



From Assumptions to Facts

Shifting the Conversation to Better Manage Time, Effort and Money

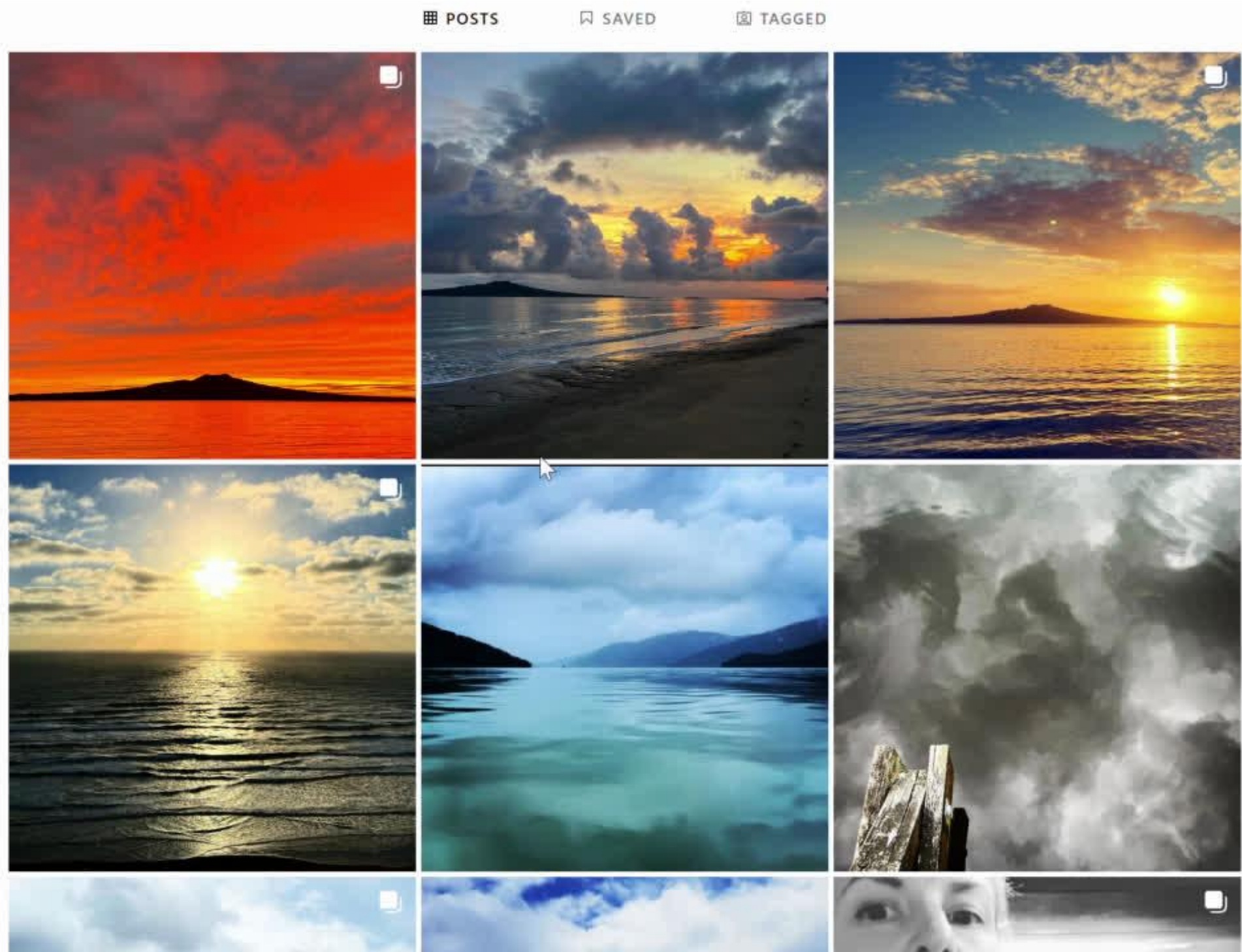
Abi Croutear-Foy



Proudly brought to you by Water New Zealand

Stormwater 2024

15–17 May | Takina Wellington Te Whanganui-a-Tara

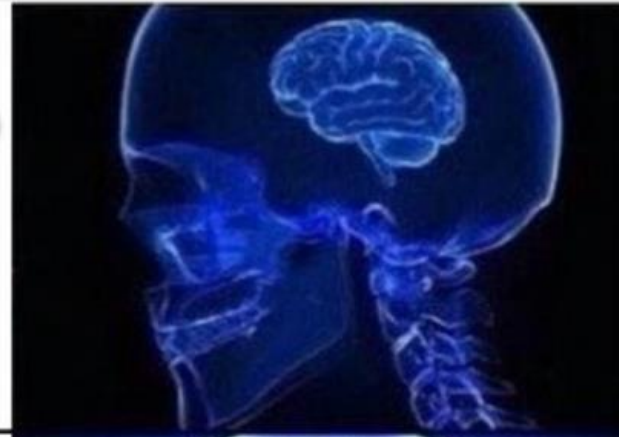


Proudly brought to you by Water New Zealand

Stormwater 2024

15–17 May | Takina Wellington Te Whanganui-a-Tara

**INTERMITTENT
DATA**



**CONTINUOUS
DATA**



**CONTINUOUS
INTERLINKED DATA**



**CONTEXTUALISED
CONTINUOUS
INTERLINKED DATA**



imgflip.com

**Data doesn't
change anything...**

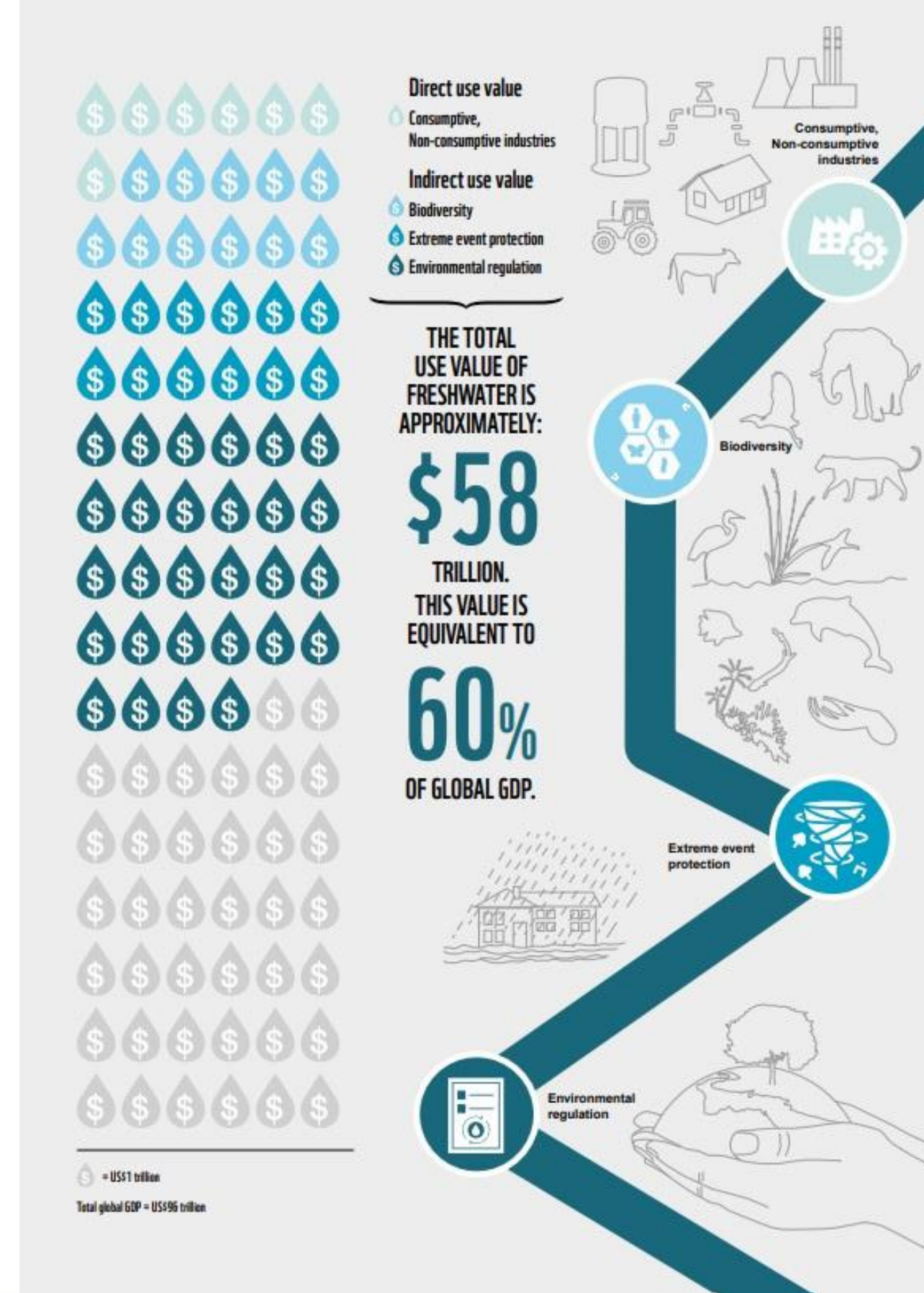
Yeah right.

**No, you're actually
right**

What is the value of water?

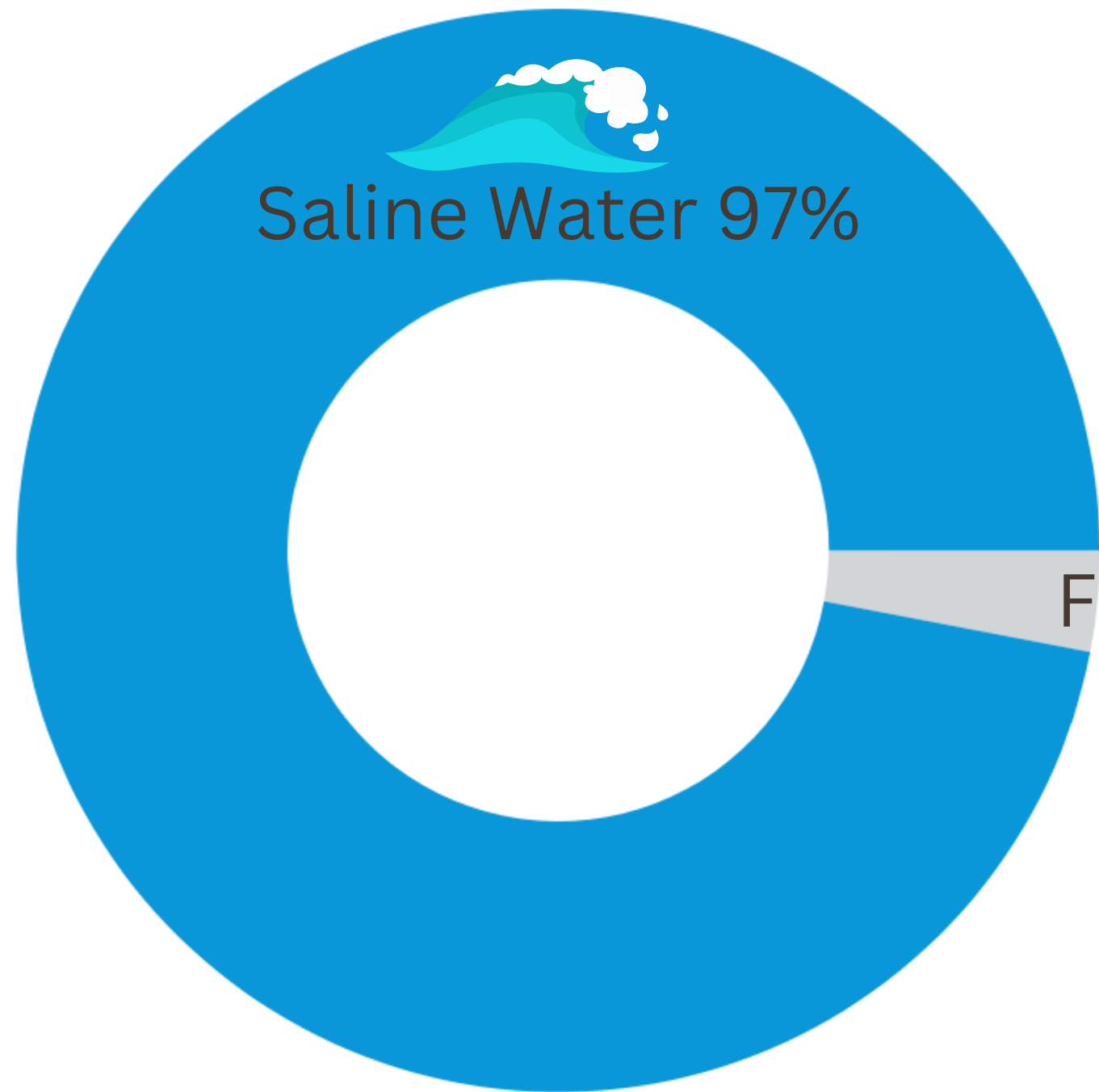
Total value of freshwater to our global economy is **\$58 Trillion**

WWF Report - The High Cost of Cheap Water
2023



Why is Freshwater Management Vital?

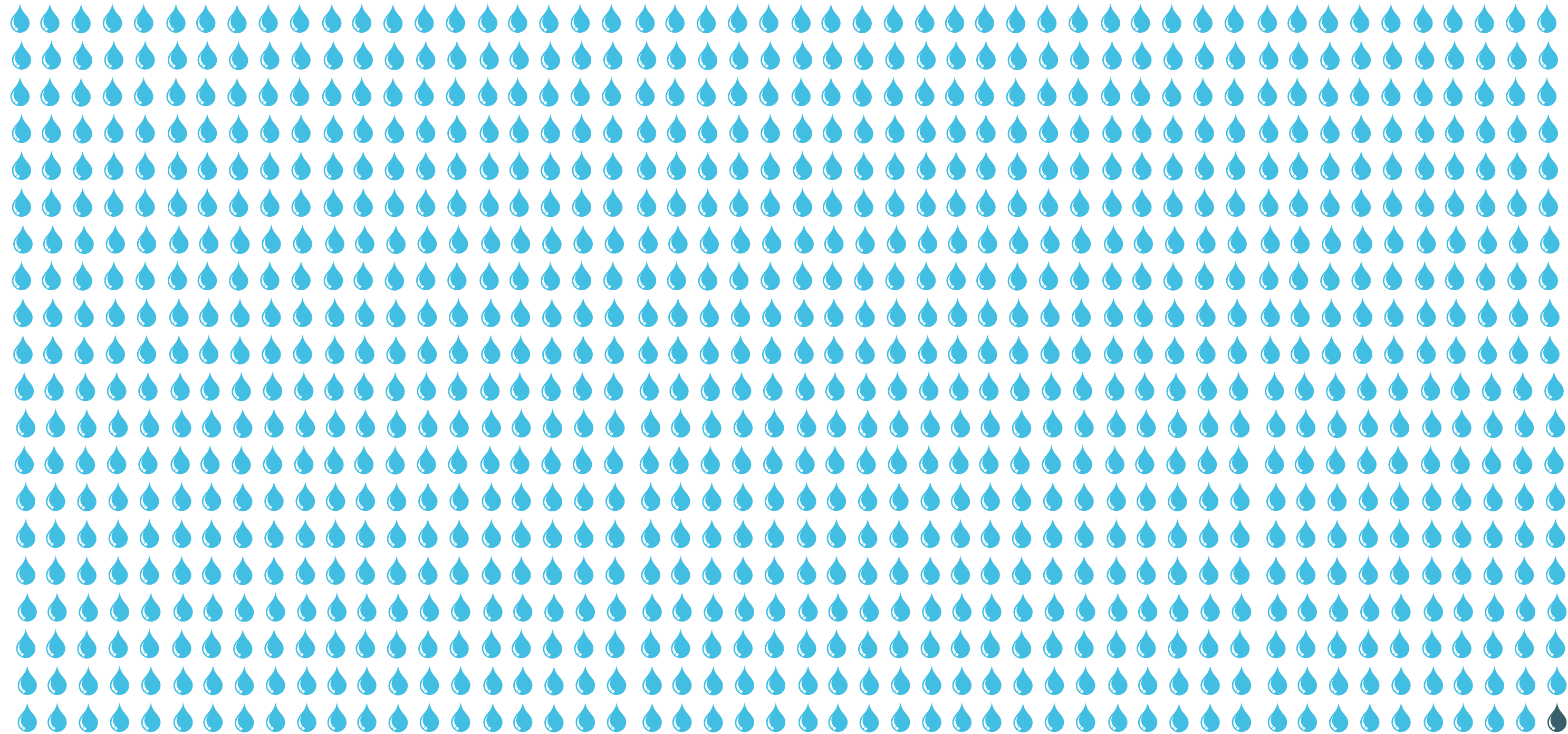
Earth's Total Water



Total Fresh Water



Freshwater 1/1000th of all Water on Earth





Risks Faced by Industry

The degradation of freshwater poses significant risks to industries such as mining, food production and manufacturing:

- Higher operational costs, particularly for meeting regulatory standards and ensuring safety and efficiency.
- Water quality degradation, particularly through nutrient runoff and pesticide contamination, directly affects crop yield and quality
- Potential litigation and a negative public image affects industries' social license to operate and long-term viability

Risk exposure

- Massive risk exposure for industry, society and ecosystems if poor water quality management continues
- Urbanisation strains stormwater systems, necessitating innovative solutions.
- We can't manage what we can't measure
- Imminent need for collaboration and emerging tech to converge meta data.
- The stewardship of freshwater resources necessitates an integrated approach in today's world.

Our beginnings

A Catalyst for Change - Pahaoa River's Decline

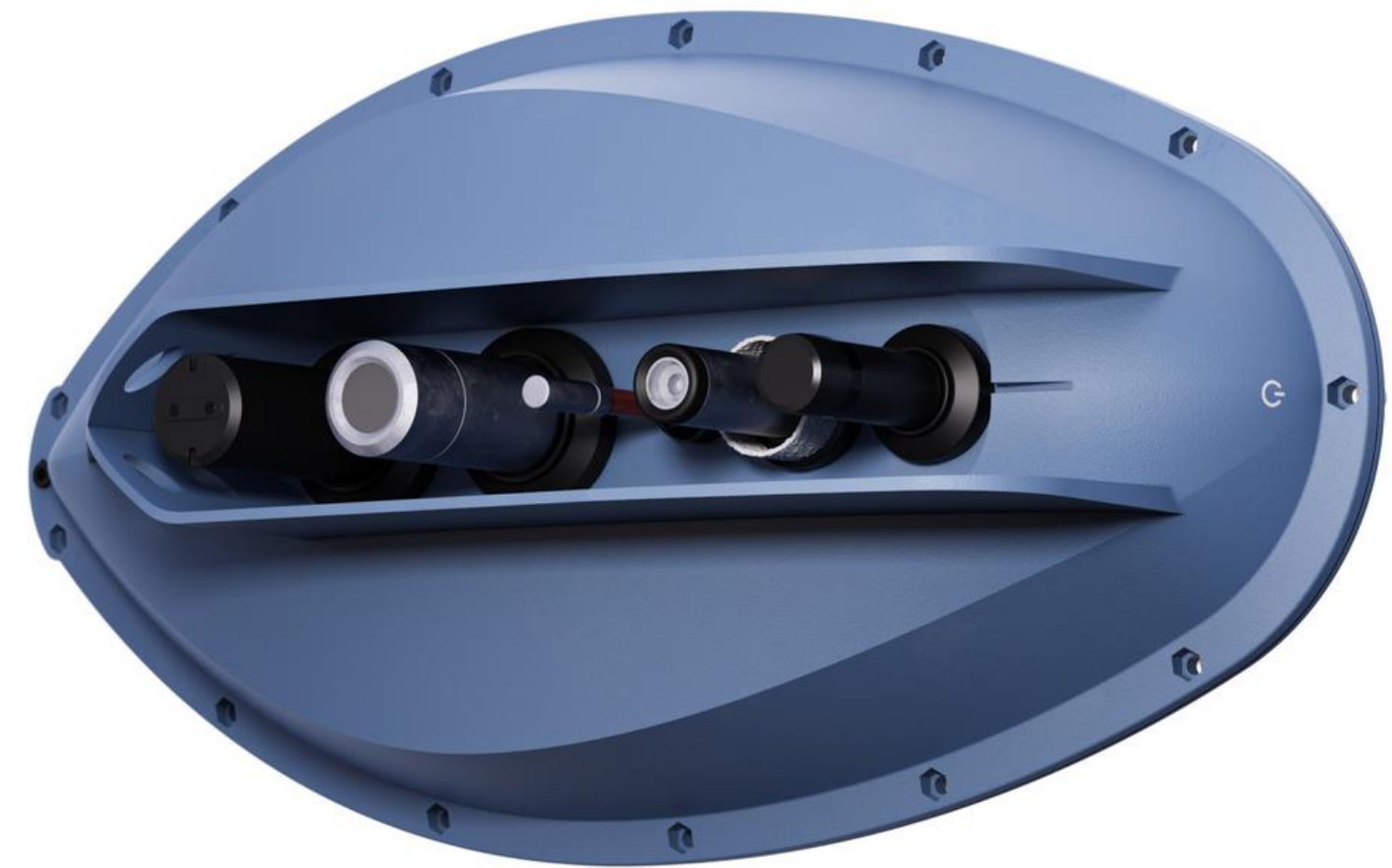
- **2005** - Pahaoa River, located on the cofounders' farm, was thriving
- **2009** - Pahaoa River dead and devoid of aquatic life.
- **2011** - Riverdog documentary released, winning multiple international awards.
- **2016** - Riverwatch founded by Grant and James Muir.



Evolution of our water monitoring technology

- Made it deployable
- Made it affordable
- Real-time water monitoring
- Created a relationship with our clients to provide the full service (calibration/servicing/analysis) required to enact change.

All of these advancements in technology and service combine to provide a conduit for the wai to speak to the whenua



How We Work

Real-life Solutions Delivered

Alerts (compliance, maintenance, incidents), tangible insights and trends via dashboard, SMS, API or reports

Our Hardware

AI Camera and Waka can be deployed at scale. With the ability to use Visual AI to add value straight out of the box



Integrate Information

Land use, permeable cover and overland modelling alongside assessments captured using video, and processed using Visual AI.

Data Collection

Visual and water quality information collected, analysed and sent via IoT connectivity

Algorithm Trains Itself

Iterative improvement from large data sets gathered

AquaWatch Environmental Intelligence

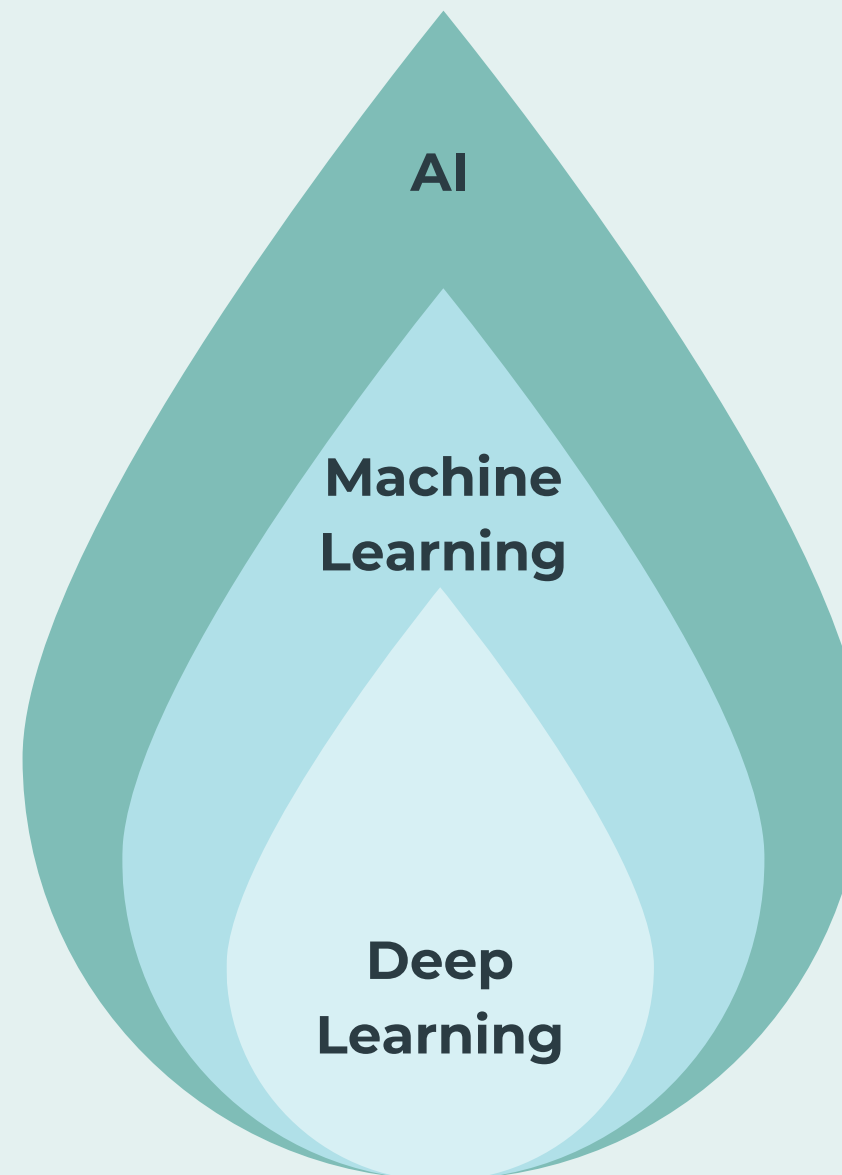
From Data to Insights to Action

“The biggest barrier to environmental AI is the lack of quantity and quality of training data”
Lynker Analytics

AI is an umbrella term for machines capable of perception, logic, and learning

Machine learning uses algorithms that learn from data to make predictions and improved performance when given training data

Deep learning uses multiple layered neural networks to build algorithms that find the best way to perform tasks on their own, based on vast data sets



Any technique which enables computers to mimic human behaviour

Subset of AI which uses statistical methods to enable machines to improve with experiences

Subset of ML which makes the computation of multilayer neural networks feasible



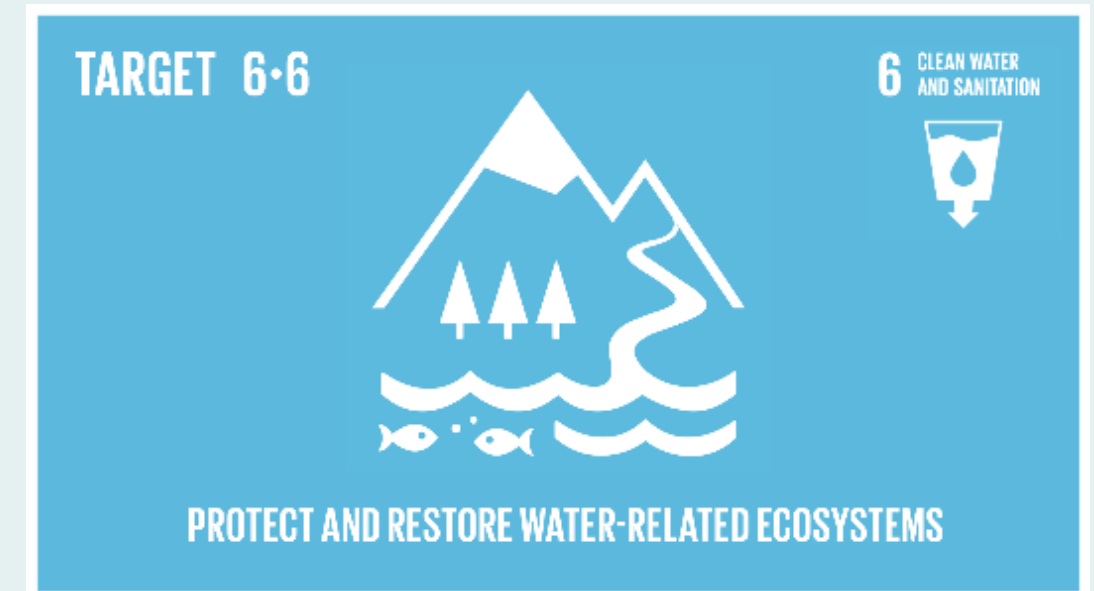
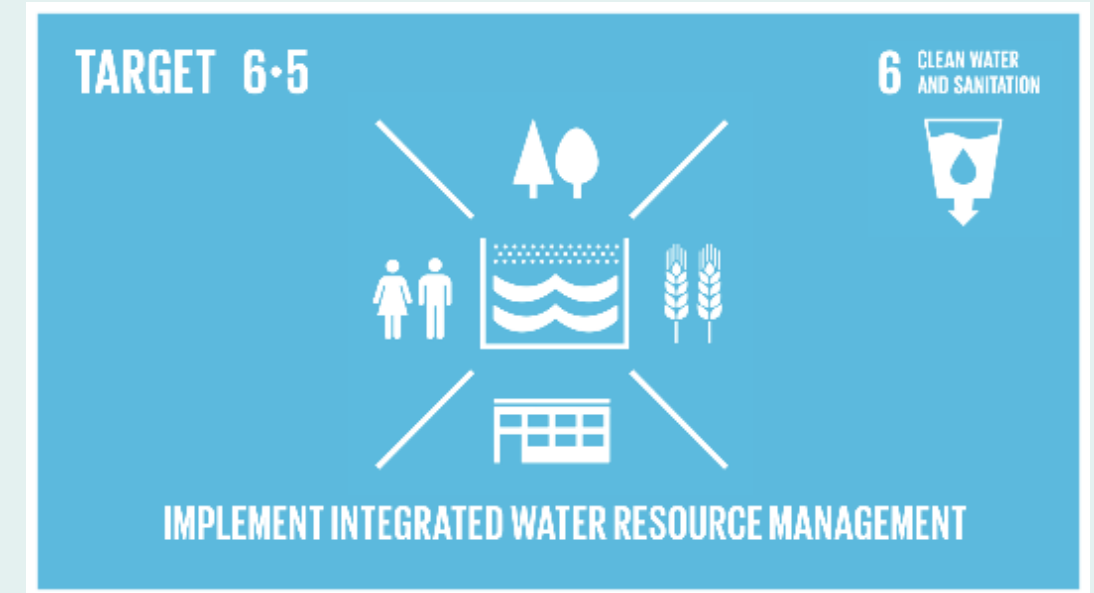
Benefits of Visual AI and Integrated Big Data

- Real-time data collection enables early issue detection and swift response.
- Enhanced accuracy provides detailed insights for targeted management strategies.
- Improved detection and response to issues minimise risks and optimise management.

The Problem



- Water management in the City of Canberra follows a reactive program.
- There is a gap in the collection of large, diverse datasets from multiple points along the same water body.
- This absence of continuous data, when coupled with the lack of visual information and land use patterns, constrains the development of predictive water management programs essential for enhancing environmental outcomes.



OMEXOM



Gross Pollutant Traps (GPTs)

Gross pollutant traps are structures designed to remove a range of pollutants from waterways, including rubbish, coarse sediments, litter and some types of oil.

The challenge:

Gross Pollutant Traps (GPT) are only inspected, on average two times per year.

There is no visibility of the status of the GPT's outside of these current inspections.

Without this visibility there is no ability for proactive maintenance or cleaning and no ability to determine whether a GPT is full or needs attention.









The Solution **OMEXOM VINCI**

Water Quality Sensors (WAKA)

Omexom will install WAKA's at different points of the Municipality's waterways.

WAKA consist of five sensors that measure water health key indicators of dissolved oxygen, turbidity, temperature, pH, and conductivity in real time.

Omexom will integrate this data into infrastructure management systems via API. This will provide real time water quality monitoring, streamlining Municipality's water quality monitoring programs.





Thank you!
Questions? Patai?



Abi Croutear-Foy
abi.cf@aquawatchsolutions.com
+64 27 334 2776
www.aquawatchsolutions.com



Proudly brought to you by Water New Zealand

Stormwater 2024

15–17 May | Takina Wellington Te Whanganui-a-Tara