Limits Framework

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Natural Resource Management

- Define resource and its boundaries
- Identify values and make value judgements
- Define desired environmental outcome
- Limit capacity for use
- Allocate to users
- Monitor and review

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National Policy Statement

- Set freshwater objectives and limit
- National level objective- safeguard life supporting capacity, ecosystems and indigenous species
- Maintain and improve overall water quality
- Protect outstanding waterbodies including wetlands
- Avoid over-allocation
- Achieve efficient allocation and use of water
- Improve integrated catchment management

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NPS-FM Tangata whenua roles and interests

- Involve iwi and hapu in the management of freshwater
- Work with iwi and hapu to identify tangata whenua values and interests in freshwater
- Reflect tangata whenua values and interests in the management of, and decision making regarding, fresh water and freshwater ecosystems in the region

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Regional Policy and Plans

- Give effect to RPS
- High level objectives in regional plan

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Key Elements Limit Setting

- Make value judgements and express desired outcome as freshwater state objective
- Express objectives with increasing levels of detail (specificity) at appropriate scales
- Use spatial units- Management areas
- Determine the capacity for use (set limits at a catchment/subcatchment scale) as policies and rules that will achieve state objectives

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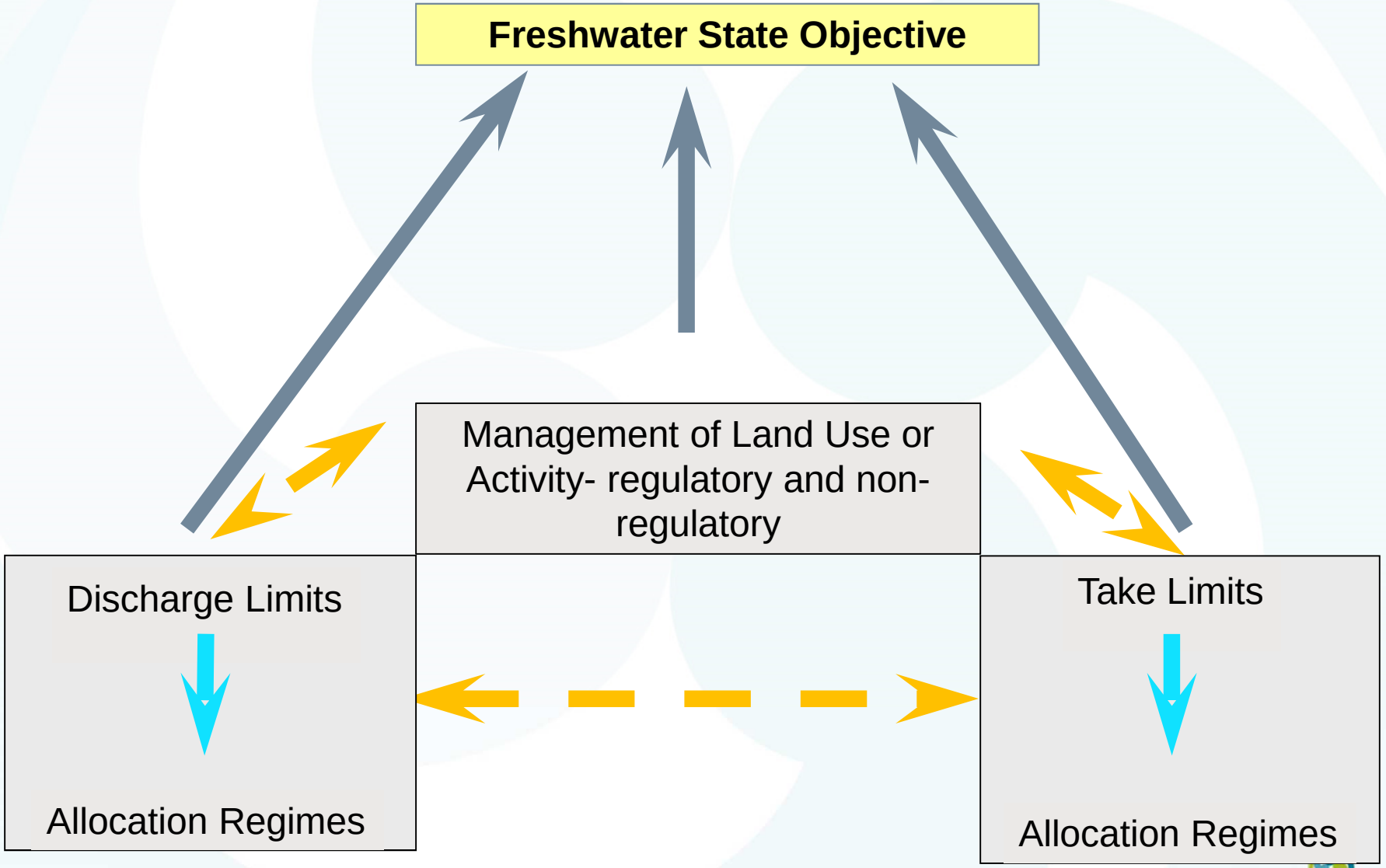
Catchment Management Framework



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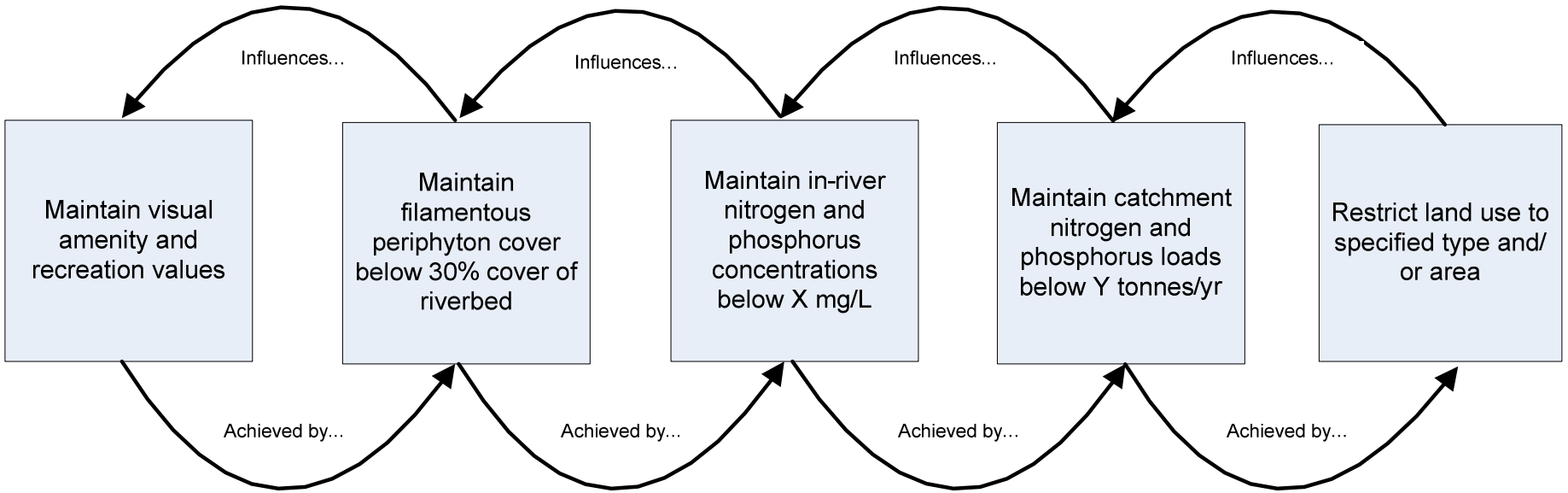
State Objectives	Numeric	Manage For	Discharge Limit	Take Limit	Additional Management Methods
Sediment/ clarity	Yes	Contact recreation, ecological health, aesthetic values, fisheries	Yes, for sediment loads	Flow dependant	Source control, Stock access, Riparian planting
Algae/ Macrophytes	Yes	Contact reaction, aesthetic values, ecological health, fisheries, human health	Yes, for N and P loads	Flow dependant	Nutrient management Shading, Stock access, Flushing flows
Bacteria	Yes	Contact recreation/ human health/ stock drinking	Only for point source	No	Stock Access, wastewater overflows
Temperature	Yes	Ecological health, fisheries	Only for point source	Yes	Shading
Dissolved oxygen	Yes	Ecological health, fisheries	Only for point source	Yes	Shading
Toxic contaminants	Yes	Ecological health, fisheries, human health, water supply	Yes, particularly for point source discharges/ stormwater, also N toxicity	Flow dependant	Source control
Habitat space	Yes	Ecological health, fisheries	No	Yes	Yes, particularly Riparian and stock access
QMCI Score	Yes	Ecological health, fisheries	Yes, for toxic contaminants	Not at the moment	Yes, everything
Connectivity	No	Ecological Health, fisheries	No (possibly for point source toxic contaminants)	Yes	Yes, management of barriers
Channel morphology and processes	Yes, for Flow	Ecological health, maintenance of channel, estuary/coastal maintenance	No	Yes	Yes, management of bed disturbance activities
Salt water intrusion (Chloride)	Yes	Water quality for a range of uses	No	Yes	No

Less specific ⟷ **More specific**



High level Objective | **Numeric Objective** | **Concentration limit** | **Load limit** | **Use restriction**

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THE END

For now!

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Limits

- Maximum amount of resource use (take or discharge) while meeting a desired measurable state objective within a spatial unit or management area
- Policy and rules which directly control resource use
- Limits are binding to “avoid over-allocation”
- Must cover all water users, or sources of a particular contaminant

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Identify contaminants to be managed

- Sediment
- Nutrients (e.g. nitrogen and phosphorous)
- Micro-organisms
- Metals
- Other toxic or harmful contaminants (e.g. PAH, pesticides etc.)

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Identify all sources

- Point sources and non-point sources
- Identify “natural” sources
- All discharges need to be managed within the regulatory framework in an integrated way

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Inter-relationships

- Account for physical inter-relationships between freshwater resources (surface-ground water), land-soil processes, and the coastal environment.
- State objectives may be the same for setting take and discharge limits
- A freshwater objective and limit may be driven by an objective in the coastal environment
- Need to set limits in an integrated way
- For example- A change in the flow regime will change the discharge limit, and still meet the same numeric state objective

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Range of Management mechanisms

- There is no silver bullet
- Range of tools may be different between catchments- one size does not fit all-target solutions to the catchment
- Regulatory- RMA s.9, s.14 and s.15
- Regulatory- LGA and others (e.g. by-laws)
- Non-regulatory
- Allocate where you can

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Prerequisites for allocating contaminants to individuals

- Identify all sources of a contaminant
- Identify natural background sources
- Attribute the sources to individuals (or groups of individuals)
- Either directly measure or estimate (i.e. by an appropriate repeatable method such as a model) the quantum of the discharge from individuals
- s.32 test

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Allocating contaminants

- Account for the total quantum of all individual sources by way of a catchment contaminant budget that forms the basis of allocation
- Monitor individual sources as well as contaminant concentrations and objectives in the receiving water, so that periodic review and adaptive adjustments can be made

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Over-allocated catchments

- Define objectives
- Define existing load
- Set target to meet freshwater state objectives
- Time factor in target the key element
- Set interim limits as way of stopping further over-allocation, and pathway to target
- Use a range of methods to work toward target. "There is no silver bullet"

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