Contents Page: The Sunshine Trust - Tui

All written comments received on the MPI salmon relocation proposal, grouped according to surname/business/organisation/Iwi name.

Written Comment No:0589

Subject	**Comments submitted**
From	Tim Newsham
To	aquaculture submissions
Sent	Monday, 27 March 2017 2:46 p.m.
Attachments	<<Comments on Proposal to Relocate Salmon Farms.docx>>

Please find attached file and process.

Written Comment No:0589

Comments on:

The Potential Relocation of Salmon Farms in the Marlborough Sounds

Submitted by and address for service:

The Sunshine Trust,

[redacted] Marlborough 7202

Email: [redacted]

The below bullet points are some of the main issues I have with this application:

- I am a proponent of marine farming and see it as a tool toward an integrated approach to feeding human population if performed in a sustainable manner.
- I am opposed to the process which MPI is using to support the establishment of future marine farming in the Marlborough Sounds. To me, it appears to be a heavy handed, top down, dictatorial approach that a particular party of government is exercising to meets its stated intention of financial growth in spite of sufficient evidence of harm to the marine environment. Further, its proposal lacks the scientific evidence as to the short and long term effects to the Sounds water quality.
- This proposal ignores the 2013 Board of Inquiry and the 2014 Supreme Court decision about expansion of salmon farming into prohibited areas.
- There are legal references for the obligation to take "a precautionary approach". This proposal is made without sufficient evidence of the potential effects, and in light of King Salmon's poor record of compliance and its inability to meet water quality guidelines, should be postponed until other high flow sites have proven their ability to operate within those guidelines. These current problem sites should reduce their stocking rate in the meantime.
- The proposal to move the problem farms carries with it the proposal to increase fish stocks and fish feed to 24600 ton per year. There is no local evidence that the environment, despite being higher flow sites, can handle this increase.
- The Board of Inquiry decision turned down proposed sites in the Waitata Reach area because of the outstanding natural character of the landscape. It also identified the cumulative effects on Natural Character and Tangata Whenua values. How can this decision now be ignored?
- Central government and King Salmon have joined together to increase the financial benefits of the export salmon industry. It seem obvious to me, that rather than the continuing battle of tweaking the multitude of conflicting effects by using public

space within the confines of the Marlborough Sounds, that both the government and King Salmon place their money and energy on the development of offshore farming. The sooner this approach is taken, the sooner they can get on with it and reap the benefits of their current agenda.

I, and the trust I represent, are opposed to this proposal to move the existing farms within the Sounds.

I wish to be heard on this matter.

Tim Newsham – Trust benefactor

Written Comment No: 0094

Potential relocation of salmon farms in the Marlborough Sounds.

Kim Thian
[redacted]
Nelson
[redacted]
Email: [redacted]

I work at King Salmon and I rely on the salmon farms to keep me in work. I support the relocation of the 6 salmon farms to improve the health and quality of our salmon. If it is good quality it makes my job easier and customers will be satisfied and will buy more. This will mean more jobs for everyone.

signed

(Kim THIAN)
15-02-2017

Written Comment No: 0364

Subject	**Salmon Relocation Advisory Panel**
From	Fiona Thomas
To	aquaculture submissions
Sent	Friday, 24 March 2017 10:00 a.m.

Hi,
My name is Fiona Thomas, and I am a Senior HR Advisor with NZ King Salmon. I have worked for the company for 8 years, and I live in the Nelson region, with family in Blenheim and Picton.
Over my time with NZ King Salmon I have seen the company go through some ups and downs, but we have always remained focused on striving for best practice in what we do, not only in aquaculture, but in all areas of our business. I have seen the company grow over the last number of years, and the benefits this growth has had, not simply for our company, but also for our region.
As the company continues to grow, I believe the potential salmon relocation process being proposed by MPI will provide for better environmental, social and economic outcomes. It is for these reasons that I support this proposal.
I understand that this proposal to move farms to higher water flows will achieve better sustainable outcomes, such as reduced seafloor effects, and improved environmental monitoring and management. It will assist with adopting Best Management Practices guidelines which is a benefit for the environment, and a goal for aquaculture globally.
There are social benefits to this proposal also as these farms would be moved out of areas with high recreational use, and populated bays. Additionally, a significant social and economic benefit of relocating farms would be the additional jobs created over time in this region as the company grows, and how this growth would increase GDP.
I would not like to be heard by the hearing panel.
Regards
Fiona
--

Fiona Thomas, Senior HR Advisor
[redacted]
www.kingsalmon.co.nz

Written Comment No: 0422

Subject	**Mpi Submission - can you forward for me please. Having internet issues in hotel.**
From	Karen Mant
To	aquaculture submissions
Cc	Simon Thomas
Sent	Saturday, 25 March 2017 7:00 a.m.

---------- Forwarded message ----------
From: "Simon Thomas" [redacted]
Date: 25/03/2017 03:19
Subject: Submission - can you forward for me please. Having internet issues in hotel.
To: "Karen Mant" [redacted]
Cc:

To whom it may concern,

My story at NZ King Salmon is a long one. I am going to try to keep it as succinct as possible.

I have been working at NZ King Salmon for 8.5 years. In a previous life I was a chef. I discovered this was a great job but a terrible career. I decided that the best way forward for me was to go to Massey university as an mature student and get a degree. I studied for, and gained a Bachelor of Food Technology majoring in Food Technology. This would allow me to continue to work with food, my true passion, but take it to "the next level".
In my second year of study the university held a careers day for companies looking for graduates. I attended and had a chance meeting representatives from the NPD (New Product Development) team from NZ King Salmon. I started a conversation with them around NPD projects and what they were focusing their attention on. I felt I could assist with my chefing background so approached NZ King Salmon with some ideas. From that meeting and presentation I was offered a summer project. I completed that and returned to university. The following summer I was offered another project at NZ King Salmon and decided to return as I had enjoyed the previous project with them. NZ King Salmon then went on to sponsor my 4th year project and then offer me a full time role once I qualified.
From there I worked in the NPD team and tended to work on projects for large foodservice (restaurants and distributors) projects. Again, my chef background gave me a unique set of skills so I was able to understand what the customer was wanting/needing and what was possible from a production perspective. Through this period with the company I was mentored, managed, taught and encouraged. NZKS was able to offer me work that grew my experience and knowledge of food processing. I was also offered and accepted additional education opportunities. This was paid for by the company and one day a month was spent in a classroom whilst on company time.
Whilst working at NZKS I also meet my partner. She worked in HR, I worked in NPD. We started dating and are now a King Salmon couple. We have been married for 5 years and have two children. My wife still works part time for the company and is able to work flexi hours to work in with our busy household. She works two mornings in the office (9 hours) and does 6 hours from home. This has been extremely valuable in many ways – there has been a financial contribution to the household, additional training and education for her, she has kept up to date with industry whilst being able to care for our children, it allowed her to have grown up interactions with our non children (very important mentally).
After 5 years in Product Development I was offered a position in sales. I had been working with a lot on customers off shore and enjoyed this. I was offered and accepted the role of Export Sales Manager. In this role I looked after customers in countries where we did not have staff. This involved the management of existing and new customers in Hong Kong, Singapore, Thailand, Taiwan, South

Korea, China and Brokers selling in the Pacific Islands. Additionally, I offered technical and sales support to our staff in Australia, Japan and North America. I really enjoyed this role as it was a new direction for me to focus on and a brilliant learning opportunity. It was quite different from my position in Product Development but with enough crossover for it to be achievable for me. This position required me to travel quite a bit and I was fortunate enough to travel to many different cities and countries as part of my job. It was another great learning opportunity and I was fully supported by my manager. I must have been doing ok as I was then asked to manage the Auckland foodservice market as well. This position had me managing distributors, wholesalers, working with restaurants, caterers etc in the greater Auckland area. Another great challenge and one that I could relate to having had a cooking background. This required me to travel to Auckland 3 days a week for 7 months. With a second baby in the house this became increasingly more difficult and that is when I was offered my current role. After two years in export and domestic sales I was promoted into a management position for a new division within the King Salmon company.

My current position is the Divisional Manager for Omega Innovations, a division of the NZ King Salmon Co. Our mandate is to focus on by products generated in our farming and processing operations. This had been an area of the company that had not had dedicated focus for improvement. Our objective is to find better disposal and transportation methods for our offal and to develop business that consumes by products. We have done a lot of work in this area already and developed products and our customer base to consume materials. We see a lot of these materials as being valuable in both nutritional and financial value. We have developed and launched a new pet food and treats range called Omega Plus. This is has been in South Island supermarkets for 6 months and we are now rolling this out into North Island stores. As I write this I am sitting in a hotel in Orlando, America. I am looking at export options for Omega Plus so attending the Global Pet Expo to determine where our product will be positioned in this market.

Additional to the pet food project we have a number of new products we are developing, all that use materials that were otherwise under utilised. We have long term plans to develop and launch new products in both domestic and export markets. To do this we have created two new roles (3 if you include my position) and have plans to create at least one more in the next 3 months. The two new roles in Omega Innovations have been internal promotions, then allowing for two new employees to be employed.

My experience at NZ King Salmon over the past 8 years has been extremely valuable to me. I have moved from being a university graduate through to a divisional manager managing 2 staff within a large company. I see my future as being very exciting with many possibilities and potential. New Zealand King Salmon has provided my family with steady employment in Nelson and provided me with ongoing learning and development opportunities. There are few companies that I know of in our region that can offer me this.

I have been very happy at King Salmon and have plans to stay on at the company.

Kind regards
Simon

Simon Thomas
Divisional Manager
Omega Innovations Ltd

[redacted] | **W:** www.kingsalmon.co.nz | **A:** [redacted] Tahunanui, Nelson. 7011

New Zealand King Salmon

OMEGA PLUS

Written Comments No: 0293

Subject	**submission**
From	Pam Thomlinson
To	aquaculture submissions
Sent	Wednesday, 22 March 2017 4:49 PM

My husband myself are fully in favour of the relocation of the salmon farms. We see this as a positive move. it is done overseas so should be done here.
Pamela and Roger Thomlinson
[redacted]
Mahau Sound
[redacted] Picton [redacted]

Written Comment No: 0077

Potential relocation of salmon farms in the Marlborough Sounds.

Marcia Thompsett
[redacted]

I have worked at NZKS for a total of 14 years. I moved away from Nelson and when I moved back I was able to get a job back at NZKS. It is not easy to get a job and I am lucky King salmon is here. I support moving the farms in the sounds to high flow sites because I want to keep my job and for us to continue to provide jobs in the future.

The new sites will be much better for the environment. The quality of the salmon will be much better and easier to work with in the factory. We will be able to produce more fish. Our customers will be happy and we will be able to sell more. This will create more jobs in the Nelson/Marlborough area and security for families.

Marcia Huia Thompsett

M. Thompsett

16.02.2017

Written Comment No: 0395

Subject	**NZ Salmon**
From	Lex Thomson
To	aquaculture submissions
Sent	Friday, 24 March 2017 3:23 PM
Attachments	<<20170324022827.pdf>>

Hello, submission on the salmon farm relocations attached.

Thanks.

Lex Thomson

Managing Director
G and T Construction Ltd
[redacted] Kaiapoi 7644
New Zealand
[redacted]
www.gtconstruction.co.nz

Written Comment No: 0395

Salmon Farm Relocation

Ministry for Primary Industries

Private Bag 14

Port Nelson

aquaculture.submissions@mpi.govt.nz

To: The Salmon Relocation Advisory Panel

I am the managing director of G&T Construction Ltd and also a keen amateur fisherman who regularly visits the Marlborough Sounds.

I support the potential salmon relocation process being proposed by MPI because I believe the salmon farm relocation will provide for better environmental, social and economic outcomes.

I understand that by relocating farms from lower water flow sites to higher water flows sites fish performance will improve and therefore the health of the salmon. It will also have a lower level of effect on the seabed which will have positive environmental benefits.

Environmentally, adopting the Best Management Practice guidelines that were agreed by the Council and community is the future for aquaculture globally.

There will be more direct and indirect jobs created if this proposal goes ahead resulting in economic improvements for the communities in the top of the south.

Moving some farms away from baches to more remote locations will improve social amenities which is also a good thing especially from a navigation viewpoint.

I **would not** like to be heard by the hearings panel.

Name: Lex Thomson

Date: 24 March, 2017

[redacted]

L. Thomson

Written Comments No: 0359

Subject	**NZ King Salmon Submission**
From	Graeme Taylor
To	aquaculture submissions
Sent	Friday, 24 March 2017 9:18 AM
Attachments	<<1721_001.pdf>>

Good morning

A submission re NZ King Salmon relocation of farms.

Can you please confirm receipt of this submission.

Regards

Graeme Taylor
Business Development Manager - Nelson - TIL Freight
Phone - [redacted] | Mobile - [redacted] | [redacted]
15 Artillery Place, Richmond, Nelson

Written Comments No: 0359

Salmon Farm Relocation

Ministry for Primary Industries

Private Bag 14

Port Nelson

aquaculture.submissions@mpi.govt.nz

To: The Salmon Relocation Advisory Panel

Introduction – who you are / where you work / and your role

Graeme Taylor – Aquaculture Business Development Manager

TIL Freighting (TNL Brand)

[redacted]

Richmond, Nelson

I support the potential salmon relocation process being proposed by MPI because I believe the salmon farm relocation will provide for better environmental, social and economic outcomes.

I understand that by relocating farms from lower water flow sites to higher water flows sites fish performance will improve and therefore the health of the salmon. It will also have a lower level of effect on the seabed which will have positive environmental benefits.

Environmentally, adopting the Best Management Practice guidelines that were agreed by the Council and community is the future for aquaculture globally.

There will be more direct and indirect jobs created if this proposal goes ahead resulting in economic improvements for the communities in the top of the south.

Moving some farms away from baches to more remote locations will improve social amenities which is also a good thing especially from a navigation viewpoint.

What will this mean for you as a partner of King Salmon?

We are currently devanning, storing and transporting the salmon feed from Port Nelson to their barges in Havelock and Picton.

TIL transport NZKS smolt from their hatcheries at Tentburn (Southbridge) and on occasion from the Takaka hatchery.

With the relocation, we expect increases in both of the above parcels of work.

Written Comments No: 0359

How will this affect your company?

The effect of NZKS locating their farms into high water flows for TIL

- We expect NZKS to finish more fish annually through their farms. The end result for TIL would be, more feed to handle and potentially more smolt to transport.
- On any given day TIL would have 4/6 employees involved in feed storage and transportation.
- With an additional 5 people involved with smolt transportation.

TIL Freight has a wide variety of clients. We rank NZKS as having major potential to increase their $ spend into the Top of the South, and export earnings.

On going development work that NZKS has

- Primary processing in Picton
- Fish fertiliser
- Petfood factory
- Pharmaceutical division

\+ Feed mill that would see large volumes grown in the South Island.

All of the above are planned to be in the Blenheim area which will see significant employment growth.

I **would** like to be heard by the hearings panel.

Name: G. Taylor

Date: 24/3/2017.

Email: [redacted]

Phone: [redacted]

Written Comments No: 0253

Subject	**NZKS Potential Salmon Farm Relocation Submission**
From	[redacted]
To	aquaculture submissions
Sent	Friday, 17 March 2017 1:37 p.m.
Attachments	<<Salmon Farm Relocation Submission.pdf>>

Please see attached my submission.

Written Comments No: 0253

Salmon Farm Relocation

Ministry for Primary Industries

Private Bag 14

Port Nelson

aquaculture.submissions@mpi.govt.nz

To: The Salmon Relocation Advisory Panel

I am an employee of New Zealand King Salmon working as the Accounts Payable Controller.

I support the potential salmon relocation process being proposed by MPI because I believe the salmon farm relocation will provide for better environmental, social and economic outcomes.

I understand that by relocating farms from lower water flow sites to higher water flows sites fish performance will improve and therefore the health of the salmon. It will also have a lower level of effect on the seabed which will have positive environmental benefits.

Environmentally, adopting the Best Management Practice guidelines that were agreed by the Council and community is the future for aquaculture globally.

There will be more direct and indirect jobs created if this proposal goes ahead resulting in economic improvements for the communities in the top of the south.

Moving some farms away from baches to more remote locations will improve social amenities which is also a good thing especially from a navigation viewpoint.

Further to the above I have been an employee at New Zealand King Salmon ever since I left high school (7 years ago) in this time they have offered me career growth and have been an excellent Company to work for. By allowing the salmon relocation process this could also give the potential for other King Salmon employees to further develop their career and keep them working in the top of the south.

I **would not** like to be heard by the hearings panel.

Name: Emma Tippett

Date: 17 March 2017

Written Comment No: 0254

Subject	
From	[redacted]
To	aquaculture submissions
Sent	Friday, 17 March 2017 1:46 p.m.
Attachments	<<SalmonFarmRelocation-LTippett.pdf>>

Written Comment No: 0254

Salmon Farm Relocation

Ministry for Primary Industries

Private Bag 14

Port Nelson

aquaculture.submissions@mpi.govt.nz

To: The Salmon Relocation Advisory Panel

I support the potential salmon relocation process being proposed by MPI because I believe the salmon farm relocation will provide for better environmental, social and economic outcomes.

I understand that by relocating farms from lower water flow sites to higher water flows sites fish performance will improve and therefore the health of the salmon. It will also have a lower level of effect on the seabed which will have positive environmental benefits.

Environmentally, adopting the Best Management Practice guidelines that were agreed by the Council and community is the future for aquaculture globally.

There will be more direct and indirect jobs created if this proposal goes ahead resulting in economic improvements for the communities in the top of the south.

Moving some farms away from baches to more remote locations will improve social amenities which is also a good thing especially from a navigation viewpoint.

I **would not** like to be heard by the hearings panel.

Name: Lynnette Tippett [redacted]

Date: 17 March 2017

Written Comments No: 0461

Subject	**Farm Relocation Submission**
From	Lance Toma
To	aquaculture submissions
Sent	Monday, 27 March 2017 4:51 p.m.

To whom it may concern,
Kia ora, my name is Lance Toma and i have worked for New Zealand King Salmon for 13yrs holding a number of Supervisory / Co-ordinator roles across the business. I have been married to my wife for 17yrs and have 2 daughters aged 22yrs and 16yrs. My current role is the Production Co-ordinator for Omega Innovations which is a pet food division of New Zealand King Salmon. I've been in this role for 7mths.
I first started working for NZKS as a casual hand on the dayshift in our Ready to Eat factory then within a couple of weeks i was lucky enough to be appointed charge-hand of night shift operations. This involved working in a processing area where smoking salmon fillets using HACCP & CCP principals are applied, so you really had to know what you were doing in terms of food safety, health & safety, product quality etc... I supervised a small team at that time and we always met our KPI targets unless their was a breakdown etc... I held this position for 2 years.
I gained another promotion within the business in the Compliance department for NZKS as a Compliance Co-ordinator and stayed in this position for 8yrs. This role was challenging but rewarding as the work got you to cross function with a number of other departments and sites. Unfortunatly the role became redundant, but I managed to secure a filleting job in the fresh factory for 3yrs.
NZKS was big on training all its staff members applicable to their job description. I've completed a number of training modules and achieved qualifications to national certificate level 4. NZKS has helped me develop my knowledge and skill level inline with industry standards. NZKS has a policy of recruiting within the business which I've always support.
I support the potential salmon farm relocation process being proposed by MPI. I believe the salmon farm relocation will provide for better environmental, social and viable economic benefit for the business and communities. I do however have some reservations for the proposed farm site *"Mid Channel Waitata, (3)"* I don't agree with it being situated in the middle of the channel and would like to look at another alternative site.
I do however understand that by relocating farms from lower water flow sites to higher water flows sites fish performance will improve and therefore the health of the salmon. It will also have a lower level of effect on the seabed which will have positive environmental benefits.
Environmentally adopting the Best Management Practice guidelines that were agreed by the Council and community is the future of aquaculture globally.
There will be more direct and indirect jobs created if this proposal goes ahead resulting in economic improvements for the communities in the top of the south.
Moving some farms away from baches to more remote locations will improve social amenities which is also a good thing
I **would not** like the opportunity to be heard by the Advisory Panel
Noho ora mai,
Lance Toma
Production Co-ordinator

Omega Innovations Ltd
Ph: [redacted] | **M:** [redacted] | **W:** www.kingsalmon.co.nz | **A:** 10-18 Bullen Street, Tahunanui, Nelson. 7011

[redacted]

OMEGA PLUS+

Ehara taku toa i te toa takitahi, engari he toa takitini
"Success is not the work of one, but the work of many"

Written Comment No: 0120

Relocation of salmon farms in the Marlborough Sounds

I have worked at King Salmon for 2 years and I value my job and would like that to continue. I support the moving of the farms because it is going to be beneficial for the environment in the sounds by moving the farms to less populated areas and away from tourist and vacation pursuits.
The new farm sites will provide better quality product and with increased growth and sales this will create more jobs for the Nelson/Marlborough region.

Teena Toms
[redacted]
T Toms 23/2/17

Written Comments No: 0604

Subject	**Submission against salmon farming expansion**
From	Hanneke & Joop
To	aquaculture submissions
Sent	Sunday, 26 March 2017 11:21 a.m.
Attachments	<<Submission_Trevor_Toms.pdf>>

see attachment

Written Comments No: 0604

To: Salmon Farm Expansion
Ministry for Primary Industries
Private Bag 14
Port Nelson 7042

Email before 5pm, Monday 27 March2017
to:
aquaculture.submissions@mpi.govt.nz

Submission on proposed use of Section 360A of the RMA to allow massive expansion of salmon farming in the Marlborough Sounds.

Name of Submitter in full	TREVOR JAMES TOMS
Address	[redacted] Picton
Email	
Telephone (day) [redacted]	Mobile
V	I am against the whole Ministry for Primary Industries (**MPI**) proposal for "Potential Relocation of Salmon Farms in the Marlborough Sounds"
	I would like to speak to my written submission at a public hearing in _____
	I do not want to speak to my written submission at a public hearing

To the Marlborough Salmon Farm Relocation Advisory Panel and Minister Nathan Guy:

I am writing to express my dismay about Minister Nathan Guy's proposal to overrule the Marlborough District Council's (**MDC**) plan and allow for up to six new salmon farms in areas prohibited for aquaculture in the Marlborough Sounds.

The MDC's State of the Environment Report 2015 noted that:

- The Marlborough Sounds biodiversity is NOT in good shape.
- The issues include: fewer fish, not as many species, serious loss of biogenic habitats, sedimentation in estuaries and biosecurity incursions.

The Marlborough Sounds needs proposals for protection and restoration of its natural environment and marine ecosystem, **NOT** proposals for further exploitation and degradation such as this one.
It is submitted that the aim of this MPI proposal, thinly disguised as salmon-farming relocation, is in fact a proposal for the massive expansion of salmon farming in the Waitata Reach area of the Pelorus Sound.

If successful it will mean a cluster of 7 farms in Waitata Reach. It will mean 2 to 3 times more waste discharge spread over a wider benthic footprint. It will mean greater adverse cumulative impacts on the water column.

The Marlborough Sounds needs, we submit, more extensive Marine Reserves, **NOT** more Salmon Farms on an industrial scale as is now proposed by MPI and New Zealand King Salmon (**NZKS**).

The Board of Inquiry drew the limits

Written Comments No: 0604

In 2012 NZKS applied for nine new salmon farms in areas prohibited for salmon farming via a Board of Inquiry process. They were ultimately allowed three farms. The Board of Inquiry, and then the Supreme Court, made a number of very important findings, which, it is submitted; this proposal is attempting to ride rough shod over.

It is submitted that this is a blatant attempt to try and achieve for NZKS what it failed to get last time around. This time it is being done under the cloak of a relocation scheme. It is submitted that this is a relocation is factually wrong. Two of the salmon farms to be "relocated" do not in fact exist – there has been no salmon farming on the sites for at least five years.

Once again, MPI and NZKS are trying to put new salmon farm sites into outstanding natural landscapes and, it is submitted, ignoring the legal requirements of the New Zealand Coastal Policy Statement and the adverse cumulative impacts on the this iconic landscape.

This proposal, we submit, ignores the Board of Inquiry finding a threshold limit of two new farms in the Waitata Reach and that the Environment Court subsequently echoed this.

The best Place for Salmon Farming?

The existing NZKS operations are suffering from regular (4 in the last 5 years) unusual mortality events. There is a Controlled Area Notice under the Biosecurity Act in place as a result. Pathogens new to NZ have been discovered in the dead salmon.

We submit that the science shows that 17 degrees Celsius is the maximum sustainable temperature for salmon farming, above this trigger the fish become stressed and vulnerable to disease. MDC records show that the Waitata Reach of the Pelorus Sound has summer seawater temperatures exceeding 17 degrees for long periods. These adverse environmental factors combined with poor management practices is, we submit, demonstrated by these regular significant salmon mortality events.

Instead of allocating clean unspoiled water space for new farms and closing old farms, real pressure should be put on NZKS to operate these existing farms in accordance with Best Management Practice Guidelines. It can be done we submit.

Rather, MPI and NZKS seem to be arguing that the prospect of more jobs and profit justifies ignoring adverse cumulative environmental effects in this iconic public space. This so called MPI report is, we submit, paid for by NZKS using an expert who has a history of working for that company. A truly independent review of this report will, like last time, we submit, show these claims are greatly inflated.

This approach quite wrongly, we submit, gives no credence to the adverse impacts on; endangered species such as the King Shag, recreational users, navigation issues, tourism, and struggling nearby scallop beds.

Other Comments:

Mid channel farm navigation hazard

Conclusion: this proposal is fundamentally flawed, environmentally unsustainable and should not proceed!

Written Comments No: 0454

Subject	**Submission against salmon farming expansion**
From	Hanneke Kroon & Joop Jansen
To	aquaculture submissions
Sent	Sunday, 26 March 2017 11:21 a.m.
Attachments	<<Submission_Judy_Toms.pdf>>

see attachment.

Written Comments No: 0454

To: Salmon Farm Expansion
Ministry for Primary Industries
Private Bag 14
Port Nelson 7042

Email before 5pm, Monday 27 March2017
to:
aquaculture.submissions@mpi.govt.nz

Submission on proposed use of Section 360A of the RMA to allow massive expansion of salmon farming in the Marlborough Sounds.

Name of Submitter in full	JUDITH MARY TOMS
Address	[redacted]
Email	
Telephone (day) [redacted]	Mobile

v	I am against the whole Ministry for Primary Industries (MPI) proposal for "Potential Relocation of Salmon Farms in the Marlborough Sounds"
	I would like to speak to my written submission at a public hearing in _____
	I do not want to speak to my written submission at a public hearing

To the Marlborough Salmon Farm Relocation Advisory Panel and Minister Nathan Guy:

I am writing to express my dismay about Minister Nathan Guy's proposal to overrule the Marlborough District Council's (MDC) plan and allow for up to six new salmon farms in areas prohibited for aquaculture in the Marlborough Sounds.

The MDC's State of the Environment Report 2015 noted that:

- The Marlborough Sounds biodiversity is NOT in good shape.
- The issues include: fewer fish, not as many species, serious loss of biogenic habitats, sedimentation in estuaries and biosecurity incursions.

The Marlborough Sounds needs proposals for protection and restoration of its natural environment and marine ecosystem, NOT proposals for further exploitation and degradation such as this one.
It is submitted that the aim of this MPI proposal, thinly disguised as salmon farming relocation, is in fact a proposal for the massive expansion of salmon farming in the Waitata Reach area of the Pelorus Sound.

If successful it will mean a cluster of 7 farms in Waitata Reach. It will mean 2 to 3 times more waste discharge spread over a wider benthic footprint. It will mean greater adverse cumulative impacts on the water column.

The Marlborough Sounds needs, we submit, more extensive Marine Reserves, NOT more Salmon Farms on an industrial scale as is now proposed by MPI and New Zealand King Salmon (NZKS).

The Board of Inquiry drew the limits Written Comments No: 0454

In 2012 NZKS applied for nine new salmon farms in areas prohibited for salmon farming via a Board of Inquiry process. They were ultimately allowed three farms. The Board of Inquiry, and then the Supreme Court, made a number of very important findings, which, it is submitted; this proposal is attempting to ride rough shod over.

It is submitted that this is a blatant attempt to try and achieve for NZKS what it failed to get last time around. This time it is being done under the cloak of a relocation scheme. It is submitted that this is a relocation is factually wrong. Two of the salmon farms to be "relocated" do not in fact exist - there has been no salmon farming on the sites for at least five years.

Once again, MPI and NZKS are trying to put new salmon farm sites into outstanding natural landscapes and, it is submitted, ignoring the legal requirements of the New Zealand Coastal Policy Statement and the adverse cumulative impacts on the this iconic landscape.

This proposal, we submit, ignores the Board of Inquiry finding a threshold limit of two new farms in the Waitata Reach and that the Environment Court subsequently echoed this.

The best Place for Salmon Farming?

The existing NZKS operations are suffering from regular (4 in the last 5 years) unusual mortality events. There is a Controlled Area Notice under the Biosecurity Act in place as a result. Pathogens new to NZ have been discovered in the dead salmon.

We submit that the science shows that 17 degrees Celsius is the maximum sustainable temperature for salmon farming, above this trigger the fish become stressed and vulnerable to disease. MDC records show that the Waitata Reach of the Pelorus Sound has summer seawater temperatures exceeding 17 degrees for long periods. These adverse environmental factors combined with poor management practices is, we submit, demonstrated by these regular significant salmon mortality events.

Instead of allocating clean unspoiled water space for new farms and closing old farms, real pressure should be put on NZKS to operate these existing farms in accordance with Best Management Practice Guidelines. It can be done we submit.

Rather, MPI and NZKS seem to be arguing that the prospect of more jobs and profit justifies ignoring adverse cumulative environmental effects in this iconic public space. This so called MPI report is, we submit, paid for by NZKS using an expert who has a history of working for that company. A truly independent review of this report will, like last time, we submit, show these claims are greatly inflated.

This approach quite wrongly, we submit, gives no credence to the adverse impacts on, endangered species such as the King Shag, recreational users, navigation issues, tourism, and struggling nearby scallop beds.

Other Comments

Environment first. We need marine reserves. Where is MDC. this has to be stopped.

Conclusion: this proposal is fundamentally flawed, environmentally unsustainable and should not proceed!

Written Comment No: 0053

Relocation of Salmon Farms in the Marborough Sounds

Ban Tran
[redacted]

I support the moving of the farms in the sounds because I work for NZKS for 7 years and the new farms will provide more jobs for NZ and healthier fish means more sales and more customers. Will keep our country with a better environment for our new generations.

Ban Tran

Written Comment No: 0105

Relocating Salmon Farms in the Marlborough Sound.

My name is Phuong Tran. Phone [redacted]

I think the farms should be moved because our salmon will be good quality because they grow ~~better~~ in ~~fast~~ running water. ~~Wass~~ We can grow more fish in healthier water and have more jobs. It will be better for the environment in the sounds. I will still have a job.

Tran

phuong Tran
23/02/17

Written Comments No: 0471

Subject	**Submission in support for Proposed Salmon farm swap**
From	Graeme Tregidga
To	aquaculture submissions
Sent	Monday, 27 March 2017 4:46 p.m.
Attachments	<<SKMBT_C25317032715330.pdf>>

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Graeme Tregidga, *General Manager Sales*

New Zealand King Salmon

DDI: [redacted] | **M:** [redacted] | **W:** www.kingsalmon.co.nz | **A:** 93 Beatty Street, Tahunanui, 7011

REGAL

ORA KING

Private submission in support for MPI proposed farm swap

I fully support the proposed MPI Marlborough salmon farm swap. The nil increase in surface hectares provides the significant increased benefits across the multiple stakeholders. It is a win for the environment, it is a win for the salmon and it is a win for the people of Marlborough and New Zealand.

I am the General Manager Sales for NZ King Salmon and this is my personal submission. I have immense pride to be able to represent our company on the world culinary stage. Our product is so highly sought after and respected in all countries that we trade. It is most humbling to watch a chef on the other side of the world, handle, create and inspire their guests with our product with as much enthusiasm, and at times more than us in New Zealand. We truly have a unique product that has been described by our importers and distributors as the best food product that comes out of New Zealand.

12 years ago I was approached to move from the North Island to Nelson to work for NZ King Salmon. It was a move to a city that neither my wife nor I had any connection. So with no friends or support network we made the move down. In terms of confidence and security, it was of the utmost importance to me that the product I was to represent was unique, safe, healthy, highly sought after and premium. The product and company also had to have integrity and a strong holder of the truth. It is fair to say, that 12 years on, that myself and family would not be here at NZ King Salmon or in Nelson if the company did not live up to those strong ethical and moral ideals. Over those years, as I have gathered information and understood more about our business and our production, my belief in the company and products has only strengthened. There is a wide amount of information that can be found on the internet about salmon farming - Google searches will turn out all plethora of information. Whilst some of that information may be true from practices around the world on Atlantic salmon farming, very little if any can be applied to the production of the unique species of King Salmon in New Zealand under our strong regulatory controls.

In terms of protein production, Salmon farming has one of the lowest impacts to the environment. In part this is due to the salmon being cold blooded and not having to constantly fight gravity. The production of quality protein per surface hectare of quality King Salmon cannot be rivalled from terrestrial protein production (beef/ lamb, chicken etc).

Each year at New Zealand King Salmon we run a Kenexa employee engagement survey. One of the free field open questions that is asked is ' What, more than anything else makes this a great place to work. One of the highest rated answers is "the Product'. We truly have a safe, nutritious and healthy food product and those attributes are becoming harder to find in the world's food supply now. Our employees know this and our customers know this - here in NZ and around the world. Demand for our product is growing at record pace. The farm swap proposal allows us as a company to meet that demand and brings some of the financial reward and growth back to the community of the Top of the South. It is widely recognised that our diets need more

healthy Omega 3 and seafood, in particular oily fish like salmon are essential in raising our daily intakes. Although New Zealand is surrounded by the sea and having one of the larger coastlines, our seafood consumption per capita is quite low. Consumers are recognising this and we are witnessing a trend in Western diets increasing their per capita consumption of healthy Omega 3's. This proposed farm swap helps to meet this need without taking up more surface hectares.

This farm swap proposal brings that same opportunity to another 400 or more families move to the Top of the South that I was afforded 12 years ago. That is 400 families that will settle and invest in the Top of the South region. It is 400 families and children that will benefit from the lifestyle and environment of Marlborough and Tasman region. Communities in the Marlborough/ Nelson/ Tasman region can only grow and function with profitable sustainable businesses fuelling the local economies. Schools, community based organisations, local service and support industries, retail, restaurants, café's etc all will benefit from this growth.

I absolutely support this proposal and would like the opportunity to speak to my written comments at a public hearing.

Yours sincerely

Graeme Tregidga

General Manager Sales New Zealand King Salmon

Written Comments No: 0226

Subject	**New Zealand King Salmon**
From	[redacted]
To	aquaculture submissions
Sent	Thursday, 16 March 2017 6:32 a.m.

We totally support the proposal for better farm locations.
The benefits will very good for everyone.

Dianne Theresa Wallace & Gellert Ivanson Trustee No.6 Limited.
CSN:331937576

Written Comments No: 0371

Subject	**FW: Christine Tuffnell submission on Salmon Farm Relocation 2017/04**
From	Christine Tuffnell
To	aquaculture submissions
Sent	Sunday, 26 March 2017 1:35 PM
Attachments	<<C Tuffnell Marlborough Sounds farms submission MPI March 2017.pdf>>

From: Christine Tuffnell [mailto:christine.tuffnell@xtra.co.nz]
Sent: Friday, March 24, 2017 10:45 AM
To: aquaculture.submissions@mpi.govt.nz
Subject: Christine Tuffnell submission on Salmon Farm Relocation 2017/04

Christine Tuffnell submission on Salmon Farm relocation attached.
Please acknowledge receipt by return email.
Thank you
Christine Tuffnell

Written Comments No: 0371

SUBMISSION ON NZ MINISTRY OF PRIMARY INDUSTRIES DISCUSSION PAPER NO: 2017/04:

POTENTIAL RELOCATION OF SALMON FARMS IN THE MARLBOROUGH SOUNDS

Submitter: Mrs Christine Tuffnell

March 2017

SUBMISSION ON NZ MINISTRY OF PRIMARY INDUSTRIES
DISCUSSION PAPER NO: 2017/04:
POTENTIAL RELOCATION OF SALMON FARMS IN THE MARLBOROUGH SOUNDS

Submitter: Mrs Christine Tuffnell
Address: [redacted] Nelson 7010.
Phone: [redacted] Cell: [redacted] Email: [redacted]
Submitter affiliations:
* Owner residence in Duncan Bay, Tennyson Inlet, Pelorus Sound.
* Member Duncan Bay Resident's Association
* Member Pelorus Boating Club
* Member Tennyson Inlet Boat Club
* Berth holder Havelock Marina
I would like to speak to my written comments at a public hearing

Q1. Do you think that up to six salmon farms within Marlborough Sounds should be allowed to relocate to higher-flow sites?

No. The first salmon farm in the Marlborough Sounds was in 1984. There has therefore been more than thirty years' experience of salmon farming in the Marlborough Sounds yet most of the current eleven salmon farms within the Marlborough Sounds do not meet the Benthic Standards.

Relocating the six salmon farms puts yet more areas of the Sounds at risk from damage to the environment and possibly our human food chain.
No farms should be moved and no further salmon farm consents issued until NZ King Salmon can demonstrate that its existing farms meet Benthic standards and until it has been scientifically proven that the waste from such farms does not endanger our human food chain. Internationally doubts have been raised about this.
See:

Kalantzi, I. et al (2013) Metals and other elements in tissues of wild fish from fish farms and comparison with farmed species in sites with oxic and anoxic sediments.
Food Chem.Nov 15;141(2):680-94

Pastorelli, A.A. et al (2012) Human exposure to lead, cadmium and mercury through fish and seafood product consumption in Italy: a pilot evaluation. Food Addit Contam Part A Chem Anal Control Expo Risk Assess.29 (12):1913-21.

Birgisdottir, B.E. (2013) Essential and toxic element concentrations in blood and urine and their associations with diet: results from a Norwegian population study including high-consumers of seafood and game. Sci Total Environ. Oct 1:463-464:846-44.

Buscemi, S. et al (2014) Endothelial function and serum concentration of toxic metals in frequent consumers of fish. PLos One. Nov 17; 9(11):e112478.doi:10.1371/journal.

Liu, J.L. et al. (2015) Heavy metals in wild marine fish from South China Sea: levels, tissue-and species-specific accumulation and potential risk to humans. Ecotoxicology. Oct 24(7-8):1583-92.

Lopez-Barrera, E.A. (2016) Metals and metalloid in eight fish species consumed by citizens of Bogota S.C, Colombia, and potential risk to humans. J Toxicol Environ Health A. 79(5):232-43.

What research has the NZ Ministry of Health undertaken to ensure that waste from marine farms in the Marlborough Sounds is not putting our human food chain at risk?

We need to start measuring for environmental contaminants in our native fish and marine creature population in the Marlborough Sounds and taking action to protect them not put them at higher risk of contamination by fish farms not meeting the required standards.

Q2. Which of the potential relocation sites do you think are suitable for salmon farming?

I have insufficient information to advise whether these sites provide suitable conditions for salmon farming.

The Consultation document 2017/04 acknowledges that water quality is affected by discharge of copper and zinc from salmon farm activities and that copper and zinc can enter the marine environment from uneaten fish food (zinc), and from fish faeces (zinc). The Cawthron Institute concludes that effects from copper and zinc are anticipated to be minor, if not negligible. We need an independent view on this given the Cawthron Institute's involvement in the aquacultural industry.

Obviously NZ King Salmon is looking for sites which give higher water flow to disperse the wastes - heavy metals – Hg, Zn, Cu, Cd, Fe, Mn, Co, Ni, Hb; organohalogenated contaminants – bromine, fluoride, choline, created by these farms.
Increased water flow and wider dispersal of contaminants makes it much easier for NZ King Salmon to meet environmental standards but still does not deal with the issue of preventing contamination in the first place, nor of the cumulative effect of what may be made to seem small amounts of contamination.
See:
Yung et al (2015) Ecotoxicity of Zinc Oxide Nanoparticles in the Marine Environment. Encyclopedia of Nanotechnology. Springer Publishing. Netherlands.

Cawthron Institute Report No 1805 July 2010: Ecological Relevance of Copper (Cu) and Zinc (Zn) in Sediments Beneath Fish Farms in New Zealand states:

* Monitoring results have shown a general rise in average copper levels within most operative farm sites since 2002.
* Average zinc levels under the same farm and reference sites have exceeded ISQG-Low and –High- trigger values.
* There is a high correlation between the organic content in the sediments (AFDW) and copper and zinc concentrations.
* Simultaneous exposure of copper and zinc generally resulted in enhanced uptake of both metals by marine organisms."

The report also states:
"Once being released into the marine environment, ZnO-NPs are expected to have different behaviors. In general, the nanoparticles can stay in suspensions as individual particles, dissolve in the seawater, aggregate and form larger particles and subsequent deposit on sediment, adsorb onto the constituents in marine waters (e.g., dissolved organic matter, DOM), and transform chemically based on reduction-oxidation (redox) reactions or transform biologically in the presence of biota (e.g., microorganisms) in the marine environment.

Potential uptake routes of ZnO-NPs in fish include ingestion from water or sediment for demersal species, via the gill or the gut epithelial cells or through the chorion pore channel by diffusion for embryos. Studies of toxicities of ZnO-NPs on marine fishes are scarce.

Based on our comprehensive review of relevant literature, we have identified several knowledge gaps which are needed to be filled for improving our current understanding on the ecotoxicity of ZnO-NPs for environmental risk assessment and management for this group of highly popular, commercialized nanoparticles.

1. Molecular toxic mechanisms to marine organisms should be thoroughly examined using advanced transcriptomic, proteomic, and metabolomic approaches in order to differentiate different modes of toxic action between the nanoparticles of ZnO-NPs and their associated dissolved zinc ions and between waterborne and dietary exposure.

2. Given that ZnO-NPs are highly photoactive, research focus should be laid on understanding the photo-induced toxicity under environmentally relevant UV radiation to an array of different marine species from different taxonomic groups. Tools and techniques should be developed to quantify the ROS released from ZnO-NPs and the intracellularly induced ROS in the environmental compartments and within the test marine organisms.

3. There are insufficient data on chronic effects of ZnO-NPs to marine organisms, and thus more chronic toxicity studies such as life-cycle studies are required to improve our understanding on the long-term and low-dose effect of these nanoparticles on selected marine species. Benthic organisms such as bivalves and polychaetes should be placed on a high priority as a subject of study, since ZnO-NPs have a high potential to aggregate and settle on the sediment in marine environment and bottom filter feeders and deposit feeders have a great potential to consume the nanoparticles associated with organic matter.

4. More toxicity data should be generated from marine fish species so as to reveal the sub-lethal toxic effects and associated toxic mechanisms of ZnO-NPs in this important group of higher-level organisms in the marine ecosystem.

5. Further ecotoxicological study of ZnO-NPs should also concentrate on bioaccumulation, cellular localization or tissue distribution, biotransformation, and trophic transfer of the nanoparticles in selected, typical marine food chains.

6. Combined effects of environmental stressors such as temperature, salinity, pH, UV radiation, and presence of DOM and combined toxic effects of ZnO-NPs and other pollutants to marine organisms should be investigated to better understand the behavior and toxicity of ZnO-NPs under environmentally realistic scenarios.
By filling up these knowledge gaps, our understanding on the ecotoxicology of ZnO-NPs in the marine environment could be significantly improved, while the information could also be used to derive environmental quality benchmarks such as water and sediment quality guidelines for regulating the use and release of ZnO-NPs, and hence offering better protection to marine ecosystems".

Have these knowledge gaps been closed and the research done?

In the Consultation Document 2017/04 pp 53 states that "The Cawthron Institute concludes that the effects from copper and zinc are anticipated to be minor, if not negligible."
On what is this statement based?

Dean *et al.* (2007) assessed the level of cadmium in sediments under Scottish finfish cages, and found that 14% could be attributed to feed products. A British Columbian study indicated that mercury can also be locally elevated in the vicinity of fish farms, due in part to trace levels in uneaten feed and/or residual (*i.e.* naturally occurring) amounts in sediments (Debruyn *et al.* 2006).

What research has been undertaken in New Zealand to determine the extent to which cadmium, mercury, or other elemental compounds are elevated in the New Zealand environment due to fish farm activities?

Whether currents will spread the area of nutrient enriched water and detritus that might affect fish stocks is one uncertainty, especially with positioning farms in areas of greater current flow. (Graeme Taylor, Principal Science Advisor, Marine Species and Threats
Subject: Comments on the NIWA seabird reports assessing issues with relocation of salmon farms in Marlborough, 2016)

NIWA A Biophysical model for the Marlborough Sounds: Part 2: Pelorus Sound, June 2015: states:
"At the whole of Pelorus scale, the majority of the farm derived nitrogen is predicted to be lost through denitrification of the seabed of the Pelorus system rather than by export to Cook Strait."
Thus, the effects of salmon farm waste, even with improved water flow (the reason for moving the fish farms) will impact almost entirely on the marine ecosystems of the Sounds itself.

Q3. Which of the existing lower-flow sites should be relocated?

No farms should be moved and no further salmon farm consents issued until King Salmon can demonstrate that its existing farms meet Benthic standards and until it has been scientifically proven that the waste from such farms does not endanger our human food chain.

It is clear that the only current site which has a future in terms of time requirements before resting is Ruakaka Bay. Otanerau temperatures are too warm and adjacent mussel farms mean the marine environment is being depleted of nutrients and challenged by waste.
Forsythe Bay farm is currently fallow as is Waihinau – length of time required for fallow period is not stated in the MPI Consultation Document but research shows it needs to be a number of years – and possibly as much as 10 years.

Crail Bay has been destocked and it is stated it is not suitable for salmon farming despite being re-consented in 2014.

Is it not possible to detect whether an area is suitable for salmon farming without trial and error and damage to the environment through this process? *If salmon farmers do not know what conditions are needed for salmon farming then should we trust them with taking measures to protect the marine environment in the Marlborough Sounds?*

Q4. If you have concerns about particular sites, what are they and what could be done to address these concerns?

1 Blowhole Point North – Te Hoiere /Pelorus Sound

This site is located at the entrance to Pelorus Sound. It is north of Blowhole Point and is in an area of water depths between 28 and 80 metres over a mud and sand seabed. Over 80 percent of the sea pens at this site would be located in water greater than 50 metres deep.
The rocky coastal edge is a habitat for Blue Cod.
Three existing mussel farms occupy the coastal edge of the bay, and the sea pens would be located seawards of these. Adjacent mussel farms mean the marine environment is being depleted of nutrients and challenged by waste.

2 Blowhole Point South – Te Hoiere/Pelorus Sound

The site is located south of Blowhole Point and further into the entrance to Pelorus Sound compared with Blowhole Point North. Water depths at the site vary from 38 to 65 metres, and the seabed is sandy mud with some coarse shell material. Over 70 percent of the sea pens at this site would be located in water greater than 50 metres deep.
There is an existing mussel farm in the bay, and the sea pens would overlap with part of it. Adjacent mussel farms mean the marine environment is being depleted of nutrients and challenged by waste.
Presence of additional farms in this area would make it difficult for recreational boaters to navigate. They tend to cut in close to the coastline here in rough weather in making their way to Pelorus Sound entrance.

3 Waitata Mid-Channel – Te Hoiere/Pelorus Sound

The site is located in the middle of the channel between Waihinau Bay to the north-west and Post Office Point to the southeast. The site is not adjacent to any land and sits in the middle of a deep 12 kilometre-long channel. Apparently only sparse marine communities are present.

However the salmon farm structure could create a navigation danger, particularly at night, and given that such a danger will not be shown on maritime charts.

4 Richmond Bay South – Te Hoiere/Pelorus Sound

This site is located adjacent to the headland between Richmond Bay and Horseshoe Bay. It is located over a sloping muddy seabed between 30 and 56 metres deep.

This is Blue Cod habitat and neighbors the wildlife sanctuary on Maude Island and the large protected marine no fishing area which surrounds it. What guarantees are there that salmon farms in this area will not negatively affect the marine life thriving in this reserve?

5 Horseshoe Bay – Te Hoiere/Pelorus Sound

This site is located on the northern side of Horseshoe Bay, and to the south of the potential Richmond Bay South site. It is located in water depths of 18 to 45 metres over a sandy mud seabed. The rocky coastal edge is Blue Cod habitat.

Horseshoe Bay has a number of mussel farms along the length of the bay, with one located in the northeastern section of the potential farm area. Adjacent mussel farms mean the marine environment is being depleted of nutrients and challenged by waste.
This site is also close to the marine reserve surrounding Maude Island.

6 Tio Point – Kura Te Au/Tory Channel

The site is located at the entrance to Oyster Bay within Tory Channel. Water depths at the site are 18 to 44 metres, with a seabed largely consisting of sand, mud and shell hash.
The land adjacent to the site comprises a rocky coastal edge which is a Blue Cod habitat.
I am less familiar with this site but the potential for navigation hazard needs to be considered.

All coastal and Marlborough Sounds sites should meet Benthic Standards, achieved by Waste Capture/Containment. This is attainable with current technology but it seems salmon monopolies are reluctant to invest in this in open water farming. If they cannot collect and control their farm waste I support moving to land-based farming eg. (LST or LFR).

Q5. Do you feel there are potential benefits or costs of relocating farms that have not been identified?

Yes. Financial costs have been clearly stated but information on potential damage to the environment has been minimized.

The report: Our Marine Environment 2016 released by the NZ Government Environmental Reporting Series makes it very clear that the full ecological effects of fishing and fish farming are not clear and that there is a lack of data.
In Australia, David Booth, Professor of Marine Ecology and Director of the Centre for Environmental Sustainability at UTS, makes the following statement regarding the salmon industry: "Their profit and loss ledger sheet doesn't include the cost for environment. If it did, maybe they wouldn't be making such a high profit. They're taking and not giving back."
(Source: Huff Post, Australia – Everything you should know about salmon farming.)

The Consultation Document (No:2017/04) advises that:
"Modelling and information suggests that infaunal communities will be affected at all of the potential sites, as a result of nutrients deposited onto the seabed from any salmon farming operation. Enrichment-tolerant species will become highly abundant, diversity will decrease, and there is the potential for some formation of bacterial mats and outgassing of hydrogen sulphide if sediments are disturbed.

This intensity of effects is recognised by the Benthic Guidelines, and as required by the guidelines is predicted to be relatively confined (generally to very small areas underneath the sea pens) and effects would then decrease with distance.
NIWA notes that the infaunal species at each site are widespread and common in the soft sediment habitats of the Marlborough Sounds and effects are not considered to be significant in the context of the wider Sounds.

Modelling of the potential farm discharge effects has indicated appropriate feed levels that could be discharged from each potential farm to ensure that seabed enrichment does not exceed the standards within the Benthic Guidelines."

New Zealand has a Biodiversity Strategy (The New Zealand Biodiversity Strategy: Our Chance to Turn the Tide, Whakakohukihukitia Te Tai Roroku Ki Te Tai Oranga, February 2000, which includes aims for marine environments.
The impression is that this is our strategy when it suits us if we are prepared to accept decreased diversity for increased profits in the Marlborough Sounds as proposed by the Consultation Document 2017/04. This Consultation Document fails to understand or explore the ecosystems that may be affected by salmon farming and by salmon farming and mussel farming in close geographical proximity. Is there potential for putting mussel farming at risk?

Q6. Are there rules, policies or conditions that you believe should be added? Please provide information to support any proposed new provisions.

How is it that one Minister (the Minister of Primary Industries) has the ability to single-handedly force changes to the Resource Management Act 1991, New Zealand Coastal Policy Statement, Marlborough Regional Policy Statement 1995, Marlborough Sounds Resource Management Plan 2003, and the proposed Marlborough Environment Plan, in the interests of commercial gain to the possible detriment of the environment?
Is he indeed similar to some other political figures who feel they need only to consult with themselves?

When I attended the briefing session run by staff of the Ministry of Primary Industries in Havelock on Tuesday 14th February I asked whether the Ministry of the Environment and DOC had had input into the Consultation Document 2017/04 and was assured they had.
If this is true, and these Government Departments we trust to protect our environment think the proposed relocation of salmon farms is acceptable, then the Marlborough Sounds is in real trouble. This proposal is contrary to New Zealand conservation and environmental policies.

When I attended the briefing session run by staff of the Ministry of Primary Industries in Havelock on Tuesday 14th February I asked: If copper based product is not now used to clean nets/cages – what is used? They did not know but undertook to ask NZ King Salmon. The answer I received is:

NZ King Salmon has developed an automated net cleaner and uses off the shelf remotely controlled equipment which cleans the grower nets in the water (in-situ). These cleaners use high pressure water directed through rotating discs. The 'head' which contains the discs slides up and down the sides of the net and blasts off the fouling organisms. The cleaning heads of the remotely controlled machines are controlled using feedback gained from in-water cameras. Not only is the in situ cleaning much quicker, it also reduces farm noise by minimising the use of

water blasting equipment. In situ net cleaning is carried out with fish in the net pen.- *as per page 31 of NZKS Operations Report* (available here: https://www.mpi.govt.nz/news-and-resources/consultations/marlborough-salmon-relocation/).

Has there been an independent assessment of the impact of this form of cleaning on the benthic environment? Are changes in work processes assessed independently for their effect on the marine environment before being implemented? If not, this should be a requirement of the standards.

Q7. Provided that detailed standards and requirements are met, do you agree that salmon farming on the potential relocation sites should be a restricted discretionary activity?

No farms should be moved and no further salmon farm consents issued until King Salmon can demonstrate that its existing farms meet Benthic standards and until it has been scientifically proven that the waste from such farms does not endanger our human food chain.

While water flow is a significant factor in meeting Benthic Standards, the Standards could be met by other means eg. waste capture/containment.

Q8. Do you agree that the overall surface structure area of salmon farms should not be increased?
Yes.

Q9. If the sites at the existing lower-flow farms (other than Crail Bay MFL32) are vacated, do you believe that marine farming should be prohibited in these sites or do you think that these sites should remain open to other types of marine farming for aquaculture settlement purposes?

I understand that vacated sites take 5-10 years or more to recover after salmon farming.

Q10. Given the multiple ownership at Crail Bay MFL32, if this site is relocated, should aquaculture be fully prohibited or should shellfish farming be allowed to continue?

In 2015 there were 575 mussel farms in the Marlborough Sounds. These farms deplete phytoplankton and zooplankton, modify the benthic environment, species assemblages, and local hydrodynamics, increase marine litter and facilitate the spread of unwanted organisms (Brian D. Lloyd(2003) Department of Conservation – Potential effects of mussel farming on New Zealand's marine mammals and sea birds). However, as far as I am aware, they do not produce the heavy metal and chemical waste characteristic of salmon farms. Over time the existing mussel farms are depleting the marine environment and may be negatively affecting our marine species. Again, there is a lack of data on which to make decisions whether further mussel farm permits should be issued. Has saturation point has been reached?

Q11. Do you agree with a staged adaptive management approach if salmon farming at the potential relocation sites proceeds?

Yes.

Q 12. Is there any wording you agree or do not agree with in the proposed regulations?

I have some concerns about the Standards under Rule 35.3.3.1(b) as set out in Appendix D4 of the Consultation Document 2017/04.
Firstly, the Consultation Document does not contain an Appendix D7. Site plans are shown in Appendix D6.

Standard 37 of Standards under Rule 35.3.1(b) is unclear regarding corrective action process in the event of water quality standards not being complied with. It appears reporting is in-house and that corrective action is not reported externally. There is a delay in second level response – corrective action in favour of profit rather than environment – i.e. corrective action of reduced stocking on the marine farm following the next harvest of salmon on the marine farm. This is not acceptable.

Standard 38 of Standards under Rule 35.3.3.1(b) –(c) states – no obvious spontaneous out-gassing of hydrogen sulphide and methane in ZME.
This is a very subjective measure – what is or is not "obvious" could vary greatly from person to person and timely corrective action may not be taken.

Standard 42 of Standards under Rule 35.3.3.1(b) – it is encouraging to see that the person/s preparing the Baseline Plan and Base-line Report, the MEM-AMP and the Annual Report is to be independent.

Standard 46(h) and (i) of Standards under Rule 35.3.3.1(b) – monitoring of Copper and Zinc levels.
As this standard stands it could be more than 12 months before corrective action is taken – meantime potential damage is being done to wild marine life and ecosystems.

Standard 51 of Standards under Rule 35.3.3.1(b) – Peer Review.
The Peer Review Panel needs to be independent and void of conflicts of interests in relation to the aquaculture industry.

It is time the total impact of aquaculture/farming in the Marlborough Sounds is independently researched and action taken to protect species.
Cawthron Institute, formerly a private, independent scientific testing laboratory is now a firm partner in aquaculture product development and farming.
Peer review of research by people with possible conflict of interest is not acceptable. The research itself must be independent, including independent of Government departments.
This does not appear to be just a New Zealand problem, Airdrie et al (2015) in "Something is Fishy: Salmon Farming on the B,C. Coast", Department of Geography, Vancouver University notes: "It is the industry workers who provide scientific information to the DFO on which policies are created, possibly limiting the credibility of the data collection, as industry workers refrain from choosing research that would badly frame their farms."

Q13. Are there any particular issues at the existing lower-flow sites that you would like to comment on?

Biophysical modelling of Pelorus Sound by NIWA (June 2015) showed that movement of nutrients and tracers through Pelorus Sound is driven primarily by estuarine circulation. This results in a flow of approximately $5000 m_3 s^{-1}$ of brackish water at the surface out from Pelorus Sound into Cook Strait and a similar inflow of ocean water below.

What is being done to ensure the flow of Pelorus River and other rivers flowing into the Sounds is maximized to support good water flow rates in the Sounds itself?

Q14. Which of the existing lower-flow salmon farms in the Marlborough Sounds do you think are a higher priority to relocate and why?

It depends on how much damage they have done to the seabed and to nearby marine life and ecosystems. Where is the data to inform this decision?

Q15. Is there anything specific that you would like the Minister for Primary Industries to be aware of for any of these sites when thinking about the potential relocation proposal?

When I attended the briefing session run by staff of the Ministry of Primary Industries in Havelock on Tuesday 14th February I asked WHY NZ King Salmon was not meeting the Benthic Standards. Their reply was:

"The BMP Benthic Guidelines set ES 5 as the acceptable level of effect under a marine farm. Not all farms are unable to meet the ES5 standard. Those in areas experiencing higher flows are able to comply.

Some of the consented salmon farms are unable to meet this standard because the amount of waste landing on the seafloor exceeds the assimilative capacity. These farms are not in ideal environments (i.e. lower-flow and shallower) for salmon farming so the amount of feed discharged has to be reduced. Some farms would become uneconomic to farm if they adopted BMP."

Again, standards could be met by waste capture/containment. It will become necessary eventually so why not save the marine life in our Sounds now, rather than try to regenerate them later when they are damaged from aquaculture.

It is clear that internationally there is a shift towards non acceptance of the environmental damage caused by salmon farming in cages in open water.

In January 2017 the Institute for Marine and Antarctic Studies published a report of the environmental research in Macquarie Harbor, Tasmania. The study reveals that due to salmon farming in the harbor conditions in the harbor have dramatically deteriorated, with the amount of dissolved oxygen (DO) in the water plummeting to historic lows. The report found DO levels are now extremely low throughout the harbor, particularly in the bottom waters – all the independent data sets (industry, EPA, Sense-T, Parks, IMAS and CSIRO) are providing the same picture. There has been a significant decline in the total abundance and diversity of benthic infauna. In one particular lease (by a salmon farm) the data suggested that the sediments were virtually devoid of all fauna out to at least 500 metres from the cages. (Source: ABC's Four Corners – Mon 6 February 2017.)

In Sweden the Supreme Environmental Court has banned fish farming in cages in open water via the Weser-Judgement from the European Union Court in combination with new Environmental Quality Norms in water in Sweden. A simpler, cost-effective and more sustainable way than conventional cage culture is being promoted.
(Source: North Atlantic Salmon Fund, 16 March 2017.)

In Denmark an innovative closed-containment salmon farming system has been in operation for over a year now – called "The Egg". "The Egg" is robust and aims to overcome biological and environmental challenges. It provides for further sustainable growth in the salmon farming industry while reducing the environmental footprint. (Source: Press Release Hauge Aqua/Marine Harvest February 11th 2016.)

Other Examples of Closed Systems

AgriMarine Holdings Inc.

AgriMarine Holdings Inc. is a Vancouver-based company currently growing salmon in closed containment in BC, and trout in China. A partnership between the Middle Bay Sustainable Aquaculture Institute and Agrimarine Inc. based in Campbell River BC is developing a floating tank facility to raise Pacific chinook salmon. One tank is currently stocked. Once complete, the four-tank floating system, situated in the Discovery Islands, is licensed to produce 1,200 metric tonnes of salmon per year. They are also in the process of developing operations in Norway.

Sweet Spring Salmon

Washington-based AquaSeed Corp. raises Pacific Coho salmon in a freshwater land-based closed containment facility under the SweetSpring label. This salmon is the first of its kind to receive a positive ranking from a prestigious sustainable seafood program. Monterey Bay Aquarium's Seafood Watch program issued a green "Best Choice" rating on their website for the salmon. This product is sold at the same price point as Atlantic net-cage salmon, yet without the environmental costs, at Overwaitea Food Group stores across BC and Alberta. Building on this success, AquaSeed Corp. is preparing to rapidly expand production and is already working with large purchasers such as Compass Group and Whole Foods.

Teton Fisheries LLC

Envirotech Ag Systems are growing Coho salmon in facilities similar to Sweetspring in two Montana Hutterite communities, supporting local economic stability. The small amount of effluent collected from the operation is used to fertilize vegetable farms in the community.

Swift Aquaculture

Swift Aquaculture is a land-based closed containment fish farming operation based in Agassiz BC. Swift Aquaculture raises eight to ten tonnes of coho salmon per year and uses waste water from the tanks to grow watercress and wasabi. The Coho salmon is available at high-end restaurants in Vancouver. The operation has been sold to Golden Eagle Aquaculture, which will build a new, 1000 MT operation to grow Atlantic Salmon in a land-based recirculating system.

The K'udas Closed Containment Project

The Namgis Nation, in partnership with Save our Salmon, are building a land-based recirculation facility to grow Atlantic Salmon on their land on northern Vancouver Island.

Langsand Laks

Langsand Laks operates 1000 MT Atlantic Salmon land-based recirculation system in construction in Denmark.

Atlantic Sapphire

Atlantic Sapphire, an affiliate of Langsand Laks, is in the planning stages of 3000 MT facility on the east coast of US www.atlanticsapphire.com

Marine Harvest Canada

Marine Harvest Canada has developed a plan for a 1000 MT land based recirculation facility to grow Atlantic Salmon on North Vancouver Island.

The Freshwater Institute, Conservation Fund

The Conservation Fund, an American non-profit, is a leader in research on closed-containment aquaculture systems. Based in Shepherdstown, West Virginia they have 20 years of experience developing closed-containment aquaculture systems to grow trout and perch at their Freshwater Institute. More recently they have also been growing Atlantic salmon to investigate the biological and economic feasibility of raising this fish to market size in freshwater recirculation systems. The Freshwater Institute's research is aimed at developing a sustainable, environmentally responsible, and economically viable aquaculture industry in the United States.

UBC – InSEAS Research

Conceptual Design of a 2500 MT CC system for Atlantic Salmon focused on finding the optimal conditions for fish rearing using joint funding opportunities.

Norwegian Institute of Food Fisheries and Aquaculture Research (NOFIMA)

NOFIMA is determining parameters for economic viability in a research facility funded by Norwegian government and industry.

Q16. Are there particular landscape or natural character values that you want to identify to the Minister for Primary Industries for any of the potential relocation sites?

Natural character will not matter much if the Sounds marine life is decimated through salmon farm waste.

In 2012 June Harney, a home owner in Duncan Bay, Tennyson Inlet presented an excellent submission (No 0616) to the EPA Inquiry appointed under Section 1491 of the Resource Management Act (1991) to consider resource consent applications made by NZ King Salmon Co Ltd at that time. She outlined the facts as to why the Marlborough Sounds are a globally unique geological landscape, including the unique mineral belt of the area.
She points out that the Marlborough Sounds is part of a tectonic block of New Zealand making it uniquely different from Fiordland and from other Sounds and fiords in other countries.
The Marlborough Sounds is indeed worthy of international protection as a world heritage site.

Q17. Are there other effects on landscape and natural character not outlined in the Hudson Associates or Drakeford Williams reports that you would like the Minister for Primary Industries to be aware of?

The NZILA seven point scale is largely subjective and based on opinion of the rater.
For example what is the numerical difference between Very High and High or Very Low and Low? The scale tries to create "science" where there is none.

The peer reviewer disagreed with some of the ratings demonstrating the point given on the scale is a matter of opinion. Opinion can be influenced by "interests".

The report conclusion was that " None of the sites are assessed as adversely affecting the key values that cause the Sounds to be outstanding at that national level due to the scale of the proposed farms in relation to the scale of the Sounds outstanding natural landscape".
Again, this is a matter of opinion. How big a blot on the landscape is acceptable?

The peer review report advises that the report does not take into account potential cumulative effects affecting landscape eg. other farms, netting type, colour. Barge design, colour, structure of farm eg. circular, square, compact or modular.

Q18. Are there any further measures that you believe could be taken to reduce effects at on landscape and natural character at the potential relocation sites?

How low can structures go? Standards 9-18 of the Standards under Rule 35.3.3.1(b) set out the requirements for structure. These should be adhered to.

Written Comments No: 0371

Q19. What are your thoughts on the potential water quality effects at the potential relocation sites?

Ocean acidification worldwide is expected to impact marine costal environments by altering the bioavailability and potential toxicity of many pH-sensitive metals. Copper, in particular, has been found to damage the DNA of mussels and sea urchins. We need to avoid escalating this problem by preventing copper discharge from aquacultural farming.
(Lewis, C et al. (2016) Ocean acidification increases copper toxicity differentially in two key marine invertebrates with distinct acid-base responses. Scientific Reports. Article No 21554.)

NZ Environmental Reporting Series 2016: Our Marine Environment also points to the top issue for marine environment management – Global greenhouse gas emissions causing acidification and warming and the danger of widespread harm to carbonate shelled creatures – in particular mussels, paua, and oysters. Why relocate salmon farms, which are high risk to the marine environment, despite specification of standards, into an area not yet heavily polluted by salmon farming and put the significant number of mussel farms at additional risk, when it is uncertain just how harmful ocean acidification and warming are going to be over the next ten years?

Q20. Are there ways in which the potential relocation sites should be developed to help avoid, remedy or mitigate adverse effects on water quality?

Delay farm relocation until we have data on their effect on marine life and ecosystems in the Sounds and safety can be assured and until a waste capture/containment system is implemented.

Q21. Are there other effects on water quality that you would like us to be aware of?

As previously outlined, ocean acidification worldwide is expected to impact marine costal environments by altering the bioavailability and potential toxicity of many pH-sensitive metals. (Lewis, C et al. (2016) Ocean acidification increases copper toxicity differentially in two key marine invertebrates with distinct acid-base responses. Scientific Reports. Article No 21554 (2016)

When I attended the briefing session run by staff of the Ministry of Primary Industries in Havelock on Tuesday 14th February I asked what chemicals -colorants, SLICE, endocrine disruptors, fungicides, metals etc. does King Salmon use in the farming of salmon?
The answer I received was:

"NZ King Salmon does not use any chemicals, pharmaceuticals, hormones or "colourants".

To allow salmon to develop normal flesh colour and for fish health, astaxanthin is added to diets at amount of less than 80ppm. Astaxanthin accumulation is a biological requirement of salmon, as demonstrated by the fact that salmon muscle contains binding sites specific to astaxanthin, unlike the muscle of most other fish species. These binding sites cause salmon to capture and store ingested astaxanthin.

When astaxanthin is fed to species of fish that lack these binding sites, their flesh remains white. The astaxanthin used is synthesised chemically, but is chemically identical to that which exists in nature. - *as per page 39 of NZKS Operations Report* (available here: https://www.mpi.govt.nz/news-and-resources/consultations/marlborough-salmon-relocation/)Astaxanthin is an important part of the salmon's normal diet, it is an antioxidant and is available as a human health food supplement."

In fact, Astaxanthin is a colourant. The synthetic variety is formed using petrochemicals.
Synthetic Astaxanthin is not the form used in human health food supplements and has not been approved for use in humans. It is approved as an additive to fish food.
Naturally occurring Astaxanthin (a carotenoid occurring in plankton, crustaceans and fish) has much higher antioxidant effect than synthetic versions. What do we know about the effect of synthetic Astaxanthin on wild marine life (when they are presumably getting their Astaxanthin from natural sources) and then possibly additional doses from salmon farm practices or waste?

Q22. What further information would you suggest the Minister for Primary Industries collects on water quality effects in relation to the Tio Point site?

Clearly the site has additional risks to marine life as shown by modelling of chlorophyll concentrations. It is important that there is independent scientific advice on how to reduce the risk should the Minister of Primary Industries decide to approve a salmon farm at this site.

Q23. What are your thoughts on the seabed effects at the potential sites?

New Zealand Government NZ Environmental Reporting Series: Our Marine Environment 2016 addresses three key issues. One of these is coastal marine habitats and ecosystems. This report stresses degradation due to:
* ocean acidification and impacts
* seabed trawling and dredging
* marine pests (note in salmon farming sea-lice outbreaks are high risk – as shown at present in the Northern Hemisphere where salmon farms are being decimated).
* excess nutrients being carried down waterways
* heavy metal toxicity on coastal and open ocean ecosystems
* loss of biodiversity

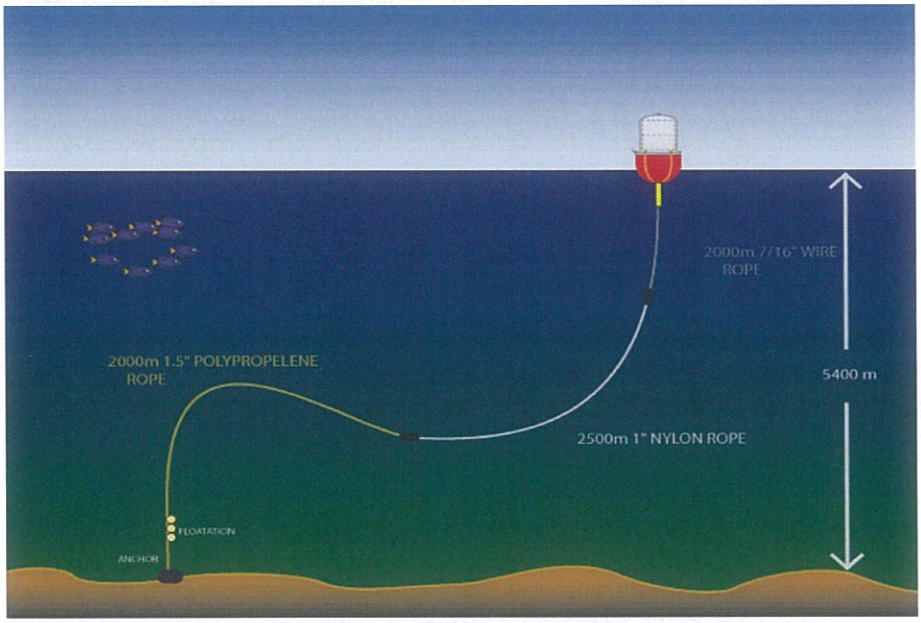
In 2015 17% of New Zealand's fish stocks were overfished.
Side catches of chondrichthyans – sharks, rays, elephant fish also reduce these stocks.
The report concludes that the full ecological impacts of fishing are not clear.

Likewise, the full ecological impacts of salmon farming, and indeed all aquaculture in the Sounds, is not clear. We need more data – not just about the seabed – but about all parts of the many marine ecosystems we are privileged to have in the Sounds. This is supported by Marlborough District Council scientific advice. (Sounds Advisory Group Meeting Public Forum 20/3/2017 in Rai Valley.)

Q24. Are there ways to develop the potential sites to help avoid, remedy or mitigate adverse effects on the seabed at each site?

Do site specific research of marine life and ecosystems before any farms are established.
Reduce area of farms, salmon numbers and food tonnage.
Set a date for implementation of waste capture and start planning now.
Independent monitoring of standards and prompt corrective action.

Replace screw anchors with technology more protective of the benthic environment. Eg. floating lines rather than chains.



There are three new ways to deal with the environmental effects of salmon farming:
marine floating bag system (MFB) – or alternatively "The Egg" system, land-based saltwater flow through system (LSF) and land-based freshwater recirculating systems (LFR). All these approaches have succeeded in making fish escapes, predator interaction and disease transmission nonexistent, while also lowering feed input, allowing for higher stock densities.
(Ayer and Tyedmers (2009)-Assessing alternative aquaculture technologies: Life cycle assessment of salmonid culture systems in Canada. Journal of Cleaner Production, 17(3) pp362-363.)

It is clear that the solution to protection of the seabed lies with the New Zealand salmon industry and their will to invest in their business with environmentally safer technologies and practices.

NZ King Salmon reported a 52% increase in profits to NZD 8.7 million for the six months to December 2016. NZ King Salmon IPO, raised NZD 154.5 million, and made China Resources Ng Fung a 10% shareholder, with a place on the board. (Rachael Mutter, 3/3/2017 IntraFish Media)
NZ King Salmon expansion in Chinese markets means New Zealand pays the environment price to satisfy the Chinese palate.

Q25. Are there other seabed values or effects that you would like the Minister for Primary Industries to be aware of?

There is a need for a comprehensive approach to marine research in the Sounds. To date studies have been of restricted scope and do not take into account the inter-reactions and interdependence of marine ecosystems present.

Q26. Are there effects on pelagic fish that you would like the Minister for Primary Industries to aware of?

The MPI Consultative Document 2017/04 states:
"Six potential relocation sites have been identified and extensive work undertaken to evaluate the implications of developing salmon farms at these sites. Technical investigations to assess potential effects of relocation include water quality, benthic values, marine mammals, seabirds, pelagic fish, navigation, landscape and natural character, recreation and tourism, cultural values, biosecurity, disease, underwater lighting, heritage values, social values, and economic values."

This analysis overlooks the fact that blue cod (*Parapercis colias)* of the Mugiloidide family, is the true gem of the Sounds. It is not a pelagic fish but a demersal species of fish, which lives around the shoreline in rough, rocky ground with weed; is territorial; its territory sometimes our as far as 80m in depth. The rough rocky ground and weed are just the sites sought for salmon farms, which ultimately destroy this habitat. Blue cod in the Sounds are already greatly reduced in numbers and size. This relocation proposal will put them under additional threat.

Q27. Are there effects on seabirds that you would like the Minister for Primary Industries to be aware of?

New Zealand Government NZ Environmental Reporting Series: Our Marine Environment 2016 addresses three key issues. One of these is native marine birds and mammals.
90% of our seabirds are threatened with or at risk of extinction.
Particularly at risk are albatross, penguins, and herons.
The Consultation Document 2017/04 also highlights the New Zealand King Shag being on the Nationally Endangered list.

What are the statistics to date regarding seabirds being damaged by salmon farm structures?
Has salmon farming to date had a negative impact on King Shag numbers?

Q28. Do any of the sites pose a greater risk to seabirds than other sites?

There is a gannet colony near Beatrix Bay and consequently gannets frequent the Tennyson Inlet/Waitata Reach areas. These birds dive from considerable height, penetrate the sea surface, and to a considerable depth to catch fish.
If the relocation of farms proceeds there needs to be specific protocols put in place to protect these birds and a reporting of all farm incidents involving gannets.

Titi Island and the Chetwode Islands at the entrance to Pelorus Sounds are both nature reserves.
Titi Island is home to the now rare yellow crowned kakariki and a host of other birds – including penguin, shearwaters, gulls, and terns. These rocky areas are also home to our native tuatara and other reptiles. If salmon farms are moved to the nearby areas of greater water flow, as planned, the habitat for many of these more unusual species may be threatened.

Q29. Are there marine mammals in the Marlborough Sounds that you think may be particularly impacted by this proposal?

New Zealand Government NZ Environmental Reporting Series: Our Marine Environment 2016 addresses three key issues. One of these is native marine birds and mammals.
The report states that more than a quarter of New Zealand marine mammals are threatened with extinction, particularly dolphins, whales, and the New Zealand Sea Lion.

Dolphins frequent the Pelorus Sound. It is positive that the Department of Conservation is consulted in the preparation of the Marine Mammal and Shark Management Plan.
Reporting requirements are in place – so how many dolphins have been trapped or killed to date by aquaculture farming?

Five yearly reviews would seem to be too long between reviews – review should be annually.

Yes – and be undertaken by suitably qualified <u>independent</u> experts.

Q30. Do any of the potential sites pose a greater risk to marine mammals than other sites?

If you observe dolphin behavior - All of these sites pose a risk to them.
Dolphins are attracted to vessels in the Sounds, and so probably also to salmon farm structures.
They tend to roam in pods, with often up to twenty or so present. They eat, and follow shoals of fish.
They often criss-cross the Sounds and follow the coastline, sometimes quite close in to shore.

Q31. Do you agree that there should be an independently audited Biosecurity Management Plan for salmon farming?

Yes.
The MPI DigsFish report notes:
"It also remains recognised that an unquantifiable risk remained that biosecurity leaks could allow exotic diseases to be introduced, and/or new endemic diseases could emerge in salmon aquaculture in New Zealand at some time in the future. Because of this, it was important that biosecurity risks were managed using world best practice, notably including establishment of independent farm management areas separated by ideal buffer zones (Diggles 2011)."

It is also time the total impact of aquaculture/farming in the Marlborough Sounds is independently researched and action taken to protect species.

Q32. What are your thoughts on the potential improvement in salmon health from the proposal? What about salmon welfare and husbandry?

Standard 35 of Standards under Rule 35.3.3.1(b) – Odor management – mentions a 'mort' bin used for storing dead fish. There is no detail in the Standards under Rule 35.3.3.1(b) as to how these dead fish are to be disposed of. Are they discarded into the marine environment?

NZ King Salmon states that it does not use any chemicals, pharmaceuticals, hormones or "colourants". As discussed earlier in this submission, Astaxanthin is a colourant. The synthetic variety is formed using petrochemicals. Synthetic Astaxanthin is not the form used in human health food supplements and has not been approved for use in humans. It is approved as an additive to fish food.

It is encouraging to see internationally the reduced use of antibiotics in salmon farming and the reduction in consequential antibiotic resistance.
(Buschmann et al (2012) Salmon Aquaculture and Antimicrobial Resistance in the Marine Environment. PLoS ONE 7(8):e42724.doi:10.1371/journal.pone.0042724.)

New Zealand is fortunate to date, that lice treatment has not had to be included in salmon feed.
"If the need arose, antibiotics, lice treatments, anthelmintics or other animal remedies could be added to the feed." (NZ King Salmon operations report, pg. 40.
Would use of these treatments be reported externally so that their use can be monitored as part of audit?

Apparently NZ King Salmon anaesthetizes its fish during harvest. The anaesthetic used is AQUI-S. (NZ King Salmon operations report, pg. 47).
The active constituent of AQUI-S is eugenol 10% (derived from clove oil) which lowers the metabolic rate of fish during harvest. What controls are in place for preventing AQUI-S being taken up by wild fish and marine life in the vicinity of a fish farm?
(Cupp et al (2014) Aquaculture Research 2014.1-9. Dol:10.1111/are.12485.)

The MPI DigsFish report states in summary:

"A review of the disease status of chinook salmon (*Oncorhynchus tshawytscha*) in New Zealand since 2011 revealed few changes to the hazards identified previously in Diggles (2011), identifying 21 infectious agents and 13 non-infectious diseases of cultured salmon in New Zealand. An outbreak of disease in salmon cultured at Waihinau Bay in early 2012 was originally thought to be solely related to suboptimal environmental conditions at that site (MPI 2013).
However, subsequent testing has shown diseased fish at that location were also infected with an emerging rickettsia-like agent (NZ-RLO) and the endemic opportunist bacterium *Tenacibaculum maritimum*. These bacterial disease outbreaks at the low flow site in Waihinau Bay provide examples of the increased risk of disease emergence in fish cultured at suboptimal sites.
The current risk assessment found that clinical infection with *Piscirickettsia*-like bacteria in sea caged chinook salmon was likely to pose an increased risk of disease transfer to wild fishes, unless additional risk mitigation measures were implemented. However, it also remains recognised that an unquantifiable risk remained that biosecurity leaks could allow exotic diseases to be introduced, and/or new endemic diseases could emerge in salmon aquaculture in New Zealand at some time in the future."

It is of great concern that Sounds wild fish are at greater risk of disease through the establishment of salmon farms in the Sounds.

I asked MPI whether salmon vaccination was being used in New Zealand. Apparently New Zealand King Salmon does not use any vaccines as a matter of standard practice. From time to time they test vaccines from other parts of the world on a small percentage of their population to see whether they provide any benefit in New Zealand. So far NZ King Salmon has not found this to be the case. They add:" it should be noted that a vaccine is not a medicine as such but instead boosts the salmon's natural innate immune defence."

In fish farming they are made of inactivated bacteria and viruses or recombinant subunit proteins. Some vaccines are of mixed content. Use of attenuated strains or recombinant protein technology has been introduced as inactivated bacteria have demonstrated limited effect.

Live viruses have also been used in salmon farming and more recently vaccines altering salmon DNA.

To date there has obviously been a trial and error approach to development of fish vaccines.
Have vaccine trials by NZ King Salmon been approved by New Zealand Biosecurity?
What are the risks of viral shedding to wild fish around salmon farms using vaccines?

Sommerset et al (2005) Expert Res Vaccines 4(1):89-101)

Q33. Are there particular navigational effects at any of the potential relocation sites that the Minister for Primary Industries should be aware of?

1 Blowhole Point North – Te Hoiere /Pelorus Sound

Presence of additional farms in this area would make it difficult for recreational boaters to navigate. They tend to cut in close to the coastline here in rough weather in making their way to Pelorus Sound entrance.

2 Blowhole Point South – Te Hoiere/Pelorus Sound

Presence of additional farms in this area would make it difficult for recreational boaters to navigate. They tend to cut in close to the coastline here in rough weather in making their way to Pelorus Sound entrance.

3 Waitata Mid-Channel – Te Hoiere/Pelorus Sound

The salmon farm structure could create a navigation danger, particularly at night, and given that such a danger will not be shown on maritime charts.
The Navigatus Consulting report on the mid-channel site (Figure 18) shows routes taken by boats in the area. The nature of the winds means boaties tend to criss - cross this reach to access shelter and refuges. A mid-channel structure would inhibit such action.

4 Richmond Bay South – Te Hoiere/Pelorus Sound

Probably not a navigation danger.

5 Horseshoe Bay – Te Hoiere/Pelorus Sound

Probably not a navigation danger.

6 Tio Point – Kura Te Au/Tory Channel

The Navigatus Consulting report notes concerns raised by ferry operators regarding the Motukina Point location. Ferries and the other larger ships entering the channel on route to Picton must have room to maneuver – history has shown that a routine trip can become a disaster with weather changes.

Standard 15 under Rule 35.3.3.1(b) states that no mooring line shall be within 4.0 metres of the surface of the water beyond 20.0 metres distance from any part of the surface structures.
Has Port Marlborough assessed this standard in terms of possible impact on navigation?

Q34. What is your view on the Waitata Mid-Channel site from a navigational perspective, and the possibility of cruise ships or large superyachts using the area?

The salmon farm structure could create a navigation danger, particularly at night, and given the farms will not be shown on maritime charts – added danger.

Q35. Are there particular tourism and recreation values that you would like the Minister for Primary Industries to be aware of at any of the potential sites?

3 Waitata Mid-Channel – Te Hoiere/Pelorus Sound

The view from Post Office Point is at present probably the best view in the Marlborough Sounds. From the old gun emplacement is the view our WWII soldiers scanned for Japanese submarines. My grandfather and uncle shipped in via scow the cement and other raw materials for construction of the gun emplacement at Post Office Point. It would be a tragedy to dump a salmon farm in the middle of this view, and lose this part of our Sounds history.

Q36. What measures could be taken to remedy or mitigate effects on tourism and recreation values if salmon farms were relocated to these sites?

People need to know the rules regarding approaching and accessing a salmon farm by sea.

Q37. Are there other heritage values that the Minister for Primary Industries should be aware of?

Yes, those of us who have loved the Sounds over many years know that they are unique.
We hope the Sounds are there for our descendants far into the future.
Salmon farms may come and go but the Sounds can be there forever, if we protect it.

In 2012 June Harney, a home owner in Duncan Bay, Tennyson Inlet presented an excellent submission (No 0616) to the EPA Inquiry appointed under Section 1491 of the Resource Management Act (1991) to consider resource consent applications made by NZ King Salmon Co Ltd at that time. She outlined the early Maori history of the area and the early settler history.
I support Maori concerns regarding maintaining the Mauri of the Sounds and protecting Taonga.
Such loss could not be appeased through compensatory monetary payments.

Q38. Are there any other measures that should be taken to avoid, remedy or mitigate noise effects at any of the potential sites?

Comply with the standards and best practice guidelines – need independent monitoring of these.

Q39. Are there any other matters in relation to underwater lighting that you think the Minister for Primary Industries should be aware of?

Comply with the standards and best practice guidelines – need independent monitoring of these.

Q40. Social and community effects of the potential relocation proposal are wider than just residential amenity. What effects do you think there will be as a result of the potential relocation proposal?

Earlier this year (2017) the findings of a study led by Newcastle University's Dr Alan Jamieson into the environmental contamination of the Pacific Ocean's Mariana and Kermadec trenches were released. The study found extremely high levels of Persistent Organic Pollutants – or POPs – in the fatty tissues of marine organisms in these trenches.

Dr Jamieson said:
"We think of the deep ocean as being this remote and pristine realm, safe from human impact, but our research shows that, sadly, this could not be further from the truth".

POPs accumulate through the food chain so that by the time they reach the deep ocean, concentrations are many times higher than surface waters. Do we just ignore these findings and submit the Marlborough Sounds to such risk?

Our NZ Biodiversity Strategy, p 57, states:
"About 8000 marine species have been described in New Zealand waters, including 61 seabirds, 41 marine mammals, 964 fish, 2000 molluscs, 350 sponges, 400 echinoderms, 900 species of seaweeds and 700 species of microalgae. However, there are many more to be discovered, with seven new species being identified on average each fortnight. Marine scientists estimate that perhaps as much as 80 percent of New Zealand's indigenous biodiversity is found in the sea."

Environmental destruction of the Marlborough Sounds is not just a local or national issue. It is an international issue. We all, including the Minister of Primary Industries, have an obligation to protect it. Technological innovation in the salmon industry such as the closed containment system would allow the Ministry of Primary Industry to support sound development of the salmon farming industry without devastating the Sounds environment.

The New Zealand Government needs to follow the example of other countries and require major technology shifts in the salmon industry to reduce the present heavy environmental footprint stomping the life out of our marine diversity.

This is **Our** Chance to Turn the Tide.

Written Comment No:0540

Subject	**Salmon Farm relocation**
From	Tui Nature Reserve
To	aquaculture submissions
Sent	Monday, 27 March 2017 4:04 p.m.

Dear Panel,

Tui Nature Reserve Wildlife Trust and Brian and Ellen Plaisier, like to reserve the right to be heard during the panel hearings regarding the re-location of up to six salmon farms in the Marlborough Sounds.

Kind regards,
Brian Plaisier

Tui Nature Reserve Wildlife Trust
[redacted]
Havelock 7150
Marlborough
[redacted]