



Understanding & Evaluating Stormwater Network Performance in Tāmaki Makaurau

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Auckland's Stormwater System



Pipes, culverts, connections and manholes

Over 6,300 km of pipes
154,000 manholes across the region



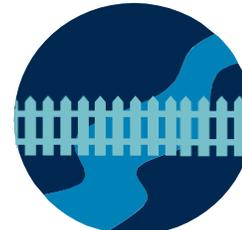
Catchpits, inlets and outlets

Over 115,000 catchpits across the region
3,700 outfalls discharge into waterways and the sea
100 public soakholes



Treatment and detention

626 ponds and wetlands
568 water quality devices
3,000 raingardens, treepits and other water sensitive infrastructure
600 proprietary devices



Overland flow paths

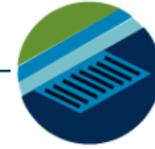
79,000 km of overland flow paths across the Auckland region



Environment

Over 16,000 km of permanent streams
Over 4,500 km of intermittent streams
3,700 ha of freshwater wetlands
Four aquifers
Four harbours

Regionwide NDC Outcomes



Assets



Flooding



Stream, coastal &
groundwater health



Growth

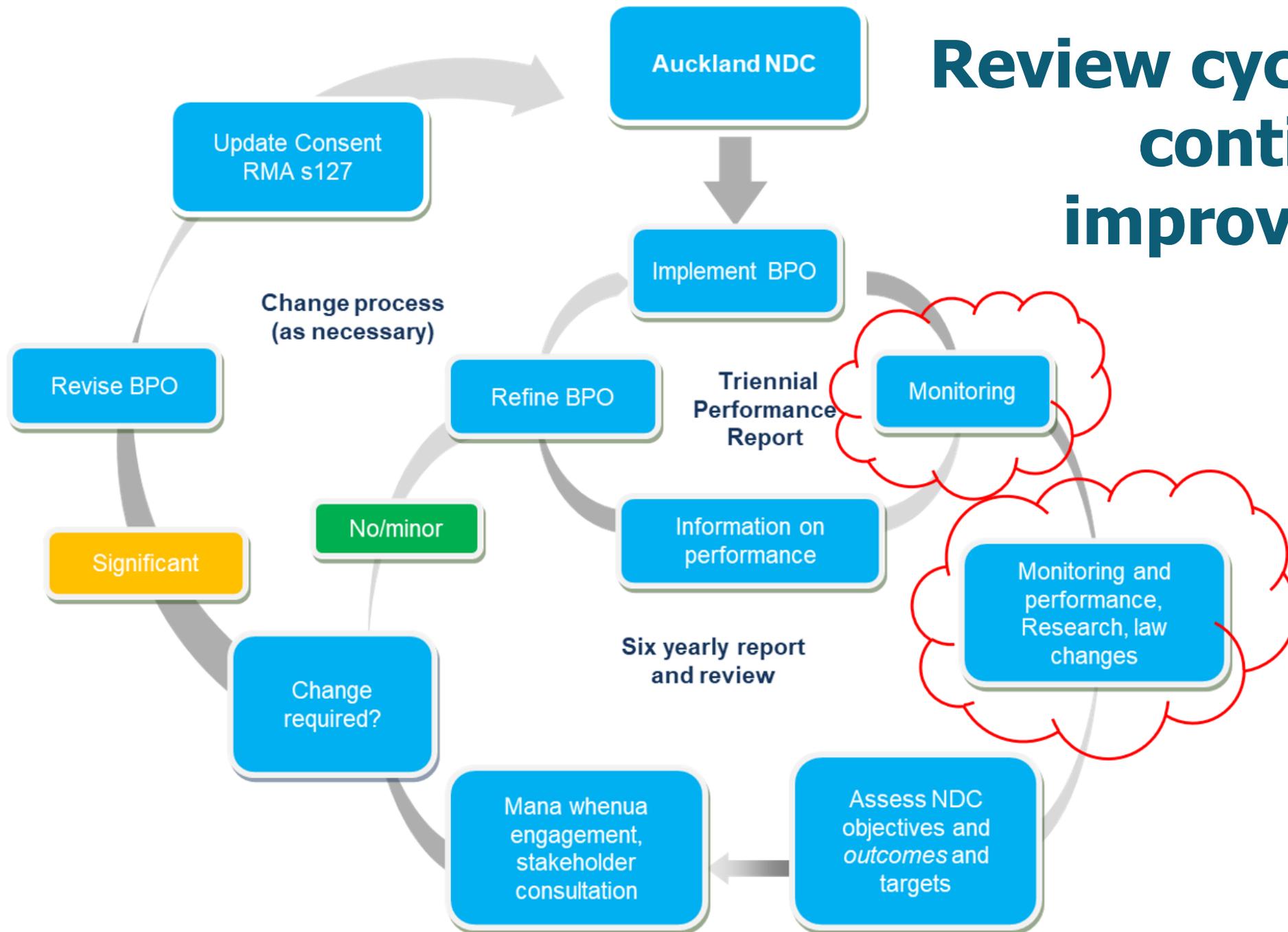


Effects on
wastewater system

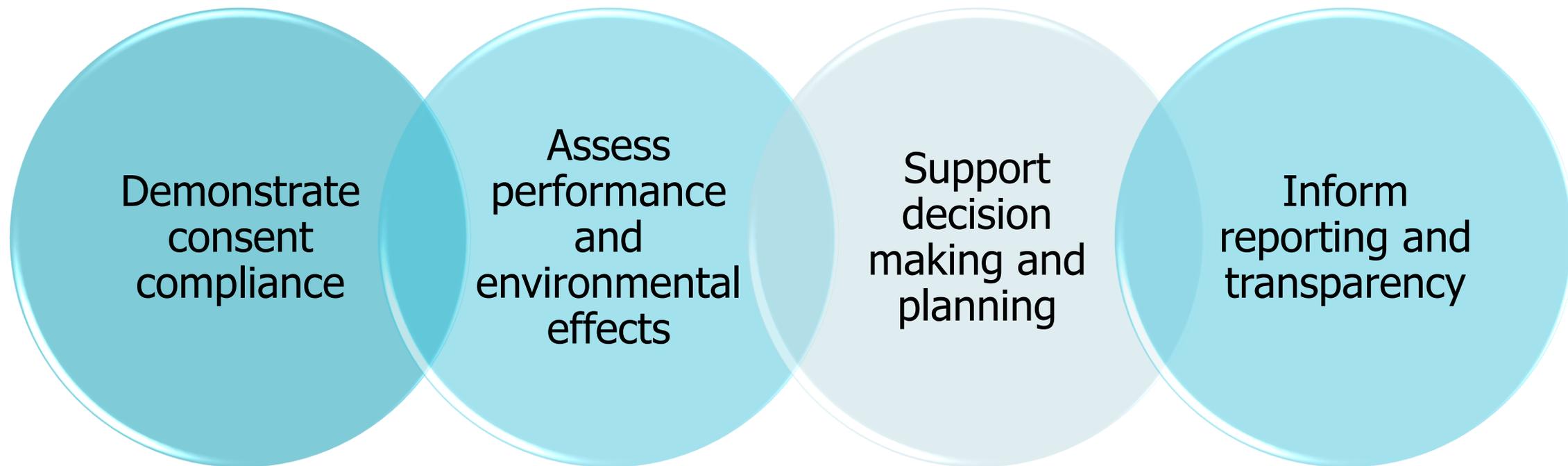


Collaborative
outcomes

Review cycles for continuous improvement

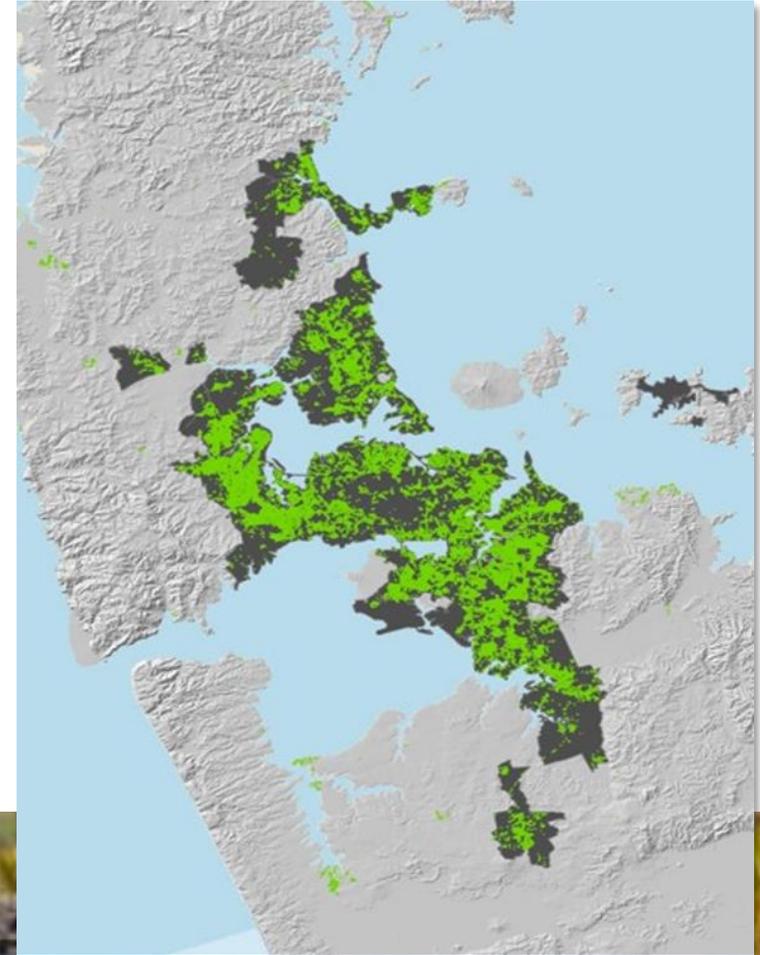


Purpose of the Monitoring and Evaluation Strategy



Challenges of assessing stormwater network performance

- Variety of perspectives to consider
- Scale and diversity of the network
- Open network and role of land use
- Performance under different rain events
- Cost of sampling
- Lack of fit for purpose performance metrics



Monitoring Programmes

- State of the environment monitoring
- Watercourse assessments
- Model validation monitoring
- Safe Networks
- Device effectiveness monitoring
- Hydrological monitoring
- Cultural monitoring
- Asset inspections and CCTV
- LIDAR and aerial photography
- Citizen science
- Post event monitoring

Modelling Programmes

- Freshwater Management Tool
- Integrated Coastal Modelling
- Hydrologic and hydraulic modelling
- Flood data
- Stream erosion modelling
- Asset and stream criticality modelling
- Safeswim
- Manukau Harbour hydrodynamic model

NDC Monitoring and Evaluation Strategy

Assessment of Performance Measures and Processes

- NDC Schedule 2 targets
- Asset Management Plan & Long Term Plan measures
- Requests for Service (RFS) and complaints
- Bylaw compliance programme
- AUP plan effectiveness reviews
- Auckland Water Strategy reporting

Benefit Realisation of Projects and Programmes

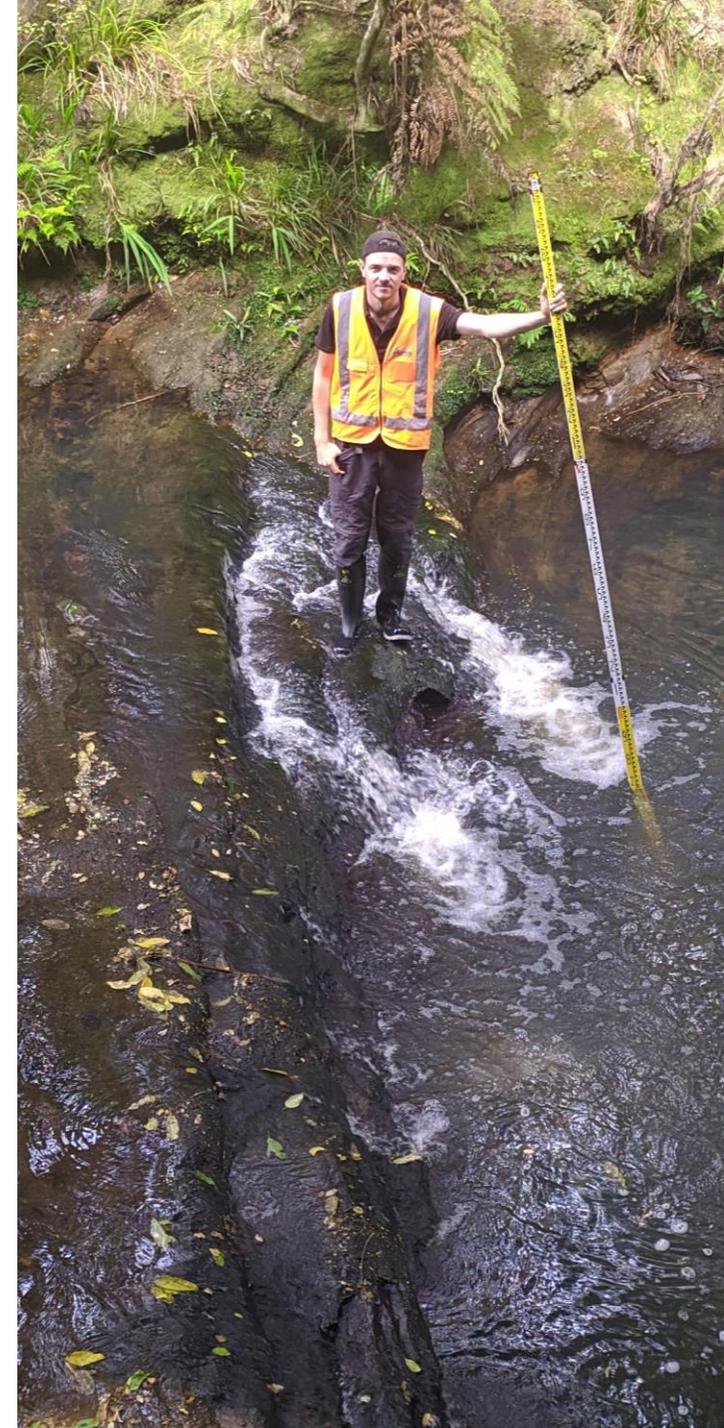
- Capital infrastructure upgrades and renewals
- Urban Contaminant Reduction Program
- Fish Passage Improvement Program
- Biodiversity offset bank
- SMP and development approvals
- Water quality targeted rate programs
- Supporting mana whenua and community initiatives

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- Sampling is what people expect to see
- Real world data at a point in time and space
- Need to account for hysteresis, the lag in seeing effects
- Each program has been developed for different purposes
- Can't monitor everything



Modelling programmes

- Regionwide coverage fills in the gaps
- Test scenarios and demonstrate improvements from interventions
- Inform prioritisation
- Reliant on input assumptions & data

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Benefits realisation of projects and programmes

- Capturing impacts and improvements from Healthy Waters works
- Can be quantitative and qualitative
- An important part of communications



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Assessment of performance and processes

Assessment of Performance Measures and Processes

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- Need for clear linkages between action and outcomes
- Existing performance measures are not fit for purpose
- Links to LTP & Asset management reporting
- Need to develop more and better measures



How the Monitoring and Evaluation Strategy information will be used

Assessing performance

- Understanding the environment
- Understand impact of discharge
- Demonstrate improvements made

Planning, decision making and prioritisation

- Capital works projects
- Routine operation and maintenance activities
- Catchment planning and asset management
- Growth and development decision making
- Future plan changes
- Community empowerment, mana whenua and compliance initiatives
- Model calibration and development
- Public awareness

Reporting & transparency

- NDC reporting & reviews
- Asset Management Planning (AMP) and Long-term Plan (LTP)
- Stakeholder engagement / governance

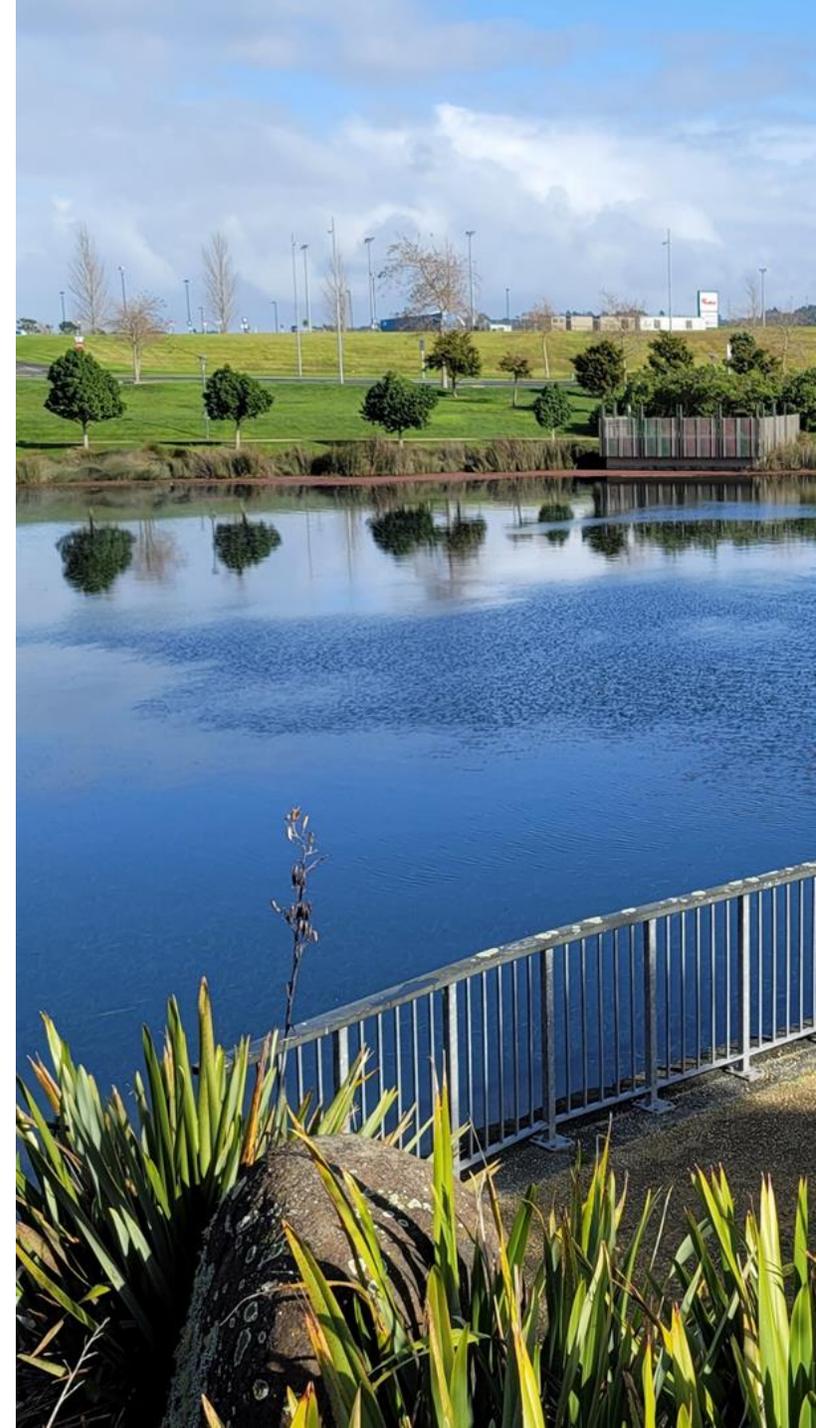


What we learned and what is next

- Reorganised Strategy into four pillars
- New programmes of monitoring
- Understanding of existing programmes
- Use of new technology
- Performance indicators and measures

Opportunities – pan-regional performance measures and associated assessment tools

- Centre of excellence
- Share expertise and knowledge
- Develop consistent performance measures
- Fund and develop tools and technology



Thank you!
Questions? Patai?