Ministry for the Environment
Manatū Mō Te Taiao

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20-D-00977

s 9(2)(a)

Dear s 9(2)(a)

Thank you for your email of 17 June 2020 requesting the following under the Official Information Act 1982 (the Act):

> *...could you please provide, or direct me to where I could find them (if already available) the following briefing documents related to Essential Freshwater:*
>
> - *2020-B-06431 -Essential Freshwater 83, Policy decisions following consultation*
> - *2020-B-06544 -Essential Freshwater 84, Event note – meeting with Greenpeace 12 March 2020*
> - *2020-B-06569 - Essential Freshwater 85: Options for a nitrogen fertiliser cap*
> - *2020-C-06547 Essential Freshwater – Decision on National Direction and Regulations for Freshwater Management*
> - *2020-B-06609 - Essential Freshwater 86 Progressing multiple initiatives to address excessive nitrogen quickly*
> - *2020-B-06631 -Talking points for Minister Parker and O'Connor for an update on Essential Freshwater at Sustainable Land Use Ministers meeting on Monday 6th April 2020*
> - *2020-B-06632 - Science comparison across Freshwater Programmes: Our Freshwater 2020 and Essential Freshwater*

The Ministry for the Environment has identified seven documents in scope of your request, as listed in the attached document schedule. Five of these documents are being refused under section 18(d) of the Act, as the information is or will soon be publicly available.

The Cabinet paper, *2020-C-06547 Essential Freshwater – Decision on National Direction and Regulations for Freshwater Management* is available on the Ministry's website at https://www.mfe.govt.nz/cabinet-papers/action-healthy-waterways.

The four other documents will be published on the Ministry's website in August.

The two remaining documents have been provided to you in full.

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You have the right to seek an investigation and review by the Office of the Ombudsman of my decision to withhold information relating to this request, in accordance with section 28(3) of the Act. The relevant details can be found on their website at: www.ombudsman.parliament.nz.

Please note that due to the public interest in our work the Ministry for the Environment publishes responses to requests for official information on our OIA responses page shortly after the response has been sent. If you have any queries about this, please feel free to contact our Executive Relations team: ministerials@mfe.govt.nz.

Yours sincerely

Lucy Bolton
Acting Director, Water and Land Use Policy

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Document schedule

Document no.	Document date	Content	Decisions	OIA sections applied
1	6 March 2020	2020-B-06431 -Essential Freshwater 83, Policy decisions following consultation	Withheld	S (18)(d) - the information requested will soon be publicly available
2	10 March 2020	2020-B-06544 -Essential Freshwater 84, Event note – meeting with Greenpeace 12 March 2020	Withheld	S (18)(d) - the information requested will soon be publicly available
3	13 March 2020	2020-B-06569 - Essential Freshwater 85: Options for a nitrogen fertiliser cap	Withheld	S (18)(d) - the information requested will soon be publicly available
4	1 April 2020	2020-C-06547 Essential Freshwater – Decision on National Direction and Regulations for Freshwater Management	Withheld	S (18)(d) - the information requested is publicly available
5	1 April 2020	2020-B-06609 - Essential Freshwater 86 Progressing multiple initiatives to address excessive nitrogen quickly	Withheld	S (18)(d) - the information requested will soon be publicly available
6	3 April 2020	2020-B-06631 -Talking points for Minister Parker and O'Connor for an update on Essential Freshwater at Sustainable Land Use Ministers meeting on Monday 6th April 2020	Released in full	N/A
7	15 April 2020	2020-B-06632 - Science comparison across Freshwater Programmes: Our Freshwater 2020 and Essential Freshwater	Released in full	N/A

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Action for Healthy Waterways

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The case for change

- Improving water quality was a key election issue, and one that we all campaigned on
- The result gave us a mandate, and the overwhelming majority of New Zealanders want us to clean up our waterways
- Our freshwater resources have got worse, and continue to degrade, across a number of critical measures, in some parts of New Zealand
- We are confident the package we are developing will be environmentally effective and balanced across a range of interests at play
- We propose a package that will reduce regulatory impact compared to what was consulted on
- There is also an opportunity to use Government resources to support farmers to make change – delivering win-win-win – for recovery, sector development and the environment - such as through tree planting to reduce sediment, stream fencing and water storage infrastructure

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COVID-19 means adjusting, not deferring package

- Given COVID-19, we are only focussed on key aspects of the package. We will be proposing to:
- Defer when some of the near-term requirements would bite, e.g
  - pushing stock exclusion deadlines out by two years
  - taking longer to rollout farm plans
  - pushing out controls on intensive winter grazing and stock holding areas by a year
  - giving councils another year to get plans in place
- Focus interim intensification controls to most risky land use changes (e.g. dairy conversions) and provide more flexibility to expand horticulture and irrigation (except for dairying)
- Changes to the proposals that will protect domestic vegetable supply
- Recommend not progressing DIN at this stage – DIN needs to be revisited at some future stage

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A lot of agreement and support to move ahead

- Nearly every submitter and every sector supports doing more to protect and restore waterways
- The package we will recommend is the culmination of a major work programme and expectations are high
- Farming leaders (with the exception of Federated Farmers) are asking the Government to make decisions
- They are looking for certainty – and want Government to help them deal with laggards
- Vital that landowners know what rules they are working to (e.g. for fencing, DIN, irrigation, horticulture development) – lack of clarity will tend to stifle not encourage investment
- Great deal of agreement across all advisory groups, IAP and officials on main elements of package
- Lead Ministers are agreed on package to recommend to Cabinet

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We will propose some significant changes in light of submissions

- Generally, environmental interests and many Māori pushed for tighter and faster regulatory controls than recommended here
- We originally proposed that **existing fences be moved** – now recommend this not be required in regulations. If fences should be moved it will be dealt with through farm plans case-by-case
- We proposed a riparian **setback of 5 metres** – now recommending a minimum of 3 metres
- Many were concerned the **interim intensification controls** grand parented pollution rights and were too restrictive – now recommend:
  - allowing intensification to occur where 'headroom' has been made elsewhere and a 'share' of improvements has gone to the waterway
  - including sunset clause on intensification controls
  - remove controls on low impact horticulture crops (e.g. tree crops, kiwifruit, viticulture) and remove restrictions on irrigation for these

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We are proposing some significant changes in light of submissions - continued

- Many concerned there was **not enough capacity** to implement package – recommend:
  - longer phase-in of FW-FPs and work with councils to prioritise where they are rollout;
  - extending time period for Councils to develop plans to implement NPS-FM
- Other changes:
  - change Phosphorus attribute to allow for local variation
  - Freshwater modules of farm plans should cover stock exclusion in most hill country situations – avoiding overreach with centrally set rules
  - When Farm plans are in place, some of the centrally set requirements drop away (e.g. the need to get consents for some high-risk activities)
  - dropping sacrifice paddock proposals and manage with farm plans – reduces consent requirements
  - general exceptions where high levels of contaminants from natural sources.

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Dissolved Inorganic Nitrogen (DIN) and N toxicity

- DIN was s key issue for many stakeholders – Government did not state a preferred position on DIN
- The existing NPS controls N through toxicity, N limits in lakes, and periphyton (slime). This means that most rivers already have quite restrictive requirements.
- But **toxicity** is the only measure that currently applies in soft-bottom streams (where periphyton doesn't grow) not feeding lakes
- The majority of STAG, KWM, FLG, many submitters and eNGOs recommend adding DIN set at 1 mg/litre. This would ensure environmental protection from damage caused by N in all waterways, but comes at an additional cost that can be locally significant
- A minority of STAG, councils, the dairy sector, and many other farmers do not support DIN as a single number applying everywhere. They argue that ecosystem health can be good with DIN above 1 and therefore cost of adding DIN everywhere is not necessarily justified
- We will not be recommending proceeding with DIN at this time. This should be reviewed in future
- However, we do consider there isn't enough protect on for sensitive species in soft-bottom streams.
- We will recommend strengthening the current N toxicity bottom line so that it increases protection to protect 95% of species up from 80% of species now which roughly equates to raising the N bottom line from 6.9 mg/L to 2.4 mg/L in these streams
- Plus – we will recommend a cap on the use of synthetic N fertiliser to knock off the most reckless use of nitrogen
- This strikes a balance between environmental protection and managing impacts

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Impacts

- Officials are completing impact analysis on the package
- Overall the benefits of the package are likely to out weigh costs
- Because of our recommendation on DIN and other changes, the costs are likely to be far lower than previously suggested. For example:
  - not proceeding with DIN (while strengthening N toxicity) reduces costs by over $2 billion PV,
  - changes to stock exclusion proposals (like not moving existing permanent fences) reduces costs by almost $900 million PV
  - changes to the phosphorus attribute reduce costs by about $500 million PV.
- Costs will be highest in areas that have experienced more agricultural intensification in recent years such as Canterbury, Waikato, and Southland.
- Modelling suggests that the primary costs to resource users are from the stock exclusion proposals, the strengthened nitrogen toxicity attributes, and delivery of FW-FPs.
- Compared to the size of the sector the costs are modest and will generally not be incurred in the short term.
- Will present Ministers with more detailed impact analysis next week

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Next steps

- Present the package to SLU Ministers in more detail – ideally within a week
- Expecting direction from PMO on priorities outside COVID response shortly
- Make decisions about taking package to Cabinet
- Still uncertain when go to Cabinet – but end April would be ideal
- Still need to get regulatory instruments drafted then gazetted
- SOP for RM Bill – to make freshwater modules of farm plans work

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Science comparison across Freshwater Programmes: *Our Freshwater 2020* and *Essential Freshwater*

Date Submitted:	15 April 2020	Tracking #: 2020-B-06632	
Security Level	In confidence	MfE Priority:	Non-Urgent

Delete/add Ministers as appropriate	**Action sought:**	**Response by:**
To Hon David Parker, Minister for the Environment	Noting.	NA

Actions for Minister's Office Staff	**Forward** a copy of this briefing to: • Hon James Shaw, Minister of Statistics • Hon Damien O'Connor, Minister of Agriculture • Hon Nanaia Mahuta, Associate Minister for the Environment • Hon Eugenie Sage, Associate Minister for the Environment **Return** the signed report to MfE.
Number of appendices and attachments	Nil

Ministry for the Environment contacts

Position	Name	Cell phone	1st contact
Principal Author	Cal Howarth		
Departmental Science Advisor	Alison Collins	027 501 9129	✓

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Science comparison across Freshwater Programmes: *Our Freshwater 2020* and *Essential Freshwater*

Key Messages

1. The purpose of this briefing is to communicate the key differences in the science between the *Our Freshwater 2020* (OFW20) and *Essential Freshwater* (EFW) programmes. There is a reputational risk when people consider that science is not joined-up.
2. For the most part the science is consistent between the two. Differences appropriately exist due to different purposes, approaches and timing of the programmes and their place within the policy cycle (see Table 1).
3. OFW20 is an independent environmental report required by legislation. It provides New Zealanders with information on what is at risk, and in doing so targets where the environmental management system should focus.
4. EFW is about providing direction to the environmental management system on how to manage the pressures on the environment as identified through OFW20. The two programmes are therefore complementary and play a different role within the policy cycle.
5. While there are some differences in the way we describe the evidence, there is also convergence, particularly the need to use measures to understand and manage Freshwater Ecosystems in a more integrated way.
6. Importantly, both programmes reflect the nature of working at the frontier of science and the need to remain close to the science community. We can have confidence and point to the robustness of our internal processes for management and use of science advice.

Table 1: Summary of key differences

Aspect	Difference	Explanation
Nitrate-nitrogen: Are more sites improving or worsening?	OFW20 reports slightly more sites improving than worsening over a ten year timeframe. The EFW draft Regulatory Impact Statement reports the opposite, based on environmental reporting data over a twenty-year timeframe.	Current state is more important than trends for understanding where we have problems. OFW20 clearly shows that nitrogen concentrations are high in pastoral and urban areas. The cause of the difference between 10 and 20 year trends is unknown. We know land management contributes to water quality, but trends can also be influenced by sources of natural variability (such as the climate) particularly when assessed over shorter time-periods (such as ten years). Different lag times between catchments also add additional complexity. There is no single appropriate time period for trend analysis, but the purpose of each product is relevant (reporting on recent change versus addressing long term problems).
Macroinvertebrat Community Index (MCI): Are most river ecosystems healthy?	OFW20 data shows about three quarters of New Zealand's river length is in the excellent or good MCI water quality classes. Just over half of river length would fall in the proposed A or B attribute bands of EFW.	OFW20 uses four water quality classes, and EFW four attribute bands, but they are set differently. The EFW bands are set 10 MCI units higher than the equivalent OFW20 classes, consistent with their aim to direct improvements in ecosystem health. The MCI is not the only basis for ecosystem health. Ecosystems are complicated and we need to measure and manage other aspects as well, such as fish, habitat, water flows and water chemistry.

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Recommendations

7. We recommend that you:

   a. **Note** that there are a few science differences between *Our Freshwater 2020* (OFW20) and *Essential Freshwater* (EFW). Differences appropriately exist due to the different purposes of each programme, and their place within the policy cycle.

Signature

Allison Collins
Departmental Science Advisor

Hon David Parker
Minister for the Environment **Date**

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Science comparison across Freshwater Programmes: *Our Freshwater 2020* and *Essential Freshwater*

Supporting material

Purpose

1. The purpose of this paper is to present a comparison of key science differences between two different programmes: *Our Freshwater 2020* (OFW20) and *Essential Freshwater* (EFW). In addition, we provide some context for explaining the differences.
2. It is important to appreciate why differences appropriately exist. There is a reputational risk when people consider that science is not joined-up; for example it may be perceived that the evidence is not robust, or that it has been assembled to suit an agenda.

Context

3. Outputs of both programmes will come under public scrutiny from April, and particularly once EFW is finalised in June. People care about water, and so both programmes are stepping into a highly contested and emotive area.
4. Understanding and managing freshwater is a complex challenge. In some areas relevant to OFW and EFW the science is at the frontier, and subject to divergent views amongst experts. Staying close to the science community and ensuring good process for bringing in science advice is critical across these programmes of work.
5. For the most part the science is consistent between OFW20 and EFW although some differences appropriately exist due to different purposes, approaches and timing of the programmes and their place within the policy cycle:
    a. OFW20 is about evaluating the state of the environment, and the pressures on it. In reporting on the environment the programme relies on data collection based on existing methods in use.
    b. EFW is about providing direction on how to manage the pressures on the environment through the environmental management system. It has the opportunity to propose new methods to characterise the environment and collect data to support intervention.
6. Both programmes have been progressed separate from each other. This originated from the need to ensure the independence and integrity of environmental reporting required by legislation.
7. While the programmes are separate, they also complement one another through the different roles they play within the policy cycle. EFW is about providing direction to the environmental management system on how to manage the pressures on the environment as identified through OFW20.
8. While there are some differences in the way we describe the evidence, we should note that there is also convergence, particularly in developing measures to understand and manage the environment in a more integrated way (such as a common framework for assessing biophysical Ecosystem Health).

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9. Areas of the largest potential difference are associated with measures of nitrate-nitrogen and macroinvertebrates in rivers. The exact differences will not be confirmed until the EFW policy is finalised, subject to Ministerial and Cabinet decisions.

Nitrate-nitrogen – improving or worsening?

10. OFW20 finds that more sites in pastoral areas are improving than worsening, based on 10 year trends to 2017. The draft EFW Regulatory Impact Statement (RIS) describes more sites worsening than improving[1], based on 20 year trends also to 2017. Different messages could cause confusion.
11. Both OFW20 and the EFW RIS explain that understanding causes of trends is difficult. We know land management contributes to water quality, but sources of natural variability (such as the climate and different lag times) can have a significant influence on trends particularly over shorter timeframes[2].
12. Trends are one part of the story, but measures of current condition or 'state' are critical for understanding where we have problems in freshwater quality. OFW20 clearly shows that nitrogen concentrations are high in pastoral and urban areas.
13. We will know we are making a difference to nitrogen by comparing current state to the condition we want, tracking change against these aspirations and recording the actions taken to improve our environment.

Nitrogen – interpreting effects

14. Nitrogen has been a topic of science and policy deliberation in EFW. One option is to raise the bottom line of the current operative 2014 NPSFM nitrate-nitrogen attribute to provide protection for 95% of species from toxicity effects. The current bottom line provides for 80% species protection.
15. OFW20 also has a large focus on nitrogen, but it could not consider deliberations of scientists and others within the policy process. Given its purpose, it must rely on existing methods and standards.
16. The OFW20 report makes use of the Australian and New Zealand Default Guideline Values (DGVs), thereby avoiding risk of misinterpreting the findings should the current operative 2014 NPSFM attribute band for nitrate-nitrogen be superseded. The DGVs are set at the level expected in natural conditions, and account for natural variation in different catchments. This characteristic is useful for environmental reporting, but may be considered less relevant to EFW because it isn't directly related to environmental effects.
17. If changes are made to the EFW nitrate-nitrogen attribute, some confusion could occur because the OFW20 indicator webpage produced by Statistics New Zealand will likely include a comparison to the existing NPSFM2014 attribute (in addition to the DGV). This

[1] Interim Regulatory Impact Assessment for Consultation – Part 1 Summary, page 24, second paragraph. https://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/interim-regulatory-impact-analysis-for-consultation-essential-freshwater-part-1.pdf

[2] Snelder and Fraser, 2019. *Monitoring change over time: Interpreting water quality trend assessments*. Report prepared by Land Water People for MfE. https://www.mfe.govt.nz/publications/fresh-water/monitoring-change-over-time-interpreting-water-quality-trend-assessments

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is explained by the purpose of attribute bands and bottom lines – to direct the minimum aspirations of councils.

Macroinvertebrates – are most rivers already healthy?

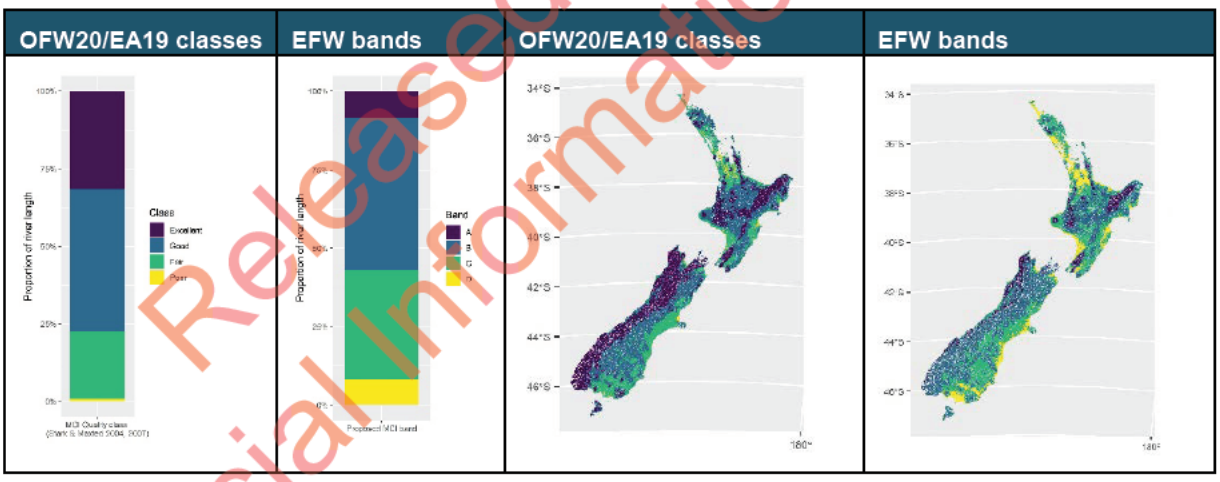
18. For many people the Macroinvertebrate Community Index (MCI) is a basis for justifying policy action because it is a well-known measure of ecosystem health. The existing environmental reporting indicator webpage from Environment Aotearoa 2019 (EA19) states that "of New Zealand's total river length, 77% had modelled MCI score of excellent or good"[3].

19. Four bands or classes are used to describe how healthy or unhealthy a river's MCI score is. The EFW bands are set 10 MCI score units higher than the EA19 and OFW20 water quality classes (Table 1). Under EFW fewer rivers would be rated as healthy, and more as unhealthy, compared to OFW20 (Figure 1).

Table 1: OFW20 and EA19 MCI class ranges are lower than EFW bands

OFW20 and EA19 classes		EFW bands	
Excellent	>119	A	>130
Fair	100-119	B	110 130
Good	80-100	C	90 110
Poor	<80	D	<90

Figure 1: Proportion of river length in each MCI classification (modelled)



20. OFW20 indicates that lowland areas known to be in agricultural and urban land uses have lower scores. Average MCI scores in urban rivers are 31 percent lower, and pastoral 15 percen lower than native dominated rivers.

21. It would not be appropriate to use the MCI as the only basis for inferring a need for policy action. Ecosystems are complicated and we need to measure and manage more than the MCI – fish, habitat, water flows and water chemistry are all examples of other measurable parts of the ecosystem that are also under stress in places.

[3] https://www.stats.govt.nz/indicators/river-water-quality-macroinvertebrate-community-index, 18 March 2020

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Process for incorporating science advice

22. Robust internal processes have been in place to ensure independent external science expertise was available for each programme. Differences in the scope and management of the groups reflected that they were engaging at different stages of the policy cycle.

    EFW and the STAG

23. EFW used a Science and Technical Advisory Group (STAG) to support officials in the Freshwater Taskforce. The group comprises 19 members (including 3 jointly with the Kahui Wai Māori advisory group) chosen for their breadth of expertise across freshwater science disciplines (including mātauranga Māori).

24. Their role was to focus on the needs of freshwater ecosystems, and not the economic or social consequences. They contributed early to the process and prepared their own independent report to you in order to describe their advice.

25. The EFW STAG are not constrained by the existing management and monitoring settings. However their role is 'advisory', and there are other sources of advice into the policy process from other stakeholders and submitters. An implication is that the finalised freshwater policies will also take into account the broader advice.

    OFW20 and the SSMT

26. A *Senior Science and Mātauranga Team* (SSMT) provided peer review and independent assurance of the report and web page products.

27. The team comprises five members from the science community with nationally reputable science expertise in freshwater, mātauranga Māori, land, biodiversity, ecosystems and climate; two of which had also contributed to *Environment Aotearoa 2019*.

28. The underlying data and methods they have to work with are a direct product of the existing monitoring and management system, the constraints of which have been recognised for some time, and which EFW will contribute to changing.

Next Steps

29. The process for release of *Our Freshwater 2020* is outlined in Briefing 2020-B-06428. This includes any pre-release briefings.

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