

**From:** Tony Jack <tony.jack@pioneerenergy.co.nz>  
**Sent:** Wednesday, 25 May 2022 5:46 p.m.  
**To:** Natasha Pritchard  
**Cc:** Will Nicolson  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review  
**Attachments:** FW: Inflow hydrograph data for LO catchment [IN-CONFIDENCE: RELEASE-EXTERNAL]

Hi Natasha,

Been out of the office today but am working through the questions right now.

The model in the email I sent yesterday contains the inflow data as supplied by MBIE/NIWA. The only other input is the storage equation for the lake, which is also in the model/spreadsheet.

For completeness I attach the correspondence from MBIE with the original data as received.

**Tony Jack**  
Development Engineer

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**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Wednesday, 25 May 2022 5:22 PM  
**To:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Cc:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Subject:** FW: Pioneer: RM18.004 - Modelling peer review

Hi Tony,

I appreciate that some of the questions may take a little longer to answer than today. However, early tomorrow are you able to let me know the following:

*In terms of a peer review of the model and inferences, we may have a hydrologist at Babbage that can assist. They have asked whether you can provide the actual data behind the lake levels graph/model. This will expediate the peer review process and make for a more transparent process. Can you please let me know if this is possible and if this can be sent through today.*

Babbage are unable to provide an estimate or commence any work until they know if they will have this data or not and what it looks like.

Much appreciated,  
Natasha

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**From:** Natasha Pritchard  
**Sent:** Wednesday, 25 May 2022 10:17 a.m.  
**To:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Cc:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Subject:** FW: Pioneer: RM18.004 - Modelling peer review

Hi Tony,

Thank you for those answers. In the interests of having a clean and clear document that includes these questions and answers (for the peer reviewer, submitters and decision maker), I have drafted the attached. Are you able to add your responses to this document and include any attachments?

I have outlined the scenarios we are considering. I have clarified the questions 6-7 and 9 and also added more detail to question 3. Let me know if what is requested is still unclear. I have included question 5 for completeness and question 10 as it relates to the original inference from the graph. Happy to discuss further.

Also, if there is any other analysis that can be done that would explain how the lake would have looked under Scenario B as well as changes that occur under Scenario C please include those. This is so that we have as clear a picture as we can.

In regards to the below – Should the the highlighted green words be 400 mm?

In terms of a peer review of the model and inferences, we may have a hydrologist at Babbage that can assist. They have asked whether you can provide the actual data behind the lake levels graph/model. This will expediate the peer review process and make for a more transparent process. Can you please let me know if this is possible and if this can be sent through today.

Kind regards,  
Natasha



**Natasha Pritchard**  
PRINCIPAL CONSENTS PLANNER

---

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**From:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Sent:** Tuesday, 24 May 2022 2:16 p.m.  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>; Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Hi Natasha,

Attached is the model "Onslow Level with inflows (taieri Synthetic).xlsx"

I have updated to include the actual lake level from 1/11/2007 and set the start level at the actual lake level on that day.

In the interest of transparency there is a second data set simulating the Onslow inflows. This data set is part Hydrological Modelling Dataset used by the Electricity Authority, the data based on inflows in to Lake Mahinerangi. See attached email for data and methodology. I have also put this data into the model and found that it does not provide a good correlation in some periods with the actual behaviours of the lake not being consistent with the Mahinerangi based inflows with the lake spilling much more frequently than has actually occurred. Lake Mahinerangi is 40km towards the coast and is likely subject to more coastal precipitation than Onslow. Of note is that the total volume of inflow based on the Lake Mahinerangi synthetic inflows over that derived from the Taieri River over the period 2007 – present is approximately 50% greater. I can provide the model with the Mahinerangi derived synthetic inflows to the reviewer if required.

The Taieri River derived synthetic inflows provides a better correlation in trends with the actual lake level record and I have adopted this as the basis for answering your questions. For sensitivity in calculating the relative levels I have included response for 3 scenarios, Taieri derived base inflows as received, +10% & +20%.

**Question 1**

Percentage of Time level below -2.5m & -3.5m

	Base inflow	+10%	+20%
-2.5m @200mm	89%	78%	56%
-2.5m @400mm	91%	87%	77%
<b>Change</b>	<b>4%</b>	<b>9%</b>	<b>21%</b>
-3m @200mm	81%	62%	31%
-3m @400mm	88%	79%	39%
<b>Change</b>	<b>9%</b>	<b>17%</b>	<b>8%</b>

**Question 2**

Percentage of time lake at lowest levels

	Base inflow	+10%	+20%
% below 5m @200mm	20%	11%	5%
% below 5m @200mm	45%	35%	26%
Change	25%	24%	21%

**Question 3**

Theoretical maximum days held at lowest levels

	Base inflow	+10%	+20%
Max days empty @200mm	122	77	51
Max days empty @400mm	169	152	95

**Question 4**

Change in Lake level fluctuations

There is not simple means of calculating lake level fluctuations I believe it is fair to say that the lake tends to either trend upwards or downwards over a periods of days to months. Furthermore the change in lake level from day to day would be near imperceptible from day to day (28.5mm per day max @ 200mm/wk and 57mm/day @ 400mm/wk)

**Question 5**

Answered previously

**Question 6**

It is unclear if you are asking in relation to the actual lake level or the theoretical lake level? Since 2007 the lake has been lower than 2.5m below crest in 5 years (2008, 2010, 2013, 2021, 2022)

**Question 7**

It is unclear if you are asking in relation to the actual lake level or the theoretical lake level? Since 2007 the lake has been lower than 3m below crest in 2 years (2008, 2022)

**Question 8**

See attached

**Question 9**

When the lake is at Maximum operating level (at or just below crest) the discharge from the lake would be at the required level to meet generation demand, up to 6m<sup>3</sup>/s. If the level was above spillway crest the discharge would be uncontrolled with a free discharge over the spillway.

**Tony Jack**

Development Engineer

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**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Tuesday, 24 May 2022 12:09 PM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Hi Will/Tony,

Thank you for that confirmation. I will start that process and let you know a timeframe once I have it.

Can you let me know an expected timeframe for answers to the below? I will have these peer reviewed as inferences from the model so will need them before that can commence. Is the end of this week achievable?

Can you also confirm and provide access to any other data/information required to peer review the model. I will provide them the following:

1. Model output graph and supporting email from Will Nicholson dated 23 March 2022.
2. Lake Onslow lake response methodology document dated 28 March 2022.
3. Synthetic inflow data for Lake Onslow from MBIE/NIWA provided on 3 May 2022.
4. Questions and answers to the below (when they are available).

I will ask them to peer review the method, the model and the analysis and inference drawn from the data and to provide comment on the following:

- The quality of the data used– any verification/qualification on the inputs used in the model.
- What the margin of error is and key areas of uncertainty within the model.
- Whether any sensitivity testing is necessary/possible.

As a note, the estimated hearing costs have not included the time to arrange this peer review and pay for the audit. I can provide you an update on costs for this peer review once we have a party engaged. I

can also provide an update on current costs when the hearing report goes out. Let me know if you would like any other updates on costs.

In terms of the questions below, I note that the data set you have for the model is from June 2007 so it is appropriate that the questions relate to data from that date and not November 2006 as stated below.

Once we have details, I will provide you an update on timeframes and I will also update the submitters.

Kind regards,  
Natasha



**Natasha Pritchard**  
PRINCIPAL CONSENTS PLANNER

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**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Tuesday, 24 May 2022 11:07 a.m.  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>; Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Thanks Natasha.

Tony not cc'ed in your latest email, FYI. Tony – consolidated questions etc below.

1. The proportion of time that the lake level would have been below 2.5 m below crest and below 3 m below crest. *Is it the % of time below 2.5m and 3m in the theoretical situation if the consent had been fully exercised over the past 20 years?* **Yes, the percentage of time in both theoretical scenarios (200 mm and 400 mm draw down – orange and blue lines in the model) that the lake level had been below 2.5 m and 3 m below the crest. It would be most appropriate that this was from the date when the consents were implemented. I have the decision on the current consents being made in November 2006.**

2. The proportion/**percentage** of time that the lake would have been at the lowest lake level. **This is since the consent was implemented – November 2006 and for both scenarios.**
3. The average and maximum time (duration) that the lake would have been held at the lowest lake level. **Since the consent was implemented and for both scenarios.**
4. Any means of calculating the change in lake level fluctuations between the orange (200 mm/week) and blue (400 mm week) lines on the graph. *Can you please elaborate/clarify? It's not clear what you're looking for here. I am seeking to clarify whether there is more or less fluctuations in lake levels under the two scenarios. Eye balling the model it would appear that the difference between the two scenarios is not great as they follow a similar pattern but the graph is tight so it is hard to see all the ups and downs. It would be a comparison of how many times the lake would reach a high and low point and the difference in frequency between the two scenarios.*
5. It may be helpful to explain why the lake is shown as going to 5.2 m below the crest and not 5 m. *Answer: 5.2 m because that is the operating range of the lake. The spillway is 685.115m and the minimum is 679.9. (5.215m range). Thank you*

A few other pieces of information that could be answered by extracting from the data to provide an outline of the scenarios and which will be relevant to have answers for the orange (200 mm) and blue (400 mm) scenarios are:

6. How many calendar years since the consent was implemented where the lake was at 2.5 m below crest or below for the entire year?
7. How many calendar years since the consent was implemented where the lake was at 3 m below crest or below for the entire year?
8. What months in the year are the highest lake levels (i.e. 3 m or less below crest) in both scenarios?
9. What does it mean for the flows taken and discharged to the Teviot River when the lake is at maximum operating level? Would there be any discharge?

Natasha – I've talked to Tony, and we think it best if you arrange the review/audit from your end.

Regards,  
Will

## Will Nicolson

Senior Planner/Scientist



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**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Tuesday, 24 May 2022 10:31 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Kia ora Will,

Appreciate the follow up.

Clarification below in red.

A few other pieces of information that could be answered by extracting from the data to provide an outline of the scenarios and which will be relevant to have answers for the orange (200 mm) and blue (400 mm) scenarios are:

6. How many calendar years since the consent was implemented where the lake was at 2.5 m below crest or below for the entire year?
7. How many calendar years since the consent was implemented where the lake was at 3 m below crest or below for the entire year?
8. What months in the year are the highest lake levels (i.e. 3 m or less below crest) in both scenarios?
9. What does it mean for the flows taken and discharged to the Teviot River when the lake is at maximum operating level? Would there be any discharge?

Let me know if you require any further clarification.

Thanks for the heads up. I'll start to have a think about who we could engage for this work, if that is required.

I have cced Tony in so that he has answers to the questions below and the additional questions above.

Kind regards,  
Natasha





**Natasha Pritchard**  
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**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Tuesday, 24 May 2022 10:02 a.m.  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Morning Natasha,

I've been chasing up Tony for a while now, but he's obviously swamped after being away on leave. Will give him a call later this morning if I don't hear back from him. Realise it's in all of our best interests to get this addressed quickly!

In terms of your latest round of questions, Tony mentioned he'd be looking for some clarifications:

1. The proportion of time that the lake level would have been below 2.5 m below crest and below 3 m below crest. *Is it the % of time below 2.5m and 3m in the theoretical situation if the consent had been fully exercised over the past 20 years? Yes, the percentage of time in both theoretical scenarios (200 mm and 400 mm draw down – orange and blue lines in the model) that the lake level had been below 2.5 m and 3 m below the crest. It would be most appropriate that this was from the date when the consents were implemented. I have the decision on the current consents being made in November 2006.*
2. The proportion/percentage of time that the lake would have been at the lowest lake level. *This is since the consent was implemented – November 2006 and for both scenarios.*
3. The average and maximum time (duration) that the lake would have been held at the lowest lake level. *Since the consent was implemented and for both scenarios.*
4. Any means of calculating the change in lake level fluctuations between the orange (200 mm/week) and blue (400 mm week) lines on the graph. *Can you please elaborate/clarify? It's not clear what you're looking for here. I am seeking to clarify whether there is more or less fluctuations in lake levels under the two scenarios. Eye balling the model it would appear that the difference between the two scenarios is not great as they follow a similar pattern but the*

graph is tight so it is hard to see all the ups and downs. It would be a comparison of how many times the lake would reach a high and low point and the difference in frequency between the two scenarios.

5. It may be helpful to explain why the lake is shown as going to 5.2 m below the crest and not 5 m. *Answer: 5.2 m because that is the operating range of the lake. The spillway is 685.115m and the minimum is 679.9. (5.215m range).* Thank you

In terms of the peer review, my inclination is to ask you/ORC to appoint someone to do this. That way, there will be no question of the independence of the review. And I can't think of anyone within my sphere of contacts who could do it. Will confirm this with Tony, however.

Back in touch soon.

Cheers,  
Will

## Will Nicolson

Senior Planner/Scientist



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**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Tuesday, 24 May 2022 9:29 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Cc:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Good morning Will/Tony,

I am just following up on the below. Are you able to provide an update on whether the model will be peer reviewed and likely timeframes around this?

In terms of the 5 questions below, could questions 1-3 also be answered for the proposed consented environment (i.e. the 400 mm week scenario (blue line))? This will provide an ability to compare the differences between the two scenarios.

Any other information that can be extracted from the model to describe the existing consented environment and proposed consented environment would be appreciated too.

Kā mihi,  
Natasha



**Natasha Pritchard**  
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**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Thursday, 19 May 2022 11:03 a.m.  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Cc:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Ok, thanks for clarifying Natasha. Will see what we can do.

---

**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Thursday, 19 May 2022 9:56 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Cc:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Pioneer: RM18.004 - Modelling peer review

Hi Will,

Thank you for looking into this.

Ideally the expert would be outside of LandPro but, given the short timeframe and potential paucity of experts in this field, this may be something for you to consider. I would advise that if they were used there is a section in their peer review report that clearly outlines any actual and potential conflicts of interest and how these were managed i.e. their independence would need to be demonstrated. Their expertise/experience would also be helpful to have outlined. This will enable the decision maker to weigh up how they consider the evidence.

It would be appropriate that the expert has had no involvement with the consent application to date and is purely reviewing the model, it's methodology, assumptions and outputs.

Hope that helps.

Kind regards,  
Natasha



**Natasha Pritchard**  
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**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Wednesday, 18 May 2022 4:52 p.m.  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>

Cc: Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
Subject: RE: Pioneer: RM18.004 - Modelling peer review

Hi Natasha,

Thanks for clarifying your stance on the existing environment – and I agree that the model really helps in visualising the potential effects of the proposal in this context.

Leave this with me and I will follow up with Tony to see what the best course of action is. You've said that the peer review would ideally be completed by an independent expert. We have someone here at Landpro who is reasonably well versed in data analysis and would probably be a good candidate for the review, but I'm interested to know whether you'd be concerned about the potential conflict of interest here? Not saying we would necessarily do it, but keeping options open at this stage, as I imagine it's going to be quite hard to find someone else suitably "qualified" for the task.

Cheers,  
Will

## Will Nicolson

Senior Planner/Scientist



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**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Wednesday, 18 May 2022 4:34 PM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Cc:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** Pioneer: RM18.004 - Modelling peer review

Hi Will/Tony,

I am following up on the below.

We have received some legal advice around what the 'existing environment' is when considering a s127 of the RMA application. This is to provide direction for the decision maker. This advice will be attached as expert evidence to the s42A report and circulated to all parties with the report.

In short, I will be comparing the effects of the proposed change against an existing environment that is the current consents being exercised to their fullest extent. The model does play a critical part in providing some context to the scenario of what the lake levels would have looked like if the consents had been exercised to their fullest extent since implementation.

There is therefore value in establishing the level of confidence with the model, based on the questions in the email dated 2 May 2022. Can you please let me know by the end of this week whether you plan to engage someone to undertake a peer review of the model and/or answer the questions about the model.

In addition, are the following details able to be provided/extracted from the model to establish some parameters around the existing environment scenario. Ideally these are also peer reviewed. I imagine, given the assumptions and nature of the model, a range may be most appropriate to answer these questions:

1. The proportion of time that the lake level would have been below 2.5 m below crest and below 3 m below crest.
2. The proportion of time that the lake would have been at the lowest lake level.
3. The average and maximum time (duration) that the lake would have been held at the lowest lake level.
4. Any means of calculating the change in lake level fluctuations between the orange (200 mm/week) and blue (400 mm week) lines on the graph.
5. It may be helpful to explain why the lake is shown as going to 5.2 m below the crest and not 5 m.

Any questions, please let me know.

Kā mihi,  
Natasha



**Natasha Pritchard**  
PRINCIPAL CONSENTS PLANNER

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**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Thursday, 12 May 2022 10:08 a.m.  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Cc:** Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Modelling peer review and extra details

Understood, and sounds good.

Cheers,  
Will

---

**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Thursday, 12 May 2022 10:06 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Modelling peer review and extra details

Hi Will,

Thank you for that update. Much appreciated.

I appreciate the limitations with the modelling. The questions assist with how much weight could/should be placed on the model when a decision is being made.

It looks like Tony is away until next week. We will wait to hear from him on whether any of the technical details below are proposed to be provided.

Cheers,  
Natasha

---

**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Thursday, 12 May 2022 10:00 a.m.  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>; Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** RE: Modelling peer review and extra details

Sorry about the delay, Natasha.

The technical elements of those queries are not something I can help with, so I'll leave those to Tony.

I will say that my understanding is that the data and subsequent graph/model was provided as indicative only – I don't see how it could be otherwise, if it is based on synthetic data rather than real-world/measured data. The graph and model therefore provides for points of discussion, rather than a tool for making a definitive decision.

Regards,  
Will

---

**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Thursday, 12 May 2022 9:40 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Subject:** Modelling peer review and extra details

Hi Will and Tony.

Thank you for providing the recent updates to the lake level data.

Are you able to advise whether any of the additional details on the modelling will/are likely to be provided.

Much appreciated,  
Natasha

---

**From:** Natasha Pritchard  
**Sent:** Monday, 2 May 2022 3:52 p.m.  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Tony Jack <[tony.jack@pioneerenergy.co.nz](mailto:tony.jack@pioneerenergy.co.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>; Kay | Lindis <[kay@lindis.co.nz](mailto:kay@lindis.co.nz)>; Annabelle Coates <[annabelle.coates@babbage.co.nz](mailto:annabelle.coates@babbage.co.nz)>; Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Hi Will and Tony,

I understand we are still waiting to see if the third party will let the data be shared that underpins the Lake Onslow levels model, provided as further information on 23 March 2022.



In terms of the model, the decision maker is likely to want to know the following and this will be relevant when parties are considering how much weight they place on the output. Are you able to consider and provide a response to the below?

1. Has the model undergone a credible and objective peer review? I understand this is currently not the case with the main limitation being access to the underlying data. If this data does become available would the applicant consider having the model peer reviewed? If so, this would ideally be ready and shared before the end of this month (Friday 27 May) to allow time for consideration in evidence. As noted, the peer review would need to be undertaken by an independent expert.
2. Comment on the quality of the data used– any verification/qualification on the inputs used in the model.
3. Undertake an uncertainty analysis – what is the margin of error and key areas of uncertainty within the model?
4. Outline what sensitivity testing, if any, has been done.

I have cced the submitters and Council experts into the email so that they are all aware of this request.

Any questions, please let me know.

Kā mihi,  
Natasha



**Natasha Pritchard**  
PRINCIPAL CONSENTS PLANNER

---

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**From:** Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Sent:** Wednesday, 27 April 2022 11:27 a.m.  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Kia ora folks,

Yes, the second assumption is also correct. The statistical lake level exercise in the Fish and Game submission is derived from the previously supplied dataset which went up to 2018. If it's helpful, I can update the work using the new dataset and send it to the parties.

Cheers,

Nigel

---

**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Wednesday, 27 April 2022 9:49 am  
**To:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>; Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Hi Natasha,

Can confirm that the first assumption is correct. I will let Nigel respond to the second.

Regards,

Will

---

**From:** Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Sent:** Wednesday, 27 April 2022 9:15 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Kia ora Will/Nigel,

Thank you for working through the sharing of this data.

For confirmation:

- This is the data set that has been relied on by the applicant in the documents provided by the applicant to date?
- In terms of the F and G submission – this was based off the different data set held by F and G that included records up to 2018 only?

I will forward onto Council's experts so that they are aware of this.

Thanks,

Natasha



**Natasha Pritchard**  
PRINCIPAL CONSENTS PLANNER

---

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**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Tuesday, 26 April 2022 5:57 p.m.  
**To:** Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>; Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Hi Nigel,

Lake level daily average attached, provided by Tony.

Cheers,  
Will

---

**From:** Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Sent:** Tuesday, 26 April 2022 9:17 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>; Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Thanks Will, I appreciate it.

Cheers,

Nigel

---

**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Tuesday, 26 April 2022 9:14 am  
**To:** Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>; Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Morning Nigel,

Tony has agreed to share the lake level data, and will prepare it and disseminate when he gets the chance.

We will need to go back to the institution that provided the data for the modelled scenarios to see whether they are ok with sharing that. Will come back to you once we know more.

Regards,  
Will

## Will Nicolson

Senior Planner/Scientist



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**From:** Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>  
**Sent:** Thursday, 21 April 2022 8:11 AM  
**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Thanks for that Will,

That sounds like a good plan. Hopefully, Tony is agreeable to the idea.

The other data set that I've been thinking about a lot is that which underpins the modelled lake level graph for max consent conditions and max consent conditions + variation that were provided the other week. It could be useful down the track to have a chat about the relevance of that modelling, as it clearly has little relevance to the real world. If they are thought to be relevant, then it'd be useful to find a way share the data and/or to make the presentation more user friendly for the parties and decision maker. I see a fundamental issue if one party were to rely on a dataset at hearing that the decision maker and other parties aren't able to interrogate.

Cheers,

Nigel

---

**From:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>  
**Sent:** Wednesday, 20 April 2022 9:17 am  
**To:** Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>; Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>  
**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>  
**Subject:** RE: Onslow agreement on data to use at hearing

Morning Nigel,

That seems like a reasonable approach. I'll go back to Tony to make sure he's ok with providing the latest lake level data, and ask him to send it through when he can.

Other than the pile of documents that have been provided to council alongside the application over the past ~4 years, was there anything else you had in mind?

Cheers,

Will

**Will Nicolson**

Senior Planner/Scientist



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**From:** Nigel Paragreen <[nparagreen@fishandgame.org.nz](mailto:nparagreen@fishandgame.org.nz)>

**Sent:** Tuesday, 19 April 2022 10:37 AM

**To:** Will Nicolson <[will@landpro.co.nz](mailto:will@landpro.co.nz)>; Natasha Pritchard <[natasha.pritchard@orc.govt.nz](mailto:natasha.pritchard@orc.govt.nz)>

**Cc:** Jayde Couper <[jcouper@fishandgame.org.nz](mailto:jcouper@fishandgame.org.nz)>; Helen maisuria <[rajuhelen@hotmail.com](mailto:rajuhelen@hotmail.com)>

**Subject:** Onslow agreement on data to use at hearing

Kia ora Will & Natasha,

I thought I'd touch base to get your thoughts. With the Onslow variation barrelling off to a hearing I think it's useful to have a shared set of data that the parties can work from. It'll create confusion at the hearing if we're all working from different data sets. Avoiding that confusion and enabling a smooth hearing is in the benefit of all parties.

I'm proposing that we agree on a common set of essential data that can be used by all parties at the hearing. What do you two think of that approach conceptually?

If we were to agree on this approach, my feeling is that it's best to start with lake level data. Will, I assume that of the parties, PEL will be the only one to have up to date lake level data. F&G has records up to 2018. Acknowledging the benefit to all parties of avoiding confusion at hearing, how does PEL feel about sharing an up to date lake level dataset?

Cheers,

**Nigel Paragreen** | Environmental Officer

## Otago Fish and Game Council

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