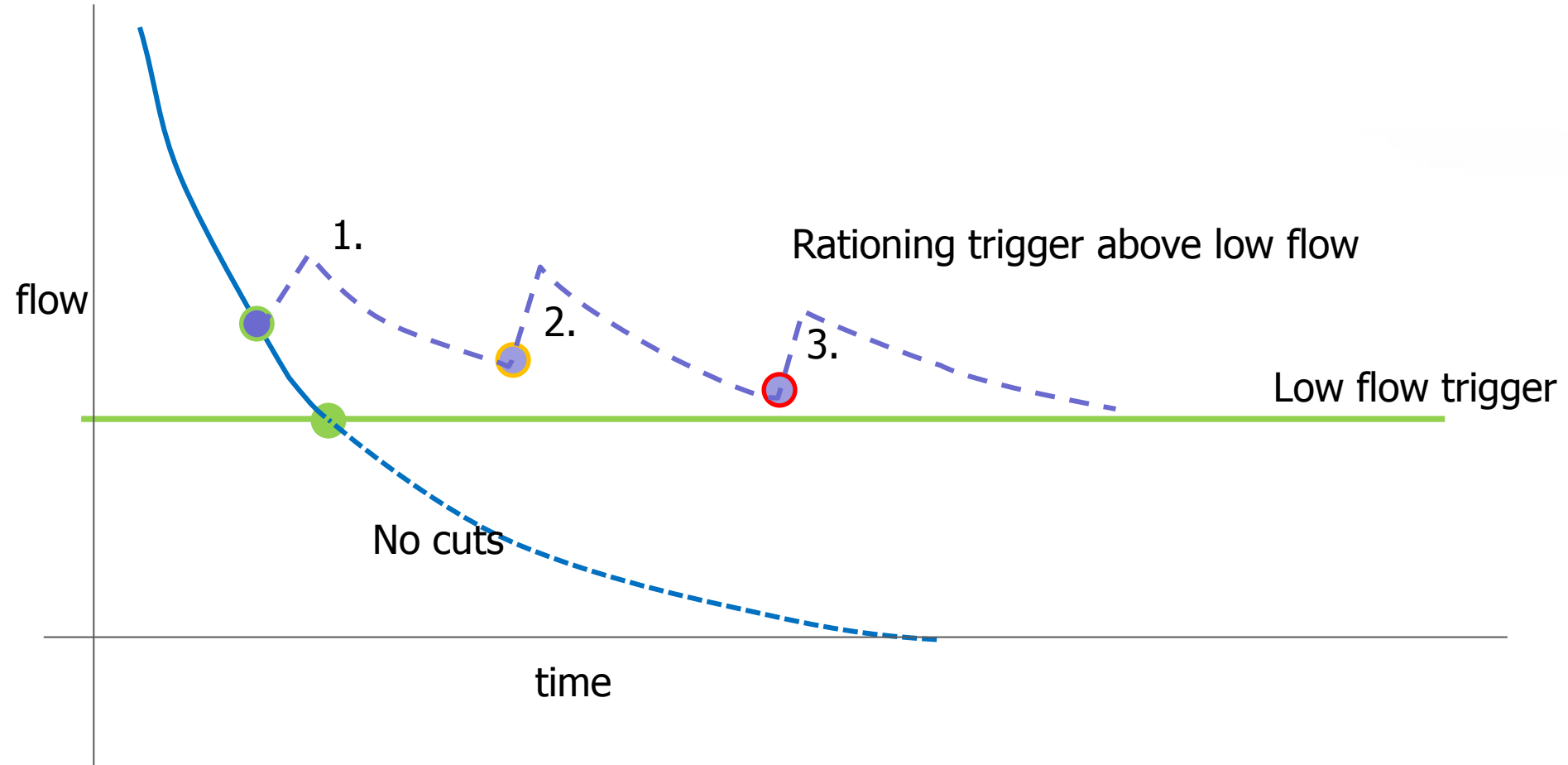
What kind of low flow management approach?

- How do these different approaches affect river flows?



What kind of low flow management approach?

- How do these different approaches affect river flows?



What kind of low flow management approach?

Need to understand:

- In drought conditions, even if consented takes are rationed or ceased, permitted takes will still continue (eg human drinking water and stock water needs)
- Actual water levels and flows will still decline if drought continues and some water bodies may dry up
- **Minimum flow is defined in the TRMP as**
“means the flow regime that is required as set out in the policies and rules of this Plan, as a minimum, to maintain or provide for the specified uses and values identified for that river, but which, during severe droughts may be further reduced through a combination of reduced water flows and water abstraction”.



Management approaches

- **Rationing** – council sets cuts in consented allocations based on preset triggers to meet the low flow requirements
- **Rostering** - water users collectively manage abstractions to meet specified flow requirements
- **Cease take** – Council sets a trigger for consented users to stop taking until flow returns to a set level
- **Water Shortage Directions** (WSD) - council can use S.329 of RMA to require rationing or cease take of any take – including permitted takes if required
- Decisions beyond rationing/cease take provisions and for WSD are guided by **policies that prioritise uses** (in order):
Public health >>irreversible damage to water resources >>animal health >>essential uses of water for business operation
(with other uses also not allowed during droughts, eg car washing)

Current management used in the TRMP

- **Rationing** with up to 4 steps:

For all zones:

- *Step 1 triggers 20% cut in allocation*
- *Step 2 triggers 35% cut in allocation*
- *Step 3 triggers 50% cut in allocation*
 - *Defaults to WSD under the guidance of Dry Weather Task Force (after Step 3)*

Plus for Waimea zones:

- *Step 4 triggers 70% cut in allocation*
 - *Defaults to WSD under the guidance of Dry Weather Task Force (after Step 4)*

- **Rostering:** Riwaka Zone

- **No cease-take** provisions in Plan, but some listed in individual consents *(rely on WSD for other takes)*

Different river types in Takaka Catchments

- Takaka catchments include rivers and parts of rivers that have slow, medium and fast responses to drought
- The same management regime may have a very different impact on flows in these different river types:
 - A larger proportion of flow removed
 - An earlier occurrence & extent of rivers drying up

Different river types in Takaka Catchments

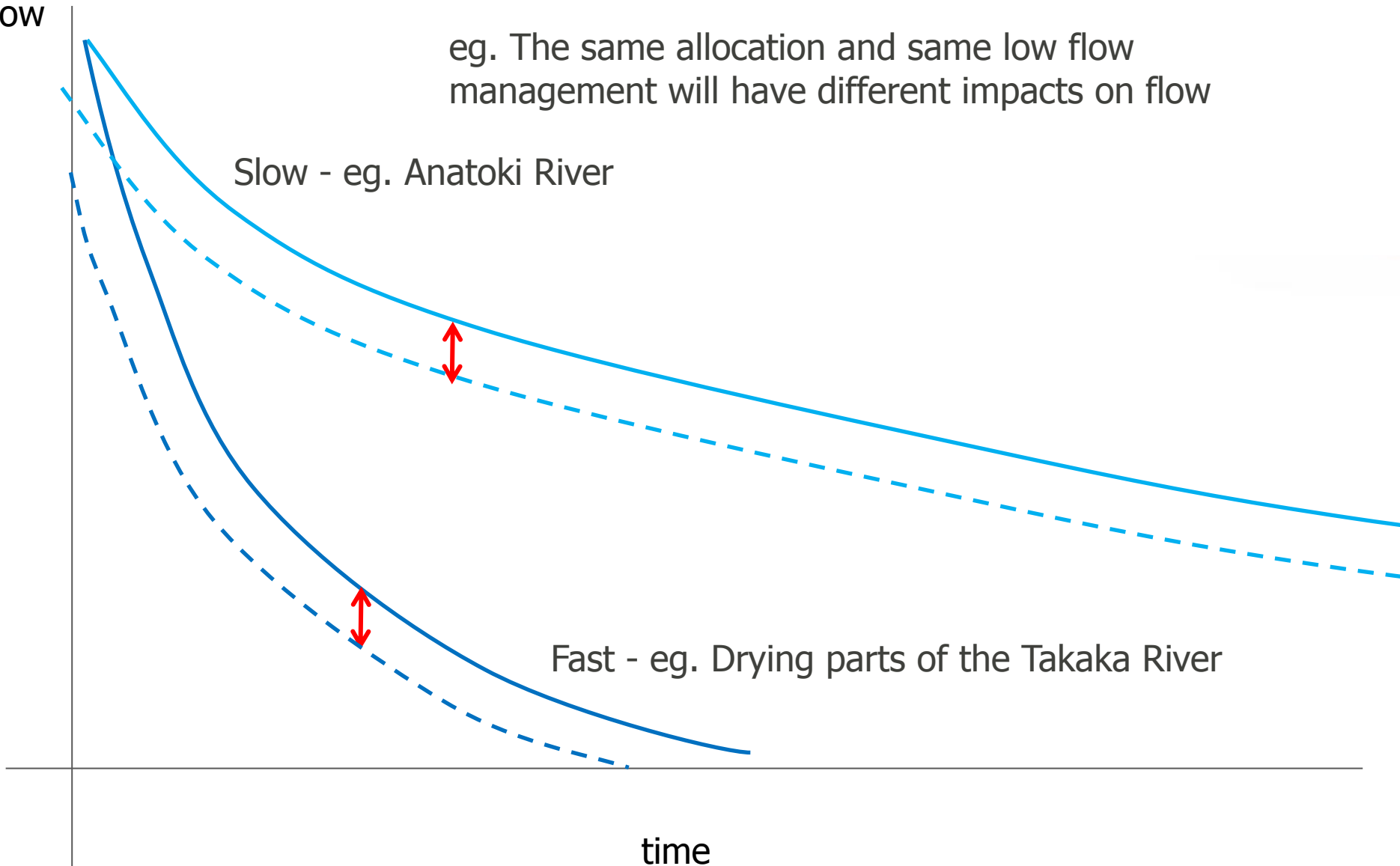
flow

eg. The same allocation and same low flow management will have different impacts on flow

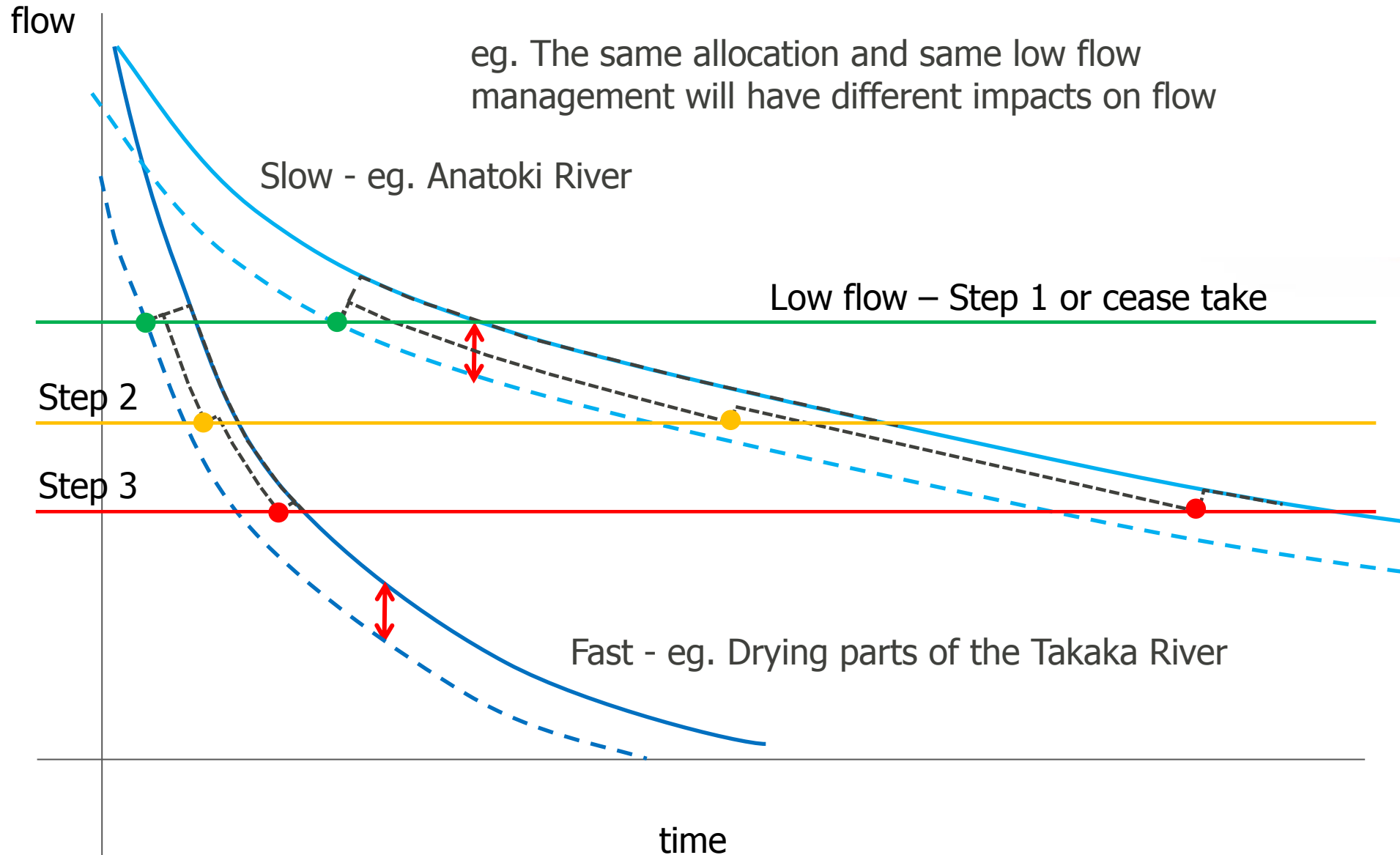
Slow - eg. Anatoki River

Fast - eg. Drying parts of the Takaka River

time



Different river types in Takaka Catchments

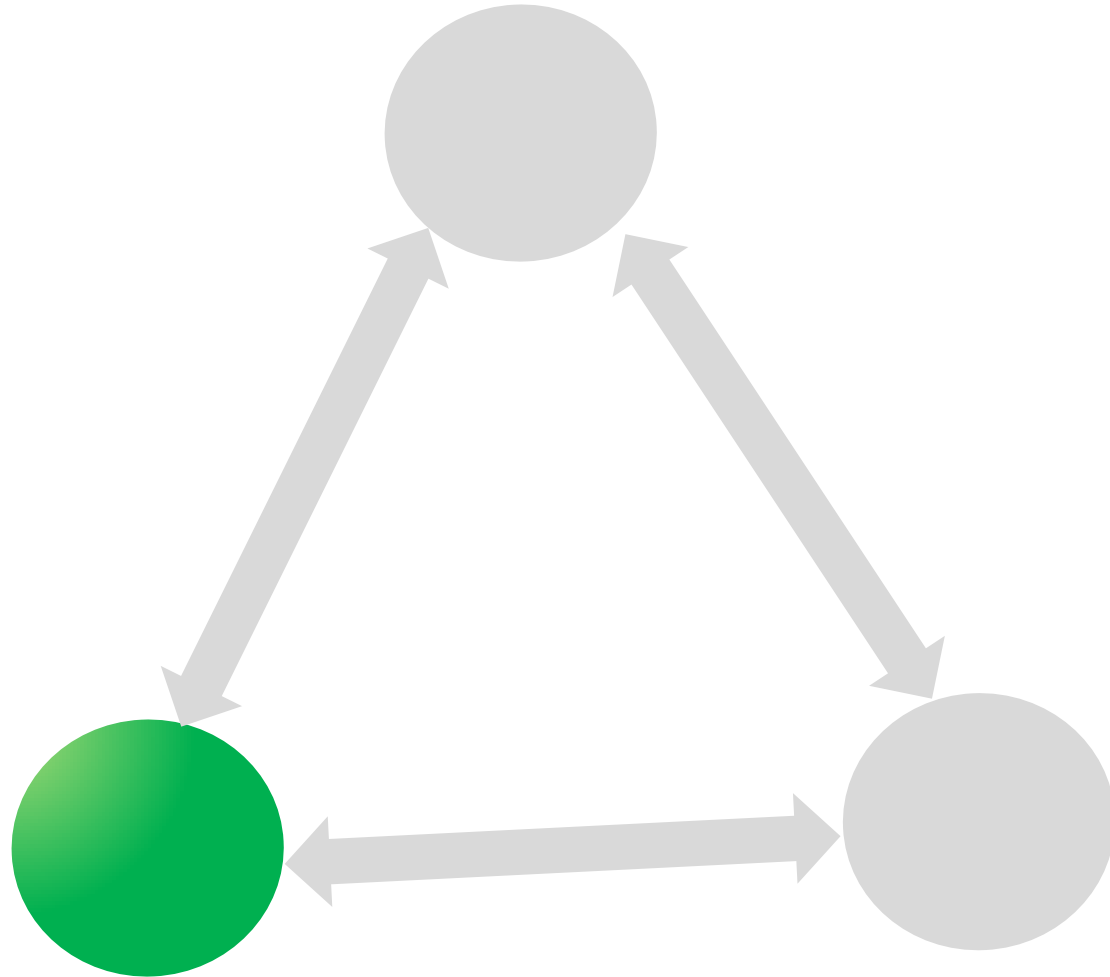


An aerial photograph of a lush green valley. A winding river flows through the center of the valley, surrounded by rolling hills and fields. In the background, dark, forested mountains rise against a clear sky. The word "Questions?" is overlaid in the center of the image in a large, blue, glowing font.

Questions?

Identifying the Environmental Flow Level

**Environmental
Flows Regime**
(eg minimum low
flow)



Identifying the Environmental Flow Regime

- Need to include consideration of:
 - Ecological values (habitat, species, low and flushing flows)
 - Social/cultural values (swimming, fishing & food gathering)
 - Livelihood & economic values (stock water, tourism)
 - Local and downstream requirements
 - Water body connections – eg groundwater recharge and spring flows
- Trigger flows are calculated to protect the **most sensitive of the important values**
- Flow calculations are made at sites that are currently gauged or have flow recorders
- These sites may also be the trigger site for any rationing or cease take provisions if used (eg Harwoods)



Identifying the Environmental Flow Regime

How:

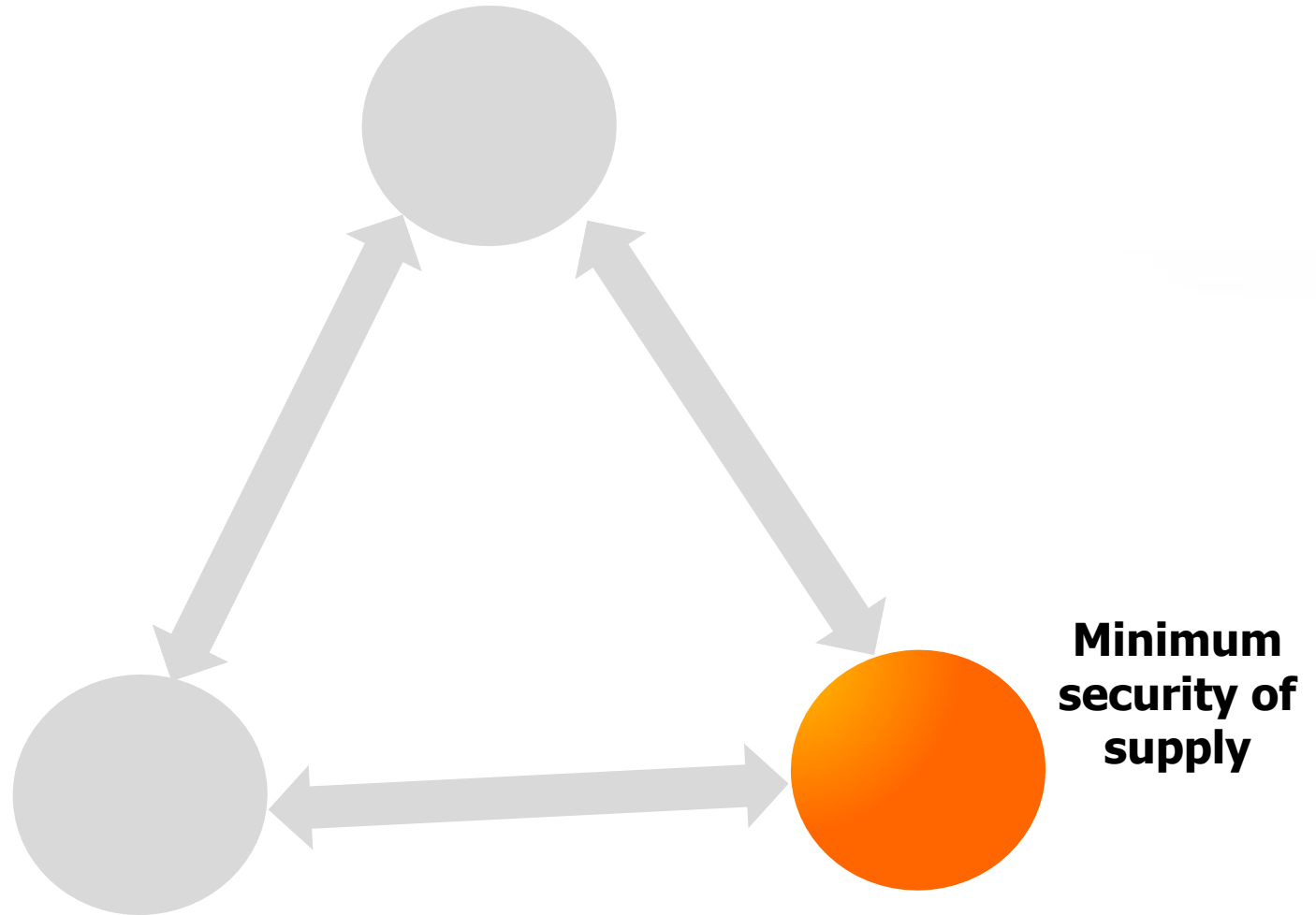
- Staff are recommending a percentage of MALF approach
- Nationally minimum flows are being set on a range of between 90 – 70 % of MALF depending on values to be protected
- On average, based on national studies ~80% of MALF is a level that provides for general aquatic ecosystem protection
- Higher or lower percentages may be used in some catchments due to the significance of the native fisheries or other values
- TDC staff, with input from Cawthron, will be looking at the local rivers to provide advice on suitable protection levels based on habitats, species, hydrology and river features



An aerial photograph of a lush green valley with a winding river. The landscape is characterized by rolling hills, fields, and a dense forest. The word "Questions?" is overlaid in the center in a large, blue, glowing font. The background shows a clear blue sky and distant mountains.

Questions?

Identifying the minimum Security of Supply



Identifying the minimum Security of Supply

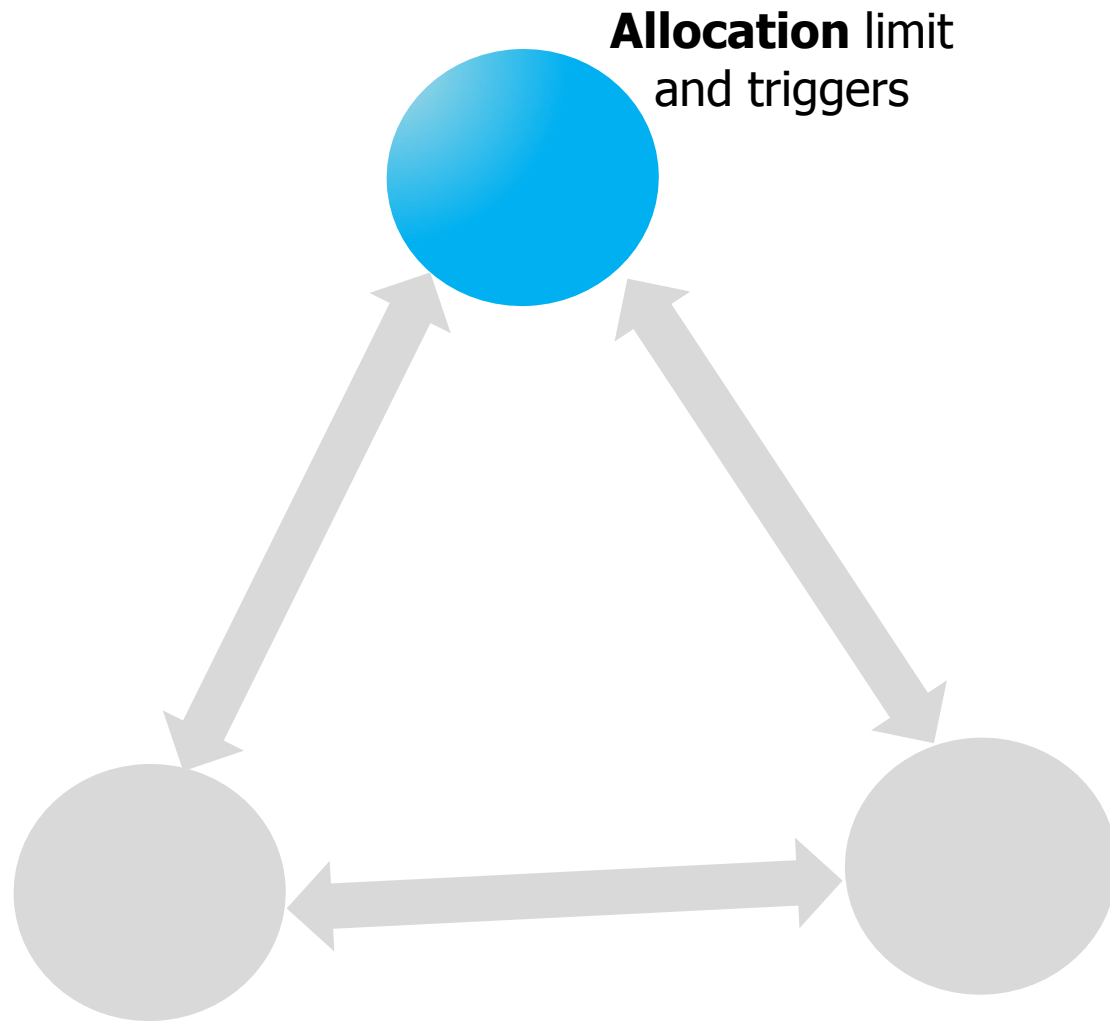
- The Plan sets the standard policy for security of supply so that water users have a **1-in-10 chance** each year of their **allocation being cut by 35%***
(ie. Step 2 rationing) *(25% for community water supplies)
- **Lower securities** (higher cuts or more frequent cuts) could be used where there is insufficient water
- Plan 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.



An aerial photograph of a lush green valley. A winding river flows through the center of the valley, surrounded by rolling hills and fields. In the background, dark, forested mountains rise against a clear sky. The word "Questions?" is overlaid in the center in a large, blue, glowing font.

Questions?

Identifying the allocation limit



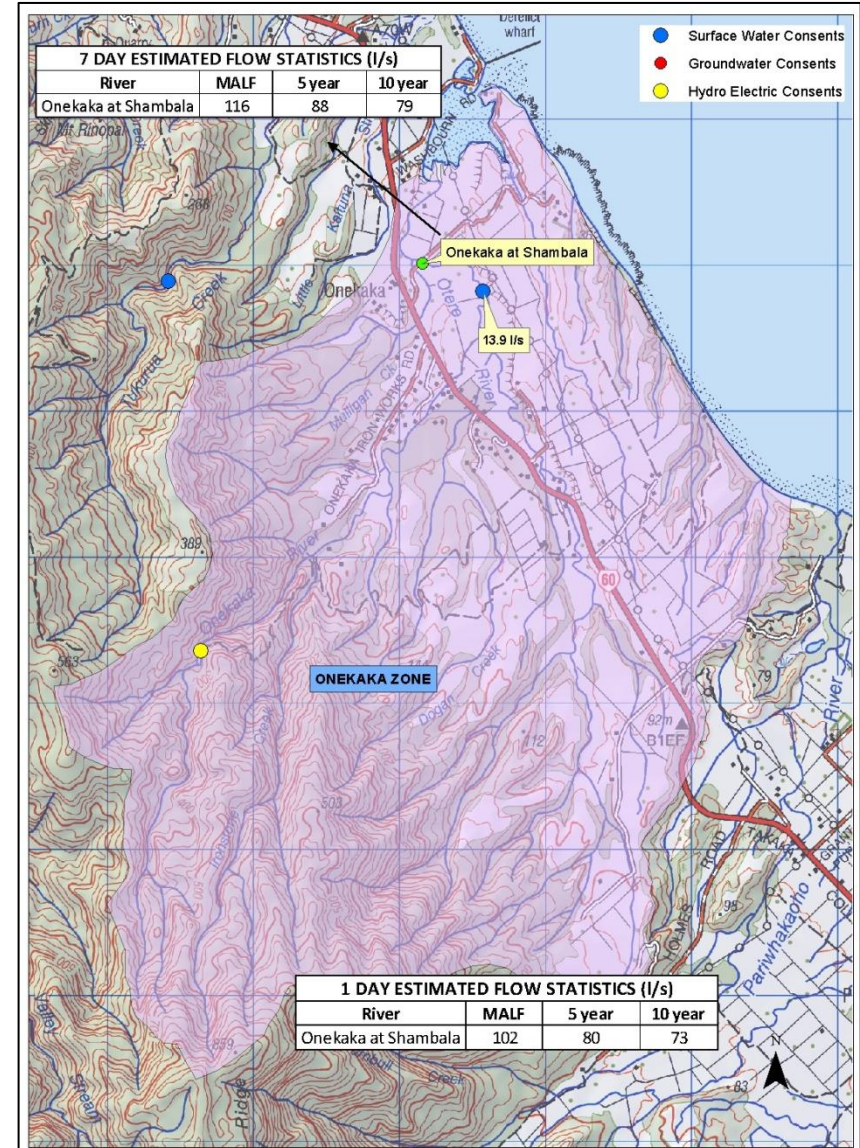
Default Allocation: Onekaka Example

- The allocation default policy is used when no minimum flow or allocation has been set.
- Default allocation either 10%, or up to 33%, of 7day-5yr Low Flow (**depending on significance**, regionally or locally).

Onekaka at Shambala (regionally significant)	
7 day, 5yr Low Flow	88 l/s
10% of 7day, 5yr Low Flow	8.8 l/s
33% of 7day, 5yr Low Flow	29.0 l/s
Total current allocation	13.9 l/s*

* Method used to grant this consent varies from those given here.

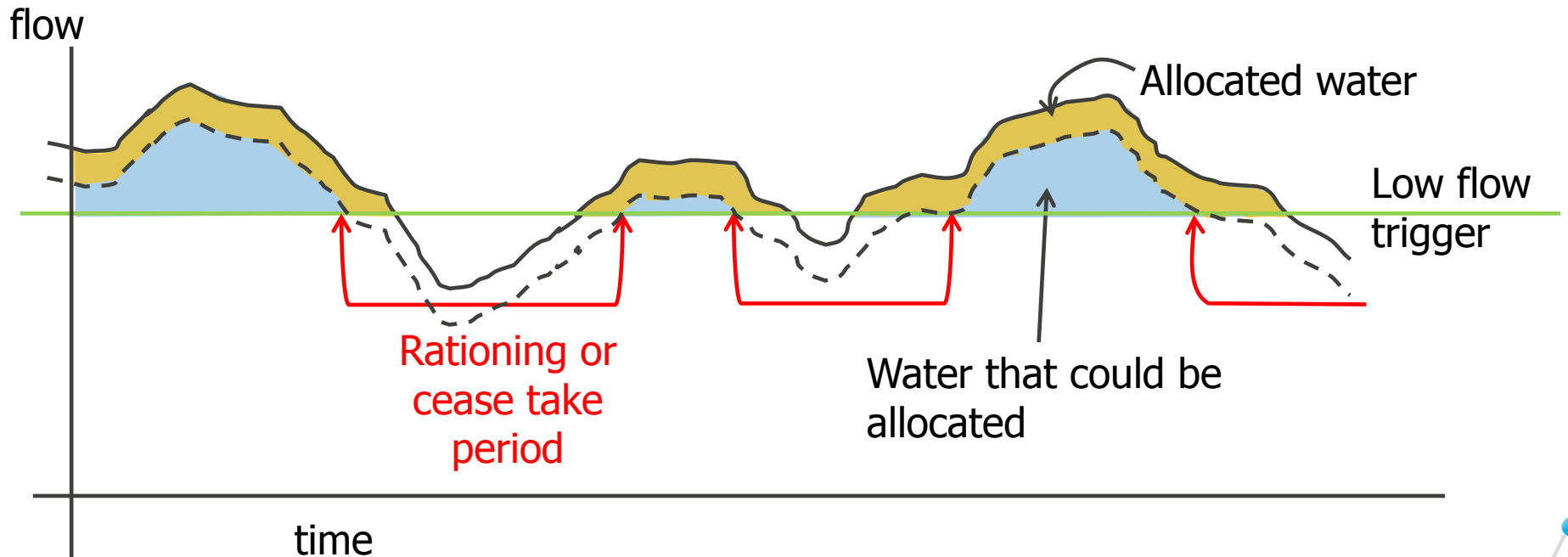
- This consent has a cease take (105 l/s) based on an approx 1 day MALF at Anatoki recorder (1738 l/s) or Onekaka River.
- In other cases using default allocation policy there is no rationing or cease provision. Next default is a Water Shortage Direction (WSD).



Identifying an allocation limit

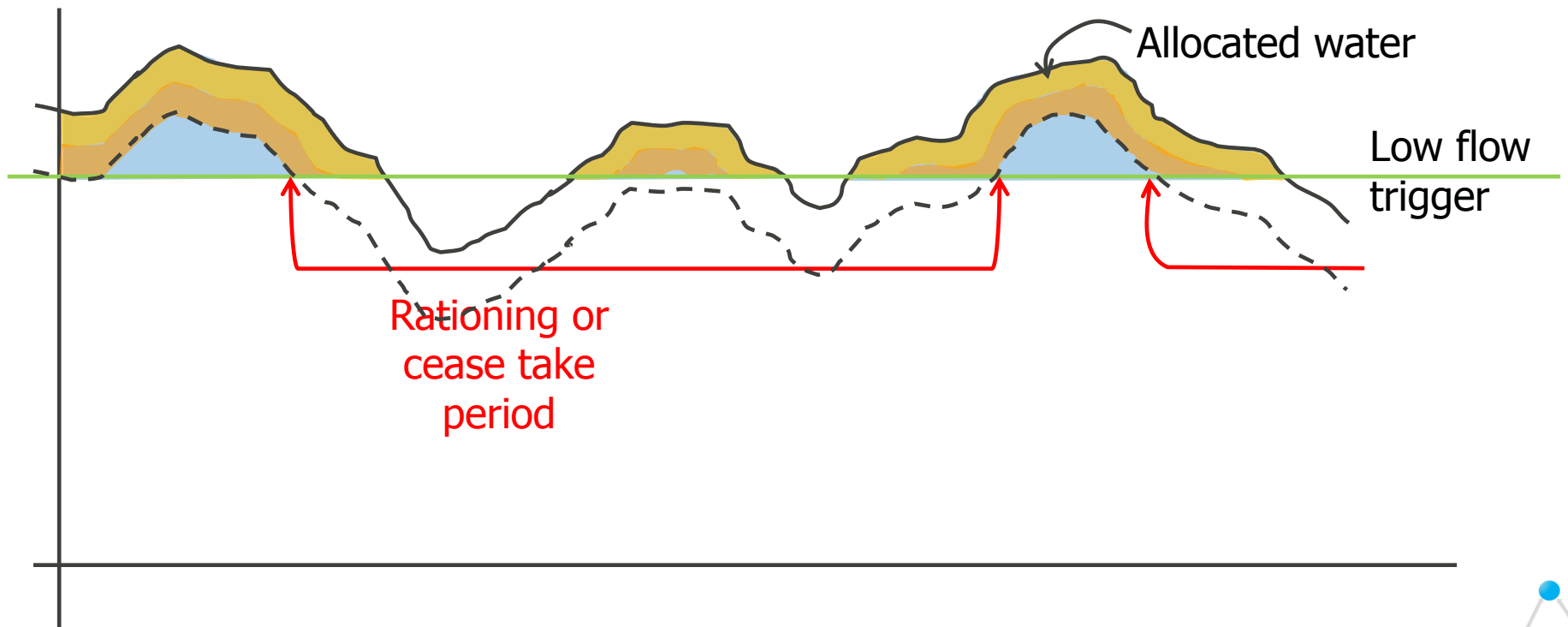
- **Potential Methodology**

- Looks at the water available above the low flow
(eg above MALF or above 90% of MALF)
- Considers security of supply standards
(eg 35%, 1 in 10yr)
- Sets the allocation limit to meet the security level



Identifying an allocation limit

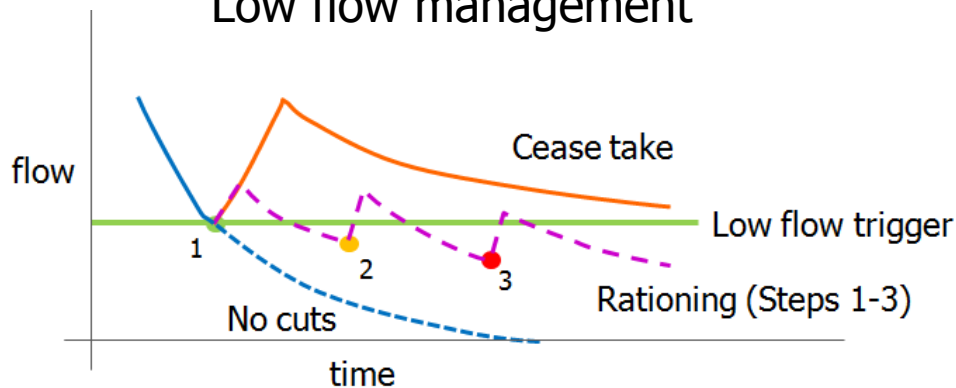
- More water could be allocated, but the security of supply would be lower as flows would hit the low flow trigger more often



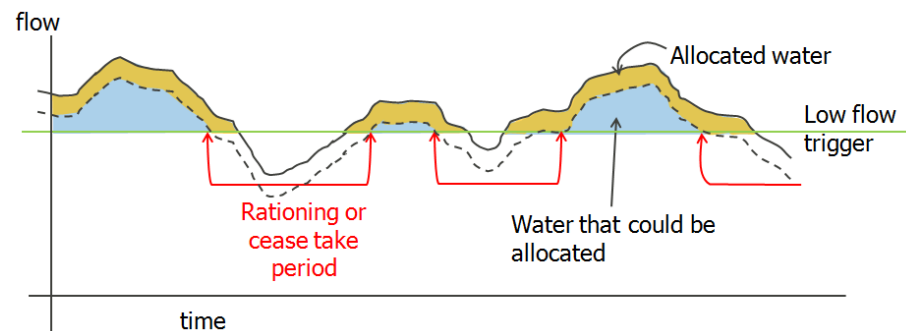
Summary

- Our range of environmental flow considerations identify a **low flow** to protect the values
- The low flow is used to trigger either **cease take** or **rationing**
- The amount above the low flow is available for allocation
- The **security of supply** sets the **allocation limit** – what water is actually allocated
- The **priority policies** determine how rationing and cease takes affect different uses and when **Water Shortage Directions** might be used beyond the last rationing step

Low flow management



Allocation limit setting



An aerial photograph of a vast valley. A winding river flows through the center, surrounded by lush green fields and patches of forest. In the distance, a range of mountains stretches across the horizon under a clear sky. The word "Questions?" is overlaid in the center in a large, blue, glowing font.

Questions?