CRU Coastal Ratepayers United

ROUND TABLE

8 FEBRUARY 2022

CRU's Public Submission at Council
December 10 2020

I am speaking to Council today in my official capacity as the newly appointed Chair of CRU.

First, I would like to address that the relationship between CRU and KCDC has not been a particularly successful one. This fact speaks for itself given the number of Court actions CRU has undertaken over the years. Unfortunately, the Council's response has been to reject CRU's substantial work and effort to resolve coastal hazard issues for the District. In our 2016 Court action, KCDC had ensured the court that the plan changes associated with coastal hazard provisions in the District Plan would require a further 4 years to complete – yet to date a plan change is nowhere in sight.

This, of course, continues to add to our misgivings and the credibility of KCDC to deliver as promised.

Secondly, there is the issue of the revolving door of staff. Over the last 8 years, CRU has dealt with over 5 different senior managers and senior staff on the issue of Coastal Hazards and the PDP. This churning of staff has been destructive to the Council's institutional knowledge. Your staff don't know what they don't know. Over the last 8 years, CRU, its members and its experts have contributed countless hours of work in producing a number of reports and recommendations on this issue.

And quite frankly, I'm not sure that the relevant staff officers have even read them or are familiar with the issues being discussed in these documents and reports.

This, of course, continues to add to our misgiving and credibility of KCDC to deliver as promised.

Next, I would like to raise the issue of the 24 July 2014 Council Resolutions and the Coastal Advisory Panel (CAP) - the issue before you today.

The 2014 Resolutions and in the spirit in which they were made, were very clear. At the time, Council endorsed the formulation of a Coastal Advisory Group (CAG). CRU at the request of KCDC worked with Stephen MacArthur to jointly produce the Terms of Reference for CAG. I have tabled those draft Terms of Reference for you, and ask that you note they are dated 7 October 2014. The version number is 7.

7 versions of the document went back and forth between Council and CRU. And then, Stephen MacArthur left and no further progress was made.

The membership of CAG was to include among others, submitters to the PDP and coastal landowners. Also at the request of KCDC, CRU submitted a proposed process, or a stepped project plan, for resolution of the coastal erosion hazard policy development for the PDP. Note that document is dated, 13 December 2014. Again, no further progress was made.

Hopefully you will now understand why we took Court action – because nothing had been done by KCDC to progress this matter.

We had assumed, and incorrectly, I might add that the CAP would build on this earlier work. The terms of the group would be set prior to the formation of the group with clear terms of reference. Instead, here, we have a situation where the cart is before the horse.

But what I do know and I can say with confidence is that the 2014 Council Resolution regarding CAG and these 2020 Recommendations regarding CAP are two different beasts. CAGs focus was on coastal hazard risk assessment and district plan rules as required under the New Zealand Coastal Policy Statement and the RMA, whereas CAP is developing a coastal adaptation plan, a non-statutory plan. You Councillors need to know that the legislative, or statutory planning process required to be completed by Council – and now well overdue is not a part of the CAP project.

The fact that we have yet another delay to district plan changes, of course, continues to add to our misgiving and credibility of KCDC to deliver as promised.

So where to from here, for CRU and KCDC.

As Chair of CRU, I would like nothing better than to say to my committee and our members that CAP is a process that we can trust and have confidence in. Unfortunately, at the moment I cannot make that statement.

Council needs to demonstrate that it is working towards a CAP which has genuine community mandate as was mandated by Council in the 24th July 2014 resolution.

For CRU this means that we are a part of CAP. If we are not included within CAP it will be much more difficult to have any confidence that the process is genuinely community-led, is making progress, and is representing the most directly affect members of the community.

I would like to be very clear, that excluding CRU can only increase the chances of challenges and further litigation from deeply affected groups who haven't been involved. All this will do is further stall progress on this issue, which will lead to it being taken out of Council hands.

We have been down this road before – as is evidenced by the two documents I have tabled for you - and CRU does not wish to go down this road again, it would be like turning back the clock to 2012 - in which Council uses ratepayers money for legal representation against its own ratepayers.

But this is the Council's decision to determine and mitigate the level of risk they are willing to take.

From our perspective, I would appreciate a partnership in which CRU and KCDC can work together to get the best possible outcome on Coastal Hazards and the PDP that benefit the Coastal community as a whole. This requires commitment, perseverance and trust...which both parties need to rebuild.

An open dialogue, input into the terms of reference that are genuinely regarded as valuable input as opposed to tokenism collaboration and inclusion into the CAP would be a place to start.

From: salima <spadamsey@yahoo.com>
To: Mayor K. Gurunathan <k.gurunathan@kapiticoast.govt.nz>; Councillor James Cootes <james.cootes@kapiticoast.govt.nz>; Councillor Jackie Elliott <jackie.elliott@kapiticoast.govt.nz>; Angela Buswell <angela.buswell@kapiticoast.govt.nz>; Councillor Gwynn Compton <gwynn.compton@kapiticoast.govt.nz>; Councillor Rob McCann <rob.mccann@kapiticoast.govt.nz>; Councillor Sophie Handford <sophie.handford@kapiticoast.govt.nz>; Councillor Jocelyn Prvanov <jocelyn.prvanov@kapiticoast.govt.nz>; Councillor Bernie Randall <bernie.randall@kapiticoast.govt.nz>; Councillor Martin Halliday <martin.halliday@kapiticoast.govt.nz>; Janet Holborow <janet.holborow@kapiticoast.govt.nz>
Sent: Friday, 19 November 2021, 10:31:09 GMT+13
Subject: CRU Update November 2021

Dear Mayor and Councillors,
Having had our AGM on the 13th of November, I'm sending you an update on various matters.

1. CRU/KCDC MEETINGS

I'm told that you've been briefed by the CEO about meetings between staff and CRU – if so, I'm surprised because there haven't been any.

To date, as Chair of CRU, I have only had one meeting with KCDC - on 9 December 2020 - but should note that I had an impromptu discussion with Sean Mallon on 26 October in the parking lot of Coastlands. In that conversation, Sean was primarily concerned about an email from our lawyer (Chris Mitchell) which he thought 'harsh'. CRU has approved the email (a copy of the short email chain is included at the bottom of this email).

At the beginning of March this year, I had requested a meeting with the CEO. On 11 March, I received a written response from Amanda Yannetta stating that on the advice of Sean Mallon, who was "*...not aware of any issues requiring escalation to the Chief Executive.*" As a result, my request for a meeting was denied.

Since then, I have made several requests for a meeting with the Council's Coastal Team (July 7, 13, 19, August 31, September 21), all of which were rejected.

You may all recall that I had requested a meeting with Council on 27 July to discuss CRU's position and issues relating to Council, which the Mayor also rejected using the Council's default position of the CAP process.

This is an extraordinary position for Council to take on any resident, let alone a group that represents several hundred residents. We will be naming the people within Council who think that this is an appropriate way for a Council to behave – more on this below.

To date, there is no meeting planned between KCDC and CRU.

2. SCIENCE

On 5 October, Jacobs submitted a document entitled, "**Response to CRU comments on Volume 1 Methodology Report**" to Council. CRU received this document on 13 October. If you are interested it *may* be on Council's website.

I would like to bring to your attention to Jacobs' statement on page 1, "It is further noted that the primary purpose of the Jacobs work is to assess the nature and extent of the coastal hazards facing the Kapiti Coast District currently and in the future with *sea-level rise for use in guiding community adaptation planning*. Any use of the assessment results in a District planning context is the responsibility of Council..."

The inference of this statement is that the Jacobs reports are not intended for the purposes of the district plan and if the Council wants to use it for that purpose, then this is up to Council. I should note, the approach that Jacobs has used is contrary to the NZCPS, which is a requirement for district planning (ie Council must comply with NZCPS). Consequently, the approach that they are taking could very well capture more than the1800 homes in the discredited 2012 Shand Report.

3. MEETING WITH JACOBS

On 18 November, CRU confirmed our availability to meet with Jacobs on 23 November at 1:30 pm. The processes that have been agreed to regarding this meeting are:

- The meeting will not be recorded
- A summary of outcomes (feedback) will be prepared.
- No KCDC officers will be at the meeting – but I understand that either there will be an agreed report, and if not, Jacobs will report to Council.

4. LIMs

On 19 October, CRU sent Council a letter regarding the issue of LIMs with a reminder of the 2013 Judicial Review (Weir Case) where the Judge set a clear expectation around the process. **The public advice from the Mayor and others seemed to be unaware of this process**

We received a response from Tim Power on 21 October. In his email, Tim states:

"We are happy to meet with CRU to discuss the proposed wording to be included on LIMs once Council receives the second Jacobs report. We agree that the wording to be included on LIMs has nothing to do with the CAP process.

We will not include any reference to the report on LIMs until such time as we have met with CRU (and potentially other interested parties). Note, we have not yet received the second Jacobs report."

No meeting has occurred.

However, a LIM report issued on 26 October obtained by CRU states on page 7:

"The Council has commissioned a coastal hazard report titled "Kapiti Coast Coastal Hazard Susceptibility and Vulnerable Assessment" from consultancy firm Jacobs. Volume 1: Methodology report, developed to provide technical information on the methods of how the areas susceptible to present and future coastal hazards are being calculated, is now available. LIM information will be updated with Volume 2: The results report, once it becomes available."

We have raised this issue with Tim Power.

Yesterday we received his response in which he stated, · "*We are currently clarifying the LIM position with the CAP, so once we resolve that I will come back to you with the proposed approach.*"

This kind of floundering - "**LIMs has nothing to do with the CAP process**" to now, "**...clarifying the LIM position with CAP**" is very unhelpful.

5. CAP

You should be aware that CAP members, and the technical experts that they are working with, need to understand the distinction between "**coastal risk assessment**" (relating to the requirement under the NZCPS policy 24) and "**coastal risk management**" (relating the requirement under the NZCPS policy 25 and 27).

Each has very different and separate knowledge requirements.

In 2015, CRU members and technical experts met with Dr Jan Wright, the then Parliamentary Commissioner for the Environment.

She too recognised this critical differentiation between risk assessment and risk management and outlined her ideas on the different roles and expectations of technical analysts (who prepare scientific assessments) versus communities and decision-makers, who consider and determine management options to take in light of the identified hazard risk assessments. The Commissioner's output report titled, *Preparing New Zealand for rising seas: Certainty and Uncertainty,* represents this distinction as part of the good planning we desire. That practice must first be backed by good science – which will lead the community to the implementation of good law in relation to coastal hazards identification and mitigation in the district.

6. CRU AGM

On 13 November, **CRU held its 9th AGM.** This year, taking into consideration the formation of the Council's Takutai Kapiti initiative and the appointment of 6 Community panel members, we invited CAP's Chair, Mr Jim Bolger to be our keynote speaker. We were delighted that Mr Bolger accepted our invitation and he brought along Mr Martin Manning and Ms Susie Mills.

Mr Bolger's presentation and the Q&A that followed gave our members insight into the process and science that CAP will be using. Of particular interest was CAP's engagement with Mr James Renwick. We also now have a better understanding regarding public participation in the process, the limited submission process and the reliance on Council

staff. It is clear that Mr Bolger does not envisage a public process – at least in terms of information sharing, dialogue with the community including formal meetings and hearings, and records of CAP's deliberations. There is a range of issues on which Mr Bolger has clearly made up his mind.

This is the process that you (the elected members) and management have told us to follow. To say that the 60 or so members who attended the meeting were disappointed in this approach would be an understatement.

As a result, our members requested clarity regarding the CAP process. To that effect, we have submitted an official information request to the Council. I have attached it for your reference. The information should be readily available in Council and we have asked for a prompt reply. Sadly, on past experience, we do not expect one.

Our intention is to brief the wider community in December on the CAP process, whether or not the information is provided in time. At this time CRU will repeat its concern that not only management, but a number of named elected members have declined to meet with the largest residents group in the District (representing a community that contributes over 10% of its rates) on the basis that they would prefer that we participate in the secretive and muddled exercise that is currently CAP.

I hope that this gives you, our elected officials an understanding of CRU's current position on matters relating to Coastal Hazards.

Regards,

Salima Padamsey
Chair - Coastal Ratepayers United

Coastal Hazards

Risk Identification/Assessment and Hazard Management under RMA/NZCPS

Katharine Moody, Senior Tutor
Massey University, School of People, Environment & Planning

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CRU Technical Advisors

Specialist inputs in brackets

Simon Arnold (energy, risk management, public policy and climate change)

Dr Jeff Ashby (geology, geomorphology and climate change)

Dr Willem de Lange (earth sciences, coastal hazards and numeric modelling)

Dr Paul Dunmore (physics, mathematics, accounting and business administration)

Dr Bryce Wilkinson (economics, policy analysis and decision-making under uncertainty)

CRU's Technical Submissions to Jacobs regarding Volume 1: Methodology (and Jacobs' response to CRU) can be found at https://www.cru.org.nz/science-2021

Use tabs: CRU 2021 > Science 2021

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- Planning Law: RMA and NZCPS

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Planning Law: RMA and NZCPS

Resource Management Act (RMA) Hierarchy of Plans

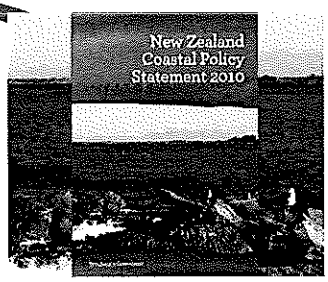
National Policy Statements

National Environmental Standards

Regional Policy Statements

Regional Plans

District Plans



At the bottom of the planning hierarchy, the District Plan is bound by the higher plans and policy statements. Specifically, the District Plan must legally implement the policy requirements set out in the NZCPS

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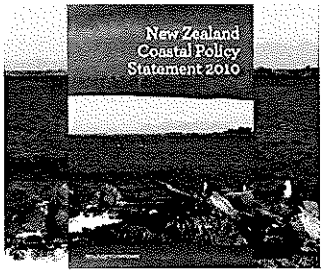
New Zealand Coastal Policy Statement (NZCPS): Definition of "Risk"



Risk
Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence (AS/NZS ISO 31000:2009 Risk management – Principles and guidelines, November 2009).

https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/new-zealand-coastal-policy-statement-2010/glossary/

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NZCPS Risk Management Framework

RISK ASSESSMENT **Objective – Physical Science**

NZCPS Policy 24: Identification of coastal hazards

RISK MANAGEMENT **Subjective – Decision-making**

NZCPS Policy 25: Subdivision, use, and development in areas of coastal hazard risk

NZCPS Policy 27: Strategies for protecting significant existing development from coastal hazard risk

These are separate and distinct tasks – and that distinction is materially important in law. Considerations regarding the potential options for the management of coastal hazard risk must be based on a risk assessment that (in legal terms) "gives effect to" NZCPS Policy 24.

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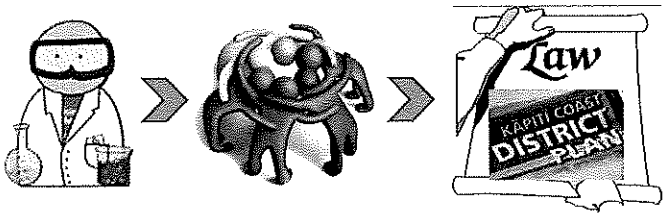
NZCPS Risk Management Framework

Policy 24: Identification of coastal hazards

1. Identify areas in the coastal environment that are potentially affected by coastal hazards (including tsunami), giving priority to the identification of areas at high risk of being affected. Hazard risks, over at least 100 years, are to be assessed having regard to:

a) physical drivers and processes that cause coastal change including sea level rise;
b) short-term and long-term natural dynamic fluctuations of erosion and accretion;
c) geomorphological character;
d) the potential for inundation of the coastal environment, taking into account potential sources, inundation pathways and overland extent;
e) cumulative effects of sea level rise, storm surge and wave height under storm conditions;
f) influences that humans have had or are having on the coast;
g) the extent and permanence of built development; and
h) the effects of climate change on:
   i. matters (a) to (g) above;
   ii. storm frequency, intensity and surges; and
   iii. coastal sediment dynamics;

taking into account national guidance and the best available information on the likely effects of climate change on the region or district.



Policy 25: Subdivision, use, and development in areas of coastal hazard risk

In areas potentially affected by coastal hazards over at least the next 100 years:

a. avoid increasing the risk of social, environmental and economic harm from coastal hazards;
b. avoid redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards;
c. encourage redevelopment, or change in land use, where that would reduce the risk of adverse effects from coastal hazards, including managed retreat by relocation or removal of existing structures or their abandonment in extreme circumstances, and designing for relocatability or recoverability from hazard events;
d. encourage the location of infrastructure away from areas of hazard risk where practicable;
e. discourage hard protection structures and promote the use of alternatives to them, including natural defences; and
f. consider the potential effects of tsunami and how to avoid or mitigate them.

Risk – as defined in the Glossary.

Policy 27: Strategies for protecting significant existing development from coastal hazard risk

1. In areas of significant existing development likely to be affected by coastal hazards, the range of options for reducing coastal hazard risk that should be assessed includes:
   a. promoting and identifying long-term sustainable risk reduction approaches including the relocation or removal of existing development or structures at risk;
   b. identifying the consequences of potential strategic options relative to the option of "do-nothing";
   c. recognising that hard protection structures may be the only practical means to protect existing infrastructure of national or regional importance, to sustain the potential of built physical resources to meet the reasonably foreseeable needs of future generations;
   d. recognising and considering the environmental and social costs of permitting hard protection structures to protect private property; and
   e. identifying and planning for transition mechanisms and timeframes for moving to more sustainable approaches.
2. In evaluating options under (1):
   a. focus on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions;
   b. take into account the nature of the coastal hazard risk and how it might change over at least a 100-year timeframe, including the expected effects of climate change; and
   c. evaluate the likely costs and benefits of any proposed coastal hazard risk reduction options.
   d. Where hard protection structures are considered to be necessary, ensure that the form and location of any structures are designed to minimise adverse effects on the coastal environment.
   e. Hard protection structures, where considered necessary to protect private assets, should not be located on public land if there is no significant public or environmental benefit in doing so.

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The work of Jacobs and planning law – objective physical science

Policy 24: Identification of coastal hazards

1. Identify areas in the coastal environment that are potentially affected by coastal hazards (including tsunami), giving priority to the identification of areas at high risk of being affected. Hazard risks, over at least 100 years, are to be assessed having regard to:

a) physical drivers and processes that cause coastal change including sea level rise;
b) short-term and long-term natural dynamic fluctuations of erosion and accretion;
c) geomorphological character;
d) the potential for inundation of the coastal environment, taking into account potential sources, inundation pathways and overland extent;
e) cumulative effects of sea level rise, storm surge and wave height under storm conditions;
f) influences that humans have had or are having on the coast;
g) the extent and permanence of built development; and
h) the effects of climate change on:
   i. matters (a) to (g) above;
   ii. storm frequency, intensity and surges; and
   iii. coastal sediment dynamics;

taking into account national guidance and the best available information on the likely effects of climate change on the region or district.

The work of CAP and planning law – subjective decision-making

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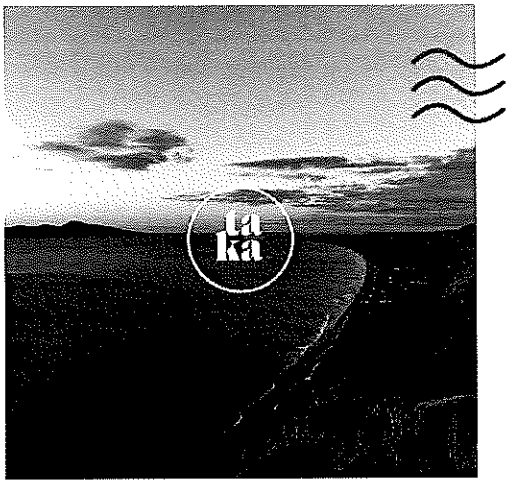
Policy 25: Subdivision, use and development
Policy 27: Strategies for existing development

The Outcomes
Takutai Kāpiti will deliver recommendations on coastal adaptation options for Council's consideration.

The recommendations, including any potential costs, legislative requirements and benefits associated with those options, should also guide development of District Plan provisions to manage coastal issues and an approach for the district dealing with coastal hazards. These recommendations will be evaluated by the Council as part of the development of the future coastal plan change.
https://takutaikapiti.nz/



The basis for equitable decision-making relies on robust science.

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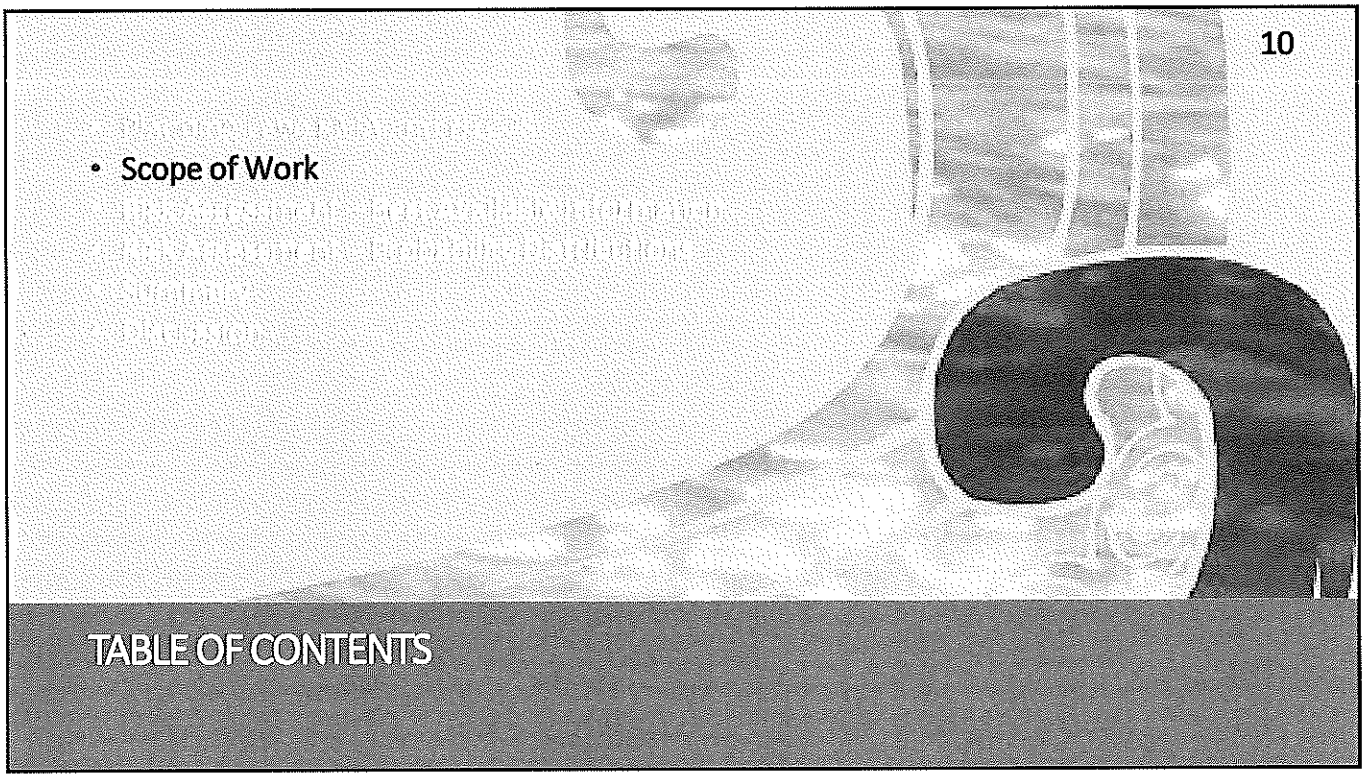
- **Scope of Work**



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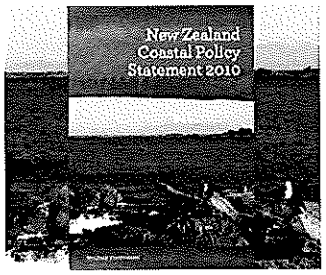
Scope of Works – KCDC/Jacobs

Jacobs *Volume 1: Coastal Hazard Susceptibility and Vulnerability Assessment: Methodology* does not give effect to NZCPS Policy 24.



And, if Jacobs *Volume 2: Coastal Hazard Susceptibility and Vulnerability Assessment* is based on this methodology, then the assessment itself will not give effect to NZCPS, and therefore reliance on it will not be suitable for making recommendations in relation to the District Plan.

Jacobs acknowledge in *Volume 1: Coastal Hazard Susceptibility and Vulnerability Assessment: Methodology* that they have not completed a risk assessment when describing their Scope of Works, in stating; –

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Scope of Works

Jacobs (2021). Volume 1: Coastal Hazard Susceptibility and Vulnerability Assessment: Methodology

"It is noted that the original Scope of Works for the coastal hazard assessment referred to a Risk assessment. Risk is commonly defined to be likelihood x consequence, with the consequence component of the equation including the consideration of the full range of economic, social, cultural, and environmental consequences. Risk assessments also commonly include consideration of the above consequences on strategies and actions for dealing with the impacts of the hazards. However, consideration of the full range of these consequences and possible remediation/adaptation actions is both outside the scope of this assessment, and best considered in the Phase Two (community engagement) part of the Takutai Kāpiti project. ***Therefore, we have re-defined the assessment to be coastal hazard vulnerability rather than coastal hazard risk***" (Jacobs, 2021, p.8, para.1)

Emphasis added, text in red misinterprets the RMA/NZCPS risk management framework. The matters in red are not part of hazard identification (risk assessment) under NZCPS Policy 24.

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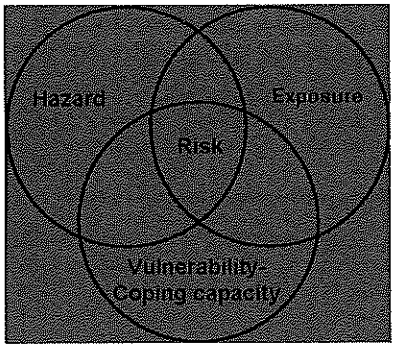
Scope of Works – Vulnerability vs Risk

- Vulnerability is not a defined term in the NZCPS. It is used in the full legislative document elsewhere, but not in any of Policies 24, 25 or 27.
- Risk is a defined term in the NZCPS. It is used in <u>all</u> of Policies 24, 25 and 27.
- Vulnerability is the inability to resist a hazard or to respond when a disaster has occurred.
- Vulnerability is one-only component of Risk/Risk Assessment.
- Risk (all its components) must be lawfully assessed <u>first</u> under NZCPS Policy 24 in order for CAP to plan for a response under NZCPS Policies 25 and 27.
- Nowhere in NZCPS Policy 24, (or in the Venn diagram - right) are the matters quoted in red (previous slide) a component of risk assessment.



Intersection of hazard, exposure, and vulnerability yields the risk (Reese & Schmidt 2008, p.5)

- In the context of coastal hazard Risk Assessment (NZCPS Policy 24), the <u>consequences</u> are erosion and inundation and the <u>likelihood</u> quantifies the degree of exposure to the hazard.

https://niwa.co.nz/natural-hazards/hazards/risk-and-vulnerability

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Parliamentary Commissioner for the Environment (PCE, 2015) on Risk Assessment versus Risk Management

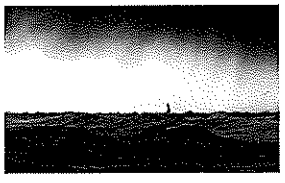
"Also needed is a clear distinction between the role of technical analysts who undertake coastal risk assessments and the role of the decision-makers who sit around council tables.

"Because current government policy on sea level rise emphasises the need to take a 'precautionary approach', technical analysts have been embedding 'precaution' into coastal risk assessments to varying degrees. This takes various forms such as assuming 'high end' amounts of sea level rise.

"But undertaking a coastal risk assessment is very different from designing a building or a bridge where redundancy and safety factors are intrinsic to the design. Technical assessments of coastal risk should be based on best estimates of all the parameters and assumptions that are fed into the modelling. Decision-makers should then take the modelling outputs including estimates of uncertainty, and then openly and transparently decide how cautious to be in delineating hazard zones"

Preparing New Zealand for rising seas:
Certainty and Uncertainty

November 2015



Parliamentary Commissioner for the Environment

(PCE, 2015, 'Overview', p. 6).

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Parliamentary Commissioner for the Environment (PCE, 2015) on Risk Assessment versus Risk Management

8.5 Separating scientific assessment and decision-making

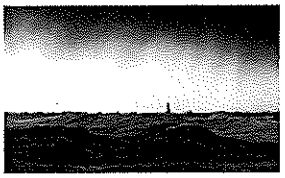
"During this investigation, it has become clear that precaution is being embedded into scientific assessments of coastal hazards, sometimes to an extreme extent.

In the Kapiti situation, Justice Williams concluded that there was "a good argument" for describing the result of the coastal assessment as the "very worst case scenario"[1]. Judgements, such as those involved in adding safety margins or setting restrictions on development, should be made transparently by decision-makers, not rolled into technical assessments.

The standard results of running a coastal hazard model should instead be probability distributions with most likely values and ranges of potential values expressed with a level of confidence" (PCE, 2015, p.77).

Preparing New Zealand for rising seas:
Certainty and Uncertainty

November 2015



Parliamentary Commissioner for the Environment

[1] *Weir v Kapiti Coast District Council* [2013] NZHC 3522, at para 71

Jacobs (2021) does not provide probability distributions; it uses unlikely values within the range of values expressed; and it has embedded precaution in using multiple conservative assumptions and models.

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The key aspects of Risk Identification/Assessment under NZCPS Policy 24 that Jacobs (2021) does not give effect to.

The work of Jacobs and planning law – objective physical science

Policy 24: Identification of coastal hazards

1. Identify areas in the coastal environment that are potentially affected by coastal hazards (including tsunami), giving priority to the identification of areas at high risk of being affected. Hazard risks, over at least 100 years, are to be assessed having regard to:

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taking into account national guidance and the best available information on the likely effects of climate change on the region or district.

1. The work fails to incorporate the best available information
2. The work fails to assign probabilities and embeds hidden conservative assumptions

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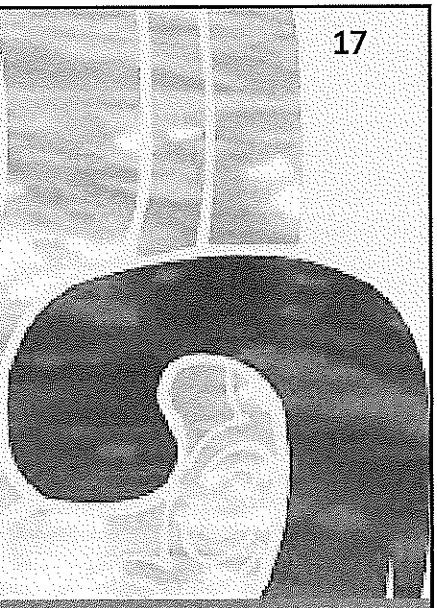
- **Risk Assessment – Best Available Information**



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Legal matters not given effect to in Jacobs 2021

Policy 24: Identification of coastal hazards

1. Identify areas in the coastal environment that are potentially affected by coastal hazards (including tsunami), giving priority to the identification of areas at high risk of being affected. Hazard risks, over at least 100 years, are to be assessed having regard to:

a) physical drivers and processes that cause coastal change including sea level rise;
b) short-term and long-term natural dynamic fluctuations of erosion and accretion;
c) geomorphological character;
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h) the effects of climate change on:
    i. matters (a) to (g) above;
    ii. storm frequency, intensity and surges; and
    iii. coastal sediment dynamics;

taking into account national guidance and the **best available information on the likely effects of climate change** on the region or district.

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Legal matters not given effect to in Jacobs 2021
Best available information on the likely effects of climate change

Climate Change Science

Assessment Reports (ARx)
Working Group 1, The Physical Science Basis –
most recent report being AR6 (August, 2021)

Climate Change Policy

Convention of Parties (COPx)
UN Member States – most recent COP26
held in Glasgow, Scotland (November, 2021)

Jacobs (2021) has been prepared based on IPCC AR5 (2014) and updated to include changes from IPCC (2019).[2] Jacobs (2021) has not (at this stage) been updated to take into consideration the most recent IPCC AR6 (2021) findings.

[2] IPCC (2019). Special Report on the Ocean and Cryosphere in a Changing Climate: Summary for Policymakers.

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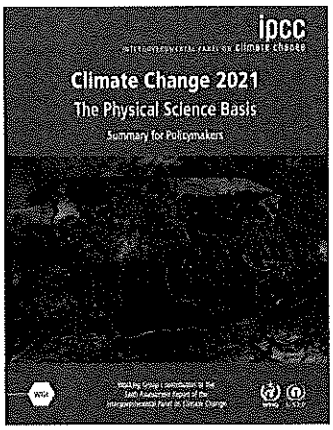
Legal matters not given effect to in Jacobs 2021
Best available information – IPCC AR6 (2021)



- IPCC AR6 (2021) provides many new and revised understandings in the science of climate change since IPCC AR5 (2014) was published.
- The IPCC assigns probabilities to its scenarios. These scenarios (called RCPs, Representative Concentration Pathways) have been complemented by a new metric, called narratives (called SSPs, Shared Socioeconomic Pathways).
- For the purpose of risk assessment under NZCPS Policy 24, a change by the IPCC to the assignment of probability for RCP8.5 is materially important.
- RCP8.5 is now considered "implausible to unfold" and it is included in AR6 only "for comparison between emission-driven (SSPs) and concentration-driven (RCPs) simulations".[3]
- Based on this, RCP8.5 (and RCP8.5H+) is an **unlikely** scenario and should not be used in risk assessment under NZCPS Policy 24.
- IPCC AR6 (2021) refers to SSP2-RCP4.5 as its best estimate (likely) scenario – and should be identified/used as such in the risk assessment.

[3] IPCC, AR6 WG1, Chapter 4, section 4.4.2. p. 13.

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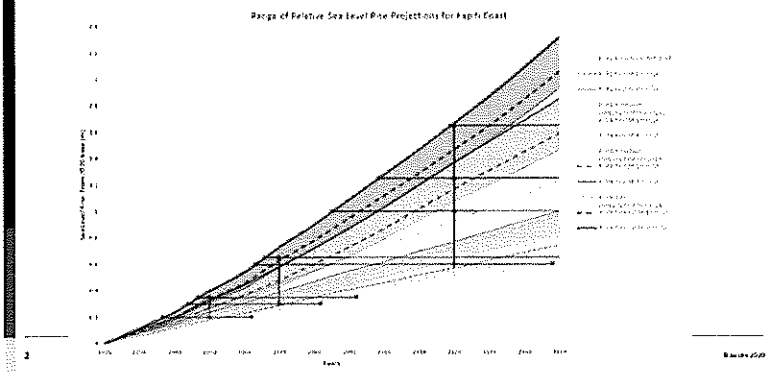
Legal matters not given effect to in Jacobs 2021

The effect of using RCP8.5 (and RCP8.5H+) is material

Projections of Relative Sea Level Rise in Kapiti



Jacobs slide presentation (2021), "Kāpiti Coast Coastal Hazard Susceptibility and Vulnerability Assessment Volume 1: Methodology", slide 2.

Two projections of relative sea level rise for Kāpiti in Jacobs (2021) are based on RCP8.5 (pictured in blue) and RCP8.5H+ (pictured in red).

Based on IPCC AR6 (2021) these RCP scenarios should be excluded and projections for Kāpiti should be updated accordingly.

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Legal matters not given effect to in Jacobs 2021

The effect of using RCP8.5 (and RCP8.5H+) is material

Projections of Relative Sea Level Rise in Kapiti

Year	Lower Projection of RSLR since 2020	Intermediate Projection of RSLR since 2020	Upper Projection of RSLR since 2020
2050	0.2 m		0.40 m
2070	0.3 m		0.70 m (Erosion) 0.65 m (Inundation)[1]
2120	0.6 m (Erosion) 0.65 m (Inundation)[1]	1.0 m, 1.25 m	1.65 m

[1]For inundation, the extent of the hazard is less sensitive to the timing of SLR. Therefore, a rise of 0.65 m has been applied as the upper projection for 2070 and the lower projection for 2120.

Jacobs slide presentation (2021), "Kāpiti Coast Coastal Hazard Susceptibility and Vulnerability Assessment Volume 1: Methodology", slide 3.

And consequently, the classifications (lower, intermediate, upper) in meters are not likely and this table should be updated accordingly.

These values do not represent "the likely effects of climate change" as required by NZCPS Policy 24.

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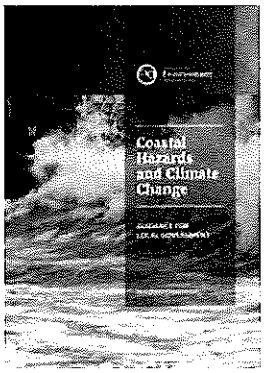
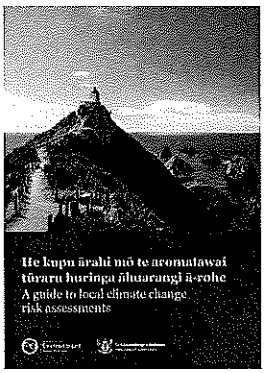
National Guidance

Best Available Information – MFE (2021)



This guidance supports councils to manage and adapt to the increased coastal hazard risks posed by climate change and sea-level rise.
(MfE, 2017)



This guide sets out a climate change risk assessment framework for local use, which is broadly consistent with the National Climate Change Risk Assessment Framework.
(MfE, 2021)

Jacobs (2021) cites the former (MFE, 2017) but not the latter (MFE, 2021).
MFE (2021) no longer recommends use of the RCP8.5H+ SLR scenario.
Both will be updated with respect to IPCC AR6 findings (MFE, 2021 acknowledges this).

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- Risk Assessment – Probability Distributions

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Policy 24: Identification of coastal hazards

1. Identify areas in the coastal environment that are **potentially affected** by coastal hazards (including tsunami), giving priority to the identification of **areas at high risk** of being affected. Hazard risks, over at least 100 years, are to be assessed having regard to:

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taking into account national guidance and the best available information on the **likely** effects of climate change on the region or district.

Legal matters not given effect to in Jacobs 2021

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Likelihoods – and the distribution of hazard risks

NZCPS Definition of Risk

Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence.
(AS/NZS ISO 31000:2009 Risk management – Principles and guidelines, November 2009).

- Jacobs (2021) fails to address the NZCPS requirement to assign **likelihood(s) of occurrence** to the different scenarios used in their assessment.
- The assignment of probabilities (i.e., likelihoods) is a requirement of the identification of coastal hazards (i.e., risk assessment) under NZCPS Policy 24.
- Specifically, NZCPS Policy 24 refers to identifying areas "potentially affected" by coastal hazards, particularly those areas at "high risk of being affected" - taking into consideration the "likely effects" of climate change.
- All these words (e.g., potentially, high, likely) require the assignment of probabilities, based on a "best estimates and distribution of the hazard risks" (PCE, 2015, p.77). For example, 'a 1 in 10 chance of erosion and/or inundation occurring in an area within the next 10 years' would be considered a "high risk" area.
- And importantly, **unlikely** climate changes (for example, unlikely sea level rise scenarios) **should be set aside** (i.e., not considered in the technical analysis of risk).

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Legal matters not given effect to in Jacobs 2021

Likelihoods – and the distribution of hazard risks

"Importantly, the requirement to take into account national guidance and the best available information on the likely effects of climate change on the region/district is taken to apply to all of the subclauses of Policy 24 (i.e. (1)(a)(h))." (DOC, 2017, p.30)

The work of Jacobs and planning law – objective physical science 9

Policy 24: Identification of coastal hazards

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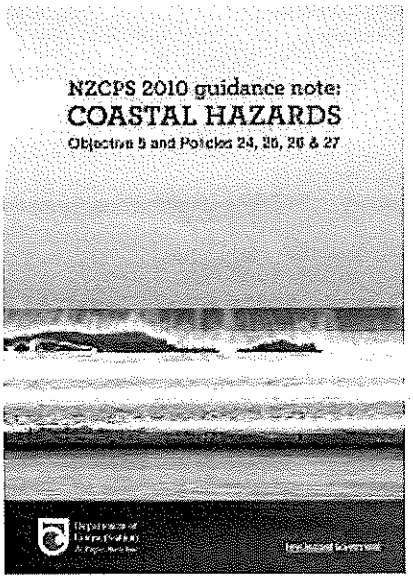

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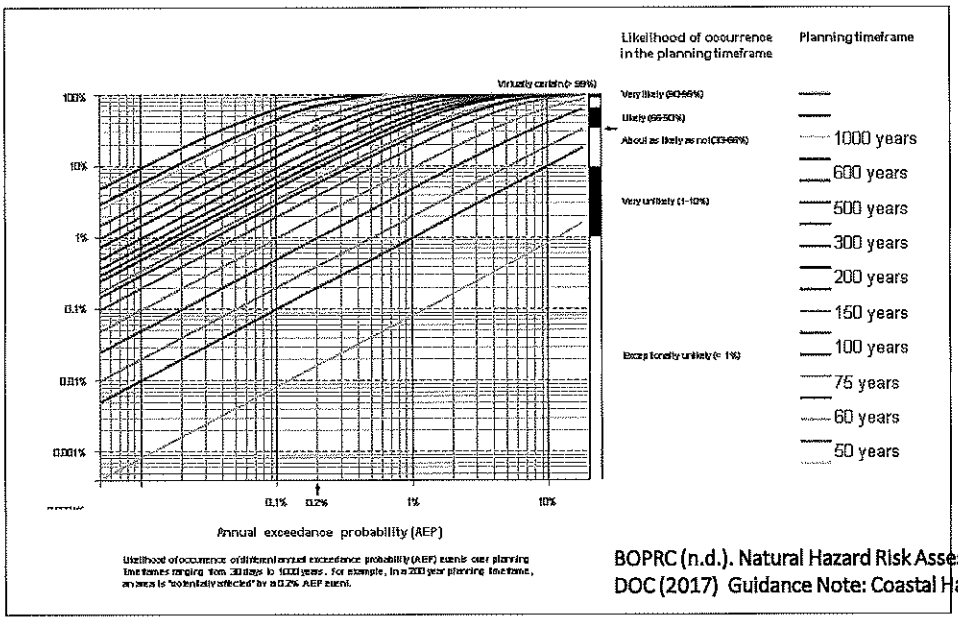
Legal matters not given effect to in Jacobs 2021

Likelihoods – and the distribution of hazard risks



Likelihood of occurrence of different annual exceedance probability (AEP) events over planning timeframes ranging from 30 days to 1000 years. For example, in a 200 year planning timeframe, an area is "potentially affected" by a 0.2% AEP event.

BOPRC (n.d.). Natural Hazard Risk Assessment User Guide, p.17 and DOC (2017) Guidance Note: Coastal Hazards, Section 3.2.pp.14-17.

Likelihood of occurrence

Virtually certain (>99%)
Very likely (90-99%) **High**
Likely (66-90%) **Medium**
About as likely as not (33-66%)
Potentially (33%) **Low**
Unlikely (10-33%)
Very unlikely (1-10%)
Exceptionally unlikely (<1%)

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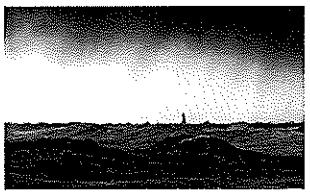
Legal matters not given effect to in Jacobs 2021

Embedding precaution: e.g., the Bruun Rule

*"During this investigation, it has become clear that precaution is being **embedded into scientific assessments** of coastal hazards, sometimes to an extreme extent"* (PCE, 2015, p.77).

Preparing New Zealand for rising seas:
Certainty and Uncertainty

November 2015



Parliamentary Commissioner for the Environment
Te Kaitiaki Taiao a Te Whare Paremata

Jacobs (October 5, 2021). Memorandum Response to CRU comments on Volume 1 Methodology Report, p. 1

*CRU make as a general statement, that they "have been struck by the pervasiveness of "conservative" approaches presented in the report", and list the **Bruun rule**, coastal inlet migration, the bathtub model, extreme sea levels, and groundwater levels as being methods of particular concern.*

We note that in each of these sections of our Volume 1 Methodology Report we have stated in the report that there is a degree of conservativeness in the method.

*However, we reject the notation that there is a strong conservative bias to the assessment approach as these methods are only a small subset of the total assessment **and in most cases there are no alternative methods for the data that is available.***

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Legal matters not given effect to in Jacobs 2021

Embedding precaution: e.g., the Bruun Rule

Jacobs (October 5, 2021). Memorandum Response to CRU comments on Volume 1 Methodology Report, p. 2

*"General limitations of the Bruun Rule: While the limitations are recognised, **the Bruun Rule is an internationally well used method for assessing the erosional effect of sea level rise (SLR) on sandy beach environments**; has been used in the majority of coastal hazard assessments in New Zealand; and has been accepted as an appropriate method by the Environment Court"* (Jacobs (2021). Response...p.2).

Incorrect. Scientific understanding has moved on considerably since then with respect to assessment of longshore sediment transport. The scientific literature now points out that use of the Bruun Rule (1962) exaggerates the impacts of SLR on sandy beaches, such as those on the Kāpiti Coast, e.g.,

Robin G.D. Davidson-Arnott and B.O. Bauer, (2021). Controls on the geomorphic response of beach-dune systems to water level rise, *Journal of Great Lakes Research* (in press)

Rosati, J.D., Dean, R.G. and Walton, T.L. (2013). The modified Bruun Rule extended for landward transport. *Mar. Geol.* 340: 71-81

Cooper, J.A. and Pilkey, O.H. 2004. Sea-level rise and shoreline retreat: time to abandon the Bruun Rule. *Global Planetary Change* 43: 157-171

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Legal matters not given effect to in Jacobs 2021

Embedding precaution: e.g., the Bruun Rule

Jacobs (October 5, 2021). Memorandum Response to CRU comments on Volume 1 Methodology Report, p. 2

"General limitations of the Bruun Rule: While the limitations are recognised, the Bruun Rule is an internationally well used method for assessing the erosional effect of sea level rise (SLR) on sandy beach environments; has been used in the majority of coastal hazard assessments in New Zealand; ***and has been accepted as an appropriate method by the Environment Court"*** (Jacobs (2021) Response..., p.2).

Incorrect. The Environment Court considerations regarding use of the Bruun Rule are historical (not recent). Both cases are dated prior to NZCPS 2010 being brought into law, and moreover - ;

- Skinner v Tauranga District Council (A 163/2002) in part turned on whether the beach was a closed system justifying the use of Bruun. In the event the Court determined it was, accepting the use of Bruun. Had it not been a closed system the Bruun rule was clearly at risk in the Court's mind.
- Fore World Developments Ltd v Napier City Council (W 029/2006) addressed whether Bruun could be used on a gravel beach and determined its underlying assumption was reasonable for "our purposes". No evidence was given on open and closed systems.

http://www.nzlii.org/cgi-bin/sinodisp/nz/cases/NZEnvC/2002/288.html?query=163/02
http://www.nzlii.org/cgi-bin/sinodisp/nz/cases/NZEnvC/2006/120.html?query=029/06

Kāpiti is an open (not closed) coast with a sandy (not gravel) beach

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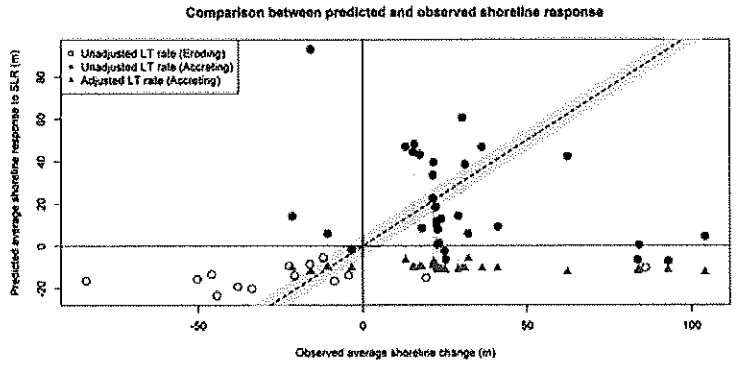
Legal matters not given effect to in Jacobs 2021

Embedding precaution: e.g., the Bruun Rule

(In)validating use of the Bruun Rule – Jacobs (2021) includes no method/intent regarding validation

Hindcast coastal erosion

- I applied methodology to 47 sites without seawalls to predict shoreline change over 1950-2007
- Compared this to observed shoreline changes – No skill evident



- The solid circles are observed trends for Kāpiti sites that accreted over the data period (all north of Paraparaumu Boat Club) and those eroding (without sea walls).
- 3 out of 47 sites fall within the shaded area [Shand, 2014] indicating a skill of ~6%, which is much worse than tossing a coin.
- To make it less credible the 3 data points that fit would only do so for the Bruun Rule if sea level fell over the historical period.

Evidence presented in *Weir v Kapiti Coast District Council* [2013] NZHC 3522

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Legal matters not given effect to in Jacobs 2021

Embedding precaution: alternative methods

*"During this investigation, it has become clear that precaution is being **embedded into scientific assessments** of coastal hazards, sometimes to an extreme extent"* (PCE, 2015, p.77).

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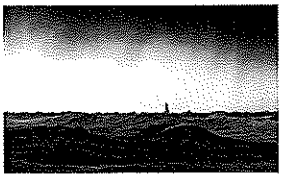

Parliamentary Commissioner for the Environment

Jacobs (October 5, 2021). Memorandum Response to CRU comments on Volume 1 Methodology Report, p.1

*"However, we reject the notation that there is a strong conservative bias to the assessment approach as these methods are only a small subset of the total assessment **and in most cases there are no alternative methods for the data that is available".***

Incorrect. The 'unavailable' data referred to is an instrumentally measured sediment budget. However, there are more robust methods to derive (model) sediment budgets on the Kāpiti Coast and the data needed to use those methods *is* available.

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Legal matters not given effect to in Jacobs 2021

Embedding precaution: alternative methods

The One-Line Concept/Model

Dr Willem de Lange recommends:

As a first attempt I would simplify the one-line model to ignore wave conditions and only work on annual estimates of sea level rise and sediment transport.
For each cell starting in the north, do the following
1) Use the year's sea level rise to calculate the volume now available to deposit sediment in (volume below new sea level)
2) Take the sediment input into the cell, deposit the required volume, and pass any residual volume to the next cell to the south
3) Repeat steps 1 & 2 until all the sediment is accounted for.
4) Flag any cells with remaining available space (all at southern end if any exist) as having a sediment deficit. Top them up by eroding the coast to provide sufficient volume
5) Repeat for the next year

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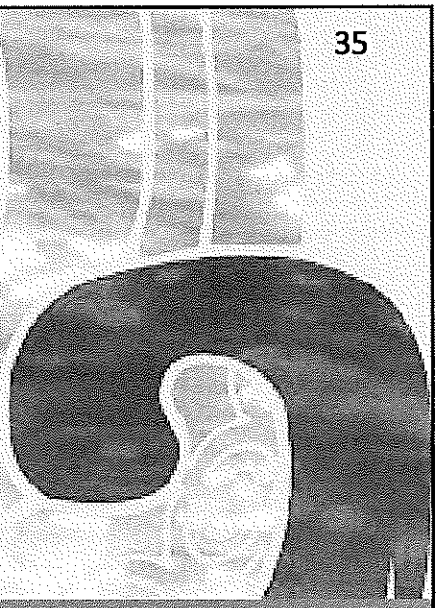
- Summary



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Summary - RMA/NZCPS

- RMA legislation dictates that District Plans are bound by the higher plans and policy statements - therefore Council must legally implement the general policy requirements set out in the NZCPS
- Considerations regarding the potential options for management of coastal hazards must be based on a risk assessment that "gives effect to" NZCPS Policy 24
- Any risk assessment used to develop recommendations regarding adaptation options for District Plan guidance must meet the legislative requirements of the NZCPS

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Summary – Jacobs, 2021

- In describing their Scope of Works, Jacobs (2021) explain that *Volume 1: Coastal Hazard Susceptibility and Vulnerability Assessment: Methodology* is not a risk assessment (p.8, para 1)
- Jacobs (2021) does not differentiate between risk assessment (NZCPS Policy 24) and risk management (NZCPS Policy 25 and 27)
- Jacobs (2021) does not provide probability distributions: It uses unlikely values in the range of values expressed and it has embedded precaution – i.e., used multiple "conservative" scenarios, assumptions and models
- Jacobs (2021) needs to be updated to reflect the most recent IPCC AR6 (2021) information, most importantly, to reflect the IPCC stance that RCP8.5 is "implausible" (unlikely) and that RCP4.5 is the IPCC's best estimate (likely) scenario
- In particular Jacobs (2021) use of RCP8.5H+ is not recognised internationally (it is a New Zealand construct only used in MFE (2017)) and any local guidance regarding RCP8.5H+ has now been rejected in this application by MFE (2021)

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- Discussion

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