Stantec

Operational impact assessment: A wastewater case study

Heretaunga | Hastings

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ŌTAUTAHI | CHRISTCHURCH

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The wider Stantec team, many of whom contributed to this work over three years from 2021

East Clive Wastewater Treatment Plant

Scan for a link to the video

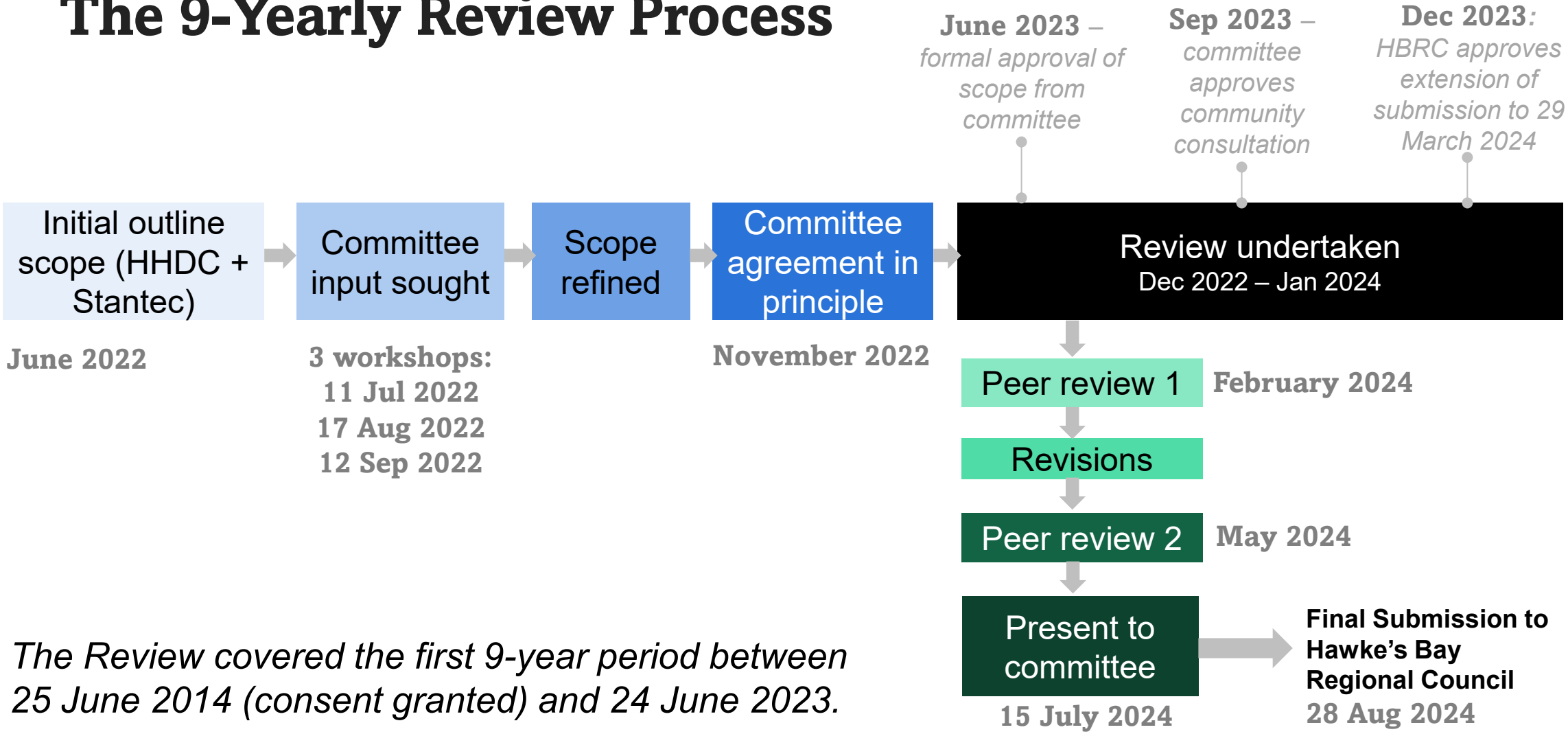
Consent-based evaluation

- 35-year term, conditional on 9-yearly reviews
- Result of extensive consultation including Tangata Whenua partnership approach
- Considers population changes since consent was granted, as well as trade waste inputs

- *Is this still the 'Best Practicable Option'?*
- *Are cultural objectives being achieved?*
- *Have there been any adverse or positive effects?*


The Rakahore Channel at East Clive WWTP, Feb 2024

The 9-Yearly Review Process



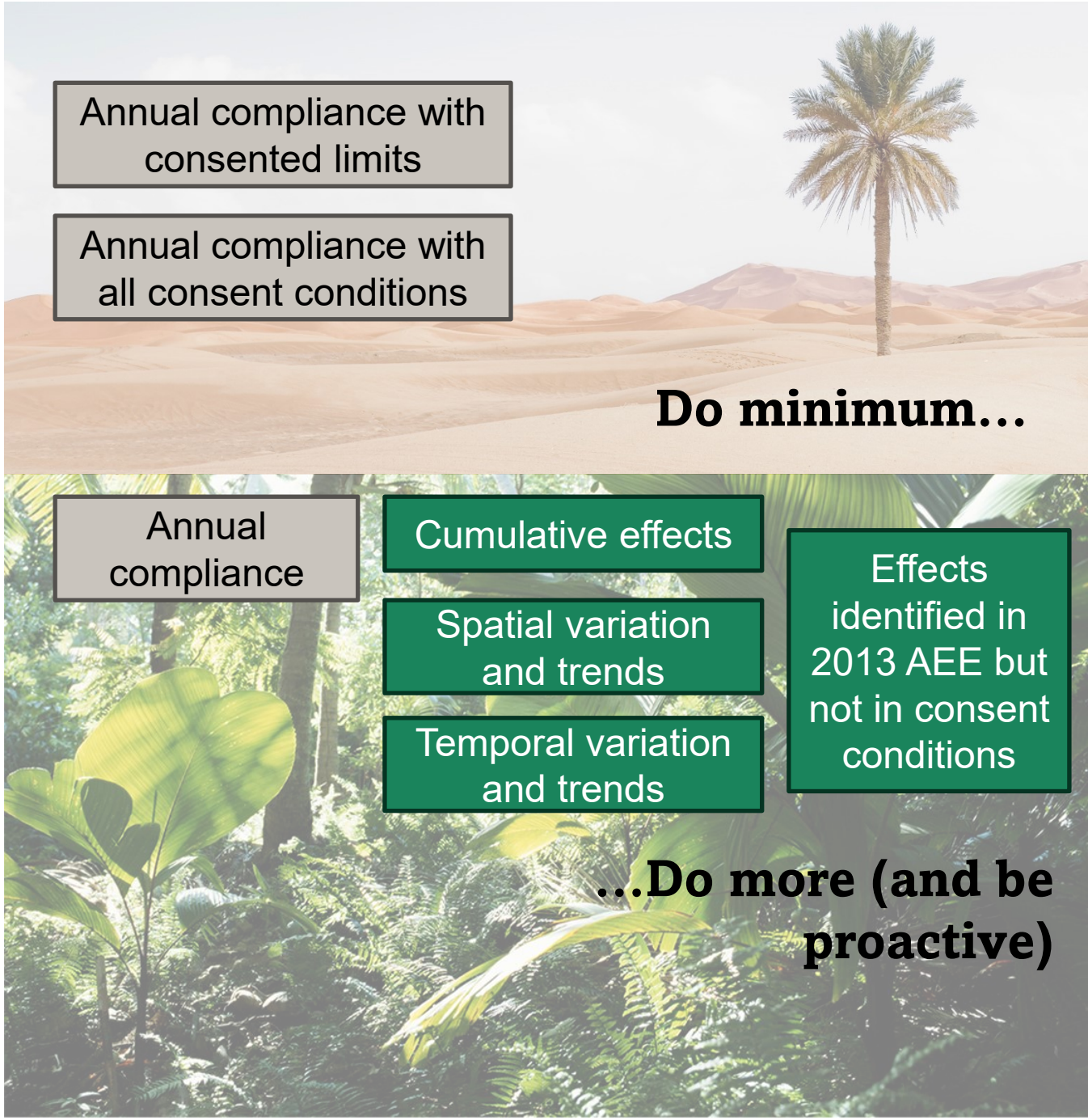
The Review covered the first 9-year period between 25 June 2014 (consent granted) and 24 June 2023.

Consent-based evaluation

"The Review Report shall address as a minimum, but not be limited to, the following matters for the nine year period since the last review:…

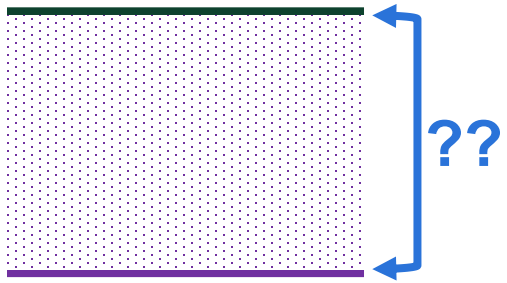
…Effects of the treated wastewater discharge into Hawke Bay as evident from the resource consent monitoring"

(Condition 27(i), AUTH-170712-01)



Impact (Effects) Assessment

Actual conditions observed since 2014



Baseline: Effects considered acceptable in 2013

Marine Water Quality (Hawke Bay)

- Suspended solids, colour, clarity
- Oil and grease
- Ambient water temperature
- Dissolved oxygen
- pH
- Nutrients

Aquatic Ecology

- Chemical toxicity
- Direct toxicity (to marine organisms)
- Benthic sediment
- Benthic ecology
- Bioaccumulation
- Marine mammals

Public Health

- Pathogens (Total faecal coliforms, enterococci as indicators)
- Shellfish gathering
- Contact recreation

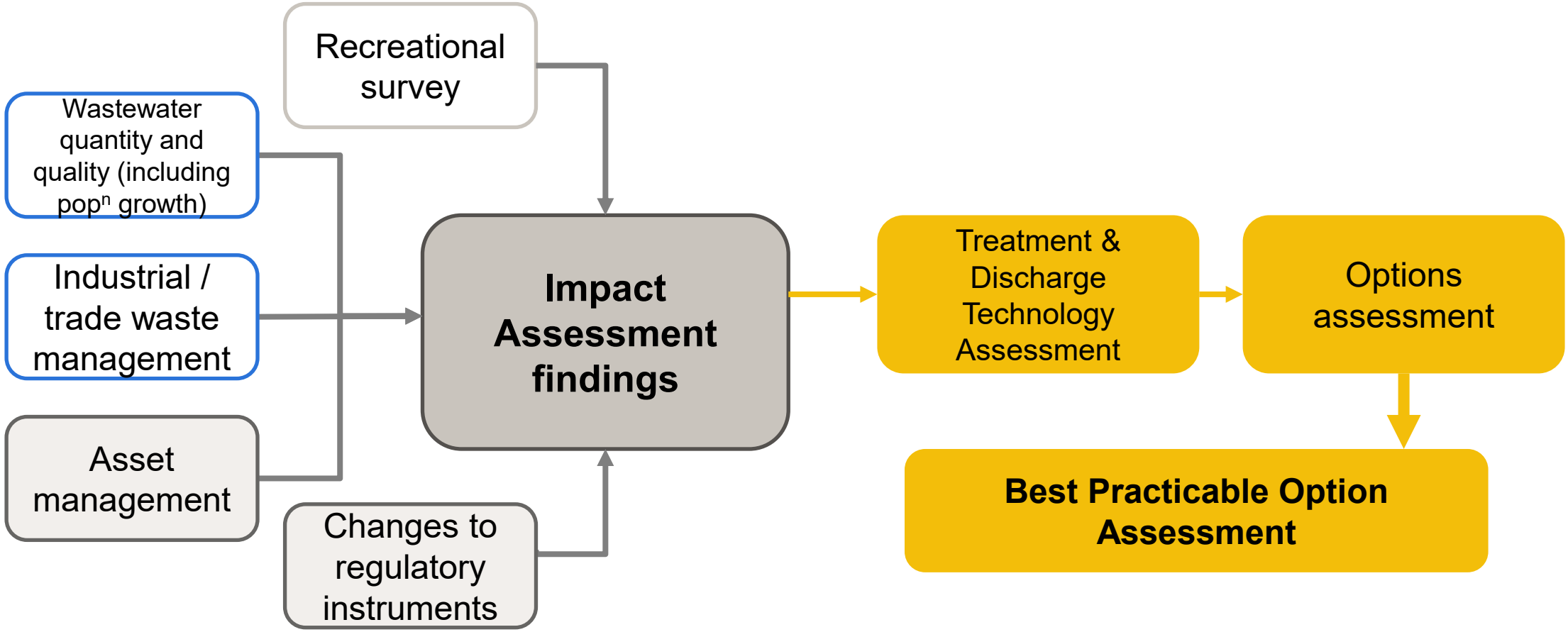
Other Effects

- Recreational values
- Commercial aquaculture
- Objectionable odour
- Emerging contaminants
- Separation from other discharges into Hawke Bay
- Cumulative effects

Impact (Effects) Assessment - Methodology

Identified effect	Condition(s)	Supporting evidence	Compliance with guidelines	Temporal / spatial changes	Consent compliance	Assessed overall change
Revisit effects identified in 2013 AEE (what constitutes an effect)	Link to any consent condition(s) explicitly addressing an effect	Compliance record, annual reports, monitoring data, stand-alone investigations	Where applicable, compare to published guidelines/ standards (e.g. ANZG 2018)	How the variable change over time (including seasons, within and between years) and spatially (e.g. over distance from outfall)	Level of compliance with relevant consent conditions (designed to help assess effects)	Based on all the information, was there: ➔Neutral / no change ↘ Improvement (or positive effect) ↗ Decline / adverse effect

Impact (Effects) Assessment – Linkages

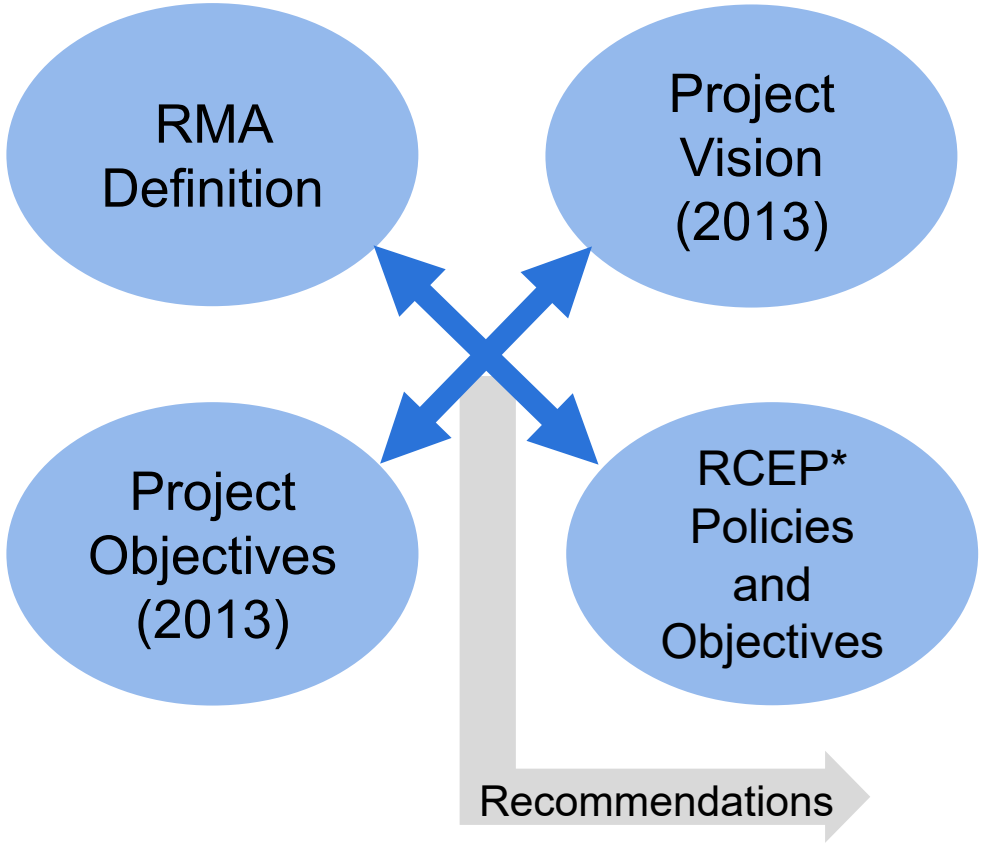


Impact (Effects) Assessment – Linkages

Best Practicable Option Assessment

Best Practicable Option as per the RMA 1991:

***"best practicable option**, in relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment…"*



*Hawke's Bay Regional Coastal Environment Plan

Challenges

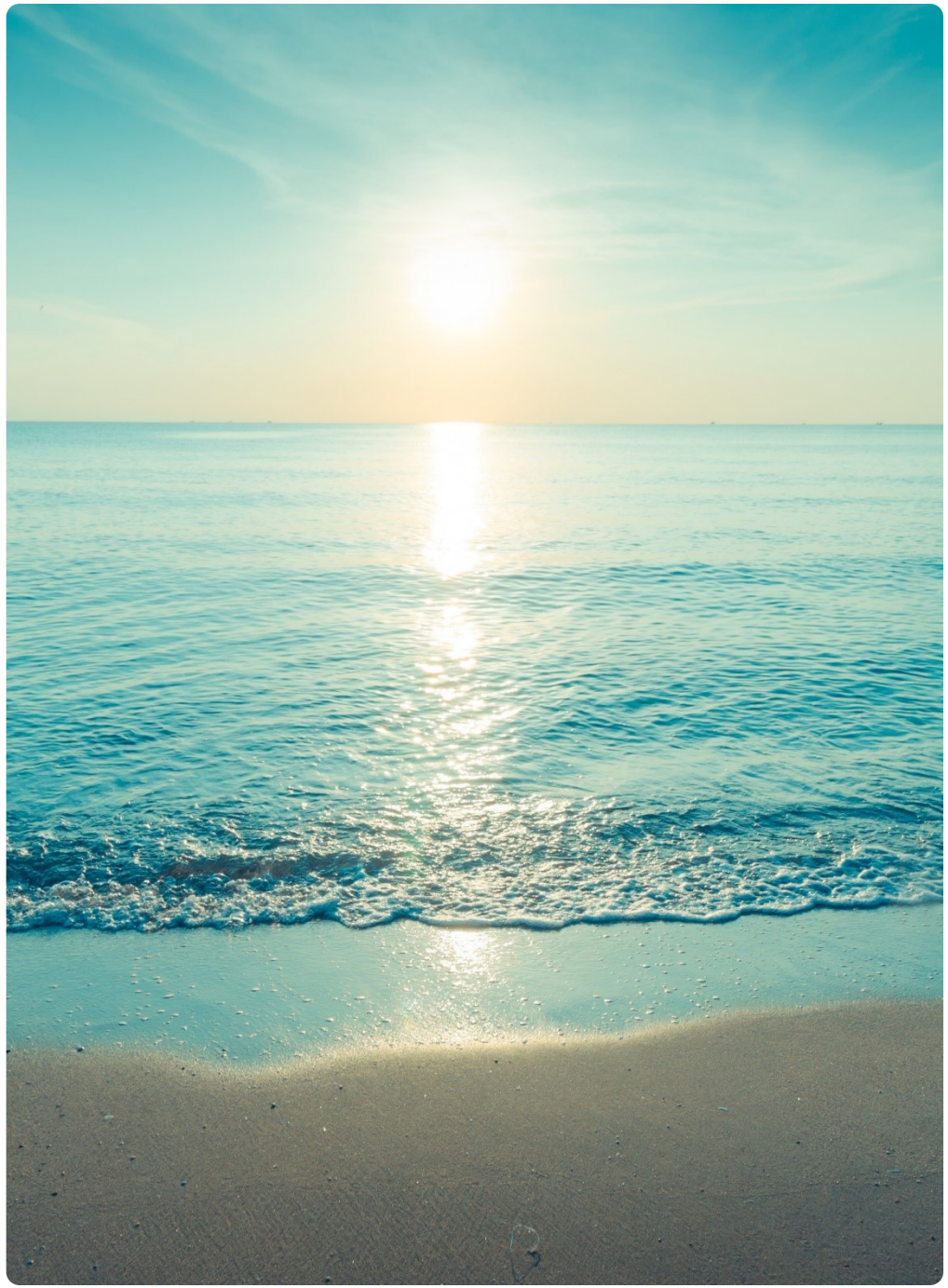
- Scope delineation and management of the review process (e.g. scope creep)
- Reaching consensus on population estimates
- Deciding on a cut-off date for the review period (allowing for compilation of assessment and report writing)
- Coordinating the need for meaningful cultural and community engagement with the time/effort needed to generate outputs to inform, as well as regulatory deadlines

Challenges

- Conveying a very technical assessment to a governing committee (workshop, peer review, etc.)
- Maintaining continuity and consistency of updates to the committee, given the duration of the review spanning multiple years
- Understanding and integrating additional scope items requested by the committee, and giving them appropriate attention
- Identifying issues vs solving them; understand past performance, identify areas requiring further work and develop solutions

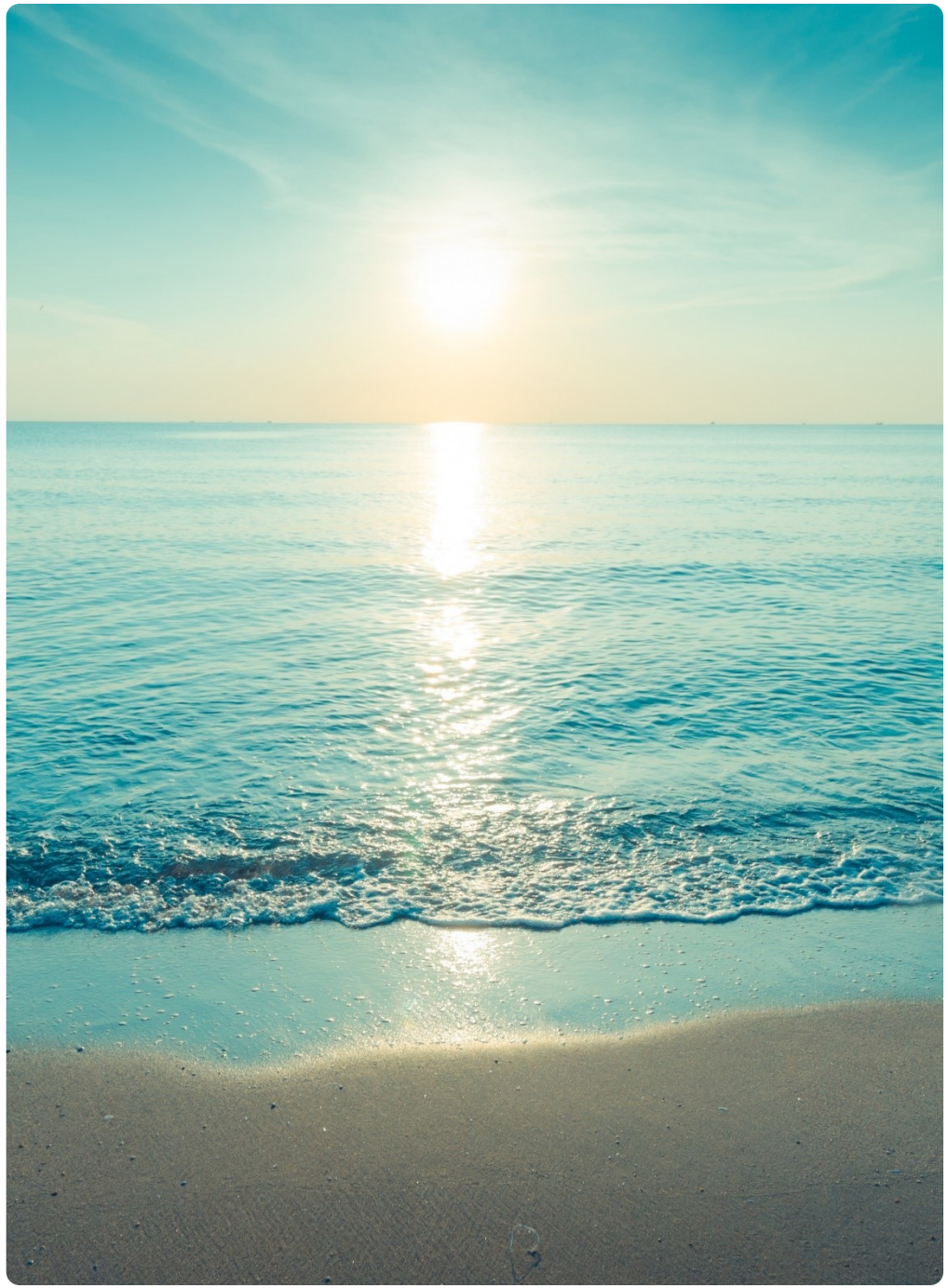
Benefits

- Opportunity to examine the ‘big picture’
- Step outside the bounds of ‘day-to-day operations’
- Evaluate the contemporary relevance of objectives and outcomes identified in consent application
- Evaluate the effectiveness of the consent – does it achieve what was intended in terms of effects?
- Confirming whether the right decisions were made when consent was applied for



Benefits

- Account for population growth since AEE was completed (2013)
- Identify opportunities to improve operational and economic efficiency
- Identify gaps in knowledge and resources; opportunities to improve level of understanding
- Adapting environmental monitoring to be appropriate and practically useful
- Strategic planning for the future



Review Outcomes

- The current treatment processes and operations of the East Clive WWTP continue to be the Best Practicable Option.
- Performance has been consistently good since 2014; consented trigger levels for flow and contaminant loads never exceeded
- WWTP has performed well even under extreme conditions (e.g. Cyclone Gabrielle, Feb/Mar 2023)
- Overall compliance with consent is good, only minor non-compliances (namely administrative or technical rather than effects-related)
- ‘No discernible effect’

“A cultural review is currently in progress. Once finalised, this review will complement the technical findings by ensuring that the cultural significance of the treatment plant's history is acknowledged, and that future directions reflect cultural considerations.”

- HHDC Website, Sept 2024

Review Outcomes

35 recommended actions for the consideration of HHDC and the HHDC-Tangata Whenua Wastewater Joint Committee, grouped under categories:

- Future-proofing
- Regulatory
- Consent conditions
- BPO
- Industrial/trade waste
- Cultural
- Public health
- Reporting
- Monitoring
- Community engagement

Actions were assigned provisional **low**, **medium** or **high** priority

(subject to Long Term Plan funding availability, and findings of the Cultural Review)

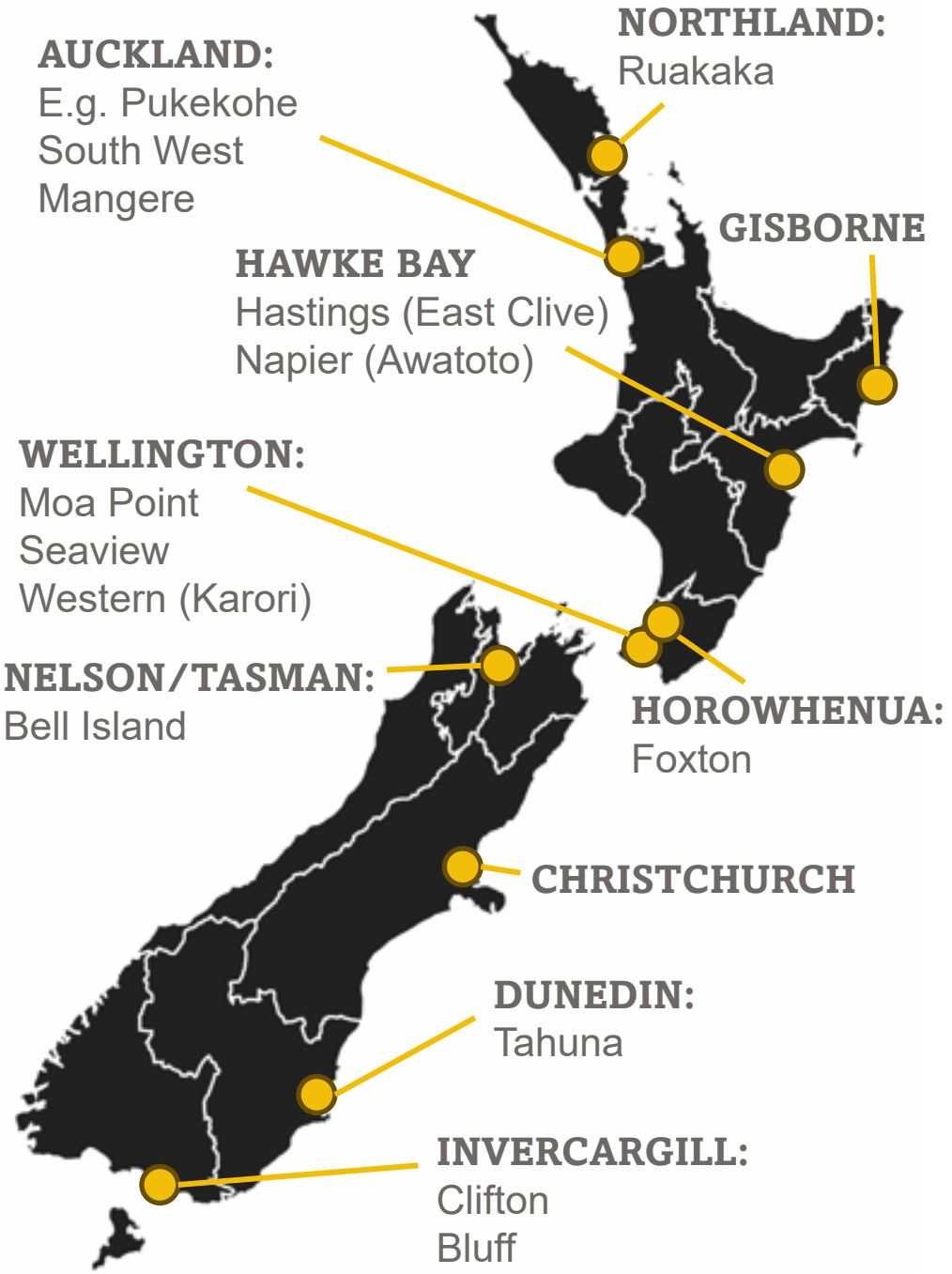
Consent-based evaluation

Elsewhere in New Zealand…*

WWTPs with discharge consents that include a regular "monitoring and technology"-type review, to justify a longer consent term (up to 35 years under the Resource Management Act 1991, as of Sept 2024).

**Examples, not an exhaustive list*

See also: Bourne, M.D. & McNamara, P.M.S. 2019 A 'How To Guide' for securing 35 year discharge consents, Water NZ 2019 Annual Conference Proceedings, 19 September 2019, available online at https://www.waternz.org.nz/Article?Action=View&Article_id=1801



What could operational impact (effects) assessment mean for you?

Questions to ponder:

1. Have you also been involved in ‘retrospective’ or operational impact assessment?
    a) If so, what were the challenges? How were they overcome?
    b) What were the benefits?
2. How could this practice become more commonplace? (e.g. what instruments or mechanisms could be used to introduce it?)
3. What should the outcomes be? E.g. Do consent-based reviews need more ‘teeth’/requirements to implement actions?

Stantec

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Ngā mihi nui
Thank you

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