Working Paper 2013/01

Notes on the New Zealand King Salmon Decision

MCGUINNESS INSTITUTE
TE HONONGA WAKA

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About the Institute

The McGuinness Institute is an independently funded non-partisan think tank. The main work programme of the Institute is *Project 2058*. The strategic aim of this project is to promote integrated long-term thinking, leadership and capacity-building so that New Zealand can effectively seek and create opportunities and explore and manage risks over the next 50 years. It is hoped that *Project 2058* will help develop dialogue among government, policy analysts and members of the public about alternative strategies for the future of New Zealand.

About the Authors

Wendy McGuinness is the founder and chief executive of the McGuinness Institute. Originally from the King Country, Wendy completed her secondary schooling at Hamilton Girls' High School and Edgewater College. She then went on to study at Manukau Technical Institute (gaining an NZCC), Auckland University (BCom) and Otago University (MBA), as well as completing additional environmental papers at Massey University. As a Fellow Chartered Accountant (FCA) specialising in risk management, Wendy has worked in both the public and private sectors. In 2004 she established the McGuinness Institute (formerly the Sustainable Future Institute) as a way of contributing to New Zealand's long-term future. She has also co-authored a book, *Nation Dates: Significant events that have shaped the nation of New Zealand*.

Niki Lomax graduated from the University of Otago in 2011 with a Bachelor of Arts (Hons 1st class) majoring in history and politics. She has worked at the McGuinness Institute since March 2012.

Acknowledgements

The Institute would like to acknowledge Morgan Slyfield, a barrister at Stout Street Chambers, Jason Leung-Wai, a Senior Economist at BERL and Rachel Farrant, a partner in BDO Wellington Limited. Morgan for his assistance in exploring the complex issues involved in this paper, particularly in relation to the provisions and philosophy of the Resource Management Act 1991. Jason for his assistance in understanding the intricacies of current economic models and methods of assessing non-market values. Rachel for her assistance in the treatment of expenditure under New Zealand Equivalents to International Financial Reporting Standards (NZIFRS).

In undertaking a proposal of such significance it is important to consider international best practice. In this case, our research led us to Canada. We were fortunate to have the expertise of Dr John Volpe, Research Director of the Seafood Ecology Research Group (SERG), and William George Soltau, the Sustainable Fisheries and Salmon Farming Campaign Manager for the Living Oceans Society.

This working paper could not have been written without the considerable assistance of the Institute's research team and on-going feedback from interested parties. We would also like to thank Susan Brierley, our editor, for her patience and perseverance.

Lastly, thank you to the Board of Inquiry, the EPA staff and the Marlborough community.

Introduction

This working paper provides background notes on the discussion raised in Think Piece 16: *New Zealand King Salmon: Was it a good decision for New Zealand?* The think piece outlines my observations and recommendations at a specific point in time (15 March 2013). Just as the think piece reflects a point in time, this working paper aims to provide more detailed background over time, allowing the Institute to continue to think about, learn from and report on the discussions. Initially circulated for external review in March this working paper has generated a substantial amount of feedback which we have now incorporated into the final paper, dated 10 May 2013.

Photo: Queen Charlotte Sound

This working paper comprises of 17 notes; 16 of which discuss the challenges in the process, and one that describes five opportunities that exist to improve the process. The challenges are listed in terms of the six stages in the process, from before the application was received by the Environmental Protection Authority (EPA) to the post-decision stage. Each note begins with a boxed excerpt from the think piece, which is followed by an explanation of the background information and issues that shaped the think piece. The Institute welcomes comments, additions or queries about any of the information; as noted, our aim is to improve the quality of decisions and to promote informed discussion.

Each note in the think piece identifies an issue or multiple issues; taken together, these are used to inform the five opportunities. The five opportunities are discussed in Note 17, and lead to 15 recommendations (see page 61). Table 1 overleaf shows how each challenge identified in the New Zealand King Salmon (NZKS) process is used to inform the five opportunities. Importantly, all of these observations are to be seen in the context of a case where an applicant seeks to have a proposal considered differently because it is of *national significance*.

Please note that this working paper focuses primarily on central institutions and the operational elements of Resource Management Act 1991 (RMA). Our recommendations in Note 17 are not Sounds-specific and are designed to be useful for all future 'nationally significant' applications. However, it is worth noting that all local authorities should as a result of this decision ensure their long-term plans and regional policy statements are up to date and clearly reflect the wishes of the community, particularly when it comes to prohibited activities. As noted by the Board of Inquiry (the Board):

> [87] The [Marlborough District Council's] Regional Policy Statement was made operative on 28 August 1995, early in the development of resource management policy under the RMA. The Council has been in the process of reviewing it for several years. The document gives a limited degree of guidance to decision-makers. (*Final Report and Decision*, p. 55)[1]

Arguably, if the 1995 plan had been updated, the Board might not have allowed the plan change.

1 Hereafter quotes from the *Final Report and Decision* are referred to in text only. See: Board of Inquiry (February 2013). *Final Report and Decision.* Retrieved March 3, 2013 from: http://www.epa.govt.nz/Resource-management/king-salmon/Pages/Final%20report%20and%20decision.aspx

Table 1: Challenges and opportunities

Five Opportunities / Sixteen Challenges	**Opportunity 1** Improve the quality of economic expertise and skills.	**Opportunity 2** Improve guidance to applicants, submitters, experts and decision-makers.	**Opportunity 3** Improve transparency and accountability throughout the process.	**Opportunity 4** Improve the quality of information on endangered taxa.	**Opportunity 5** Promote the inquisitorial role of the Board.
Note 1: Political support for a potential resource consent application must either be critically examined and independently evidenced or couched in a way that ensures the government is not endorsing unproven claims by the applicant or industry representatives.	✓		✓		
Note 2: If, in order to gain *national significance*, the applicant wishes to claim that significant national economic benefits exist, they must have those economic benefits fully evaluated and independently tested by the EPA.	✓		✓		
Note 3: The applicant must provide an assessment of any effects of the proposal, of any alternative methods that would achieve the purpose of the proposal, and any effects the proposal might have on alternative uses of the resource in the future.	✓	✓	✓		
Note 4: The applicant must ensure all aspects of the application are accurate, assumptions transparent, and data and reports comprehensive.	✓	✓	✓	✓	
Note 5: The hearing process must ensure the boundary of the assessment is clarified at the outset.	✓	✓	✓		
Note 6: The hearing process must optimise public engagement in a professional and safe manner.		✓	✓		
Note 7: The hearing process must use best practice, applying appropriate tools and methods to explore and test any economic benefits.	✓	✓	✓		
Note 8: The hearing process must enable commercially sensitive data to be scrutinised by experts and the Board.	✓	✓	✓		
Note 9: The hearing process must manage the wide range of conflicts of interest that potentially exist.		✓	✓		
Note 10: The hearing process must enable the Board to inquire; this may mean employing experts from New Zealand or overseas to advise on key issues.				✓	✓

Five Opportunities / Sixteen Challenges	**Opportunity 1** Improve the quality of economic expertise and skills.	**Opportunity 2** Improve guidance to applicants, submitters, experts and decision-makers.	**Opportunity 3** Improve transparency and accountability throughout the process.	**Opportunity 4** Improve the quality of information on endangered taxa.	**Opportunity 5** Promote the inquisitorial role of the Board.
Note 11: The Board must write up its decision-making process in a transparent and comprehensive manner. It is important for decision-makers to explain their decisions, enabling society to learn from past decisions so that better decisions can be made in the future.		✓	✓		
Note 12: The Board must weigh local net effects against national net effects; if local effects are to be overridden (e.g. where a proposal goes against community plans) there must be evidence of significant national effects.			✓		✓
Note 13: The Board must not only identify potential risks but clarify those risks in terms of who pays for what if unwelcome consequences occur (e.g. applicants, local communities or national government).			✓		✓
Note 14: The Board must assess alternative future options for a resource where the proposal under consideration reduces the community's options in the future.	✓	✓			
Note 15: The Final Report and Decision must be logical, balanced and comprehensive.		✓	✓		
Note 16: Robust regulatory processes must exist when those who gain the benefits are different from those who may have to deal with the negative impacts.		✓			

Note 1: Political support for a potential resource consent application must either be critically examined and independently evidenced or couched in a way that ensures the government is not endorsing unproven claims by the applicant or industry representatives.

EXCERPT FROM THINK PIECE 16

Introduction

On 22 February 2013, the Environmental Protection Authority (EPA) published the Board of Inquiry's final report and decision on New Zealand King Salmon's (NZKS) application to establish nine new salmon farms in the Marlborough Sounds. The Board approved four of the nine farms, with conditions. This means up to 19,000 tonnes pa of additional salmon feed can now be discharged into the Sounds.[1]

Water quality and indeed the whole issue of water pollution and its effects are a very 'live' issue in New Zealand at the moment. Cleaning up water is a very expensive proposition. $450 million has been committed to cleaning up Lake Taupo, the Rotorua lakes and the Waikato River over 20 years.[2] How much, then, would be needed to clean up the Marlborough Sounds, if such a clean-up was required? Are we well placed today to assess the benefits, costs and risks of the NZKS proposal in terms of any unwelcome consequences in the future?

My interest in this decision arose from the fact that it was the first commercial application of *national significance* that was agricultural in context, following the establishment of the EPA in 2012. My involvement in the hearing – presenting a submission on behalf of the McGuinness Institute, as an economic expert, and cross-examining witnesses – provided an excellent opportunity to gain a deeper understanding of the new process, in which hearings are no longer heard by regional councils. In this case the Minister of Conservation considered a national Board of Inquiry the best option. As part-owner of a property on the western side of Arapawa Island, I also have an understanding of Queen Charlotte Sound, the community that lives within the Sound and the diverse range of bird and marine life that co-exists there.

This think piece summarises my observations in terms of the challenges and opportunities that arose during the hearing process. A map of the region under consideration and a table of farm sites is provided [see page 18 and 72 of this Working Paper], and further supporting information is provided in the Institute's Working Paper 2013/01: *Notes on the New Zealand King Salmon Decision.*

Challenges of the Process

Stage 1: Before the application was received by the EPA

Broad governmental support for the aquaculture industry, and for New Zealand King Salmon, undoubtedly shaped the company's application, and provided some relevant context for the Board's decision. A similar context of political support is perhaps likely to be a common feature of projects of such a large scale. However, the basis of any political support must be critically examined, so that it does not have an undue influence in shaping consent decisions. See Note 1.

Context[1,2]

In 2001 a moratorium was placed on new applications for aquaculture space.

In 2004 a new regime bringing aquaculture management under the control of regional councils as part of the RMA was introduced. However, no new aquaculture space was created under the 2004 regime.[3]

1 See Table 1 in Think Piece 16.

2 Amy Adams (25 February 2013). Speech presented to the New Zealand Fresh Water Management Forum, Wellington.

3 Nick Smith (2008). Aquaculture Reforms to be Overhauled. Retrieved March 5, 2013 from: http://www.beehive.govt.nz/release/aquaculture-reforms-be-overhauled-0

In 2006 the New Zealand Aquaculture Council commissioned *The New Zealand Aquaculture Strategy*,[4] a report written by the Law & Economic Consulting Group (LECG) with the assistance of the New Zealand Seafood Industry Council and the Ministry of Economic Development. This strategy document led to the formation of Aquaculture New Zealand, an amalgamation of the New Zealand Aquaculture Council, species groups (mussels, salmon, oysters), regional aquaculture organisations and Māori.

In 2007 the government released its response to the strategy in a paper titled *Our Blue Horizon: The Government's Commitment to Aquaculture*, in which it outlined a commitment to facilitating the sector's 10-point plan in areas where the government has leverage. The five key objectives are to:

1. build the confidence to invest;
2. improve public support;
3. promote Māori success;
4. capitalise on research and innovation, and
5. increase market revenues.[5]

Within each of these objectives the government has identified a number of initiatives, which form its commitment in the short term. Better understanding of the risks associated with aquaculture and options for risk management contributes to several of these initiatives, most directly:

1. building confidence to invest – planning support: support tools are being developed to encourage good practice and reduce the costs associated with aquaculture development, and these tools will help regional councils and industry with planning and management;
2. improving public support – filling the information gap: government and industry will work together to ensure regional decision-makers and the public have accurate, timely and independent information about the benefits and effects of aquaculture.[6]

Our Blue Horizon was signed and supported by six ministers – Environment, Conservation, Māori Affairs, Industry and Regional Development, Fisheries, and Local Government. The engagement was led by the Ministry of Fisheries.

In 2009 two reports were produced. On 15 October 2009, a Technical Advisory Group (TAG) published a report with recommendations 'to enable the development of sustainable aquaculture in New Zealand'.[7] At the same time, Aquaculture New Zealand commissioned a report by Ernst & Young that was published under the title *New Zealand Aquaculture: Industry Growth Scenarios*.[8]

4 The strategy was written by Mike Burrell and Lisa Meehan of LECG Ltd, with the assistance of Sally Munro of Munro Duignan Ltd, and input from industry, government, iwi, and other stakeholders.

See: New Zealand Aquaculture Council (July 2006). *The New Zealand Aquaculture Strategy.* Retrieved March 5, 2013 from: http://www.seafoodnewzealand.org.nz/fileadmin/documents/Publications/Aquaculture_Strategy.pdf

5 Ministry for the Environment (MFE) (2005). Appendix 1: The Aquaculture Industry in New Zealand. Retrieved March 5, 2013 from: http://www.mfe.govt.nz/publications/oceans/aquaculture-risk-management/html/page9.html

6 Ministry for the Environment (MFE) (2005). Appendix 1: The Aquaculture Industry in New Zealand. Retrieved March 5, 2013 from: http://www.mfe.govt.nz/publications/oceans/aquaculture-risk-management/html/page9.html

7 Aquaculture Technical Advisory Group (TAG) (2009). *Re-Starting Aquaculture.* Retrieved March 4, 2013 from: http://takutai.maori.nz/latest/documents/Aquaculture_TAG_Report.pdf

8 Ernst & Young (September 2009). *New Zealand Aquaculture: Industry Growth Scenarios*. Retrieved March 5, 2013 from: http://www.parliament.nz/NR/rdonlyres/9FDFA533-FDA2-4F7D-8200-D4A0B4F51766/184016/49SCPP_EVI_00DBHOH_BILL10442_1_A169811_Aquaculture.pdf

In 2010 Aquaculture New Zealand commissioned a second report, this time by New Zealand Institute of Economic Research (NZIER), which was titled *The Net Economic Benefit of Aquaculture Growth in New Zealand: Scenarios to 2025*.[9]

Later in 2010 the Ministry of Fisheries commissioned a new report by LECG (who were one of the authors of the 2006 report mentioned above), reviewing both the 2009 Ernst & Young report and the 2010 NZIER report.

In 2011 the Resource Management Amendment Act (No 2) was passed, as part of a number of aquaculture legislation reforms that lifted the moratorium on new applications for aquaculture space.

In November 2012 the Minister for Primary Industries, David Carter, gave a speech at the Aquaculture New Zealand conference in which he said:

> Aquaculture is vital to New Zealand's export growth and the Government has committed to partnering with your industry to ensure we all meet our targets. We want to see you grow and achieve your goal of a $1 billion industry by 2025.[10]

In recent years, support from the government has taken a number of forms, including (i) funding the industry through the Ministry of Primary Industries and (ii) funding NZKS ($500,000 in October 2011) through New Zealand Trade and Enterprise as part of its international growth fund.[11]

In May 2012, the Coriolis report *Investment Opportunities in the New Zealand Salmon Industry* was prepared for the Ministry of Economic Development (now the Ministry of Business, Innovation and Employment) as part of the Food and Beverage Information Project.[12] This report appears to have been released on 20 November 2012,[13] once the NZKS hearing had come to a close. An article in the New Zealand Herald in December 2012 noted on its release 'Industry foresees billion-dollar future but Government-funded research paints a less optimistic picture'.[14] The report notes that initially there was a lot of industry hype about the potential for growth. Five companies were listed on the stock exchange between 1980-1990. However, all five proved to be a poor long term investment (see page 21). Further, the report suggests on pages 32-34 that the recent production surge in New Zealand is purely export driven, hence domestic consumption has flattened and stabilised and is unlikely to increase in the future. The report also suggests the export surge is related to the Chilean infectious salmon anaemia (ISA) virus

9 New Zealand Institute of Economic Research (NZIER) (June 2010). *The Net Economic Benefit of aquaculture in New Zealand: Scenarios to 2025*. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Day%2018%20NZIER%20Net%20Economic%20Benefit%20of%20aquaculture%20growth%20in%20NZ%20June%202010.pdf

10 David Carter (2012). Speech to Aquaculture New Zealand Conference. Retrieved March 4, 2013 from: http://www.beehive.govt.nz/speech/speech-aquaculture-new-zealand-conference

11 Ministry for Primary Industries (MPI) (2012). Aquaculture Projects Approved in Latest SFF Round. Retrieved March 4, 2013 from: http://www.mpi.govt.nz/news-resources/news/aquaculture-projects-approved-in-latest-sff-round and
Aquaculture New Zealand (2013). New Funding to Benefit Research Partnerships. Retrieved March 4, 2013 from: http://aquaculture.org.nz/2013/02/07/new-funding-to-benefit-research-partnership
Bill Moore (21 November 2012). Govt grant to boost salmon marketing. *Nelson Mail*. Retrieved March 20, 2013 from: http://www.stuff.co.nz/nelson-mail/news/6005002/Govt-grant-to-boost-salmon-marketing

12 Coriolis (May 2012). Investment opportunities in the Salmon industry. Retrieved March 20, 2013 from: http://www.med.govt.nz/sectors-industries/food-beverage/pdf-docs-library/information-project/coriolis-report-investment-opportunities-salmon-industry.pdf

13 Coriolis (November 2012). Release of Emerging Growth Opportunities reports. Retrieved March 20, 2013 from: http://www.coriolisresearch.com/

14 Christopher Adams (10 December 2012). Salmon farming feels the squeeze. New Zealand Herald. Retrieved March 20, 2013 from: http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10852975

outbreak and as Chile recovers from ISA, prices are expected to return to their downward trend (see page 37). This is contrary to the evidence presented by NZKS's chief financial officer, Mr Clark:[15]

> [5.10] I am fully confident NZ King Salmon can continue to grow sales by double digit rates annually for many years to come, provided the waterspace is available.
>
> [5.11] So, while Professor Hazledine's 'theory' in respect of our potential sales growth being at the expense of pricing may have some basis in terms of his expert discipline, the real world track record figures do not suggest this. In fact, we have been growing revenue faster than volume. I attribute this to the fact that we are not selling into a theoretical market – we have many potential premium customers globally who are not yet aware of us, and not aware of the premium positioning and branding we are developing over time. This gives NZ King Salmon confidence that we can continue to grow both revenue and volume in future through tapping into new markets and customers.

The Coriolis report also notes that while salmon has the potential for continued growth, in practice this potential is unlikely to be realised. Coriolis findings align with the McGuinness Institute analysis,[16] and are contrary to the findings of the Board that relied on historical data (see below):

> [245] In addressing Ms McGuinness's other concerns over the need for a deeper and broader analysis, Mr Nystøyl[17] recorded that the salmon industry is still a relatively new industry, but nonetheless, over the last 35 years, the increase in demand had surpassed all expectations.
>
> *Findings*
>
> [246] We understand the difficulties in forecasting future demand and price on the world market. Any prognostication must necessarily be subject to the vagaries of international markets and pricing.
>
> [247] However, Mr Nystøyl is an experienced analyst and consultant within the world aquaculture and seafood sector. He acknowledged the limitations of his prognosis and was not prepared to forecast beyond 10 years.
>
> [248] We are satisfied that based on present and past trends, that sufficient demand exists in the global market for Chinook salmon to justify King Salmon's decision in making these applications. (*Final Report and Decision*, p. 100)

Issue One: Whose responsibility was it to bring the 2009 Ernst & Young report, the 2010 LECG report and the 2012 Coriolis report to the Board's attention?

The applicant, an expert witness (NZIER) and the Ministry of Fisheries presumably knew of these three reports which raised concerns over NZIER's optimistic projections.

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15 Andrew Clark (August 2012) p 12. *Statement of Rebuttal Evidence of Andrew Clark in Relation to Demand, Efficiency and Ownership of the New Zealand King Salmon Co. Limited*. Retrieved March 22, 2013 from: http://www.epa.govt.nz/Publications/4%20Andrew%20Christopher%20Clark%20-%20Demand,%20Efficiency%20and%20Ownership.pdf

16 [226] We also heard quite trenchant criticism from Ms Wendy McGuinness, particularly with regard to global demand and price for King Salmon's product on the world market. (*Final Report and Decision*, p. 94)

[243] Ms McGuinness told us that while the global supply projections of New Zealand King Salmon can be relied upon, the demand data and price information trends were inadequate. Therefore, Dr Fairgray's conclusions over revenue and profit could not be relied upon. She held the belief that more information was required on demand, risk, prices, and a deeper understanding of the relationship between global supply and price. (*Final Report and Decision*, p. 99)

17 Ragnar Nystøyl has a Bachelor in Business Administration from the Trondheim Business School, and has completed an international course in Export Marketing from the Suffolk University, Madrid. He is the Managing Director of Kontali Analyse. Kontali was founded in Norway in 1993 and is recognised as one of the world's leading private research institutes, with a dedicated focus on trends within production, trade, consumption, price and market development of seafood, in particular salmon and trout. See Ragnar Olav Nystøyl (June 2012). p. 1. *Statement of Evidence of Ragnar Olav Nystøyl in Relation to Global Demand for King Salmon for the New Zealand King Salmon Co. Limited*. Retreived March 20, 2013 from: http://www.epa.govt.nz/Publications/7%20Ragnar%20Olav%20Nystoyl%20-%20Global%20Market%20Demand%20for%20King%20Salmon%20-%20v1.pdf

LECG, in response to the 2009 Ernst & Young report, states:

> The resulting [business as usual] scenarios should be regarded as **generally optimistic.** To the extent that the underlying positive revenue trend breeds complacency about the configuration or performance of the current industry structure, such complacency is almost certainly dangerous. [Bold added][18]

Comparing the 'generally optimistic' scenarios in the 2009 Ernst & Young report with the 2010 NZIER report, LECG goes on to note:

> … assumptions [in the NZIER report] about future production are **significantly more optimistic** than Ernst & Young's business as usual scenario. [Bold added][19]

This suggests that LECG considered the NZIER report relied upon significantly optimistic assumptions about future production.

This raises questions over why only the NZIER report was used by the applicant as evidence and, to my knowledge, the other reports, which were far more conservative, were not mentioned either by the applicant, their experts (who included a representative of NZIER), other submitters, or the Board.

If the May 2012 Coriolis report had been made available to the Board between May and October, we expect their findings, quoted above, might have been different, and this may have resulted in a far more conservative decision by the Board of Inquiry in regard to the four farms that were approved. The report was only made public in November, after the Hearing closed on 19 October 2012 and therefore could not form part of the Board of Inquiry process. Therefore although this report was completed in May 2012, the timing of publication prevented the report from being considered by the Board of Inquiry. The Institute, for example, would have used it as evidence.

These three reports only became apparent after the hearing, and was discovered by the Institute during the writing of Think Piece 16. It is now too late for this information to be tabled with the Board of Inquiry; the hearing is over. Further, any attempt to introduce new information by appealing to the High Court cannot be made; only points of law related to the process can be discussed in the High Court. Under the current system, there is only one place in which evidence can be discussed, and in this case it was at the Board of Inquiry hearing.

Issue Two: On what did the Minister for Primary Industries, David Carter, base his view that the industry could or should achieve its 'goal of a $1 billion industry by 2025': the 2009 Ernst & Young report, the 2010 NZIER report, the 2010 LECG report or the 2012 Coriolis report? Was the due diligence adequate?

In 2009, the aquaculture industry comprised oysters (6%), mussels (72%) and salmon (22%), and generated more than $380 million in revenue, of which $279 million was injected into the New Zealand economy through export sales.[20] Achieving their goal within the next 12 years would mean tripling the size of the current aquaculture industry. Reaching it is possible, but the debate must focus on the net benefit to New Zealanders, in the form of jobs and export revenue (see Note 7).

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18 Law & Economic Consulting Group (LECG) (June 2010) p 4. *Aquaculture in New Zealand: Supplementary analysis for 'New Space' settlement obligation*. Retrieved March 5, 2013 from: http://www.fish.govt.nz/NR/rdonlyres/6C2827A6-9693-4BA8-BF12-A80CBF3541E5/0/LECGAquacultureinNZSupplementaryanalysisofnewspacesettlementobligation.pdf

19 Law & Economic Consulting Group (LECG) (June 2010) p 3. *Aquaculture in New Zealand: Supplementary analysis for 'New Space' settlement obligation*. Retrieved March 5, 2013 from: http://www.fish.govt.nz/NR/rdonlyres/6C2827A6-9693-4BA8-BF12-A80CBF3541E5/0/LECGAquacultureinNZSupplementaryanalysisofnewspacesettlementobligation.pdf

20 Aquaculture New Zealand (n.d.). Overview. Retrieved March 4, 2013 from: http://aquaculture.org.nz/industry/overview/ and Aquaculture New Zealand (n.d.). FAQs. Retrieved March 4, 2013 from: http://aquaculture.org.nz/about-us/faqs/

The Cabinet decision to proceed with the 2011 amendments to the aquaculture legislation records as a matter of background that there was an expectation that the industry could generate annual sales of $1 billion by 2025.[21] Government needs accurate and complete information to drive reform and manage expectations. This does not appear to have happened in this case.

Issue Three: What economic evidence was used to support the NZKS application for 'national significance'?

In support of the NZKS application, even before it was considered by the Minister for Conservation as a proposal of *national significance*, the industry and the applicant tended to base their economic argument on revenue gains rather than New Zealand jobs.

The recommendation prepared for the minister by the EPA, on whether NZKS's proposal amounted to one of '*national significance*', restated the economic benefits assumed in the Aquaculture TAG report, which in turn were attributed to the Ernst & Young report.

No mention was made in the EPA's report to the minister that the LECG report commissioned by the Ministry of Fisheries raises questions about the optimism embedded in Ernst & Young's figures. The EPA's recommendation also cites the 'Economics Report' in NZKS's own application in support of the view that the project will bring economic benefits to the region and the country, and seems to draw strength from the similarity between Ernst & Young's assessment and NZKS's own assessment, concluding that 'up to $2 billion of net revenue is attainable by the industry'.[22]

Collectively, the Ernst & Young report, the subsequent Aquaculture TAG report, the Cabinet decision to proceed with the 2011 reforms, the EPA's report on the *national significance* of NZKS's proposal, and the NZKS Economics Report itself, have all placed significant focus on the revenue figure, rather than on the number and nature of New Zealand jobs.

Issue Four: Did this perception that the $1 billion goal was achievable influence key parties; for example, was undue pressure put on the Marlborough District Council by well-intentioned Members of Parliament?

Hype is something that we all need to be careful of; it is easy to put pressure on people accidentally because you have formed a view in advance based on what you believe is credible information. This is possibly what happened with respect to the Marlborough District Council last year.[23] It is simply beyond the Institute's resources to clarify exactly what was said, where and by whom; however, there is enough information, as can be seen above, to suggest that the basis of any political support must be critically examined, so that it does not have an undue influence in shaping consent decisions in the future.

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21 Cabinet (15 March 2010). CAB Min (10) 9/2. Retrieved March 4, 2013 from: http://www.fish.govt.nz/NR/rdonlyres/92207622-44D6-41C8-90D8-5A706E507FD3/0/Aqua_Reform_Cabinet_Decisions_on_Paper1_2010.pdf

22 New Zealand King Salmon (NZKS) (n.d.) Sustainably Growing King Salmon – A Proposal of National Significance. Retreived March 20, 2012 from: http://www.epa.govt.nz/Publications/Application%20Attachment%20-%20Report%20on%20National%20Significance.pdf

23 For example: 'Three Government ministers queried the Marlborough District Council's stance on the NZ King Salmon application and asked pointed questions of Mayor Alistair Sowman at a meeting in Wellington.
'Mr Sowman said that while he was at the mayoral taskforce on jobs in Wellington last month, Economic Development Minister Steven Joyce, Labour and Conservation Minister Kate Wilkinson, and Local Government and Primary Industries Minister David Carter took him aside to ask 'what was going on in Marlborough' that the council would oppose King Salmon's application'.
See: Marlborough Express (2012). Mayor quizzed on King Salmon. Retrieved March 4, 2013 from: http://www.stuff.co.nz/marlborough-express/news/7615457/Mayor-quizzed-on-King-Salmon

Note 2: If, in order to gain national significance, the applicant wishes to claim that significant national economic benefits exist, they must have those economic benefits fully evaluated and independently tested by the EPA.

EXCERPT FROM THINK PIECE 16

Stage 2: Applications of national significance
It should not be presumed that a project will generate national economic benefits simply because it is deemed to be of *national significance*. Claims of significant national economic benefits must be fully evaluated and tested if those benefits are to play a part in overriding local or regional interests.
See Note 2.

Context

The NZKS proposal was determined by the Minister of Conservation to be of *national significance*. Notably, the legislation does not require economic benefit to be determined.[1] National economic benefit should not be presumed to result from projects that meet the '*national significance*' criteria. Indeed, the fact that economic benefit is not one of the express criteria for determining *national significance* perhaps suggests that the RMA assumes a proper examination of any claimed national economic benefit will be part of the hearing process.

The Minister took into account that the NZKS proposal has the *potential* to 'increase the export revenues for New Zealand...' and '... contribute to the local and regional economy of Marlborough and the top of the South Island'.[2] She relied on statements made by NZKS, and the advice of the EPA, which – as discussed under Note 1 – was seemingly influenced by revenue estimates that were both optimistic and are representative more of the private benefit to NZKS shareholders than any public benefit to New Zealanders.

Given the other reasons on which the Minister based her direction, it is arguably unnecessary for her to place any reliance on claimed economic benefit, particularly when that reliance appears to be based on assertions by the applicant itself that are untested.

Evidence of the assumption of economic benefit clearly shaped NZKS's approach, however, as it stated on its website in its initial application:

1 With regard to defining 'proposals of national significance' s 142 (3) of the Resource Management Act 1991 states that:
In deciding whether a matter is, or is part of, a proposal of national significance, the Minister may have regard to—
(a) any relevant factor, including whether the matter—
(i) has aroused widespread public concern or interest regarding its actual or likely effect on the environment (including the global environment); or
(ii) involves or is likely to involve significant use of natural and physical resources; or
(iii) affects or is likely to affect a structure, feature, place, or area of national significance; or
(iv) affects or is likely to affect or is relevant to New Zealand's international obligations to the global environment; or
(v) results or is likely to result in or contribute to significant or irreversible changes to the environment (including the global environment); or
(vi) involves or is likely to involve technology, processes, or methods that are new to New Zealand and that may affect its environment; or
(vii) is or is likely to be significant in terms of section 8; or
(viii) will assist the Crown in fulfilling its public health, welfare, security, or safety obligations or functions; or
(ix) affects or is likely to affect more than 1 region or district; or
(x) relates to a network utility operation that extends or is proposed to extend to more than 1 district or region; and
(b) any advice provided by the EPA.

2 Hon Kate Wilkinson (2011). Minister's Reasons for Decision. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Resource-management/king-salmon/Pages/Minister%27s-Direction.aspx

Why does New Zealand King Salmon want more space?

We need more farms because we cannot produce enough fish to meet demand both in New Zealand and world-wide. Also, the aquaculture industry wants to achieve $1 billion in sales by 2025 and we know we can play our part in achieving this too.

Why is New Zealand King Salmon applying for new water space using the Environmental Protection Authority?

The Environmental Protection Authority was set up specifically to manage big projects that have national significance. **We think our proposal is of national significance because it falls within the Government's and industry's plan to grow aquaculture in to a $1 billion industry by 2025**. [Bold added][3]

Issue One: Should claims of significant national economic benefits be fully evaluated and tested before those benefits play any part in determining whether a proposal is nationally significant, and before any final determination is made that might override local or regional interests?

At the time the NZKS application was lodged, no examination of the substance of the company's economic assessment had been undertaken. The EPA had commissioned a review by NZIER to determine whether the information supplied by NZKS was sufficient to enable the Board to assess the economics of the proposal, but those economics themselves had not been assessed.[4] Yet the EPA, and to some extent the Minister, seem to have been prepared to take at face value some of the claims of economic benefit, even though a *national significance* assessment does not expressly require consideration of economic benefit.

The fact that this is not required during the assessment of *national significance* does not imply it should not be completed by the Board of Inquiry – quite the contrary. A full assessment of the supposed national, regional and local economic benefits must be carried out, so that any such benefits can be properly weighed up against the identified costs or disadvantages of the project.

3 New Zealand King Salmon (NZKS) (2011). EPA Application. Retrieved March 5, 2013 from: http://kingsalmon.co.nz/application-for-additional-water-space/index.html

4 My understanding is that the economic assessment NZIER completed for the EPA was only to establish whether the information was sufficient to be assessed by the Board – it was not to establish that benefits existed.
Letter from Bill Kaye-Blake to Sarah Bevin (12 October 2012). Retrieved February 14, 2013 from: http://www.kingsalmon.co.nz/RebuttalDocs/9%20William%20Kaye-Blake%20-%20Appendix%202.pdf

Note 3: The applicant must provide an assessment of any effects of the proposal, of any alternative methods that would achieve the purpose of the proposal, and any effects the proposal might have on alternative uses of the resource in the future.

EXCERPT FROM THINK PIECE 16

Stage 3: The application to the EPA

There is a lack of clarity around the relevance of an application's 'purpose', particularly where consents will enable an applicant to secure exclusive use of a resource. Whether or not an applicant implements its consents will be a commercial decision, but the current legal framework requires the Board to assume implementation. This provides little scope for the Board to evaluate a proposal against alternative proposals for use of the same resource. See Note 3.

Context

The purpose of the RMA is set out in s 5 of the Act:

> (1) The purpose of this Act is to promote the **sustainable management** of natural and physical resources.
>
> (2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—
>
> (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
>
> (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
>
> (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment. [Bold added]

Section 88 of the RMA requires an application to include an Assessment of Environmental Effects (AEE) 'in such detail as corresponds with the scale and significance of the effects that the activity may have on the environment'.[1] The AEE is required to conform with further directions contained in Schedule 4 of the RMA. The consent authority will check to see that the assessment meets the required standard, and if necessary can reject the application as 'incomplete', returning it to the applicant.

Further, the consent authority is required to exercise all its powers under the RMA in accordance with the principle of sustainable management described in s 5.

The purpose of the legislation (which centres on sustainable management) and the purpose of the applicant (in this case, the production of king salmon) are core to defining what is to be assessed under the Inquiry. While the RMA's purpose sets out the core objective of the assessment, the applicant's purpose – inherent

1 Resource Management Act 1991 s 88.
Making an application
(1) A person may apply to the relevant consent authority for a resource consent.
(2) An application must—
(a) be made in the prescribed form and manner; and
(b) include, in accordance with Schedule 4, an assessment of environmental effects in such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

to its application – sets out the scope of the assessment, which in turn informs (i) what is to be assessed in terms of *alternatives*,[2] and (ii) what is to be assessed in terms of *effects*.[3]

Issue One: To what extent should the Board assess the purpose of the application?

The NZKS application of May 2010 sets out the purpose as:

> Overall, the purpose of the request for the plan changes is **to enable NZ King Salmon to secure new water space for marine farming to meet demand for its product, King Salmon, in a sustainable way** … NZ King Salmon has publicly noted its intention to significantly expand its production, and of its target to double production within the next three to five years and potentially further double production within the following ten years. If this potential is achieved, NZ King Salmon could become a $0.5 billion dollar company, and help achieve industry and Government goals of making aquaculture a $1 billion dollar industry by 2025. In order to achieve this growth (and the flow on benefits to the regional and national economies), NZ King Salmon **urgently requires new water space to meet demand**. Its proposal 'Sustainably Growing King Salmon' seeks to meet this purpose. [Bold added][4]

This statement of purpose implies that NZKS urgently required additional production, yet by its own figures it was then only operating at 79–84% of production capacity (as reported in example 3 in Note 4).

Further, the March 2013 monitoring report of existing farms indicate that although some farms were operating well above consent levels, overall they were operating way below production capacity. Table 5 shows that by the numbers NZKS only discharged approximately 58% (15167 / 26210 tonnes pa) of its current consent, meaning that between December 2010 and November 2011 NZKS's was only operating at approximately 58% of its production capacity.[5] This implies that NZKS were operating at much less than the 79-84% production capacity, which in turn raises further questions as to how the accuracy of the statement that the purpose that NZKS 'urgently requires new water space to meet demand'. Evidence of consumer demand was also not well explored in the evidence; in fact, salmon prices have been volatile and on the low side for years.[6]

Finally there exist a number of possible other purposes underlying the reason for this application, but these were not assessed. This is an example of how the applicant determines what is considered under an application and what it not. See the eight potential purposes underlying the application on page 48. We suggest that a more comprehensive assessment of the proposal should be undertaken by (i) the applicant, (ii) the EPA in verifying the application, (iii) the EPA in considering the application for *national significance* and (iv) the Board.

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2 Resource Management Act 1991 s 32(1)(b), Schedule 4.

3 Resource Management Act 1991 s 3.

Meaning of effect

In this Act, unless the context otherwise requires, the term effect includes —

(a) any positive or adverse effect; and

(b) any temporary or permanent effect; and

(c) any past, present, or future effect; and

(d) any cumulative effect which arises over time or in combination with other effects — regardless of the scale, intensity, duration, or frequency of the effect, and also includes —

(e) any potential effect of high probability; and

(f) any potential effect of low probability which has a high potential impact.

4 New Zealand King Salmon (NZKS) (May 2010) p 2. Regional Plan and Plan Change Form. Retrieved February 12, 2013 from: http://www.epa.govt.nz/Publications/Application%20Form%20for%20Main%20Plan%20Change%20Request.pdf

5 Note that the figure of 58% includes the Crail Bay farm sites which have a maximum feed discharge of 3210 (tonnes pa). Note 2 on Table 5 (p. 45) shows that as of February 2013 NZKS plans to apply to stock the site/s with pens in the future.

6 Global salmon prices are very volatile.
See: Index Mund (February 2013). Fish (salmon) Monthly Prices - New Zealand Dollar per kilogram. Retrieved March 5, 2013 from http://www.indexmundi.com/commodities/?commodity=fish&months=240&currency=nzd

Note 4: The applicant must ensure all aspects of the application are accurate, assumptions transparent, and data and reports comprehensive.

EXCERPT FROM THINK PIECE 16

Further, an applicant's incentive to prepare a comprehensive and accurate proposal will always be constrained by their interest in presenting the application in the most positive terms. That interest incentivises the applicant to convey the minimum amount of information necessary to enable consent to be granted, and there is limited disincentive or penalty to prevent the applicant from overinflating benefits and underestimating risks and costs. In this case, neither the applicant nor the Board prepared a comprehensive Cost-Benefit Analysis (CBA). See Note 4.

Context

The economic experts met on 11 September 2012 to discuss the topic of economic effects. The experts agreed:

> There has been no comprehensive Cost-Benefit Analysis of the NZ King Salmon proposal undertaken by any of the economic experts.[1]

The Board did not require a CBA, though the Treasury clearly considers a CBA to be a useful tool for assessing options in the public policy area. In the *Cost Benefit Analysis Primer*, the Treasury notes that if the techniques described in the Primer do not provide a sufficient base from which to conduct CBA, alternative assessment techniques such as Cost Effectiveness Analysis (CEA) and Cost Utility Analysis (CUA) may prove useful:

> Cost Effectiveness Analysis (CEA) is similar to Cost Benefit Analysis except that it does not attempt to place a value on the major benefits of the proposal. Instead, CEA compares the costs of alternative ways of producing the same or similar outputs/benefits. It is often used to find the option that meets a predefined objective at a minimum cost. CUA is a variant of CEA that measures the relative effectiveness of alternative interventions in achieving two or more given objectives. Both CEA and CUA provide measures of the relative effectiveness of alternative interventions in achieving a given objective (or two given objectives in the case of CUA). The unit of measurement is usually non-monetary.[2]

However, the Board positioned a CBA as an alternative methodology to an input/output model. They are not alternative methodologies; quite the contrary. The Board noted:

> [263] It is difficult to evaluate evidence, particularly expert evidence, when the experts espouse different methodologies as Dr Fairgray, Dr Kaye-Blake and Professor Hazledine have done. We do not propose to be led into a debate as to the respective merits of cost/benefit analysis versus an analysis based on an input/output model.
>
> [264] Both have their uses and limitations. A cost/benefit analysis faces the difficulty of accurately quantifying in numerical terms social, cultural, ecological and other similar impacts on the coastal environment. It was for this reason that Dr Fairgray chose to use the input/output model. On the other hand, input/output tables are static. They do not respond to relative price changes that shift the composition of inputs or outputs. They do not change the mix of inputs used to produce a certain level of output. The limitations were described in some detail by Dr Kaye-Blake. He told us that there was no single right answer, and the key is to use them correctly and acknowledge their strengths and weaknesses. (*Final Report and Decision*, pp. 104–105)

1 James Fairgray, Tim Hazledine, Bill Kay-Blake, Trevor Offen, Wendy McGuinness (September 2012) p. 4. *Joint Statement of Economics Experts, 11 September 2012*. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Economics%20Expert%20Witness%20Caucusing%20Statement.pdf

2 Treasury (2006) p. 8. *Cost Benefit Analysis Primer*. Retrieved March 20, 2013 from: http://www.treasury.govt.nz/publications/guidance/planning/costbenefitanalysis/primer

An input/output model has a very different purpose than a CBA. An input/output model assesses the economic benefits in terms of GDP and employment on the economy in question, which are then subjectively weighed up against the costs, which could be identified and presented in a number of forms. A comprehensive CBA, however, compares all quantifiable benefits against all quantifiable costs of a proposal by assigning each a monetary value and taking into account the time period in which the benefits and costs occur. An input/output model can form part of a CBA, but a CBA does not form part of an input/output model. They are complementary but they are not alternative methodologies as implied by the Board in paragraph 263 of the *Final Report and Decision* (see above).[3]

It is true that a CBA faces the difficulty of accurately quantifying in numerical terms social, cultural, ecological and other similar impacts. It is this inability to quantify costs, particularly social and environmental costs, that means those using a CBA must understand its limitations, particularly any assumptions and evidence relied upon. It is the process and the resulting transparency regarding the identification and description of effects and how these are rated in terms of being positive and/or negative that makes it such a useful tool for evaluating a proposal or competing proposals on a consistent basis.

A CBA of a proposal provides a very clear picture of what was in the decision-makers' heads when they made a decision at a particular point in time. It is also very useful retrospectively, in that past decisions can be assessed in terms of what was and what was not included in the CBA, and how future decisions could be improved as a result. It also enables a discussion on opportunity costs (in other words, the potential positive and negative effects of using resources in an alternative way).

There are a number of key factors that influence a CBA, but arguably the most important of these is how far into the future the analysis looks to identify positive and negative effects and what assumptions you use to underlie your analysis. For example, in this decision the Board relied on (i) demand evidence that went out to 2021, (ii) the economic input/output model to 2026, and (iii) the AEE which went out to 2048.

In a CBA, the further into the future the analysis looks, the more important it is to convert the estimates of monetary benefits over costs into today's dollars, creating an NPV (Net Present Value). The fact that you cannot always create a true market value (NMV) only becomes an issue at the end of the assessment, and there are techniques for ensuring these NMV effects are taken into account. The Treasury notes:

> This is done by quantifying all costs and benefits in monetary terms, and discounting them to a common point in time to determine the net benefits of each proposal. There are techniques for ensuring that social costs and benefits are included or taken account of (even those that are difficult to measure in monetary terms) and for ensuring that there is no double counting of costs or benefits.[4]

The lack of a CBA as a decision-making tool raises issues over (i) whether there are enough checks and balances in the process to ensure that an application and any supporting evidence are comprehensive and accurate, and (ii) whether there are adequate incentives for applicants to make a thorough and accurate application and, more importantly, should disincentives or penalties apply for proposals that overinflate benefits or underestimate risks and costs.

---

3 Input/output models aim to measure the total effect of a proposal on the economy. To do this economists use tables prepared by Statistics New Zealand that record the inter-industry transactions of the economy at a past point of time. The key data in the model can be purchases of goods and services (if they are New Zealand made) and compensation of employees (i.e. salaries and wages). By understanding the inputs, the tables show the outputs that one might expect if the structure of the economy remains the same. Data availability meant that the NZKS primary economist used the 1996 economy as the basis for his model. This is problematic as the New Zealand economy has changed a great deal in the last 17 years, and as the salmon farming industry was a relatively small industry at that time, we understand that it was therefore recorded under 'fishing and fish products'. Due to the lack of transparency we cannot be certain this was the industry category used.

4 Treasury (2010). Cost Benefit Analysis. Retrieved March 5, 2013 from: http://www.treasury.govt.nz/publications/guidance/planning/costbenefitanalysis

In this case, even in the absence of a comprehensive CBA, some effort could have been made to quantify some of the costs and contrast these against the proposed benefits. The fact that this exercise was never undertaken emphasises the lack of rigour in the economic analyses.

Issue One: Are there sufficient checks and balances in the process to ensure an application and any supporting evidence are comprehensive and accurate?

Arguably, it is in the applicant's interest to convey the minimum amount of information necessary to enable a consent to be granted, while at the same time there is limited disincentive or penalty to prevent the applicant from overinflating benefits and underestimating risks and costs. This is perhaps best understood in terms of six examples:

Example 1: In Note 1 we show that NZKS chose to include the earlier NZIER report on the future of aquaculture production in New Zealand in its application without disclosing differing views, even though the company must have been aware of the existence of other expert reports that considered NZIER's assumptions significantly optimistic, showing the application was not comprehensive.

Example 2: Not all NMVs were included, meaning that the application was not comprehensive. As the applicant's witness on economics stated:

> [5.46] However, in the absence of a reliable measurement of the NMVs potentially affected by the proposed salmon farming operations, [the total economic value (TEV)] approach is possible in theory though **very difficult in practice, especially because of the difficult interface between qualitative and monetary values**. My broad conclusion – acknowledging the absence of any NMV assessment to provide a 'do nothing' baseline – is that there will be costs and benefits arising from salmon farming for which there are no market values. These would to a degree offset positive effects of the proposed activity in terms of the TEV.
>
> [5.47] The currently available information, especially in regard to the significance attributed to adverse effects of salmon farming by experts in each area, suggests that these will generally be relatively low. [Bold added][5]

Example 3: Available production capacity was not accurately reported. NZKS stated in its original application (May 2010) that it 'urgently requires new water space to meet demand', however NZKS was operating well below production capacity. Towards the end of the hearing process it became apparent that NZKS must be operating at about 79 and 84% production capacity – leaving 15% underutilised. This error was corrected in the final decision.

However, based on March 2013 information, this figure must be much lower. As discussed on page 13, the March 2013 monitoring report of existing farms indicates that based on feed discharge, NZKS's was only operating at about 58% of its production capacity – leaving 42% underutilised.

NZKS application (May 2010):

> By way of background, NZ King Salmon is an integrated salmon company that is involved in all aspects of salmon farming, processing and sales and marketing. It is the largest producer of King Salmon in the world and the largest aquaculture-only company in New Zealand with **annual production at approximately 8900 tonnes**. [Bold added][6]

5 James Fairgray (June 2012) p. 74. *Statement of Evidence of James Douglas Marshall Fairgray in Relation to Economic Impacts for the New Zealand King Salmon Co. Limited*. Retrieved March 20, 2013 from: http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/2430034%20James%20Douglas%20Marshall%20Fairgray%20-%20Economic%20Impacts%20-%20v1.pdf

6 New Zealand King Salmon (NZKS) (May 2010) p. 2. *Regional Plan and Plan Change Form*. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Application%20Form%20for%20Main%20Plan%20Change%20Request.pdf

Draft Report and Decision (December 2012):

> [3] It currently has six salmon farms in the Marlborough Sounds, **producing approximately 8,900 tonnes** of King salmon (also known as Chinook) per annum, at Ruakaka Bay, Forsyth Bay, Waihinau, Otanerau, Te Pangu and Clay Point. [Bold added][7]

Final Report and Decision (February 2013):

> [3] It currently has six salmon farms in the Marlborough Sounds, **producing approximately 7,000 to 7,500 tonnes** of King salmon (also known as Chinook) per annum, at Ruakaka Bay, Forsyth Bay, Waihinau, Otanerau, Te Pangu and Clay Point. [Bold added] (*Final Report and Decision*, p. 12)

Example 4: The Boffa Miskell AEE report did not summarise key data accurately. This was only discovered when the table (repeated below) was being prepared for Think Piece 16. Current flow determines whether an area is suitable for salmon farming (see paragraphs 161, 269 and 273 of the *Final Report and Decision*). Further, paragraph 308 notes that the greater the depth and swifter the current the more widely the organic material disperses beyond the farm. We do not know which data was used by the Board as it does not say in its decision which figures it used, but these mistakes should have been picked up and create concerns over the quality of data provided to the Board. See Tables 3 and 4 overleaf; the strike-through figures represent the data in the AEE prepared by Boffa Miskell, which is different from the Cawthron report.[8]

Example 5: There was inaccuracy in employment figures. The applicant's expert witness used incorrect figures, which were later corrected and revised. In June 2012 he stated:

> Over the 25-year period to 2036, the sector's cumulative additional contribution to GDP will be in the order of $1,106m in present value terms, and sustaining an additional **41,000 person years** of employment (undiscounted). By 2026, with the existing and additional farms in production, the sector's direct and flow on effects would contribute 3.8% of the Marlborough and 2.0% of the Nelson economy, while the expansion of the sector would account for some 4.9% of total growth in the northern South Island over the 2010–2026 period. [Bold added]
>
> By way of context, my analysis in the EIC [Evidence in Chief] showed the estimated economic impacts expected over a long term (25 year) time horizon, based on the salmon production volumes estimated by NZKS (to a maximum of 22,500 tpa in the Biosecure future), expressed in present value terms by applying a discount rate of 8%. On that basis, I estimated the annual additional direct and total value added and additional employment arising over the period. In my Supplementary Statement I have provided **revised estimates** of the employment effects of the NZKS proposal, drawing from the NZKS updated employment estimates. The revised estimates show less additional employment generated, consistent with NZKS 'expectations of efficiency gains in salmon processing and administration'. My estimates of value added, which are based on the projected volumes of salmon produced by the proposed farms, are unchanged. [Bold added][9]

Example 6: A comprehensive record of endangered taxa does not exist in the application. See Note 15 and recommendations 13 and 14 in Note 17.

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7 Board of Inquiry (December 2012) p. 12. *Draft Report and Decision*. Retrieved March 3, 2013 from: http://www.epa.govt.nz/Resource-management/king-salmon/Pages/Draft-report-and-decision.aspx

8 Boffa Miskell were advised of these errors by the McGuinness Institute on 11 March 2013.

9 James Fairgray (June 2012) pp. 1–2. *Statement of Evidence of James Douglas Marshall Fairgray in Relation to Economic Impacts for the New Zealand King Salmon Co. Limited*. Retrieved March 20, 2013 from: http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/2430034%20James%20Douglas%20Marshall%20Fairgray%20-%20Economic%20Impacts%20-%20v1.pdf

Table 2: Physical properties of proposed salmon farm sites

(Adapted from Board of Inquiry, 2013;[10] Boffa Miskell, 2011;[11] Cawthron, August 2011,[12] September 2011[13])

Farm Site	(i) Site Size (ha)	(ii) Maximum Feed Discharge Applied for by NZKS (tonnes pa)	(iii) Maximum Feed Discharge Approved by the Board (tonnes pa)	(iv) Near-Bottom Currents Average (cm/s)	(v) Near-Bottom Currents Maximum (cm/s)	(vi) Site Depth (top of cage to bottom of seabed in metres)
Kaitapeha	16.5	4,000	N/A	12.4	51.0	~60
Kaitira	16.5	6,000	N/A	19.6	57.2	~60
Ngamahau	**16.5**	**4,000**	**4,000**	**21.1**	**66.2**	**23–35**
Papatua	**91**	**5,000**	**5,000**	**3.4**	**19.2**	**~35**
Richmond	**16.5**	**4,000**	**4,000**	**15.7**	**56.3**	**32–40**
Ruaomoko	14.1	6,000	N/A	26.8	77.5	~50
Tapipi	16.5	5,000	N/A	15.7	43.8	~62
Waitata	**16.5**	**6,000**	**6,000**	**17.6**	**126.7**	**~63**
White Horse Rock	2.2	3,000	N/A	10.1	44.3	22–28
Total		**43,000**	**19,000**			

Note 1: Bold indicates farm sites that were approved by the Board of Inquiry.

Note 2: The data shows the Ngamahau Tory Channel site has the highest near-bottom current while having the shallowest site depth of all sites approved. The waste created at this site (surplus feed and salmon excrement) is more likely to be swept into the wider Sounds/Cook Strait region where it will gradually settle along the bottom of the seabed rather than directly below the farm site. To be able to get to the maximum feed discharge each site must comply with environmental quality standards (measured through annual monitoring).[13]

Note 3: To compare with existing farms, see Table 5 on page 45.

10 Board of Inquiry (February 2013). *Appendix 4: King Salmon Proposed Draft Conditions of Consent*. Retrieved March 3, 2013 from: http://www.epa.govt.nz/Publications/BOI%20NZKS%20Final%20Decision%2022%20Feb.pdf

11 Boffa Miskell (October 2011) p. 9. *Sustainably Growing King Salmon: Assessment of Environmental Effects (AEE).* Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/AEE%20on%20the%20Environment%20for%20Main%20Plan%20change%20and%20Resource%20Consents.

12 Cawthron (August 2011) p. 37. *The New Zealand King Salmon Company Ltd: Assessment of Environmental Effects–Benthic*. Retrieved March 8, 2013 from: http://www.epa.govt.nz/Publications/Appendix%204%20Seabed%20Report.pdf

13 Cawthron (September 2011) p. 1. *Marine Science Assessment of Effects of Farming Salmon at White Horse Rock, Pelorus Sound: Deposition and Benthic Effects.* Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/White%20Horse%20Rock%20Appendix%202%20Benthic%20Report.pdf

Table 3: Errors in columns (iv) and (v), 'Near-Bottom Currents', found in Table 2 above
(Source: Boffa Miskell, 2011;[14] Cawthron, 2011[15])

Site	Cawthron Report No. 1983 (Aug 2011) p. 37, Table 9		Boffa Miskell AEE (Oct 2011) – See pp. 41, 43, 44, 46, 47, 49, 51, 52.		Boffa Miskell AEE (Oct 2011) – See p. 55, Table 5.14.	
	(iv) Average (cm/s)	(v) Max. (cm/s)	(iv) Average (cm/s)	(v) Max. (cm/s)	(iv) Average	(v) Max. (cm/s)
Kaitapeha	12.4	51	12.4	51	12.4	~~37.9~~
Kaitira	19.6	57.2	19.6	57.2	19.6	~~44.0~~
Ngamahau	21.1	66.2	21.1	66.2	21.1	~~54.6~~
Papatua	3.4	19.2	3.4	19.2	~~3.5~~	~~10.4~~
Richmond	15.7	56.3	~~17.7~~	56.3	~~16.5~~	~~42.9~~
Ruaomoko	26.8	77.5	26.8	77.5	~~26.9~~	~~66.3~~
Tapipi	15.7	43.8	~~17.7~~	43.8	~~15.8~~	~~36.3~~
Waitata	17.6	126.7	17.6	126.7	17.6	~~47.5~~

Note 1: Strike-through figures represent errors in the Boffa Miskell AEE.

Table 4: Errors in column (vi), 'Site Depth', found in Table 2 above
(Source: Boffa Miskell, 2011; Cawthron, 2011)

Site Depth	Cawthron AEE p.37	Boffa Miskell AEE (Oct 2011) – See pp. 41, 43, 44, 46, 47, 49, 51, 52.	Boffa Miskell AEE (Oct 2011) – See p. 55, Table 5.14.
	(vi) Site Depth (m)	(vi) Site Depth (m)	(vi) Site Depth (m)
Kaitapeha	~60	~~20–70~~	~~35–55~~
Kaitira	~60	~~30–55~~	~~40–65~~
Ngamahau	23–35	~~5–40~~	~~15–30~~
Papatua	~35	~~30–40~~	~~25–35~~
Richmond	32–40	~~35–50~~	~~35–50~~
Ruaomoko	~50	~~40–65~~	~~35–55~~
Tapipi	~62	~~50–60~~	~~50–60~~
Waitata	~63	~~35–65~~	~~35–65~~

Note 1: Strike-through figures represent errors in the Boffa Miskell AEE.

14 Boffa Miskell (October 2011) pp. 41–55. *Sustainably Growing King Salmon: Assessment of Environmental Effects (AEE).* Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/AEE%20on%20the%20Environment%20for%20Main%20Plan%20change%20and%20Resource%20Consents.

15 Cawthron (2011) p. 37. *The New Zealand King Salmon Company Ltd: Assessment of Environmental Effects–Benthic*. Retrieved March 8, 2013 from: http://www.epa.govt.nz/Publications/Appendix%204%20Seabed%20Report.pdf

Issue Two: Whether there are adequate incentives for applicants to make a thorough and accurate application and, more importantly, whether disincentives or penalties should apply for proposals that overinflate benefits and underestimate risks and costs.

NZKS's application and evidence was not always comprehensive or accurate (as noted above), raising questions over the extent to which the data was verified by the EPA. This leaves a number of unanswered questions: to what extent does the EPA rely on the applicant, what level of due diligence is performed by the EPA, was the EPA's due diligence adequate in the NZKS case, once an application has been passed by the EPA does this mean the EPA are now responsible for errors in the application, and when errors are found retrospectively who is responsible for ensuring those errors are corrected as part of the public record?

In this case, because of the way the *Final Report and Decision* is written, we cannot be sure which information has been relied upon by the Board. Using example 4 above, we cannot be sure if the Board relied on the information from the Boffa Miskell AEE report or the Cawthron Institute report. This issue highlights the importance of ensuring the application is of the highest standard and ensuring the Board writes out clearly the information it relied upon in writing up its report and in making its decision.

Note 5: The hearing process must ensure the boundary of the assessment is clarified at the outset.

EXCERPT FROM THINK PIECE 16

Stage 4: The hearing
Ideally, the boundaries for a Board of Inquiry should be completely clear at the outset. It should be clear what is being assessed and what is not, how the Board will group effects and test that all have been identified, and there should be at least an outline of how the Board's decision-making will proceed. The complexity of the RMA provisions, particularly where matters are before a Board, and that Board is simultaneously determining plan changes and consent applications, makes it very difficult to understand and interact with the process. See Note 5.

Context

Defining the boundary of the assessment is a critical part of any assessment process. This involves setting out what is included in the scope of an assessment and what is not. For example, with the NZKS decision, the benefits of a potential new processing plant were included in the economic assessment (input/output model), but excluded in the AEE. This point is explained further in Note 17.

Issue One: What is being assessed and what is not?

The scope of any assessment should include the purpose of the assessment, define the specific inclusions and exclusions, define the limitations of the assessment, include the time parameters of projections, the location of potential benefits, costs and risks and any assumptions that are being relied upon.

Note 6: The hearing process must optimise public engagement in a professional and safe manner.

EXCERPT FROM THINK PIECE 16

In this case, the hearing itself provided an obstacle to public engagement. The statutory time pressure on the Board made it difficult for the hearing to be managed in a more flexible way, which would have enabled greater public engagement. The aggressive attitude of NZKS's legal team often made the hearing an uncomfortable environment. Repeated efforts by NZKS staff to engage with those who challenged the application, outside the hearing itself, were often beyond what would be considered reasonable. See Note 6.

Context

The hearing was intimidating due to the often aggressive attitude of the NZKS legal team.

Derek Nolan (the senior legal counsel for NZKS) came up to my desk (I was sitting) and quietly called my expertise into question both before I cross-examined Sarah Dawson (NZKS's expert planner) and during a lunch break that fell partway through my cross-examination. After lunch I immediately ended the cross-examination, despite having a considerable number of further questions that I had wished to pursue. At this time I also engaged a barrister, at the Institute's expense, to help me prepare the Institute's closing submission; I personally could not take any further professional intimidation. The aggressive attitude is also apparent in NZKS's Closing Legal Submissions:

> [8.24] Ms McGuinness, a 'futurist' with an accounting background, also raised concerns from her limited understanding of the issues. She was on a fact-finding mission, but **had failed to take up offers to confer direct with Dr Fairgray or NZ King Salmon's other experts.**
>
> [8.27] Unfortunately, one of the parties, the McGuinness Institute, declined **at least five invitations** or offers to confer or conference with Dr Fairgray (or NZ King Salmon's other experts).
>
> [8.65 (c)] Ms McGuinness is also an accountant, although she does not practice as one, rather she is the chief executive of some sort of 'think tank', set up from her own funds. She is also a 'futurist' (whatever that is), who has filed a personal submission in opposition to the Proposal. **As such she has neither the expertise nor the independence necessary to assist the Board with respect to the long term economic impacts of the Proposal.** [Bold added][1]

I understand what the NZKS legal counsel were attempting to do and that their motive was to ensure that my expertise and knowledge had the least possible impact on the Board's decision. However, I have always been transparent about my personal position. It was presented clearly in my initial Statement of Evidence.[2]

Further, I was not unwilling to meet with NZKS representatives prior to the hearing. I did in fact meet with the company's representatives, both at the Institute's offices in Wellington and when I invited its Chief Executive to attend an event at Parliament hosted by the Institute. In addition, I attended the economic caucusing meeting, which was also attended by two of NZKS's economics experts. Due to pressure of time, the volume of material to digest and other immovable commitments in my own timetable, I declined additional discussions with NZKS, feeling there was little to be gained from these.

1 New Zealand King Salmon (NZKS) (October 2012) pp. 41–50. *Closing Legal Submissions on behalf of the New Zealand King Salmon Co. Limited*. Retrieved March 20, 2013 from: http://www.epa.govt.nz/Publications/Day%2037%2018%20October%20NZ%20King%20Salmon%20Closing%20Legal%20Submissions.pdf

2 McGuinness Institute (10 August 2012) pp. 3–5. *Statement of Evidence prepared for the Board of Inquiry by Wendy McGuinness on Behalf of the McGuinness Institute*. Retrieved March 20, 2013 from: http://www.mcguinnessinstitute.org/Site/Publications/Submissions.aspx

Finally, the opinion of the NZKS legal counsel that I was wasting the Board's time was something for the Board to manage (if they believed it to be the case). It was not the role of NZKS's legal counsel.

Issue One: To what extent should the conditions process be accessible and transparent?

The process of drafting the conditions of consent for the Board of Inquiry to consider was poorly managed. Initially, the legal counsel for NZKS were to help manage this process; to this end I was raising questions directly with the NZKS legal counsel. When concerns were raised their response, dated 10 October 2012 was:

> Dear Wendy,
>
> You have not understood the process.
>
> In short:
>
> - The 10 September version of the conditions was NZ King Salmon's version of conditions taking into account the matters raised to that point. It was circulated together with the invitation for parties to provide their input, which NZ King Salmon undertook to collate into a next version. For their own reasons, almost without exception (with the Minister of Conservation being the notable one), the parties including yourself (in all your capacities) did not in the following weeks provide any wording or amendments to be included in a composite document.
> - This became a concern to the Board, which requested conferencing of the planning witnesses. Other parties raised some concerns about that, but ultimately agreed for that to occur.[3]

My response dated 11 October 2012, which was copied to all parties, outlines my key concerns and is included below:

> Thank you for your response. I consider your management of this matter as an example of why it was inappropriate for your firm to be given the responsibility to manage the proposed condition process and liaise with other parties. Further, after reading all the correspondence tonight, I am surprised you can consider that the process to date is the 'normal course for all RMA hearings'.
>
> For the record, James Marriner's email of the 10 September set out a process and it was this process that my emails to Russell McVeagh of 26 September and 5 October refers. In both cases you did not inform me that the process had changed on 17 September with Minute 10 and 27 September with Minute 11. Please note I had not opened the Minute 10 pdf from the EPA as I thought it was about caucusing planners – not conditions. The pdf title was *Minute No. 10 of the Board of Inquiry – Caucusing of Planners by Commissioner Beaumont*). Although in retrospect I should have opened the pdf, what concerns me more is that your firm had the opportunity to explain the change in process but failed to do so. If you had done so, I could have engaged in the process. My emails clearly indicate my desire to do so. I have attached a timeline prepared by one of my staff outlining key aspects of our email correspondence on this matter – including our 26 September correspondence which is not included below. I was never emailed Minute 11.
>
> Only tonight, as a result of the two 10 October emails from the EPA, have I fully understood the events of the last four weeks. Arguably there have been three requests to engage in this process with your firm, and three times you have failed to outline the situation in a transparent and comprehensive manner (see my emails of 26 September, 5 October and 8 October). Further I do not consider your responses to date are to the level one would expect from a professional as they fail to refer to key documents and events that have occurred in the past four weeks.

3 Personal communication, between James Gardener-Hopkins and Wendy McGuinness, legal counsel to New Zealand King Salmon, 10 October 2012.

Missing information from your three responses:

17 September 2012 Minute 10

20 September 2012 Joint Memorandum on conditions process

24 September 2012 Russell McVeagh Response to Joint Memorandum

24 September 2012 Minister of Conservation Memorandum on conditions process

27 September 2012 Minute 11

My aim was and is to engage in the conditions process, however your firms management of that process has meant I have not been able to.[4]

Issue Two: How can we ensure public engagement occurs and that issues rather than individuals are the focus of the hearing?

On reflection, my experience made me wonder who else may have been treated as I had been by NZKS and its legal team, and in particular whether they had decided to withdraw or limit their involvement as a result. This is particularly concerning when pre-hearing meetings may have taken place in concerned submitters' homes.

A number of parties did officially withdraw; some, as indicated in the *Final Report and Decision*, because compromises had been achieved. Of particular note are the withdrawals made by the Swampy Mussel Company (1000), Laura Honey (0972), L. & T. Gledhill as Trustees of the Ngamahau Trust (0233 & FS0005), Tory Channel Homesteaders (1051), Warren Gledhill (0828), Barbara Gledhill (0144) and NZ King Salmon (1057), all of whom withdrew that part of their submissions that sought a modification to the proposed salmon farm site at Ngamahau Bay.[5]

In my view many New Zealanders would have found the process daunting, which may in turn explain why a number withdrew from the process. But there are many ways to withdraw from a process, and I raise this issue so that policy advisors, decision-makers and ministers may understand the challenges and design systems to ensure the debate focuses on issues, rather than individual submitters, experts and legal counsel who choose to engage in the resource management process.

4 Personal communication, between Wendy McGuinness and James Marriner and James Gardener-Hopkins, legal counsel to New Zealand King Salmon, 11 October 2012.

5 Board of Inquiry (February 2013) p. 48. *Final Report and Decision*. Retrieved March 3, 2013 from: http://www.epa.govt.nz/Publications/BOI%20NZKS%20Final%20Decision%2022%20Feb.pdf

Note 7: The hearing process must use best practice, applying appropriate tools and methods to explore and test any economic benefits.

EXCERPT FROM THINK PIECE 16

One of my key concerns throughout this process was the lack of a framework to explore economic effects. The Board spent a great deal of time on the narrative, but in the end reached very limited and generic conclusions on the numbers. The claimed benefits of any proposal need to be rigorously validated. The weak economic analysis in this case undermined the validity of the claimed benefits. For example, in the NZKS case, the jobs at the farms (slaughtering and processing) are at the lower end of the salary spectrum. The projected number of jobs created by the additional farms was itself open to debate. See Note 7.

Context

There are many places in the process where economic tools and methods should be used: the application, the expert evidence and caucusing, and the inquiring questions by the Board. The economics underlying the application are discussed in more detail in Notes 1 to 4. The economic costs and risks underlying the decision are discussed throughout Notes 11 to 15. This Note focuses specifically on the process, in particular the expert evidence and caucusing on economic benefits. We discuss these findings in terms of (i) data (inputs), (ii) economic models (methods), (iii) expert evidence and caucusing (opinion) and (iv) Board expertise (inquiry).

(i) Data (inputs)

The economic benefits to New Zealand may be very different from the benefits that are driving the applicant, a distinction that is critically important when assessing the positive economic effects of the proposal. From the perspective of the country as a whole, there is a requirement for economists to assess effects far more broadly. Further, as benefits must be New Zealand specific, profits are generally ignored as if it is too difficult to assess, particularly when stakeholding is owned overseas or by transient investors. In this case:

> NZ King Salmon is currently owned by Evergreen Holdings Limited, a Malaysian-registered entity fully owned by the Tiong family, Direct Capital – a New Zealand-based investment manager, and directors and senior managers. The following table illustrates:[1]

Evergreen Holdings Ltd (Tiong family)	50.88%
Direct Capital and funds managed by Direct Capita	41.63%
NZKS Custodian (NZ King Salmon directors and management)	7.49%
Total	100.00%

Key areas for assessment include (a) the additional jobs the proposal create; (b) any significant goods and services that will be purchased from within New Zealand and (c) the degree of certainty the applicant can provide over whether those jobs and inputs will be secure as a result of certainty over demand for the product. We discuss each of these in turn.

(a) The additional jobs the proposal creates

The additional jobs must be considered in terms of the *number* of jobs directly or indirectly created by the proposal and the *nature* of those jobs in terms of wages and salaries. For example, in the NZKS case, many

1 Andrew Clark (22 June 2012) p. 20-21. *Statement of Evidence of Andrew Christopher Clark in Relation to Demand, Efficiency, and Ownership of New Zealand King Salmon Co. Limited*. Retrieved February 12, 2013 from: http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/2430063%20Andrew%20Clark-%20Demand,%20Effeciency%20and%20Ownership%20-%20v1.pdf

of the jobs discussed were largely low-cost labour, so it is not technically about the number of jobs, but the money flow into the community from those additional jobs. Indirectly created jobs can be explored more specifically (e.g. in industrial tourism) or more broadly, based on historical evidence (e.g. Statistics NZ input/output tables).

There was a great deal of debate over the *number* and *nature* of the employment figures in the NZKS case. For example, as noted in the decision:

> [233] The validity of the employment figures used by Dr Fairgray was called into question by a number of the submissions. In King Salmon's application it was noted that if the proposal were to proceed, the likely additional employment would be 112 to 152. Dr Fairgray, in evaluating the wider economic impacts, provided an estimate of 600 (in terms of his modified employment count (MEC), by 2021). This based on an economic impact report he had prepared and did not rely on the predicted employment recorded in the application.
>
> [234] Mr Clark, King Salmon's Chief Financial Officer, in rebuttal evidence, provided us with updated employment figures of 375. (*Final Report and Decision*, pp. 97–98)

The NZKS legal counsel asked the Board to proceed on the basis of the following:

> [8.21] … that the Proposal will, by 2021:
> (a) Create around 375 jobs at NZ King Salmon.
> (b) Further create around 750 indirect and induced jobs.[2]

However, the *number* of jobs at NZKS should not have been consolidated into one total, as put forward by NZKS's legal counsel. Instead each component of the process should have been identified: direct labour for each farm, direct labour required for the increase in production at the hatchery, and direct labour required for the increase in production at the processing plant.

In creating a consolidated figure, the applicant must of necessity have built this figure from component parts (i.e. a bottom-up approach must have been used). However, more detailed information was not made available as part of NZKS's application or during the hearing. The closest we came to transparency of data on job numbers was as a result of rebuttal evidence being supplied by Mr Clark, NZKS's Chief Financial Officer:

> [6.1] In the original NZ King Salmon report a table of projected additional employment was included at page 38. The table indicated then-current employment of 466 people, with a further 112-152 roles expected to be created should all the sites applied for under this process be granted. Dr Fairgray used higher numbers in his economic analysis evidence, based on his assumptions.
>
> [6.2] Upon further review it has come to our attention that the NZ King Salmon report figures were materially conservative in quantum. We take this opportunity to include updated information. The table below outlines the expected employment should all sites be granted, once in full production.

2 New Zealand King Salmon (NZKS) (18 October 2012) p. 40. *Closing Legal Submission on Behalf of New Zealand King Salmon Co. Limited*. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Day%2037%2018%20October%20NZ%20King%20Salmon%20Closing%20Legal%20Submissions.pdf.

Operation	Current employees as of 29 July 2012	Additional employees required (approximately) once full production achieved
Hatchery	30 permanent (full time) 2 casuals	9 (3 per site when production > 15,000 tonne)
Farms	42 (30 shift workers, 9 day workers and 3 regional managers) 2 casuals	50-70 (Marlborough)
Processing	243 (including management)	30-60 primary processing (depends on the level of automation - most likely towards upper end) - potentially Marlborough 220 (approx.) value-added processing and Processing supervisors / management
Head Office (Nelson) (Export Sales & Marketing, Finance, IT, HR & Support)	56	12
Aquaculture Office (Picton) including net making & repairs	36 (Picton) 2 (Nelson)	8 (Marlborough)
National Sales & Marketing Office (Auckland)	19	3
Australia	3 (Sydney) 1 (Brisbane) 1 (Melbourne)	1
USA	2	5
Japan	2	4
Total	**441**	**375 (approx.)**

[6.3] The above numbers are based on a mild level of automation. Recognising that full production on all sites applied for will take around 7-10 years to achieve due to site development, the increase of sales, and site monitoring requirements, the exact level of automation will depend on a number of key factors including technology available, funding available, and payback period for automation investments. The numbers are, however, in my opinion entirely reasonable.[3]

The early focus on a consolidated figure of job *numbers* meant it was not possible for the Board to later weigh effects by site. Looking into what was known, it was clear that the consolidated figure was misleading for the following reasons:

3 Andrew Clark (August 2012). *Statement of Rebuttal Evidence of Andrew Clark in Relation to Demand, Efficiency and Ownership of the New Zealand King Salmon Co. Limited*. Retrieved March 17, 2013 from: http://www.epa.govt.nz/Publications/4%20Andrew%20Christopher%20Clark%20-%20Demand,%20Efficiency%20and%20Ownership.pdf

1. As the proposed production capacity figures for each individual site were not presented to the Board, it is difficult to assess job creation on a per site basis. NZKS had applied for different maximum feed discharge rates for each farm, which has a direct impact on production, and therefore jobs. These feed discharge rates range from 3000 to 6000 tonnes pa, which means that White Horse Rock, if approved, would provide fewer jobs than Waitata might provide; therefore each individual farm will produce very different positive benefits.

2. The possible new processing plant was included in the creation of jobs, but the risks and costs of the processing plant were not included in the negative effects. Importantly, no building consent had been applied for, and there was uncertainty as to where this additional processing plant would be located.

3. With 10 of the proposed 375 jobs likely to be based overseas, there is no certainty that these will be held by New Zealanders and therefore provide an economic benefit to New Zealand. Both in terms of direct and indirect jobs.

4. The salary component of the additional jobs was missing, thus the positive effects were not quantified in market values. For example, the fact that processing jobs are at the lower end of the salary spectrum was not taken into account.

5. The company proposes a gradual increase of 375 jobs over a 7- to 10-year period, hence the full benefit of those 375 jobs will not be provided until 2023 when all nine farms applied for are at full production.[4] The gradual impact before 2023 is not identified in detail. Nor is the impact between 2023 to 2048 of automation considered.

Further, in order to understand the *number* and *nature* of jobs, it is critical to understand how automation might have an impact over time. For example, Mr Soderberg, in his cross-examination of NZKS's primary economic expert, referred to a statement made by Grant Rosewarne, Chief Executive of NZKS on 21 November 2011:

> We have 470 people now, and when we're talking about doubling production, we're only putting on another 120. That's because we're expecting to get some automation gains along the way.[5]

This figure, estimated in November 2011, aligns with the application (see figures of '112 to 152 jobs' cited in paragraph 233 quoted on page 26) but is significantly lower than the figure put forward by the Chief Financial Officer (August 2012) and NZKS's legal counsel (December 2012). The figure was a jump of over 300% (an increase from 120 to 375 jobs). Understanding the role of automation is critical to obtaining a realistic picture of the jobs the proposal might generate over a 35-year time-frame. It was hard to see where the impacts of automation were considered by the Board.

(b) Any significant goods and services that will be purchased from within New Zealand
NZKS did not provide a breakdown of its costs, but globally the costs of salmon production can be divided into four key components: feed, costs of smolt (the hatchery), operational costs (the farms) and the

4 Andrew Clark (August 2012) pp. 13–14. *Statement of Rebuttal Evidence of Andrew Christopher Clark in Relation to Demand, Efficiency, and Ownership of New Zealand King Salmon Co. Limited*. Retrieved February 12, 2013 from: http://www.kingsalmon.co.nz/RebuttalDocs/4%20Andrew%20Christopher%20Clark%20-%20Demand,%20Efficiency%20and%20Ownership.pdf

5 Bill Moore (21 November 2012) Govt grant to boost salmon marketing. Nelson Mail. Retrieved March 15, 2013 from: http://www.stuff.co.nz/nelson-mail/news/6005002/Govt-grant-to-boost-salmon-marketing

slaughtering and processing costs (processing costs). Feed is the largest, being about 50% of total cost.[6] Since the feed is purchased from overseas, its cost was ignored in terms of the input/output analysis prepared by NZKS's primary economic expert. The other three costs were largely labour-related and are therefore included in (a) above.

(c) Certainty over demand for the product

In order to provide certainty that the jobs would be generated, it was important for the applicant to demonstrate that demand for the product could be relied upon. This once again was highly debated, but in the end, demand was assessed only at a very general level. The Board noted:

> [242] As justification for its proposal, King Salmon relied on the fact that there will be a demand for an additional 10,000 to 12,000 tonnes of Chinook from New Zealand by 2020. This is based on the evidence of Mr Ragnar Nystoyl, an experienced market analyst in the international seafood industry, particularly salmon and trout. A number of submitters took issue with Mr Nystoyl's conclusions.
>
> [246] We understand the difficulties in forecasting future demand and price on the world market. Any prognostication must necessarily be subject to the vagaries of international markets and pricing.
>
> [247] However, Mr Nystoyl is an experienced analyst and consultant within the world aquaculture and seafood sector. He acknowledged the limitations of his prognosis and was not prepared to forecast beyond 10 years.
>
> [248] We are satisfied that based on present and past trends, that sufficient demand exists in the global market for Chinook salmon to justify King Salmon's decision in making these applications. (*Final Report and Decision*, pp. 99–100)

See Note 1 for a discussion of the three government-funded reports that raised significant concerns over projected demand but were not put before the Board.

(ii) Economic models (methods)

No Cost-Benefit Analysis had been developed and put before the Board. The only economic model put before the Board was an input/output model prepared by NZKS's primary economic expert, Dr Fairgray. Although Dr Fairgray had 32 years' consulting and project experience in relation to the RMA and holds a PhD in Geography, he does not have a degree in economics, a point acknowledged under cross examination.[7] An input/output model is narrow in its considerations, and it could be argued that it is an out of date model not often used in public policy (see discussion in Note 4). Further, the resulting model contained errors (for example (i) (a) above), and lacked transparency in regard to assumptions and data sources (for example, the title and year of the input/output tables used).

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6 The feed figure of 50% of costs of production came from NZKS's global salmon expert, who responded to a question from McGuinness under cross-examination. See: Board of Inquiry (5 September 2012) p. 846. Transcript of Proceedings of the Board of Inquiry New Zealand King Salmon Proposal 5 September 2012. Retrieved March 4, 2013 from: http://www.epa.govt.nz/Publications/Day%208%20transcript%205%20September%202012.pdf

7 See concerns raised by Mr Soderberg in cross-examination. Dr Fairgray said 'no' to a question as to whether he had a degree in economics. Further see comments on the organisation of economists.

'Mr Soderberg: So do you belong to a professional organisation of economists?
Dr Fairgray: I am not sure, I believe there is not a professional organisation of economists. There is an Association of Economists in New Zealand.'

See: Board of Inquiry (19 September 2012) pp. 2060-2061. Transcript of Proceedings of the Board of Inquiry New Zealand King Salmon Proposal 19 September 2012. Retrieved March 4, 2013 from: http://www.epa.govt.nz/Publications/Day%2017%20Transcript%2019%20September%202012.pdf

James Fairgray (June 2012) p. 5. *Statement of Evidence of James Douglas Marshall Fairgray in Relation to the Economic Impacts for the New Zealand King Salmon Co. Limited*. Retrieved March 20, 2012 from: http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/2430034%20James%20Douglas%20Marshall%20Fairgray%20-%20Economic%20Impacts%20-%20v1.pdf

In August 2012, Dr Kaye-Blake, NZKS's second economic expert, suggested to the Board that there is 'considerable disagreement in economics over the values produced using non-market valuation stated preference techniques'. In addition, he said, even 'beyond the technical issues of non-market valuation, there is simply a lack of data ... this lack of data means that the economic valuations presented will be incomplete', and '[in] the end, the Board of Inquiry needs to make a judgement about the trade-offs'[8] (see also Example 2, page 16). However, there is increasingly a range of tools being used to understand and in some cases quantify non-market values (see discussion in Note 4). Non-market values were debated at the hearing but the Board did not address this directly.

(iii) Expert evidence and caucusing (opinion)

The economic experts met on 11 September 2012 to discuss the topic of economic effects. As a result of this meeting, a *Joint Statement of Economics Experts* was prepared, although it was clear that there was little that could be agreed, other than to disagree, for example:

> The new salmon farms will generate jobs within the NZKS operation however there is disagreement on the macro impact of those jobs.
>
> There is existing and potential market and non-market value from uses of the marine space other than salmon farms. While relevant values have been identified but not all quantified, none of the economic experts have presented a comprehensive assessment of such values.

If agreement was reached it was concerning what had not taken place:

> There has been no comprehensive Cost-Benefit Analysis of the NZ King Salmon proposal undertaken by any of the economic experts.[9]

Although these insights may have been useful to the Board, together they indicate a general absence of a framework to explore economic effects.

(iv) Board expertise (inquiry)

The Board did not have economic expertise, nor did it seek separate economic advice. This concern has been raised more generally in a recent article by Tim Hazledine, a Professor of Economics at the University of Auckland and the economic expert for the Marlborough District Council in this case. In an opinion piece published in the *New Zealand Herald* on 25 March 2013 in response to the Ministry for the Environment's discussion document *Improving our resource management system*, Professor Hazledine:

> None of the judges and commissioners are economists. They have to rely on the invariably opposing views of economic consultants of varying competence, trundled out before them for adversarial cross-examination by counsel. There is no core competency, no institutional memory available to the process, such as is provided by the Commerce Commission in competition matters.[10]

The Board of Inquiry's findings were noteworthy:

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8 William Kaye-Blake (August 2012) pp. 4–5. *Statement of Rebuttal Evidence of William Henry Kaye-Blake in Relation to Tourism and Recreational Effects for the New Zealand King Salmon Co. Limited*. Retrieved March 8, 2013 from: http://www.kingsalmon.co.nz/RebuttalDocs/9%20William%20Kaye-Blake%20-%20Economic%20Peer%20Review.pdf

9 James Fairgray, Tim Hazledine, Bill Kay-Blake, Trevor Offen, Wendy McGuinness (September 2012) pp. 1–5. *Joint Statement of Economics Experts*, 11 September 2012. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Economics%20Expert%20Witness%20Caucusing%20Statement.pdf

10 Tim Hazledine (25 March 2013). RMA needs more economists. *New Zealand Herald*. Retrieved March 28, 2013 from: http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10873345

> '[It] is difficult to evaluate evidence, particularly expert evidence, when the experts espouse different methodologies … We do not propose to be led into a debate as to the respective merits of cost/benefit analysis versus an analysis based on an input/output model … The limitations [of both models] were described in some detail by Dr Kaye-Blake [one of the NZKS experts]'. Dr Kaye-Blake told the Board 'that there was no single right answer, and the key is to use them correctly and acknowledge their strengths and weaknesses.' (*Final Report and Decision*, p. 104–105)

In particular, the Board found:

> [266] Dr Kaye-Blake provided to us, what we thought was a fair and balanced view. We accept his conclusion when he said:
>
> > From all the evidence I have reviewed, I consider it is safe for the Board to conclude that there will be significant economic or market benefits arising from the NZKS proposal. The benefits will extend over the life of the project, which is intended to be a continuing activity than a one-off event. The exact size of those effects can be debated. In my opinion they would not be as high as predicted using multipliers derived from an input/output analysis, as Dr Fairgray has done, nor would they be as low as the various benefits identified by Professor Hazledine (in particular) or Mr Offen. I believe that the Board could safely use the direct impacts from Dr Fairgray's analysis and double them to obtain a reasonable estimate of total economic impacts.
>
> [267] We are conscious that the economic impact has been modelled on all nine farms being approved and thus, the likelihood of a processing plant being built at Picton to take the overload from the present Nelson processing plant. We are satisfied that the economic impact from all nine farms being approved, would be considerable, although it is not possible to put a figure on it. Dr Kaye-Blake's suggestion would, in our view, be somewhere close.
>
> [268] Each of the farms individually would have economic benefit at a local, regional, and to a much lesser extent, a national level. We accordingly find that in exercising our judgment, each of the farms, both individually and collectively, would be of economic benefit. (*Final Report and Decision*, p. 105)

The Board of Inquiry's response, although understandable, is inappropriate for the 21st century, when there exist a number of tools and methods to explore and test economic benefits, costs and risks. The Board's decision creates in itself a great deal of new case law that is detrimental to future considerations of *national significance*. There is now no requirement for the Board to assess economic models. Broad statements such as 'the doubling of direct impacts can provide a fair estimate of economic impacts' can now be deemed acceptable. Benefits such as those resulting from the establishment of a possible processing plant may be taken into consideration despite there being no assessment of the risks and costs. Most importantly, the benefits of separate and unique parts of a proposal (in this case the nine farms) can be grouped in such a way as to prove that both individually and collectively, economic benefits exist. This reasoning could also be applied to any application concerning multiple sites; for example, mining, deep sea oil drilling, wind farms etc.

Having decided to decline five of the farms, this left the Board unable to go back and weigh the benefits of the four potential farms against their negative effects. This concern was raised in the Institute's comments on the Board's draft decision. In the *Final Report and Decision* the Board records its view that it did consider the positive effects of the consented farms against their negative effects. I do not believe the decision is as transparent and comprehensive as it ought to be on this matter.

Economists need to understand the impact this decision may have on their profession and policy analysts need to understand how the case law resulting from the decision is likely to deliver poor outcomes for

New Zealanders, now and in the future. Combining the economic benefits in the proposal in effect prevented a site-by-site assessment taking place. As a result, we observe five outstanding issues.

Issue One: When considering projected job figures, to what extent should the Board consider wages or salaries, and long-term labour demands (i.e. increased automation has to potential to make jobs obsolete over time)?

Arguably the more jobs a proposal generates, the more indirect economic benefits it is likely to generate. Hence the number of jobs is a key aspect of any evaluation of the benefit of a proposal. It was therefore surprising that the figures changed so significantly throughout the hearing (increasing by over 300%), without any critical assessment or concern being raised by the Board. Further, although the issue of automation was raised a number of times during the hearing,[11] this point was not discussed in the decision.

Issue Two: Is the Board's approach of grouping positive benefits but separating site-specific negative effects a good approach when weighing positive effects against negative effects?

Is this what the people of New Zealand expect from a Board of Inquiry when considering effects of *national significance*? What are the ramifications of grouping positive effects (assessing them both individually and collectively) and then weighing them against individual negative effects in future decisions of *national significance*? For example, we may see proposals for five mines or oil wells where the benefits are assessed (individually and collectively) as significant, but the costs and risks of each site are assessed separately. It is difficult to see how this approach can lead to improvements in resource management.

Issue Three: To what extent should a Board inquire into consumer demand for a product?

This application largely rested on NZKS's need for higher capacity due to increased demand for king salmon. The company's Chief Financial Officer projected sales to be in the order of 22,000 tonnes in 2020, more than doubling sales in nine years.[12] This is a very significant increase which deserves to be examined closely. In particular, how can the Board have confidence that NZKS will be able to sell double its current production? The Board must have confidence that sales are realistic in order to assess the benefits of the proposal in terms of the additional workforce? See also discussion in Note 1.

Further, the fact that NZKS is operating well below production capacity was not taken into account by the Board when assessing demand.[13] Put another way, if the proposal for nine farms had been declined, NZKS could still have increased production to the extent current production is underutilised. This means that in order to assess the marginal positive effects of the proposal it should be assessed on the jobs produced once full capacity has been fulfilled, meaning that the 375 jobs promised were overstated.

There was considerable confusion over the difference between total production capacity, production volume and sales volume, particularly as NZKS does freeze salmon for later sale and has purchased some

11 For example, see Soderberg cross-examination of the primary economics expert.
Board of Inquiry (19 September 2012) p. 2082. Transcript of Proceedings of the Board of Inquiry New Zealand King Salmon Proposal 19 September 2012. Retrieved March 4, 2013 from:
http://www.epa.govt.nz/Publications/Day%2017%20Transcript%2019%20September%202012.pdf

12 Andrew Clark (22 June 2012) p. 11. *Statement of Evidence of Andrew Christopher Clark in Relation to Demand, Efficiency, and Ownership of New Zealand King Salmon Co. Limited*. Retrieved February 12, 2013 from:
http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/2430063%20Andrew%20Clark-%20Demand,%20Effeciency%20and%20Ownership%20-%20v1.pdf

13 During the hearing, the level of undercapacity only became apparent during Wendy McGuinness's cross-examination of NZKS's primary planner, Sarah Dawson. See: Board of Inquiry Transcript (October 2012) pp. 3735–3755. Transcript of proceedings: New Zealand King Salmon Proposal, hearing at Blenheim on 15 October 2012. Retrieved March 20, 2013 from:
http://www.epa.govt.nz/Resource-management/king-salmon/hearing/proceedings-transcripts/Pages/NZKS-Hearing-day-34.aspx
In March 2013, additional information became available indicating the level of underutilisation was larger than initially thought, see discussion on p. 13 (Issue 1) and p. 16 (Example 4).

farms specifically to buy salmon for resale.[14] For example, NZKS's Chief Financial Officer noted that the total production capacity of all existing farms in the Marlborough Sounds is approximately 8,750 tonnes (a different figure again from the 8,900 tonnes mentioned in Note 4).[15] Key pieces of data must be verified and used consistently throughout the process and in the written decision.

Issue Four: How can the Board ensure it gains reliable economic advice?

Future Boards of Inquiry should inquire into important data (in the NZKS case, the number and nature of jobs, the implications of automation, the future demand and pricing of the produce), the quality and appropriateness of the model that is used to process the data, the areas of disagreement between experts, and their ability to understand such data. In this case, the Board relied heavily on the expertise of NZKS's second economist, who was previously a consultant to the EPA and was perceived by some to have a conflict of interest.[16] In my view, the Board would have benefited from engaging a trained economist, one who was both individually and organisationally independent of any previous associations with NZKS.

Issue Five: How can the cost of hearings be reduced?

There has been much public debate about the cost of hearings for the applicant, but if applications were required to contain all the necessary information up front, hearings and expert caucusing would not have to debate the lack of data or questionable data; instead the focus would be on the completeness, relevance and accuracy of the data provided. In this case, putting the emphasis on quality data and models at the beginning of the process would have significantly reduced the cost and in my view, improved the quality of the decision. A lot of time and money was wasted because there was a lack of clarity and transparency during the early stages of the process.

14 Board of Inquiry Transcript (August 2012) p. 11. Transcript of proceedings: New Zealand King Salmon Proposal, hearing at Blenheim on 27 August 2012. Retrieved February 27, 2013 from: http://www.epa.govt.nz/Publications/NZKS%20BOI%20hearing%20transcript%2027%20August%202012.pdf

15 Andrew Clark (22 June 2012) pp. 8–9. *Statement of Evidence of Andrew Christopher Clark in Relation to Demand, Efficiency, and Ownership of New Zealand King Salmon Co. Limited*. Retrieved February 12, 2013 from: http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/2430063%20Andrew%20Clark-%20Demand,%20Effeciency%20and%20Ownership%20-%20v1.pdf

16 New Zealand King Salmon (NZKS) (18 October 2012) p. 37. *Closing Legal Submission on Behalf of New Zealand King Salmon Co. Limited.* Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Day%2037%2018%20October%20NZ%20King%20Salmon%20Closing%20Legal%20Submissions.pdf

Note 8: The hearing process must enable commercially sensitive data to be scrutinised by experts and the Board.

EXCERPT FROM THINK PIECE 16

In addition, not all relevant economic data was disclosed because some of it was deemed commercially sensitive, and therefore excluded from the Board and most of the economic experts. There are a number of ways in which such data could have been made available so that it might have been independently reviewed and assessed, without compromising its *commercial sensitivity*. Despite the Board's appointment of a 'Friend of the Submitters', and the cooperation of EPA staff, the processes for gaining access to such sensitive information were not clear. This lack of access prevented general submitters from being able to debate the economic merits of the application in a fully informed manner. See Note 8.

Context

In retrospect, this is where the imbalance of power between the applicant and concerned submitters became most apparent. An effective applicant is proactive, and able to support their proposal by employing legal counsel and experts experienced in resource management legislation. In contrast, concerned submitters are reactive, assessing and responding to the proposal as best they can within the timeframe and resources that they have available. The implications of this imbalance could be seen in a number of places, but it was around the treatment and management of information, in particular confidential information, where this became a critical disadvantage for submitters. This issue was also picked up in the media.[1]

In this case, NZKS's primary economist prepared the only economic model put forward to the Board, but did not disclose his assumptions, method or data sources. An example that illustrates why this level of transparency is important is the fact that NZKS's primary economist used input-output tables from 2001 that reflected the New Zealand economy as at 1996.[2] This was core information and the failure to disclose it openly in the evidence obstructed the ability to understand assumptions, method and data underlying the model. This blocked serious debate and wasted the time of the Board, other experts and concerned submitters. This time could have been better utilised by focusing on issues of substance.

At the time, I was unaware that I could have formally applied to have the model made available to me. Further, I was clearly not the only person to have concerns over transparency.

> [237] Dr Fairgray used detailed data provided by King Salmon, **on a confidential basis**, for his economic assessment. A number of the submitters questioned the validity of the data.
>
> [238] Professor Leader, representing the Marlborough Recreation Fishers Association & Ors, submitted that there was little hard evidence for substantial economic returns to the Marlborough region. He emphasised that the information provided by King Salmon to Dr Fairgray was confidential, and accordingly, a detailed inspection of the data was not available to the other parties.
>
> [239] The Kenepuru & Central Sounds Residents Association reiterated Professor Leader's submission and expressed concern to us that they could not transparently review the claims of King Salmon as the input data was based on confidential information that could not be audited.

1 The following quote from a local news story published in September 2012 highlights this concern: 'Mr Soderberg, who lives on Arapawa Island in Queen Charlotte Sound, said models illustrating economic benefits were unreliable. They used commercially sensitive data from King Salmon which was not publicly available. This unreliability was highlighted by major changes to key figures, Mr Soderberg said. In August this year Dr Fairgray dropped the number of extra jobs for Marlborough by one third after building in the likelihood of automation.' See: Marlborough Express (9 September 2012). New farms 'worth $600m' to economy. Retrieved February 14, 2013 from: http://www.stuff.co.nz/marlborough-express/news/7711523/New-farms-worth-600m-to-economy

2 In July 2012, the month after NZKS's primary economist presented his input-output model to the Board, Statistics NZ released new input-output tables. Statistics New Zealand (July 2012). National Accounts input-output tables: Year ended March 2007. Retrieved February 12, 2013 from: http://www.stats.govt.nz/browse_for_stats/economic_indicators/NationalAccounts/input-output%20tables.aspx

> [240] The Association's concerns were taken up by Mr Soderberg when he cross-examined Dr Fairgray at length as to his verification of the documentation he received from King Salmon.
>
> [241] We acknowledge that the other parties did not have the advantage of the confidential information supplied to Dr Fairgray by King Salmon. **We are surprised that an appropriate application was not made for the release of the information subject to constraining its publication**. If such an application had been made, that could have been addressed under strict conditions as to use and publication. Notwithstanding the criticism, we have no reason to doubt the validity of the data used by Dr Fairgray. [Bold added] (*Final Report and Decision*, pp. 98–99)

A second example where information was a barrier to engagement is the fact that site locations were initially withheld. How can consultation happen if the locations of sites are not communicated? Although understandable from the applicant's perspective, this again put the applicant at an advantage.

> [203] Mr Mikaere was particularly critical of the consultation process that King Salmon had followed. He considered that given vital site location information was withheld, that the exercise was a 'telling' rather than a consultation and that what might be available to Maori is the leavings after the eyes had been picked out.
>
> [204] Some tangata whenua were not satisfied with the consultation process, which was partly confounded by information on the proposed sites being withheld until lodgement for commercial reasons. Attempts were made to engage with iwi both before and after lodgement, as detailed in the evidence of Mr Gillard. However, some approaches made were not responded to by some iwi. Consultation is a two-way process. (*Final Report and Decision*, pp. 88–89)
>
> [215] The concern was that not only competitors, but also neighbours and interest groups, might try and 'spike' a site by seeking consent for a mooring or some other occupation at the location. He emphasised the significant cost in investigating those sites and getting them to a point ready for lodgement, and the commercial sensitivity around releasing information about them. (*Final Report and Decision*, p. 91)

Issue One: How can critical information be shared more efficiently so that the debate focuses on issues and effects, rather than the inability to gain confidentially sensitive information about assumptions, methods and data?

I believe a great deal of time and energy was wasted both in front of the Board and behind the scenes trying to understand and decipher the economic model that was put forward by NZKS.

Despite the Board's appointment of a 'Friend of the Submitters', and the cooperation of EPA staff, it was not apparent that submitters could apply for disclosure of confidential information. In future, it would be extremely useful if all parties were informed – both before consultation and again once issues of confidential information had been raised at a hearing – that such an application could be made.

Issue Two: How transparent do economic models need to be to enable the Board to reach a decision?

In 2011, Dr Bill Kaye-Blake, the NZIER's Principal Economist, was employed by the EPA to review the evidence in the application in order to answer the question:

Has the applicant provided enough information so that the public or a Board of Inquiry would have sufficient information to judge the economics of the application in the context of the RMA?[3]

3 Letter from Bill Kaye-Blake to Sarah Bevin (12 October 2012). Retrieved February 14, 2013 from http://www.kingsalmon.co.nz/RebuttalDocs/9%20William%20Kaye-Blake%20-%20Appendix%202.pdf

Dr Kaye-Blake's initial comments to the EPA resulted in changes to the report submitted by NZKS's primary economist, and once these were incorporated in the NZKS primary economist's report, Dr Kaye-Blake responded by noting on 12 October 2011:

> The economic analysis in these documents, particularly in the Market Economics report [by NZKS's primary economist], **provides sufficient information to assess the economic impacts of the proposed projects.** It covers the direct impacts from the operations plus the wider economic impacts (indirect and induced). It also covers the employment impacts. Finally, it discusses a number of economic issues that the applications raise, particularly the impacts on wages and capital costs, industry concentration, and opportunity costs, in sufficient detail. [Bold added][4]

I believe the conclusion by the Board (at paragraphs 263–268 of the *Final Report and Decision*, also repeated in Note 4) shows that Dr Kaye-Blake's findings in October 2011 proved incorrect – there was not sufficient information to assess the economic impacts of NZKS's application. If there had been, the Board would not have needed to rely on Dr Kaye-Blake's ballpark figure to arrive at a reasonable estimate of total economic impacts.

> [263] **It is difficult to evaluate evidence**, particularly expert evidence, when the experts espouse different methodologies as Dr Fairgray, Dr Kaye-Blake and Professor Hazledine have done. We do not propose to be led into a debate as to the respective merits of cost/benefit analysis versus an analysis based on an input/output model.
>
> [264] Both have their uses and limitations. A cost/benefit analysis faces the difficulty of accurately quantifying in numerical terms social, cultural, ecological and other similar impacts on the coastal environment. It was for this reason that Dr Fairgray chose to use the input/output model. On the other hand, input/output tables are static. They do not respond to relative price changes that shift the composition of inputs or outputs. They do not change the mix of inputs used to produce a certain level of output. **The limitations were described in some detail by Dr Kaye-Blake. He told us that there was no single right answer, and the key is to use them correctly and acknowledge their strengths and weaknesses.**
>
> [265] Professor Hazledine provided a good description of a cost/benefit analysis, but did not deliver us one. Dr Fairgray provided a standard input/output analysis which according to Dr Kaye-Blake provided a 'good source' for understanding the direct value added from the King Salmon proposal, although it most likely overstated the direct and indirect impacts.
>
> [266] Dr Kaye-Blake provided to us, what we thought was a fair and balanced view. We accept his conclusion when he said:
>
> > From all the evidence I have reviewed, I consider it is safe for the Board to conclude that there will be significant economic or market benefits arising from the NZKS proposal. The benefits will extend over the life of the project, which is intended to be a continuing activity than a one-off event. The exact size of those effects can be debated. In my opinion they would not be as high as predicted using multipliers derived from an input/output analysis, as Dr Fairgray has done, nor would they be as low as the various benefits identified by Professor Hazledine (in particular) or Mr Offen. **I believe that the Board could safely use the direct impacts from Dr Fairgray's analysis and double them to obtain a reasonable estimate of total economic impacts.**

4 Letter from Bill Kaye-Blake to Sarah Bevin (12 October 2012). Retrieved February 14, 2013 from http://www.kingsalmon.co.nz/RebuttalDocs/9%20William%20Kaye-Blake%20-%20Appendix%202.pdf

> [267] We are conscious that the economic impact has been modeled on all nine farms being approved and thus, the likelihood of a processing plant being built at Picton to take the overload from the present Nelson processing plant. We are satisfied that the economic impact from all nine farms being approved, would be considerable, **although it is not possible to put a figure on it**. Dr Kaye-Blake's suggestion would, in our view, be somewhere close.
>
> [268] Each of the farms individually would have economic benefit at a local, regional, and to a much lesser extent, a national level. We accordingly find that in exercising our judgment, each of the farms, both individually and collectively, would be of economic benefit. [Bold added] (*Final Report and Decision*, pp. 104–105)

Dr Kaye-Blake, also in his October 2011 letter to the EPA, noted:

> I would underscore chapter 3 on the opportunity costs of salmon farming. It appears that the opportunity costs are probably not significant, to the best of our available knowledge. However, as the report indicates, there are gaps in our knowledge. While they are not likely to affect the present application materially, they could become important in the future. **Strategically, the EPA may want authoritative analysis to consider how it could support the necessary research so that the information is available when it is needed.** [Bold added][5]

I believe the NZIER should have said there was insufficient information to discuss and assess economic effects. However, as a consequence of NZIER's opinion, the EPA believed there was sufficient information and the Board may not have felt it was no longer appropriate to ask NZKS to complete a CBA or provide more information. Such a direction would have been useful for the EPA when determining the 'completeness' of future applications (i.e. prior to any ministerial referral to a Board of Inquiry). There is clearly a lot more that could be done to ensure the economic effects of a proposal are debated in an informed manner, so that all parties are, as much as possible, on an equal footing. In the future, we suggest any economic model used as evidence of positive effects should, at the very least, explain:

1. the choice of economic model (including its strengths and weaknesses);

2. the purpose of the model, what it can be used for and what it cannot;

3. what is being assessed and what is not. For example, in the input/output model supplied by NZKS's primary economist, the possible processing plant was included, but other positive economic effects argued by NZKS, such as industrial tourism, were excluded.

4. key underlying assumptions (and what they are based on);

5. the method of identifying, describing and valuing effects (providing clarity over what was included, what was not, and why);what is included in positive effects and what is not (e.g. NMV);

6. if an input-output model is used, the relevant tables, in particular the industry and product categories that are used, and

7. the data (identifying what and whose confidential information was used, and listing all other data with references).

5 Letter from Bill Kaye-Blake to Sarah Bevin (12 October 2012). Retrieved February 14, 2013 from http://www.kingsalmon.co.nz/RebuttalDocs/9%20William%20Kaye-Blake%20-%20Appendix%202.pdf

Note 9: The hearing process must manage the wide range of conflicts of interest that potentially exist.

EXCERPT FROM THINK PIECE 16

Submitters (and their experts) are not always able to commit 100 per cent of their time to the process. In my own situation, despite the fact that I had met with NZKS at our offices in Wellington and attended the expert caucusing session on economics, my decision not to meet further with NZKS or its experts was used as an attempt to discredit my professional interest in the application during the hearing and in NZKS's closing submissions. A submitter's inability to commit as much time as an applicant should not affect the Board's consideration of issues the submitter has raised. Standard practices for Boards should recognise that inequality typically exists between an applicant and submitters, and that the Board's powers to inquire should be used to ensure that all relevant issues are tested even if a submitter's resources are exhausted by simply getting the issues on the table.

New Zealand is a small country, so it is almost inevitable that conflicts of interest will arise. However, the Board of Inquiry process supports engagement by lay submitters who are not necessarily versed in the procedures for raising or addressing their concerns about conflicts. Much could be done to improve the procedures for lay submitters in this and other areas. See Note 9.

Context

A number of perceived conflicts of interest arose during the proceedings, raising questions about how to deal with situations where there may be personal benefits associated with the outcome of a decision – what is often referred to as 'having skin in the game'.

Examples include:

- An applicant's expert gaining additional work if the application is approved. For example, in the NZKS case, if Cawthron or Boffa Miskell were to gain additional work directly as a result of the application being approved;
- Experts being reused by the legal counsel in on-going applications, and
- Staff who were witnesses at the hearing receiving a bonus, shares or salary increase if the proposal is approved.

However, all of these conflicts are generally understood and ideally are managed within the process. But conflicts that are not always apparent should, in the interests of fairness, be recorded, so that they are well-understood by the Board, the parties involved in the hearing and the general public, and can be taken into account by the Board when assessing what weight to put on the evidence it has heard and what areas require further inquiry.

The following are three examples of perceived conflicts of interest:

Example 1: Outer Pelorus Sound residents considered Boffa Miskell had compromised loyalties; in 2009 Boffa Miskell consultant James Bentley had undertaken landscape assessment work for the Marlborough

District Council and worked on NZKS's application to farm salmon at White Rock. One of the founders of Boffa Miskell took over the preparation and presentation of landscape evidence for NZKS.[1]

Example 2: In 2010, NZIER prepared a report for Aquaculture New Zealand that was then included in NZKS's application. In 2011, an NZIER economist (the same firm, although different economists) had completed a review of the economic effects of NZKS's proposal for the EPA.[2] At this time a key NZKS staff member was also the founder and deputy president of Aquaculture New Zealand.[3] This crossover could lead to concerns that a relationship existed between NZIER and NZKS before NZIER was asked by the EPA to review NZKS's economic proposal.

Example 3: A tourist operator provided evidence that was relied upon by the Board in his capacity as an expert in tourism:

> [985] On this specific matter we prefer Mr Godsiff's evidence, as someone closely involved with the tourism industry in Marlborough, and his belief that there is potential for growth in the industrial tourism sector, with patience and good promotion. We find that the proposal does provide the potential for the development of industrial tourism ventures. (*Final Report and Decision*, pp. 283–284)

However, a December 2012 article in the *Marlborough Express* suggests that Mr Godsiff had a more direct business relationship with NZKS:

> **Joint venture: Marlborough Travel director Chris Godsiff … has been working with New Zealand King Salmon,** including aquaculture project manager Mitch Rowe for nearly 30 years and is thrilled to be working with the company to provide a new tourism venture from Picton. Chris Godsiff, of Marlborough Travel, says new seafood tours of Queen Charlotte Sound are experiencing a soft start ahead of the new venture being promoted. [Bold added][4]

And two months later, in February 2013:

> The new Seafood Odyssea tour, which visited Ruakaka Salmon Farm and Tio Point mussel farm in Tory Channel had run since December [2012], Mr Godsiff said.[5]

Issue One: How can we best manage conflicts of interest?

Arguably, none of these three examples above are true conflicts of interest, however they do show that hearings will undoubtedly raise issues over such conflicts, and there should be mechanisms in place so that parties can register these concerns with the Board. If this had happened, concerns over conflicts of interest could have been better managed.

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1 Marlborough Express (September 2012). Boffa Miskell denies conflict. Retrieved March 5, 2013 from: http://www.stuff.co.nz/marlborough-express/news/7694319/Boffa-Miskell-denies-conflict
It appears that the residents' lawyer cross-examining Frank Boffa confirms Bentley's prior roles, and confirms that Bentley had some early involvement in the current project, until it was decided that Boffa would take over. See: Board of Inquiry Transcript (September 2012) pp. 1788–90. Board of Inquiry Hearing: Transcript of Proceedings 14 September 2012. Retrieved February 14, 2013 from: http://www.epa.govt.nz/Publications/Day%2015%20Transcript%2014%20Sept%202012.pdf

2 New Zealand Institute of Economic Research (NZIER) (2011). *Review of Salmon Farming Proposal; Market Economics Analysis for New Zealand King Salmon Proposal.* Retrieved March 3, 2013 from: http://www.kingsalmon.co.nz/RebuttalDocs/9%20William%20Kaye-Blake%20-%20Appendix%201.pdf

3 Mark Gillard (2012) pp. 5–6. *Brief Evidence of Mark John Gillard in relation to site selection and consultation for the New Zealand King Salmon Co. Limited*. Retrieved March 18, 2013 from: http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/Mark%20Gillard%20-%20Site%20Selection%20and%20Consultation.pdf

4 Marlborough Express (December 2012). King Salmon to offer farm tours. Retrieved March 3, 2013 from: http://www.stuff.co.nz/marlborough-express/news/8098102/King-Salmon-to-offer-farm-tours

5 Marlborough Express (February 2013). Slow start for seafood tours. Retrieved March 3, 2013 from: http://www.stuff.co.nz/marlborough-express/news/8321694/Slow-start-for-seafood-tours

Note 10: The hearing process must enable the Board to inquire; this may mean employing experts from New Zealand or overseas to advise on key issues.

EXCERPT FROM THINK PIECE 16

The Board of Inquiry did not really inquire. The applicant prepared and presented a vast quantity of information. Adding to that, the Board heard from a large number of submitters in opposition. Those factors (perhaps combined with the statutory time pressure on the Board) may have encouraged the Board to assume it had received information on all critical issues, and left the Board members with little sense of the need to actively inquire further. But the number and diversity of fields of expertise triggered in resource management matters is ever-expanding, and a Board may not possess expertise in all relevant areas, or even all key areas, necessary to determine an application. This significantly advantages an applicant, and disadvantages the public. If the Board does not have the expertise to inquire into a key area, such as economics, it must find ways to fill this gap so that it delivers a quality decision.

In my view, applicants must prove beneficial effects exist, identify and describe negative effects to the best of their ability, and put forward conditions to manage such costs and risks. If submitters challenging a proposal are not in a position to employ experts, then the Board should be in a position to commission such research if it believes such further work would be useful. At times, the onus appeared to be on submitters to engage experts to provide the necessary evidence to counter the applicant's claims. Such a process makes the debate flawed in the sense that the qualities of the arguments are a function of the comparative resources of the applicants and submitters. See Note 10.

Context

Many of the notes in this working paper show examples of areas where the Board might have inquired more into the benefits, costs and risks, but at the end of the day it is restricted by both the time (nine months) and resources of the EPA. It would be difficult to put together four people capable of hearing this application, however the Board could have done more to identify and fill gaps in its knowledge and skills. Options do exist where gaps in expertise are apparent; for example, future Boards might consider employing an economic expert to help them throughout the process, in much the same way as this Board employed a planner to work through the issues as they became apparent. At times, the onus appeared to be on submitters to engage experts to provide the necessary evidence to counter the applicant's claims; for example:

> [224] Dr Douglas Fairgray, for King Salmon, had assessed the economic impacts of the proposal, using an 'input/output' model. Professor Tim Hazledine, for the Council, was critical of the model used by Dr Fairgray, but did not present a model of his own. He did provide a partial contribution towards a cost/benefit analysis. There was a large quantitative difference between the economic gains projected by Dr Fairgray and those projected by Professor Hazledine. (*Final Report and Decision*, p. 94)

> [265] Professor Hazledine provided a good description of a cost/benefit analysis, **but did not deliver us one.** [Bold added] (*Final Report and Decision*, p. 105)

Issue One: How to improve the inquiry role of the Board?

We must find ways to support the Board to be more proactive and inquire into effects earlier in the process and, where the Board does not fully understand effects, it must employ an independent expert of its own to help the Board members become informed so that they can lead the inquiry rather than just responding to the applicant's experts.

Note 11: The Board must write up its decision-making process in a transparent and comprehensive manner. It is important for decision-makers to explain their decisions, enabling society to learn from past decisions so that better decisions can be made in the future.

EXCERPT FROM THINK PIECE 16

Stage 5: The Decision
Under the new EPA process, the ability to appeal a decision is limited to points of law. This increases the onus on a Board to write up the decision-making process and identify all the key data that has been used to shape the final decision. Without transparency, you cannot have accountability; and if you do not have accountability, you cannot learn lessons from the past in order to improve decisions in the future. See Note 11.

Context

Using the Board's final report to understand the decision-making process undertaken by the Board has proven difficult. The Board had to contend with the complexity of hearing concurrent plan change and resource consent applications and this takes up the first 45 pages of the report. Following this is an outline of the context and the pre-hearing process, which takes up another 12 pages, to page 57. Page 58 sets out the principle issues of contention, which include legal matters and contested effects. It is therefore only at page 59 that it is possible to gain an understanding of the sustainable management approach taken by the Board. It lists contested effects, which are then considered again in more detail starting on page 94. Between pages 59 and 94 is consideration of alternative production methods.

The Board limited the scope of their inquiry to 'contested effects' brought to the table by the respective parties at the hearing. The report does not discuss effects that were not contested, or additional effects that were discovered by the Board during the process of inquiry. The 'contested effects' were grouped into the nine topic areas below:

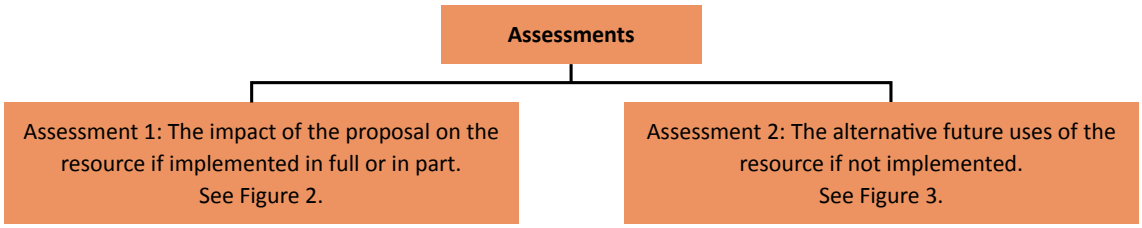
1. Economic (10 pages, pp. 94–105)
2. Ecology (76 pages, 106–182)
    a. Seabed/benthic impacts
    b. Water quality and ecosystem impacts
    c. Pelagic fish, marine mammals and sharks
    d. Seabirds
    e. Biosecurity and disease
3. Natural character, natural features and landscapes (57 pages, 183–240)
4. Cultural (25 pages, 241–266)
5. Amenity (noise, air quality and odour) (9 pages, 267–276)
6. Social (2 pages, 277–278)
7. Tourism and recreation (13 pages, 279–292)
8. Navigation (23 pages, 293–316)
9. Engineering (4 pages, 317–320)

The report then moves to what I consider the most important section, the Section 32 analysis and the summary findings on pages 338 to 341. It then discusses a number of outstanding issues before closing with the Board's determination on page 373. This was a complex proposal, in terms of the concurrent plan change and resource consent applications, the range of relevant subject matter under consideration, and the level of scientific knowledge and uncertainty that was prevalent throughout the evidence. There were clearly large information gaps and a high degree of uncertainty over what these gaps might mean.

Issue One: Is the Board's decision-making process transparent and comprehensive?

I had expected that two separate assessments would be undertaken. An assessment of the resource if the proposal was to go ahead and an assessment of the alternative future uses of the same resource. Given their findings it would then be up to the final decision-maker, in this case the Board of Inquiry, to determine whether the proposal should go ahead. See Figure 1.

Figure 1: Suggested assessments to be undertaken



Assessment 1: There are at least four tests (below) that should have been undertaken in the NZKS decision-making process and with each test five steps should have been completed (see Figure 2).

Test 1	**Weigh the benefits, risks and costs of *each site*.** Weigh the benefits, risks and costs of each site (if the Board had wanted the benefits broken up into production at each site, it could have obtained the information from NZKS's Chief Financial Officer) and decide if each of the four farms it approved met the test that positive effects to New Zealand exceeded negative effects to New Zealand.
Test 2	**Weigh the benefits, risks and costs to *each area*.** Taking into account the existence of other salmon farms in the area. The Board undertook this consideration in terms of landscape in Test 1 above, but not in terms of other effects.
Test 3	**Weigh the benefits, risks and costs to *each Sound*.** Taking into account the effects of other salmon farms in the Sounds (i.e. Pelorus and Queen Charlotte).
Test 4	**Weigh the benefits, risks and costs to *the total Marlborough Sounds (and New Zealand)*.** Taking into account the effects of other salmon farms in both Sounds (i.e. Pelorus and Queen Charlotte) and answering the question: is this the best use of this resource when compared with alternative uses?

In this case, the Board seems to have stopped its consideration early on in the decision-making process. Although the costs and risks of each site were identified, the benefits of each site were not.

In regard to test 1, a test of each site, the applicant never identified the financial benefits per site, instead the Board relied on its vague conclusion that 'each of the farms, both individually and collectively, would be of economic benefit'.[1] The Board should have demanded information on the positive effects of each site, or at least what could be deduced from the feed discharge figures. Table 2 (page 18) outlines the feed discharge for each farm. As the relationship between feed discharge and salmon production has a direct causation, it can be deduced that the largest farms are twice the scale of the smallest farm (in this case White Horse Rock), meaning that in terms of positive effects, some farms clearly create more benefits than others. Hence test 1 above could have and should have been undertaken.

In regard to test 2, a test of each area; the Board only assessed areas in regard to shared natural landscapes. For example, the cumulative effects of a number of farms in Waitata Reach were assessed and found to

1 Board of Inquiry (February 2013) p. 105. *Final Report and Decision*. Retrieved March 3, 2013 from: http://www.epa.govt.nz/Publications/BOI%20NZKS%20Final%20Decision%2022%20Feb.pdf

have adverse visual effects.[2] In contrast, for example, the Board did not assess tourism impacts per area. Notably the Board used the same landscape areas noted in the application, indicating that the application shaped the decision-making process of the Board.

Figure 2: Suggested steps to be undertaken for each test under Assessment 1

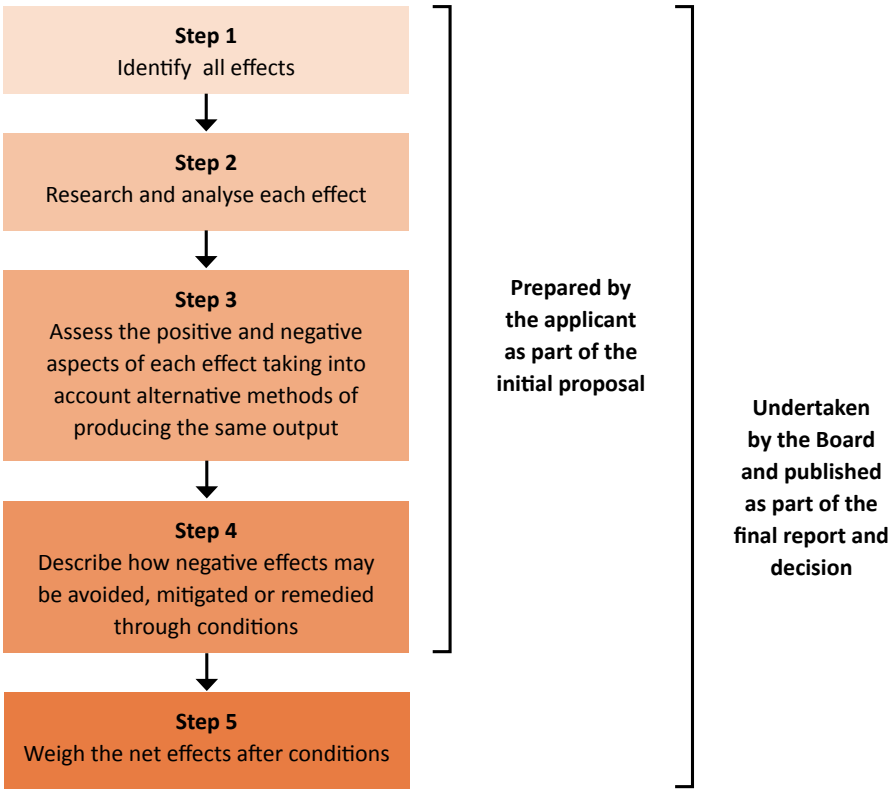
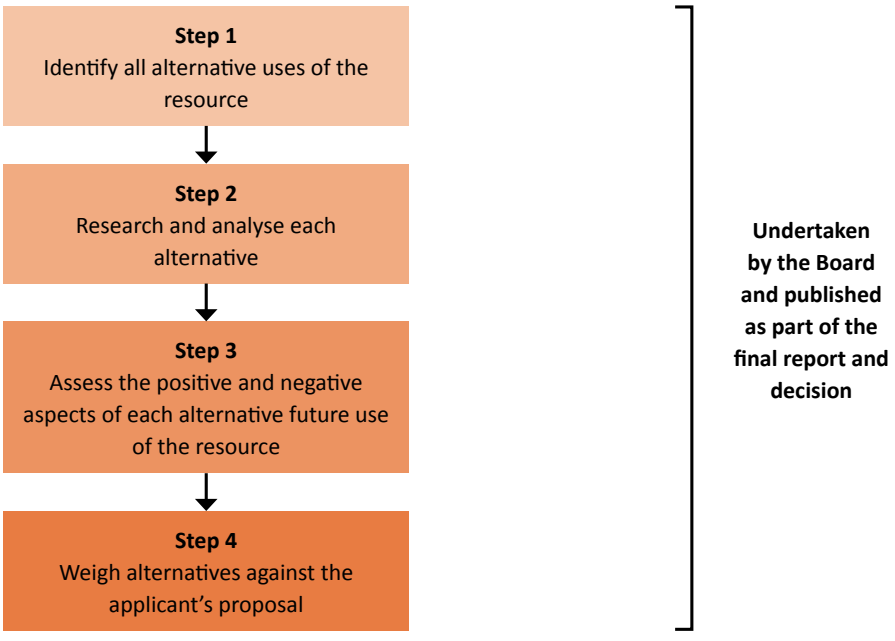


Figure 3: Suggested steps to be undertaken for Assessment 2



2 Board of Inquiry (February 2013) p. 224-225. *Final Report and Decision*. Retrieved March 3, 2013 from: http://www.epa.govt.nz/Publications/BOI%20NZKS%20Final%20Decision%2022%20Feb.pdf

At this stage, the Board found the negative effects outweighed the positive effects in five cases, meaning that four sites were approved. No further assessment was undertaken to weigh the positive effects against the negative effects of the four farms in either of the following two tests.

In regard to test 3, a test of each Sound, no cumulative test was undertaken of all existing and proposed farms in either the Queen Charlotte Sound (including the Tory Channel) or the Pelorus Sound. For the record, Table 5 (below) outlines the maximum feed discharge approved for the existing farms, and should be read alongside Table 2 on page 18. Notably two of the proposed new farms have a significantly larger feed discharge (5,000 and 6,000 tonnes pa) than the existing farms.

In regard to test 4, a test of the Marlborough Sounds in total, this was never undertaken for the four farms that passed the initial test 1.

Importantly, if the application had included site-by-site analysis, these four tests would not require any new information. If the Board had been provided with this data, it would not have taken them much time to apply these tests and include their findings in the decision.

Assessment 2: The assessment of alternative future uses of the resource was not undertaken (see Figure 3). For example, strategic options such as the potential for the area to be listed as a UN Heritage Site or developed into an 'eco-sound' for tourism (see Note 14) was not taken into account. In our view this assessment should be carried out by the Board to ensure there are not more effective and efficient future uses of the resource that will be prevented from progressing on account of the proposal being approved for 35 years.

This was surprising considering at its core, the scope of the legislation is wider than what the Board assessed, in that the purpose of the RMA is sustainable management of the resource, not sustainable management of the proposal. Hence the extent to which this proposal could limit future alterative uses of the resource was never assessed and considered by the Board. In our view, s 5 and s 32 invoke a necessary consideration of alternatives, as it's not possible to say whether the proposal will sustainably manage the resource without considering alternative uses of the resource. However, the Act is not prescriptive enough. In its current form it has enabled up to 21 years of case law to develop on the basis that alternative future uses of the resource do not need to be considered. Therefore, a guidance note would not be sufficient to 'correct' this situation.

The consequence of not doing this second assessment is that applicants under the RMA get a significant first-mover advantage. Discussions with the community over strategic options, such as establishing marine reserves and protected areas or gaining UN heritage site status, take considerable time and effort. Proposals aimed at protecting specific areas follow very different processes than resource management proposals, which are regulated under the RMA. The current case law prevents the RMA from taking into account such strategic options, even if they are under consideration by DOC or the United Nations. Therefore, while these discussions are taking place in a community, or while applications are being considered by the appropriate institutions, there exists a wide window for commercial applicants to make applications to the EPA before final decisions on protected areas are made.

We believe that the Board's decision-making process was not transparent or complete. Assessment 1 was fragmented and incomplete, while Assessment 2 was not undertaken at all. We believe it is critical that the Board clearly sets out their decision-making process in their final report, not just for reviewing the decision in retrospect, but for comparing and improving decisions in the future. This is the only way the Board can be held accountable.

Table 5: Maximum feed discharge permitted at existing farms

(Source: Marlborough District Council resource consents U110680, U000926, U090634, U090660, U040412, U040217, U021247, U040813, U000956; Cawthron, 2013[3])

Farm Site	(i) Consent Holder	(ii) Maximum Feed Discharge Consented (tonnes pa)	(iii) Actual Feed Discharge (tonnes pa)	(iv) Percentage in Excess of Consent
Beatrix Bay	Ngāi Tahu Seafoods Limited	2,500	n/a	
Clay Point	NZ King Salmon Co. Limited	4,000	4,304	+ 7.6%
Crail Bay (two sites)	NZ King Salmon Co. Limited	3,210	n/a	
Forsyth Bay	NZ King Salmon Co. Limited	4,000	*286	
Otanerau Bay	NZ King Salmon Co. Limited	4,000	1,256	
Ruakaka	NZ King Salmon Co. Limited	4,000	2,017	
Te Pangu Bay	NZ King Salmon Co. Limited	4,000	4,499	+ 12.5%
Waihinau	NZ King Salmon Co. Limited	3,000	2,805	
Total		28,710	15,167	

Note 1: As part of the conditions of consent on existing farms, ongoing annual monitoring of each salmon farm must be prepared. In March 2012 these reports were prepared by the Cawthron Institute for each of the existing farms in operation. As shown in the third column (iii), NZKS has exceeded the consented maximum of tonnes pa for feed discharge in two of the farms. Considering the size of this increase, one would have expected the management of NZKS to be aware of this during the hearing process, but this information was not made public. As no one expected NZKS to discharge more than what was consented this question was not asked by the Board or other stakeholders.

Note 2: In August 2012 the Board of Inquiry was told by NZKS management that they had 'reasonably recently purchased sites here in Crail Bay from Pacifica. We purchased those because we needed the fish. However, we are not operating the Crail Bay farms as they're uneconomic. One may be used for research in the future but not for production in the long term'.[4] In February 2013 NZKS top management stated 'There were no immediate plans to farm fish at Crail Bay, but the company **would apply to stock** the site using square and possibly circular pens'.[5] [Bold added]

Note 3: The Forsyth Bay site was active for one month of the monitoring period. From November 2011 to October 2012 the site was fallowed (i.e. farm removed and no feed input).[6]

Note 4: See Table 2 (page 18) for maximum feed discharge of the proposed salmon farms.

3 Cawthron (8 March 2013) *Annual Monitoring 2012.* Report No. 2274, 2275, 2276, 2277, 2278, 2279. Prepared for New Zealand King Salmon Company Limited.
Note: these reports cover 12-month monitoring periods. In the case of Clay Point and Te Pangu Bay this was December 2010 to November 2011, for Waihinau this was November 2011 to October 2012, and for Forsyth Bay, Otanerau and Ruakaka Bay this was December 2011 to November 2012.

4 Board of Inquiry Transcript (August 2012) p. 11. *Transcript of proceedings*. New Zealand King Salmon Proposal, hearing at Blenheim on 27 August 2012. Retrieved February 27, 2013 from:
http://www.epa.govt.nz/Publications/NZKS%20BOI%20hearing%20transcript%2027%20August%202012.pdf

5 Marlborough Express (February 2013). *King Salmon to report on farms*. Retrieved February 27, 2013 from:
http://www.stuff.co.nz/marlborough-express/news/8174231/King-Salmon-to-report-on-farms

6 Cawthron (8 March 2013) p. 2. *Environmental Impacts of the Forsyth Bay Salmon Farm: Annual Monitoring 2012*. Prepared for New Zealand King Salmon Company Limited. Cawthron Report No. 2276

Note 12: The Board must weigh local net effects against national net effects; if local effects are to be overridden (e.g. where a proposal goes against community plans) there must be evidence of significant national effects.

EXCERPT FROM THINK PIECE 16

The decision dealt with risk assessment in a way that is difficult to make sense of. Although risk was mentioned 57 times, it was not categorised consistently throughout the decision (such as 'no effect', 'minor effect', 'major effect' or 'critical effect'), nor was ranking used to classify and address risks in terms of probability and magnitude, the timeframe of the risks and the level of uncertainty over the extent to which these exist. Lastly, there was no assessment of who gained the benefits versus who bore the costs and risks of the proposal. The latter needs to be assessed in terms of inter-generational and intra-generational benefits, costs, and risks; such as (i) the passing of environmental costs and risks on to our children, and (ii) the placing of the needs and wants of one group of New Zealanders ahead of those of another group of New Zealanders. Examples of the latter include placing private sector benefits ahead of public sector costs and risks, or placing national interests ahead of local interests.

The latter point is particularly relevant in decisions heard under *national significance*. There exists an implied bias that national interests are more important than local interests when an applicant takes a proposal away from local decision-makers (who are democratically elected by the local community) to 'national interest' decision-makers. I had expected the Board to take local interests, as represented in the regional planning process, into account and thus require significant evidence that these interests were outweighed by the existence of significant national interests. This additional level of proof did not seem to be discussed or weighed when the Board made its decision. As can be seen in the accompanying map, the community had determined that Queen Charlotte Sound should remain free of industrial structures; the existing salmon farms are legacies of the Marine Farming Act 1971, and their consents expire in 2024. See Note 12.

Context

Providing generic guidelines and terminology for describing risk management would be a great step forward in regard to considering and reporting on proposals of *national significance*. A useful resource is the Risk Management Standard AS/NZS ISO 31000:2009. It provides generic guidelines, enabling each case to be considered separately but allowing the assessment of risks to be understood through commonly shared terminology and principles. If we wish to understand and manage the risk of using and protecting resources over time, we need to be able to consistently assess and report on the extent to which uncertainty exists, whether risks are irreversible, who will pay the costs of known risks and/or unknown risks, understand which components (e.g. sites) are ranked as having higher risks than others, and gain a sense of the probability and magnitude of the risks.

Issue One: To what extent should local government plans be weighed against national interests?

We believe decisions must explain how this judgement has been made. We have included some suggestions on how this process could be improved in Note 17.

Note 13: The Board must not only identify potential risks but clarify those risks in terms of who pays for what if unwelcome consequences occur (e.g. applicants, local communities or national government).

EXCERPT FROM THINK PIECE 16

This decision increases the total number of salmon farms in the Marlborough Sounds from eight to twelve (including two farms NZKS is currently not operating). The decision potentially sets a precedent for future aquaculture in Queen Charlotte Sound, where previously recreational and industrial activities were clearly separated. Hence the decision creates a form of moral hazard; NZKS will not bear the full costs of its actions if unwelcome consequences occur, and is therefore likely to continue to take further risks. This paradigm is very similar to the circumstances that led to the recent Global Financial Crisis. Banks took high risks but it was the public who paid for the financial clean-up, not the parties that created the problem. See Note 13.

Context

Water quality and indeed the whole issue of water pollution and its effects are a very 'live' issue in New Zealand at the moment. Cleaning up water is a very expensive proposition. $450 million has been committed to cleaning up Lake Taupo, the Rotorua lakes and the Waikato River over 20 years. How much, then, would be needed to clean up the Marlborough Sounds, if such a clean-up was required? Are we well placed today to assess the benefits, costs and risks of the NZKS proposal in terms of any unwelcome consequences in the future?

Issue 1: Who pays for what if unwelcome consequences occur?

The question of liability for pollution that might result from NZKS's operation, in terms of who pays if damage occurs, is not entirely straightforward. If NZKS is doing something it is authorised to do under its consents, then the pollution is in effect licensed by the Board as part of the consent process.

Conversely, if pollution is the result of something going awry, then it would amount to an unauthorised discharge of contaminants to water, and an abatement notice or enforcement order could be issued to require NZKS (or any other party responsible) to 'mitigate' the effect (i.e. clean it up). An unlawful discharge of this sort would also be an offence for which NZKS could be prosecuted (even if it was the result of an action or omission on the part of one of its contractors). However, depending on how the pollution had come about, NZKS might be able to defend itself if it had done all things reasonably possible to avoid such an event, and could not have foreseen the event.

Issue 2: How to take into account uncertainty of effects when applications are for long periods of time, such as 35 years?

Further, pollution can take many forms, which is becoming more evident as we increasingly understand the interconnectedness of effects and, for example, the unwelcome consequences of salmon farming on our ecosystems. Put another way, 30 years ago a proposal to establish nine farms might have been approved easily because there was very little information on the negative effects of salmon farming, but in 20 years' time such an application might simply be considered absurd due to the mounting evidence of unwelcome effects.

It seems likely that good operators will move toward land-based closed-system aquaculture as technologies develop; only then can the effects of the whole enterprise be managed inside tanks rather than in large wilderness areas, such as the Marlborough Sounds. Further, these tanks are likely to move into the cities, where they will sit next to supermarkets, ready to feed the population close at hand. Going out even further, these systems are likely to evolve into vats where protein is manufactured and reconstituted, and places like the Marlborough Sounds are likely to generate economic effects through providing an ecosystem experience. However agriculture evolves in the future, New Zealand needs to keep its options open and keep its eye on the long-term game.

Note 14: The Board must assess alternative future options for a resource where the proposal under consideration reduces the community's options in the future.

EXCERPT FROM THINK PIECE 16

The decision also results in a lost opportunity for the next 35 years (as noted above, consents for all other existing farms expire in 2024): it is likely to prevent Queen Charlotte Sound from being converted into a large marine reserve, listed as a UN Heritage Site or developed into an 'eco-sound' for tourism. These alternatives were not assessed by the Board. See Note 14.

Issue One: To what extent should the Board inquire into the stated purpose of the application?

The Board appeared to take the applicant at its word, and therefore only considered the purpose in terms of the *objective* set by the applicant as discussed in Note 3 – to increase production in order to meet demand. That directed the assessment of effects away from some of the potential 'other purposes' listed below, so that not *all* the effects – whether positive or negative, long or short term, and in combination with one another – were identified and assessed.

Examples of potential 'other purposes' include:

1. To gain consent approval before the Marlborough District Council updates its 1995 Regional Policy Statement.

2. To gain a plan change before Marlborough District Council updates its 1995 Regional Policy Statement.

3. To have the application heard under *national significance* away from the local community. An application for nine farms was more likely to be treated as *nationally significant*, thereby avoiding a hearing by the Marlborough District Council, than an application for a lesser number of farms;

4. The proposal secures coastal consents for 35 years before any higher environmental standards might be applied;[1]

5. The proposal in effect creates a monopoly by obtaining the best, and therefore the most cost-effective, salmon farms in the Marlborough Sounds;

6. The consents are an additional asset on NZKS's balance sheet, making the company more attractive to future investors (see Note 16);

7. The proposal provides an opportunity to gain consents before coastal occupancy charging is put in place (currently there is no coastal charge, although it is being discussed),[2] and/or

8. Consents would be secured cheaply; the advantage to NZKS is that the proposal is assessed in terms of the effects on the 'existing environment' – which for the time being includes the six consented farms – making it arguably easier (and cheaper) to gain new consents now rather than later, provided the company implements those consents within the agreed timeframe.

1 Although in practice, under the adaptive management regime, higher environmental standards may be imposed over the life of the consents.

2 Office of the Minister of Fisheries and Aquaculture (July 2010) p. 18. *Aquaculture Reform Paper 2: Further proposals and report back.* Retrieved March 5, 2013 from: http://www.fish.govt.nz/NR/rdonlyres/9398E7C8-B8AE-4E60-BB23-09BA0DC19F4B/0/Aqua_Reform_Cabinet_Paper2_2010.pdf

Issue Two: To what extent should the Board inquire into alternative means of producing king salmon, such as the closed containment system?

Alternative sites or other methods of production, were addressed by the Board in this way:

> [121] A legal issue raised by many other submitters is the extent to which King Salmon has, or should have considered **alternative means of producing salmon**. Various suggested alternatives have been put forward, both by way of submission and in evidence. These include:
>
> > [a] The conversion of existing marine farms within the CMZ2 or discretionary activity locations within the CMZ2;
> > [b] Utilizing mid-bay sites for salmon farming;
> > [c] Expansion of the existing farms owned by King Salmon;
> > [d] Farming onshore in a closed containment system;
> > [e] Farming offshore in exposed waters;
> > [f] Farming in other regions in New Zealand; and
> > [g] Waiting for the Council's planned review process.
>
> [122] **The suggested alternatives have been put forward by way of submission, without any evidence, apart from cross-examination, demonstrating that any such sites or alternatives are practical or suitable for salmon. Nor was there any evidence relating to an effects assessment of such alternatives.** On the other hand, we did hear a considerable amount of evidence from King Salmon on alternative sites and methods. The evidence produced by King Salmon addressed the possibilities raised by the submitters and was subject to quite rigorous cross-examination from a number of counsel and individual parties. [Bold added] (*Final Report and Decision*, pp. 67–68)

The Board had a number of opportunities to obtain additional evidence on international trends in salmon farm production, but declined to do so. The Institute had recognised this gap and had arranged for two experts from Canada to provide evidence, but neither the Board nor the applicant wished to inquire further or cross-examine these experts by video link.

Canada is one of the more significant players in the salmon production business, and is also a country with a similar regulatory and risk-management regime to New Zealand's. It therefore surprised me that the Board showed no interest in inquiring into alternative production systems from a country that is well-recognised as a leader in the field. The Board noted, 'Nor was there any evidence relating to an effects assessment of such alternatives', raising the question of what was the role and responsibility of the Board in regard to assessing alternative production systems. Excerpts from the experts' statements follow.

Expert 1: Dr John Volpe, Seafood Ecology Research Group (SERG), School of Environmental Studies, University of Victoria, PO Box 3060, Stn CSC, British Columbia, Canada V8W 3R4.

I am recognised as the global authority on the broad scale and complex interactions between the environment and marine food production systems, with an emphasis on aquaculture. A major product of this focus is the Global Aquaculture Performance Index (GAPI),[3] which empowers seafood industry leaders and policy makers to make informed decisions regarding environmental costs and benefits of farmed marine finfish.

My evidence will draw the board's attention to the Global Aquaculture Performance Index (GAPI). This index was developed by myself and the Seafood Ecology Research Group at the University of Victoria, British Columbia. The first phase of development has been supported by the Lenfest Ocean Program.

The GAPI is a science-based, data-driven tool enabling rigorous and objective evaluation of the environmental performance of marine aquaculture production systems. Derived from Yale and Columbia University's 2008 Environmental Performance Index (EPI), the GAPI empowers interested parties and key policymakers to make more informed and ultimately more sustainable decisions related to their farmed seafood purchases and policies, respectively.[4]

Expert 2: William George Soltau, Living Oceans Society, Sointula Office, PO Box 320, 235 First St, Sointula, BC, Canada V0N 3E0.

I am the Sustainable Fisheries and Salmon Farming Campaign Manager for Living Oceans Society in Canada. Living Oceans is an environmental organisation in Canada concerned with marine conservation issues. Salmon farming is one of the society's core focuses. Living Oceans coordinates the Coastal Alliance for Aquaculture Reform, a coalition of four leading Canadian environmental organisations that work to promote a transition from open net-cage salmon aquaculture to closed containment technology in British Columbia. The society researches threats like waste, chemicals, disease, and parasites from the farms that can pass through the mesh and pollute the surrounding water and seabed. In particular, the organisation is concerned about the harmful effects of sea lice, which can kill young fish. The society also works with the government and industry on sea lice monitoring and other interim measures to protect wild salmon while researching the viability of closed containment aquaculture systems as a long term solution.

Living Oceans Society's work around the threats posed by open net-cage salmon farms to the balance of marine life includes activities to ensure the protection of the marine environment, such as successfully ensuring that environmental impacts from open net-cage salmon farms are properly assessed. The society does this by researching the potential adverse environmental effects of individual applications for new and expanding salmon farm and submitting responses to appropriate agency referrals.

Prior to teaming up with Living Oceans Society I served as member of the Minister's Aquaculture Advisory Council, Provincial Ministry of Agriculture, Food and Fisheries from 1988-1993 to advise the Minister on the

3 This Global Aquaculture Performance Index was referred to by Aquaculture New Zealand and Mark Preece as evidence of New Zealand being the highest scoring salmon farming country in the world. However this was due to the 'modest production volumes and small overall area of production'. Dr John Volpe explains in his additional Statement of Evidence from September 2012, the doubling of farm production will lead to a score demotion and may risk New Zealand's current leadership status. Production intensity dramatically increases impacts.
See: Board of Inquiry (27 September 2012) p. 2634. Board of Inquiry Hearing: Transcript of Proceedings 27 September 2012. Retrieved March 8, 2013 from: http://www.epa.govt.nz/Publications/Day%2023%20transcript%2027%20September%202012.pdf
Mark Preece (August 2012) p. 4. Statement of Rebuttal Evidence of Mark Anthony Preece for the New Zealand King Salmon Co. Limited. Retrieved March 30, 2013 from: http://www.kingsalmon.co.nz/RebuttalDocs/3%20Mark%20Anthony%20Preece%20-%20Operations.pdf
Dr John Volpe (30 September 2012) p. 4. Statement of Evidence prepared for the Board of Inquiry by Dr John Volpe, Expert Witness on behalf of the McGuinness Institute regarding questions by Mr Farnsworth. Retrieved March 30, 2013 from: http://mcguinnessinstitute.org/Site/Publications/Submissions.aspx

4 Dr John Volpe (August 2012) p. 3. Statement of Evidence Prepared for the Board of Inquiry of Dr John Volpe on Behalf of the McGuinness Institute. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/McGuinness%20Institute%20(1106%20and%20FS0018)%20Dr%20J%20Volpe%20evidence.pdf

development of aquaculture in the Province of British Columbia and, during 1996 and 1997, participated in the Salmon Aquaculture Review – a class environmental assessment review of the salmon aquaculture industry conducted by the British Columbia Environmental Assessment Office, as a member of the Review Committee.[5]

Both these gentlemen were prepared to provide their time at no cost to the Institute or the Board (in contrast to NZKS's experts), yet their expert opinions were ignored in terms *of inquiry* by the Board. In conclusion, this was a missed opportunity to gain *evidence relating to alternative methods* of salmon production.

One of the challenges in this area is the current interpretation placed on relevant parts of the RMA. The High Court has found that a consent authority may consider alternatives, if 'relevant and reasonably necessary' to determine the application, which seems to enable a usefully broad assessment.[6] However, the Court has constrained the consent authority's jurisdiction by reference to the limited obligations imposed on a consent applicant. An applicant's duty is to include in its application a *description* of any possible alternative locations or methods for undertaking the activity.[7] The Court suggests that the degree of detail in an applicant's *description* of alternatives should be commensurate with the size of its proposal and its potential impact on the environment – but fundamentally, the Court does not seem to contemplate that a consent authority, mandated to take into account all matters 'relevant and reasonably necessary', might go beyond the description that an applicant has provided. That is particularly concerning in the case of an *Inquiry*.

Issue Three: To what extent should the Board *inquire* into alternative means of using the water resource?

Other 'alternative futures' for the region's resources were not considered by the Board. Examples of alternative futures could include Queen Charlotte Sound becoming a large marine reserve, a UN heritage site (similar to the sounds in Te Wāhipounamu – South West New Zealand), or being developed into an 'eco-sound' focused on tourism. This issue relates directly to Note 14, the opportunity cost being the effect of the loss of this option to the region.

For example, the NZKS proposal is likely to reduce the ability for the Queen Charlotte Sound to be included in the UN's World Heritage List, as to do so it would need to meet at least one out of ten selection criteria. Arguably, pre-NZKS's proposal, the Sound could meet the last four of the ten criteria:

7. to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
8. to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
9. to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
10. to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

The protection, management, authenticity and integrity of properties are also important considerations.[8]

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5 William George Soltau (August 2012) p. 3. Statement of Evidence Prepared for the Board of Inquiry in Relation to International Salmon Farming on behalf of the McGuinness Institute. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/McGuinness%20Institute%20(1106%20and%20FS0018)%20W%20Soltau%20evidence.pdf

6 *Meridian Energy Ltd* v *Central Otago District Council* [2011] 1 NZLR 482.

7 Resource Management Act 1991 Schedule 4, clause 1(b).

8 United Nations Educational, Scientific and Cultural Organisation (UNESCO) (n.d.). The Criteria for Selection. Retrieved March 5, 2013 from: http://whc.unesco.org/en/criteria

A proposal to add a further nine salmon farms to the region must impact negatively on these criteria, particularly as it repositions the region as having an industrial, rather than an ecological, tourist-based economy. This is particularly important since in addition to the ten criteria listed, the UN notes that other important considerations are the protection, management, authenticity and integrity of properties.

The four criteria noted above are the same four that enabled Te Wāhipounamu – South West New Zealand (which covers 10% of New Zealand's landmass) to become registered as a heritage site.[9] Doubtful Sound and Milford Sound are not true sounds, whereas the Marlborough Sounds is technically a true sound, being an extensive network of sea-drowned valleys that make up one-fifth of the length of New Zealand's coastline. During the glacial periods the North and South Islands were connected, extending north from the Marlborough Sounds; this land bridge was last severed when sea levels rose following the last glaciation and Cook Strait was formed.[10]

Under the RMA, as it is presently interpreted, the Board, in its consideration of the *consent applications*, was not able to compare the proposal against other 'alternative futures' for the same environment. Strictly speaking, a consent assessment does not require the future 'with the proposal' to be compared against the future 'without the proposal'. Rather, the RMA focuses the evaluation on the future 'with' the proposal, and instead of examining whether the outcome is better *with* or *without*, it simply examines whether the outcome *with* the proposal will accord with the RMA's sustainable management principle.

That might be compared with the assessment triggered by the plan change elements of NZKS's proposal. The provisions of a plan change are to be assessed according to whether they are the 'most appropriate' for achieving the RMA's purpose.[11] This has at least the potential to invoke a more comparative assessment between the outcomes 'with' the plan change and the outcomes 'without' the plan change.

However, in this case, no new objectives for the Marlborough Sounds Resource Management Plan (the Sounds Plan) were proposed, just new rules and zoning, so the Board had to consider whether the proposed rules and zoning were the most appropriate. Appropriateness is not assessed in an all-encompassing way; rather, it is assessed against the contents of the relevant hierarchy of resource management instruments, starting with the RMA, and moving from there down through the National Coastal Policy Statement to the Regional Policy Statement, and ending with the Sounds Plan.

The Board noted that the National Coastal Policy Statement contains objectives that 'pull in different directions',[12] and that the objective of seeking ecological integrity is of equal ranking to the objective of enabling use and development within the coastal environment. Unfortunately, the Regional Policy Statement was found by the Board to contain little additional guidance.[13] Beyond that, the Sounds Plan set out to ensure that recreational interests remained dominant over commercial activities, but only within Queen Charlotte Sound. This overview of the relevant planning instruments was then evaluated alongside the evidence about the specific physical environment required for salmon farming, and the development of salmon farming in the Sounds, from which the Board concluded that the Sounds Plan in its current form did not adequately provide for those aquaculture requirements.

9 United Nations Educational, Scientific and Cultural Organisation (UNESCO) (n.d.). Te Waiponamu-South West New Zealand. Retrieved March 5, 2013 from: http://whc.unesco.org/en/list/551

10 Marlborough District Council (2011) p. 269. Chapter 37: Marlborough Sounds/Rai/Pelorus River Valley. Retrieved March 5, 2013 from: http://www.marlborough.govt.nz/Environment/Groundwater/Reports-and-SpecialInvestigations/~/media/Files/MDC/Home/Environment/Groundwater/Groundwaters%20of%20Marlborough%20Book/Chapter37.ashx

11 Resource Management Act 1991 s 32(3)(a).

12 Board of Inquiry (February 2013) p. 330. *Final Report and Decision.* Retrieved March 4, 2013 from: http://www.epa.govt.nz/Resource-management/king-salmon/Pages/Final%20report%20and%20decision.aspx

13 Board of Inquiry (February 2013) p. 331. *Final Report and Decision.* Retrieved March 4, 2013 from: http://www.epa.govt.nz/Resource-management/king-salmon/Pages/Final%20report%20and%20decision.aspx

What this approach demonstrates is that if the higher-order planning instruments do not already contain clear guidance for protection or preservation of environmental values then such values cannot play a determinative role in evaluating proposed District Plan provisions that pull in a different (i.e. developmental) direction.

As it currently stands, the RMA regime provided no real scope for the Board to evaluate the NZKS proposal against other 'alternative future' proposals for the resource use, as discussed in Note 11. Under this regime, a failure to embed a relevant value in the higher-order planning provisions will undermine attempts to have those values recognised in a local, and even site-specific, zoning context.

In summary, we must decide to what extent resource management should consider alternative forms of resource use, particularly where an application relates to a nationally significant resource and prevents other options being pursued over a long timeframe (in this case 35 years).

Note 15: The Final Report and Decision must be logical, balanced and comprehensive.

EXCERPT FROM THINK PIECE 16

Finally, there is no obligation on NZKS to ensure that the economic benefits promised in the proposal will be delivered. An adaptive management approach has been adopted for some of the project's adverse effects, but there is no equivalent avenue to revisit the application if the economic benefits do not eventuate. In other words, the applicant does not actually have to deliver on the promised job opportunities or economic growth to the region. The proposal will never be reassessed in terms of the quality of the decision or the integrity of the applicant.

During the preparation of this think piece a number of concerns regarding the final decision became apparent; the decision-making process was not always logical, balanced or comprehensive. See Note 15.

Context

During the preparation of this think piece a number of concerns regarding the final decision became apparent; the decision-making process was not always logical, balanced or comprehensive. In making this statement I am very cognisant of the challenges the Board faced; these were considerable. For example, the political support for aquaculture, the concurrent plan change and resource consent applications, the poor quality of the application (e.g. that economic effects were grouped, and that the economic model was not transparent), the tight timeframe (nine months), the number of submitters, the challenges of working away from main centres for six weeks, and being one of the first aquaculture applications through the gate, so to speak. These would have exhausted many fine brains committed to making the best decision for their country. With those reservations in mind, I raise the following concerns, not as criticism of the Board or its members, but simply to identify areas in which we must strive to improve future decisions.

Issue One: Was the decision-making process logical?

The decision-making process was stopped halfway through the consideration; the positive effects versus the negative effects of the four farms were not considered in the context of the Marlborough Sounds and New Zealand; see Note 11.

Further, alternative uses of the water resource were not explored. See Note 11, Assessment 2 (page 44) and Note 14, Issue 3 (page 51).

Issue Two: Was the decision-making process balanced?

There are a number of examples of this, but perhaps the one that concerns me the most is that the king shag was given more weight than the Hector's dolphin. The Board noted:

> [503] Orca is listed as nationally critical while bottlenose dolphin, Hector's dolphin and the southern right whale are listed as nationally endangered species. Mr Baxter considered any human induced mortality of these species would be of great concern.
>
> *Discussion and Findings*
>
> [507] The salmon farms occupy a very small footprint in the context of the Marlborough Sounds and we find there would be no adverse effects with respect to displacement of marine mammals and loss of habitat. Given the comprehensive conditions of consent we are satisfied that any adverse effects due to entanglement would be minimised. We agree with Mr Baxter that the potential for entanglement and death of marine mammals, including threatened species cannot be completely eliminated. However, we find that the conditions and proposed measures for predator exclusion, monitoring and reporting [the Marine Mammal and Shark Management Plan] are sufficient to make the potential effects minimal. (*Final Report and Decision*, pp. 174–175)

In contrast, the Board found in regard to the king shag:

> [1246] The cumulative additions of nitrogen, increases in phytoplankton and consequential reductions in water clarity would have a potential impact on King Shag foraging habitat. The Waitata Reach forms a part of that habitat and is likely to be particularly important for the breeding colony at Duffers Reef. **A precautionary approach is warranted given the threatened status and limited geographic range of this species.** The experts were agreed that the King Shag in the Marlborough Sounds may be the 'canary in the coalmine', that is, a species sensitive to ecosystem changes. [Bold added] (*Final Report and Decision*, p. 346)

However, was this consideration in balance with the treatment of the king shag, particularly considering the Hector's dolphin is considered endangered both in New Zealand and internationally?

For example, the king shag was given more value in decisions on the Kaitapeha and Ruaomoko farms (which were declined) than the Hector's dolphins that swim around Arapawa Island. The latter are not even mentioned in the assessment of the Ngamahau farm (which was approved); see map in Think Piece 16. The existence of dolphins was always seen as a key component of the assessment, even by NZKS,[1] but the Board did not inquire into this to the extent I would have expected. As the Tory Channel is only 1250 metres wide at the Ngamahau site,[2] ferries push marine mammals to either side, moving them closer to the salmon farms and creating less water space for sharks and dolphins to inhabit (resulting in significantly greater risk of the dolphins being eaten by sharks). This is further evidenced by the NZKS marine biologist, who noted that sharks aggregate around farms:

> [499] Mr Clinton Duffy, a marine biologist with a research focus on sharks, agreed with the evidence of Mr Paul Taylor with respect to sharks. While there are some 14 species of sharks found naturally with the Sounds and they may be attracted to fish farms he considered the risk of shark attack around the farms to be no greater than elsewhere in the marine environment. In response to questions from the Board he explained that he expected sharks would aggregate around proposed farms in the Waitata Reach but that would not result in a greater number of sharks in Pelorus Sound overall. (*Final Report and Decision*, p. 173)

To appreciate the importance of this point, it is worth considering endangered species in terms of the relevant legislation. The purpose of the RMA is to promote the sustainable management of natural and physical resources.[3] Natural and physical resources include land, water, air, soil, minerals and energy, all forms of plants and animals (whether native to New Zealand or introduced), and all structures.[4] See a more detailed discussion in Note 17, Opportunity 4, Recommendations 13 and 14 (pages 68–70).

In this inquiry, marine mammals, which live in the water 100% of the time, were treated as less important than king shags, which live most of their time above water; king shags were one of the reasons some sites were declined.

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1 NZ King Salmon (June 2012). *Appendix XIV. NZ King Salmon Assessment of Coastal Marine Zone 2. In Statement of Evidence of Mark John Gillard in relation to Site Selection and Consultation*. Retrieved February 12, 2013 from: http://www.kingsalmon.co.nz/KingSalmonEvidence_documentation/2430183%202(n)%20Mark%20John%20Gillard%20-%20NZ%20King%20Salmon%20Assessment%20of%20Coastal%20Marine%202%20-%20v1.pdf

2 Board of Inquiry (14 December 2012) p. 350. *Final Report and Decision*. Retrieved February 12, 2013 from: http://www.epa.govt.nz/Resource-management/king-salmon/Pages/Draft-report-and-decision.aspx

3 Resource Management Act 1991 s 5.

4 Resource Management Act 1991 s 2.

Other areas where the decision was not balanced include:

1. The positive effects included the jobs at the processing plant, but the negative effects ignored the processing plant.

2. The economic benefits posited by the applicant's experts were assessed in terms of a maximum of 15 years (until 2026), but the application was for consent for 35 years.

3. Supply and demand of tonnes of salmon production was assessed in terms of the year 2021, whereas the financial effects were assessed in terms of the year 2026.

4. The positive effects by the year 2021 (10 years) were weighed against at least 35 years of negative effects.

5. Positive effects were discussed in Net Present Value (NPV) terms today whereas negative effects (potential costs and risks) were assessed in tomorrow's terms, being 35 years or longer.

6. The landscape effect took into account other salmon farms, but other effects did not consider the existence of other farms (such as tourism, noise, navigation, etc.).

> [575] Hardly surprising therefore, that some of the least modified parts of the Sounds – such as Port Gore, the Waitata Reach, and Queen Charlotte Sound approaching Picton from Cook Strait – remain in a fine state of balance. The question is – to what extent these landscapes are able to withstand change and development, and at what scale? (*Final Report and Decision*, p. 194)
>
> [605] We agree with Mr Brown when he said that it is important to address the landscapes within which the proposed salmon farms would sit as a whole rather than dissecting them to a point where it becomes difficult to see 'the wood for the trees.' As such, we address the landscape settings and their related values as follows:
>
> [a] Port Gore – Pig Bay for Papatua
> [b] Pelorus Sound – the Waitata Reach for:
>
> - White Horse Rock
> - Waitata
> - Kaitira
> - Tapipi
> - Richmond
>
> [c] Queen Charlotte Sound – Dieffenbach Point and the intersecting channels for Kaitapeha and Ruaomoko
> [d] Tory Channel – for Ngamahau. (*Final Report and Decision*, p. 201)
>
> [698] **The cumulative effect of the five proposed farms, in conjunction with the other consented salmon farms (Port Ligar and Waihinau Bay) would, in our view, have a high impact on the natural character of this Reach of Pelorus Sound.** We find that, individually, each new farm would have an effect on natural character. Given the prominent locations of the White Horse Rock/Waitata site, Kaitira and Tapipi, even if only one or two of these farms were consented, the effect on natural character would be high. [Bold added] (*Final Report and Decision*, p. 221)

7. The assessment of landscape and natural character was not consistent with the *Final Report and Decision*. On 19 March 2013, the Environmental Defence Society filed an appeal against the decision. Their media release stated:

> 'We believe that the Board of Inquiry's decision is inconsistent with the New Zealand Coastal Policy Statement. That statement requires adverse effects of activities on natural character and landscape to be avoided in areas of the coastal environment with outstanding natural character or landscape values,' said Mr Taylor.
>
> The Board found that the Papatua (Port Gore) site was outstanding but then failed to protect it. We consider that was an error of law.
>
> The Board of Inquiry also failed to consider alternative options for zoning sites outside of prohibited areas. We contend that was a second error of law in the decision.[5]

8. Industrial tourism versus non-industrial tourism. If the board wished to consider the effect on industrial tourism, it should have inquired into the evidence provided on non-industrial tourism. It should be remembered that New Zealand brands itself as 100% pure, and the Marlborough Sounds are regarded by many, including the influential Lonely Planet, as iconic.[6] In terms of positive effects for New Zealand, the real test was the direct costs of additional wages and salaries, but the debate centred on the number of potential employees, which precluded direct comparisons.

9. Efforts were not made to uniformly quantify effects in terms of market values or, where possible, using non-market value techniques. Examples include feed discharge tonnage (instead of tonnes of salmon) and jobs (instead of wages and salaries); industrial tourism effects were not quantified (versus non-industrial tourism effects).

10. The effects of existing farm sites were taken into account in some entry points to the Sounds, but not others. The Board took into account the cumulative effect of the farms in the Waitata Reach and found:

> [676] Our site visit confirmed that the Kaitira site is in a particularly sensitive part of the Waitata Reach – the gateway to Pelorus Sound. It sits on an important navigation route (a matter we will consider later in this decision). The site area has high natural character, and we agree with Mr Rough's assessment that the proposed farm will have a high impact on natural character. We do not accept Mr Boffa's contention that the deletion of the barge is an effective means of mitigation. We accept that it is the simple presence of the farm at this location that is the principal effect on natural character. **The proposal would result in a built form in a key prominent location at the entrance to Pelorus Sound**. (*Final Report and Decision*, p. 216)

This is in contrast to the treatment given to the entry to the Queen Charlotte Channel through the Tory Channel. Here the site was approved, yet no discussion of the entry into Queen Charlotte Sound was taken into consideration.

5 Environmental Defence Society (19 March 2013). Media release: EDS appeals King Salmon decision. Retrieved March 20, 2013 from: http://www.eds.org.nz/content/documents/pressreleases/130319%20King%20Salmon%20appeal.pdf

6 Board of Inquiry (9 October 2012) p. 3384. Board of Inquiry Hearing: Transcript of Proceedings 9 October 2012. Retrieved March 8, 2013 from: http://www.epa.govt.nz/Publications/Day%2031%20transcript%209%20October%202012.pdf

Issue Three: Was the decision-making process comprehensive?

1. Secondary and third-level effects were not ever apparent in the discussion; for example, the effect of salmon farms attracting seals, seals attracting sharks, and sharks preying on Hector's dolphins (see earlier discussion and photo in the think piece).

2. Animal welfare effects. Concerns over salmon deaths were raised at the hearing, and with pig and chicken farming increasingly coming under the eye of animal welfare organisations this was unsurprising. One of the submitters wrote especially on this issue but it was not addressed in the written decision.[7]

3. The carbon effects of salmon farming. A 2009 Norwegian study showed that at the farm-gate, greenhouse gas emissions for mussels are much lower than for salmon when live-weight harvest is compared. This difference reflects the impact of the feed production required for salmon farming and was not addressed.[8]

4. Additional transportation from boat and pen movements resulting from travel between the farms.

5. Heritage effects. In addition to the area's pre-European history, it was also the site of one of the early meetings between Māori and Pākehā, and where Captain Cook claimed sovereignty of the South Island.

6. In the use of terminology, which should align throughout the decision. For example, in the discussion of risk, the following phrases were used: what level of risk,[9] length of time of the risk, whether the risk was irreversible, the magnitude of a potential risk, probability, degree of uncertainty,[10] adaptive management, and baseline monitoring. However, these phrases were applied inconsistently throughout the decision.

7. There is no way of knowing whether the Board considered risks and costs beyond 2026.

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7 Eliot Pryor (1 May 2012). Submission on New Zealand King Salmon Proposal. Retrieved February 14, 2012 from: http://www.epa.govt.nz/Publications/0523%20Pryor,%20E%20(796%20kb).pdf

8 Ulf Winther et al. (2009) pp. 43–44. *Carbon Footprint and Energy Use of Norwegian Seafood Products*. SINTEF Fisheries and Aquaculture. Retrieved March 1, 2013 from http://www.tekmar.no/tema/marked/2009-Carbon_footprint_of_seafood_products.pdf

9 For example minimal risk is used only once in the decision. '[478] Accordingly, there is currently minimal risk of antibiotic resistance due to low usage (no usage since 2000) and this situation is unlikely to change.' (*Final Report and Decision*, p. 167)

10 [437] However there remains considerable **uncertainty** as to the nature of the receiving environment, including the trends in other nutrient sources, and consequently the ability of the Sounds to adequately assimilate a significant increase in nutrients. [Bold added] (*Final Report and Decision*, p. 155).

Rob Schuckard, who holds a Master in Science, and is a biologist and ornithologist, was particularly concerned about the potential for eutrophication of the Sounds, changes in nutrient ratios and the related risk of Harmful Algal Blooms (HABs) during the summer months. In regard to feed discharge he makes the following observations:

- To grow one tonne of salmon, you need 1.8 tonne of feed containing 109 kg nitrogen. In the one tonne of fish, 32 kg nitrogen is contained and the rest (77 kg) is released in the environment.
- About 85% of the waste will be in dissolved forms (ammonium, urea, nitrate, together called dissolved inorganic nitrogen DIN), and the rest is in particulate form.
- At the moment the nitrogen release of NZKS salmon production is the equivalent of 122.000 people. Together with the consented maximum feed amounts of the four granted farms, a total of the nitrogen equivalent of the production of salmon by NZKS is 265.000 people. That is two times the number of people living in Marlborough, Nelson and Tasman districts.

Rob Schuckard (August 2012) pp. 31–44. *Statement of Evidence of Rob Schuckard*. Retrieved March 20, 2013 from: http://www.epa.govt.nz/Publications/Sustain%20our%20Sounds%20(0061,%200771%20and%20FS0010)%20R%20Shuckard%20Statement%20of%20Evidence.pdf

Note 16: Robust regulatory processes must exist when those who gain the benefits are different from those who may have to deal with the negative impacts.

EXCERPT FROM THINK PIECE 16

Stage 6: Post-decision

As I write this, we are still in the early phases of the post-decision stage, with mention in the press of some parties considering taking the decision to the High Court. NZKS is complaining at the cost of the application: four farms for $10 million. But the company can, and no doubt will, capitalise most of this expenditure so that it is reflected as an asset on its balance sheet as the decision to approve four farms will result in the creation of a tradable asset on NZKS's books. There is currently no coastal occupancy charging regime in force in the Marlborough Sounds, meaning NZKS does not have to pay any fees for their occupation of the coastal marine area. It was a surprise to find NZKS arguing that the process was too expensive. While it cost the company $10 million, NZKS managed the budget and chose to proceed with the application, it employed the most expensive lawyers, and flew in numerous experts from around the country. Whether it managed its resources effectively or not should not be the domain of public policy.

There was a clear expectation by NZKS that the more money it spent on the application, the more it felt entitled to a positive decision in regard to the nine farms. Objectively, the amount of money that an applicant chooses to spend on an application is firstly their business, and secondly completely irrelevant in determining the merits or otherwise of the application. See Note 16.

Context

NZKS Chief Executive Grant Rosewarne was interviewed on Radio New Zealand's *Checkpoint* programme on 28 February 2013. During the interview he described the application as a '$10 million process.'[1] How the $10 million is broken down is not in the public arena, but my understanding is that since NZKS has purchased, through the application process, the resource consent to build the salmon farms, *New Zealand Equivalents to International Financial Reporting Standards* (NZ IFRS) would apply; meaning that the resource consent can be treated as an intangible asset. In this case all costs directly attributable to the purchase of the resource consent can be capitalised. These costs include professional fees arising directly from bringing the asset to its working condition and the cost of testing whether the asset is functioning properly. NZKS may not be able to capitalise the whole $10 million, as administration and other general overheads cannot be capitalised.

In retrospect, in addition to understanding goodwill (which is already 29.4% of total assets), we wish we had inquired into the significant increase in finished goods, doubling in 12 months to well over 500mt.[2] This implies a growing stockpile of frozen or smoked salmon. This does not align with NZKS's claims that they urgently require space 'to meet demand for its product', raising questions over the claimed benefits of this proposal to New Zealand.

Consolidated Statement of Financial Position[3]	2012	2011	Difference ($)
Goodwill	$39,255,000	$39,255,000	$0
Inventories: finished goods (see Note 9)	$7,277,000	$3,361,000	+$3,916,000
Total assets	$133,546,000	$137,761,000	-$4,215,000

1 Radio New Zealand (February 2013). Salmon farms approved for Sounds. Retrieved March 5, 2013 from: http://www.radionz.co.nz/news/regional/129321/salmon-farms-approved-for-sounds

2 Sarah Dawson (2012). Average Price of NZ King Salmon (NZD/kg) for Period June 2003-June 2012. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Day%2034%2015%20October%20Dawson%20E.pdf
This gives an average per kilogram price of 14.48NZD/kg at June 2012. This means that the finished goods as at June 2012 was over 500mt, given finished goods are valued below retail (7,277,000NZD/14.48NZD/kg).

3 New Zealand King Salmon Investments Limited & Subsidiaries (November 2012) pp. 6, 16. *Financial statements for the year ended 30 June 2012.* Retrieved on March 5, 2013 from: http://www.business.govt.nz/companies/app/ui/pages/companies/2161790/17505176/entityFilingRequirement

Note 17: Opportunities to improve the process

EXCERPT FROM THINK PIECE 16

Opportunities to Improve the Process

Given that the government has recently released a discussion document titled *Improving our Resource Management System* (February 2013),[1] and that the process of *national significance* is relatively new, I believe that there are a number of lessons that can be learnt from this decision and usefully applied. Opportunities exist that could significantly improve the process without requiring significant changes to the legislation or the institutional framework. These are discussed in some depth in Working Paper 2013/01; see Note 17.

Think Piece 16 identified five key high level opportunities. This section looks at these in more detail and makes 15 recommendations, which are listed in Table 6 overleaf and explained further in the following pages.

Table 6: Recommendations underlying each opportunity.

Opportunities	Recommendations
Opportunity 1: Improve the quality of economic expertise and skills.	**Recommendation 1:** Establish a professional economics body to manage the industry
Opportunity 2: Improve guidance to applicants, submitters, experts and decision-makers.	**Recommendation 2:** Consider how best to assess high impact proposals
	Recommendation 3: Update the 2006 Guide to Preparing a Basic Assessment of Environment Effects (AEE)
	Recommendation 4: Consider creating a National Significance Guide for Preparing a Cost-Benefit Analysis under the Resource Management Act 1991
Opportunity 3: Improve transparency and accountability throughout the process.	**Recommendation 5:** Improve the EPA website
	Recommendation 6: Keep a working register of changes to figures contained in the initial application and supporting evidence
	Recommendation 7: Place guidance on the length of the initial application (say 50 pages) so that members of the public can read the application in one sitting
	Recommendation 8: Processes should be set up to manage confidential information
	Recommendation 9: Applicants should be disincentivised and where appropriate penalised for providing incomplete, poor quality or misleading data
	Recommendation 10: Processes should be set up to manage perceived conflicts of interest
	Recommendation 11: The decision-making process must be clear at all stages: in the application (before the hearing), during the hearing, and in the decision (after the hearing)
	Recommendation 12: Improve alignment between Boards of Inquiry, councils and government departments
Opportunity 4: Improve the quality of information on endangered taxa.	**Recommendation 13:** As a matter of course DOC should prepare regional ecological plans, showing the location of species of interest for all applications considered under national significance proposals
	Recommendation 14: DOC should redesign its threat classification system pages on their website so that it is easily searchable, along the lines of the IUCN website
Opportunity 5: Promote the inquisitorial role of the Board.	**Recommendation 15:** The Board should be more proactive and inquisitorial, controlling the process throughout the hearing

EXCERPT FROM THINK PIECE 16

Opportunity 1: Improve the quality of economic expertise and skills in New Zealand. In cases of *national significance*, applicants should be required, as a matter of course, to prepare a comprehensive Cost Benefit Analysis (CBA), in addition to an Assessment of Environmental Effects (AEE). The CBA document could be used in a similar way to the Conditions document; in other words, as a working document the Board can use throughout the hearing process, and publish as part of its final written decision.

Recommendation 1: Establish a professional economics body to manage the industry

There are a number of options that exist here, but the overarching goal is to ensure economic evidence is of a good standard and cannot be dismissed as it was in this decision. Options include creating guidance standards for economists and even legislating for the creation of a professional organisation for economists (much like lawyers and accountants), so that they can be held accountable for their work by their peers.

If we wish to create certainty over economic benefits, we need certainty over economic methodologies: what model, assumptions and data should (or should not) be used and when. Although I had considerable sympathy for the Board's findings over this matter, I do not find their approach acceptable; we must do better. If we do not, I am concerned that its findings will become the norm. See excerpt from the Board's final decision below:

> [263] It is difficult to evaluate evidence, particularly expert evidence, when the experts espouse different methodologies as Dr Fairgray, Dr Kaye-Blake and Professor Hazledine have done. We do not propose to be led into a debate as to the respective merits of cost/benefit analysis versus an analysis based on an input/output model. (*Final Report and Decision*, p. 104)

I appreciate that a lack of definition around economics as a profession is a global problem; to my knowledge there is no international economics professional body. In New Zealand there exists an informal organisation called the New Zealand Association of Economists, which does not require members to have a high standard of economic knowledge (i.e. entry bar), nor does it appear to have any rules on best practice or penalties for poor behaviour (i.e. exit mechanism). One option would be to legislate so that economists are required to form a professional organisation that manages, polices and sets standards for best practice in economic analysis, and establishes regulations in terms of qualification for entry, and exit for bad behaviour.

EXCERPT FROM THINK PIECE 16

Opportunity 2: Improve guidance to applicants, submitters, experts and decision-makers. As noted in the discussion document mentioned above, there is a great deal of value to be gained by improving guidance. In relation to submitters, such guidance could cover the main aspects of the hearing process, and information on the legal framework within which the Board works.

Recommendation 2: Consider how best to assess high impact proposals

As noted, these recommendations were an attempt to improve the system without changing the legislation or institutions. However, we believe as a result of the NZKS decision, the law must be changed to clarify the purpose of s 32 and s 88. To this end, we identify five assumptions underlying our understanding of the purpose of the legislation. These assumptions inform our thinking in regard to s 32 and s 88.

Assumption 1: Not all proposals are equal; some require higher levels of due diligence than others. For example, a proposal of national significance should require more due diligence than other applications, as it also requires an assessment of national versus regional effects. Under the NZKS decision, this was not clear.

Figure 4: Impact continuum

Minor negative effect
(Low impact: low level of due diligence required)

Major negative effect
(High impact: high level of due diligence required)

Assumption 2: All effects should be identified, researched, analysed and assessed. A description of how any negative effects can be avoided, mitigated or remedied must also be included as a list of suggested conditions of consent. The applicant is required under the RMA to prepare an Assessment of Environmental Effects (known as an AEE) as part of their proposal. Under the RMA, 'environment' includes non-natural (i.e. human) components; so an AEE is not limited to assessing effects on 'natural environment'. Further, 'environment' includes social and economic conditions which affect resources or are affected by resources.'

Assumption 3: Not all effects are equal; some should be given more weight than others, in accordance with the purpose and principles of the RMA ss 5–8.

Assumption 4: Two high-level assessments are necessary when high impact, nationally significant proposals are put before decision-makers. Assessment 1: The impact of the proposal on the resource if implemented in full or in part. Assessment 2: The alternative future uses of the resource if not implemented. See Note 11, Figures 1-3 on pages 42-43.

Assumption 5: An assessment of alternative methods of production are a risk management mechanism to manage negative effects. It forms a part of Assessment 1, step 3 (see page 43).

Based on these five assumptions, we believe more certainty is required in regard to the interpretation of the following two sections:

- A legislative change on s 32 could direct decision-makers to consider alternative future uses of the resource, not just alternative methods for producing outputs such as salmon in this case.

- A guide on s 88 could direct applicants and the Board to consider all effects and remind those involved that environmental effects are defined very broadly under the law. (See assumption 2 above)

Recommendation 3: Update the 2006 Guide to Preparing a Basic Assessment of Environmental Effects (AEE)

The guide should be updated to reflect the latest legislation and policy changes.

Recommendation 4: Consider creating a National Significance Guide for Preparing a Cost-Benefit Analysis under the Resource Management Act 1991

A Cost-Benefit Analysis provides a framework that is transparent and able to cope with identifying and describing both market and non-market costs and benefits. In the NZKS case no CBA was undertaken.[1]

Guidance should be included on the following:

1. **Identifying all effects**. This should not be confined to effects that are contested (as outlined in paragraph 100 of the *Final Report and Decision*) by those for and against a proposal, as was the case in the NZKS decision. Identifying all effects requires the Board to inquire, and to explicitly seek to identify second- and third-level effects, as implied by the RMA.

2. **How to identify and assess non-market values.** This issue was debated but the Board did not address this directly.

3. **Risk management**. This should include, in particular, the importance of identifying, describing and then ranking risk, using pre-agreed terminology. All effects are best understood when they are considered both in a linear way (charting the whole system in terms of flows) and in a non-linear way (charting how one effect could create secondary effects). During this hearing, levels of risk were not well considered, possibly because the tools for this type of risk assessment were not well understood. Applications for resource consents must deal with not only the probability of risk (as in the degree of uncertainty) and magnitude (e.g. the worst case), but also the timeframe in which the risk might exist, and the extent to which it may or may not be able to be remedied (irreversible risk). The Risk Management Standard AS/NZS ISO 31000: 2009 provides very good guidance on risk management and I suggest it is a useful resource for policy-makers, applicants, submitters and future Boards of Inquiry.[2]

4. **Weighing positive effects against negative effects.** In particular, guidance should be given on how to define the domain (or boundary) of any effects, so that decision-makers weigh apples with apples. This was not the case with the NZKS decision, where the benefits of a potential new processing plant were included (positive effects), but the negative effects of such a plant were not considered. While NZKS was not seeking approval for the processing plant, the possibility of such a plant being established was clearly a second-tier effect: the positive side of the potential plant should only have been included in the Board's assessment if the Board was able to include the negative side as well.

5. **Treatment of profit, revenue and shareholding as a positive effect.** There does not seem to be guidance on this, but at the caucusing meeting on 11 September 2012 between the five economics experts involved in the NZKS hearing three out of the five agreed that the profit and revenue (therefore the shareholding) should be excluded from the analysis of the positive effects. Returns to off-shore shareholders are not relevant to an assessment of the social and economic well-being of New Zealanders.[3]

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1 James Fairgray, Tim Hazledine, Bill Kaye-Blake, Trevor Offen, Wendy McGuinness (September 2012) p. 4. Joint Statement of Economics Experts, 11 September 2012. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Economics%20Expert%20Witness%20Caucusing%20Statement.pdf

2 AS/NZS ISO 31000:2009, *Risk Management: Principles and Guidelines* is a joint Australia/New Zealand adoption of ISO 31000:2009, and supersedes AS/NZS 4360:2004. Standards New Zealand (n.d.). Risk Management. Retrieved March 11, 2013 from: http://www.standards.co.nz/news/Standards+information/Risk+management/default.htm

3 James Fairgray, Tim Hazledine, Bill Kaye-Blake, Trevor Offen, Wendy McGuinness (September 2012) p. 4. Joint Statement of Economics Experts, 11 September 2012. Retrieved March 5, 2013 from: http://www.epa.govt.nz/Publications/Economics%20Expert%20Witness%20Caucusing%20Statement.pdf

6. **Expert evidence.** Guidance must be provided on the role of experts in comparison with non-experts. This was mentioned by the Chair of the Board during the hearing.

> JUDGE WHITING: Yes, I think I should make it clear, we've heard a lot of talk about experts and non-expert evidence. Expert evidence and non-expert evidence is given the same weight. It's just that expert witnesses are able to make opinions based on facts within their area of expertise, that is all. And the reason they're called experts is because they are **subject to a code**, which is written in most Courts, and the Environment Court has one, and they must be subject to that code. But the point is the evidence of a non-expert is given the same [weight]. [Bold added][4]

Experts are currently subject to a Code of Conduct which outlines the need for experts to:

> … identify the data, information, facts, and assumptions considered in forming the witness's opinions.

Arguably this code could be stronger. Experts should be accountable to the Board, not their client. Therefore, if they are aware of any conflicting, misleading or incorrect data, or relevant information outside the scope of their evidence they should be required to present it.

7. **Terminology and data quality.** I was surprised that there was not more clarity over the economics terms used in the application and during the hearing, such as the distinction between production capacity and actual production, sales (as in supply) and consumer demand, market price, value-added, open and closed systems, feed discharge and feed conversion ratio's, and risk management terminology. I believe a concise glossary is needed, particularly around the interpretation of data and the strategic linkages between data when assessed in terms of benefits, costs and risks.

Although numerous examples in text exist, one overarching example remains that demonstrates the importance of understanding the data and ensuring the numbers in the proposal align. The Board found that 'the primary driver of the level of impact is the mass of feed used' (*Final Report and Decision*, p. 119) but also found 'we do not consider it necessary to also impose a condition on the feed conversion ratio' (*Final Report and Decision*, p. 167). This went against the advice of the Minister of Conservation, who recommended that a feed discharge ratio of 2.0:1 be included as a condition (See *Final Report and Decision*, p. 166). In retrospect, this ratio was critical to the whole proposal. Making assessments in isolation, such as an assessment on projected sales in terms of economic benefits or an assessment of feed discharge in terms of environmental impacts, fails to ensure the proposal as a whole has integrity. Reworking the feed conversion ratio based on March 2013 information (our table 5 on p. 45) indicates the actual feed conversion ratio was more like 2.1:1.[5] If the importance of this relationship between feed, production and proposed sales was fully understood, this would have shown to the Board and the other stakeholders that NZKS has operating well below capacity and raised more questions about the real purpose for the proposal.

To conclude, if there is one final idea that underlies this section is that applicants should be required to put all the key data on the table and the Board must ensure that the data has integrity and makes sense in isolation and strategically, both before and during the hearing process – otherwise not only are we wasting the time of talented people (Board members, legal counsel and submitters) but we are likely to make poor decisions about nationally significant issues that have long-term negative impacts.

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4 Board of Inquiry Transcript (5 October 2012) pp. 3171–3172. Board of Inquiry Hearing: Transcript of Proceedings 5 October 2012. Retrieved February 14, 2013 from: http://www.epa.govt.nz/Publications/Day%2029%20transcript%205%20October%202012.pdf

5 Based on past figures, Table 5 indicates that NZKS converted about 15,167 tonnes pa of feed (Dec 2010/Nov 2011) into 7,250 tonnes of salmon (being the average of '7,000 to 7,500', see p. 16, Example 3). This means the actual ratio was approximately 2.1:1.

EXCERPT FROM THINK PIECE 16

Opportunity 3: Improve transparency and accountability throughout the process. Technology could be used more effectively to reduce the paperwork and time required from submitters, which would enable members of the public, particularly those from the community affected by a proposal, to engage meaningfully with the process.

Recommendation 5: Improve the EPA website

Improving usability and search functionality would be an effective way to reduce the paperwork and time commitment of the application process and provide a more conducive environment for all parties. Some possible improvements could include:

1. The EPA could publish a 'What's new this week' section (e.g. showing where meetings will be held);
2. The 'Friend of the Submitters' could be more accessible through the website;
3. A code of conduct setting out the rights and responsibilities of all parties to the hearing could be included;
4. A complaints system could be set up, explaining how to register concerns about the process and inviting suggestions for improvements, and
5. The addition of advanced search options with filters specific to each proposal.

Recommendation 6: Keep a working register of changes to figures contained in the initial application and supporting evidence

A public record (ideally on the website) should record all changes to data contained in the proposal (such as number of jobs and production figures). No doubt the Board and the applicant retain a tracked copy showing errors and changes, but the only way for members of the public to follow these is to attend the hearing all day every day, meaning that many, like myself, missed important developments.

Recommendation 7: Place guidance on the length of the initial application (say 50 pages), so that members of the public can read the application in one sitting

This would place pressure on applicants to set out a framework that is clear, concise and accessible to all parties to the hearing. Appendices could be used as a way of including additional material. This would enable the application to be more easily accessed on the website.

Recommendation 8: Processes should be set up to manage confidential information

Ideally all relevant information, including assumptions, should be shared with the Board and, if relevant, systems should be put in place so that other experts can challenge the findings of the applicant's experts. Submitters, and their experts, should be advised how and to whom they can make requests for confidential data.

Recommendation 9: Applicants should be disincentivised and where appropriate penalised for providing incomplete, poor quality or misleading data

It is in everyone's interest for applications to be of the highest quality but, as in this case, errors do occur. To some extent this is to be expected when dealing with large amounts of data. However, I believe we need to put in place mechanisms that reveal errors, so that applicants work hard to ensure all their data, particularly their numbers, are correct. One such mechanism would be to keep a publicly accessible record of all applicants' errors. This would not cost the public any money, but could save time and create good processes, which can only strengthen the quality of the final decision.

Recommendation 10: Processes should be set up to manage perceived conflicts of interest

Conflicts of interest must be clearly identified and managed. Perhaps the Board of Inquiry should insist that a public register of such real or perceived conflicts be kept and updated as the hearing develops; this could be accessible on the website.

Recommendation 11: The decision-making process must be clear at all stages: in the application (before the hearing), during the hearing, and in the decision (after the hearing)

Perhaps the EPA could provide some general guidance on the need to make the process transparent; this was not always apparent on the EPA website. One way to improve process would be for the EPA to develop a 'Practice Note' for Boards of Inquiry, so that each Board does not have to issue its own initial 'Directions' (as this Board did) about what its role is and how it is going to conduct the hearing. This would ensure uniformity and reduce unnecessary duplication of 'Directions' from different Boards. In addition, the legal tests and some common legal principles applying to Board of Inquiry hearings could well be summarised in a guidance document for submitters, to provide them with an overview of how the Board's inquiry is directed by the RMA and how the Board is, as a matter of law, required to behave.

Recommendation 12: Improve alignment between Boards of Inquiry, councils and government departments

It may be worth considering how the interaction between all parties could be more successful; in the NZKS case this often seemed disconnected. I appreciate the challenges involved, but the Board may have been able to use its inquiry function to work more with the council and DOC, particularly in relation to unique taxa, and with MPI regarding latest research and reports.

EXCERPT FROM THINK PIECE 16

Opportunity 4: Improve the quality of information on endangered taxa in New Zealand. If we wish to manage our ecological footprint, we need far better information from the Department of Conservation.

Recommendation 13: As a matter of course DOC should prepare regional ecological plans, showing the location of species of interest for all applications considered under national significance proposals

In 2012 the Controller and Auditor-General published a report titled *The Department of Conservation: Prioritising and partnering to manage biodiversity*. The Office of the Auditor-General is directing its attention quite specifically to the future under the theme *Our future needs – is the public sector ready?* The focus is on how public entities prioritise work, develop necessary capabilities and skills, and use information to identify and address future needs. Its first report on this theme included a performance audit on how well the Department of Conservation (DOC) is prioritising work and working in partnership with other agencies and groups to manage biodiversity. The report focuses on the changes that DOC is carrying out and what is needed for success in the future. The Office made the following eight recommendations:

Prioritising to manage biodiversity

1. Put in place an implementation and risk management plan for its new prioritisation tools, ensuring that: staff have the skills and support needed to successfully use the new prioritisation processes; and there is adequate ongoing consultation with communities and key stakeholders and partners as part of prioritisation; and
2. ensure that there is effective long-term monitoring and reporting of the effects of biodiversity management, including through the Ministry for the Environment's national environmental reporting.

Strategic integration

3. renew all conservation management strategies in a timely manner and before they expire;
4. prepare and implement working agreements with local authorities as a standard practice for managing biodiversity in the regions; and
5. establish longer-term plans and resourcing commitments with partners that are working on core biodiversity operations.

Working with others to manage biodiversity

6. **where biodiversity of national significance is at risk and requires timely and integrated responses, the Department of Conservation's national office ensure that effective regional leadership and co-ordination with other agencies is in place to respond to risks appropriately.**
7. produce policies, practices, and tools for preparing working agreements and collaborative action plans that would be appropriate for the range of partnerships it will be involved in; and
8. review the criteria for the Biodiversity Advice Fund for larger multiple-year collaborative projects, advocate for using standardised tools and templates, and set out specific reporting requirements for repeated funding applications. [Bold added][6]

DOC has a very difficult task, since its mandate is so large and its resources are increasingly limited. Prior to the NZKS proposal I had not appreciated the challenges of trying to gain an insight into the taxa of a specific region, particularly marine taxa and all the additional trials that implies. However, in order to make

6 Controller and Auditor-General (n.d.). Our Recommendations. Retrieved March 5, 2013 from: http://www.oag.govt.nz/2012/biodiversity/our-recommendations.htm

decisions that will affect this country for 35 years, we require a method of finding this information in a timely manner for Boards of Inquiry, regional councils and the like. I agree with the Office of the Auditor-General's recommendations above. In particular I note the suggestion regarding the sharing of resources, and wonder whether more use could have been made of conservation groups in the Marlborough Sounds prior to the hearing. Whatever the process, the goal must be to provide future Boards of Inquiry with relevant information in an effective, efficient and timely manner.

Recommendation 14: DOC should redesign its threat classification system pages on their website so that it is easily searchable, along the lines of the IUCN website

DOC's current website could also be improved to help users understand the complementary natures of the national and global systems. Further, a technical report, prepared especially for the hearing, and reviewing all taxa, would have been a useful starting point for the more specific submission on benefits, costs and risks.

Currently, in order to make an assessment of risk to animals we need to look at two systems: the *New Zealand Threat Classification System*,[7] and the *IUCN Red List*.[8] One system reflects the situation at the national level and the other at the global level. The two systems therefore have different numerical thresholds and criteria, and may classify the same species differently because of these differences in scale. For example, the king shag is reported as *national endangered* in New Zealand but *vulnerable* on the *IUCN Red List*. In contrast, the Hector's dolphin is considered *national endangered* in New Zealand and *endangered* on the *IUCN Red List*. See the map on page 72.

This means that the *New Zealand Threat Classification System* is 'New Zealand-centric', making it inadequate to clearly convey the overall status of each species, in contrast to the global imperative to manage endangered species.

The IUCN considers taxa that are facing a high risk of global extinction, and the Department of Conservation therefore led a process to develop an effective, robust and relevant species threat classification that specifically targeted a geographically diverse, small country that has many naturally restricted as well as many genuinely threatened species. Hence the New Zealand system is intended to complement, not compete with, the IUCN system.[9]

The *New Zealand Threat Classification System* employed by DOC assesses the risk of extinction as faced by New Zealand flora and fauna.[10] The status of each species group is assessed in a three-year cycle. The system classifies taxa into 'Extinct', 'Threatened', 'At risk' and 'Not threatened'. Threatened species are then categorised into 'Nationally critical', 'Nationally endangered' or 'Nationally vulnerable'. 'At risk' biota are separated into four categories: 'Declining', 'Recovering', 'Relic' (previously abundant, now only found in small populations) and 'Naturally uncommon' (see Figure 5 overleaf).

Given the different purposes of the two systems, I believe that under the RMA both lists are important when considering sustainable management. However, neither tells us where the species live on a regional basis, such as in the Marlborough Sounds. For this reason, local experts are a prime source of information on what is unique in a particular region.

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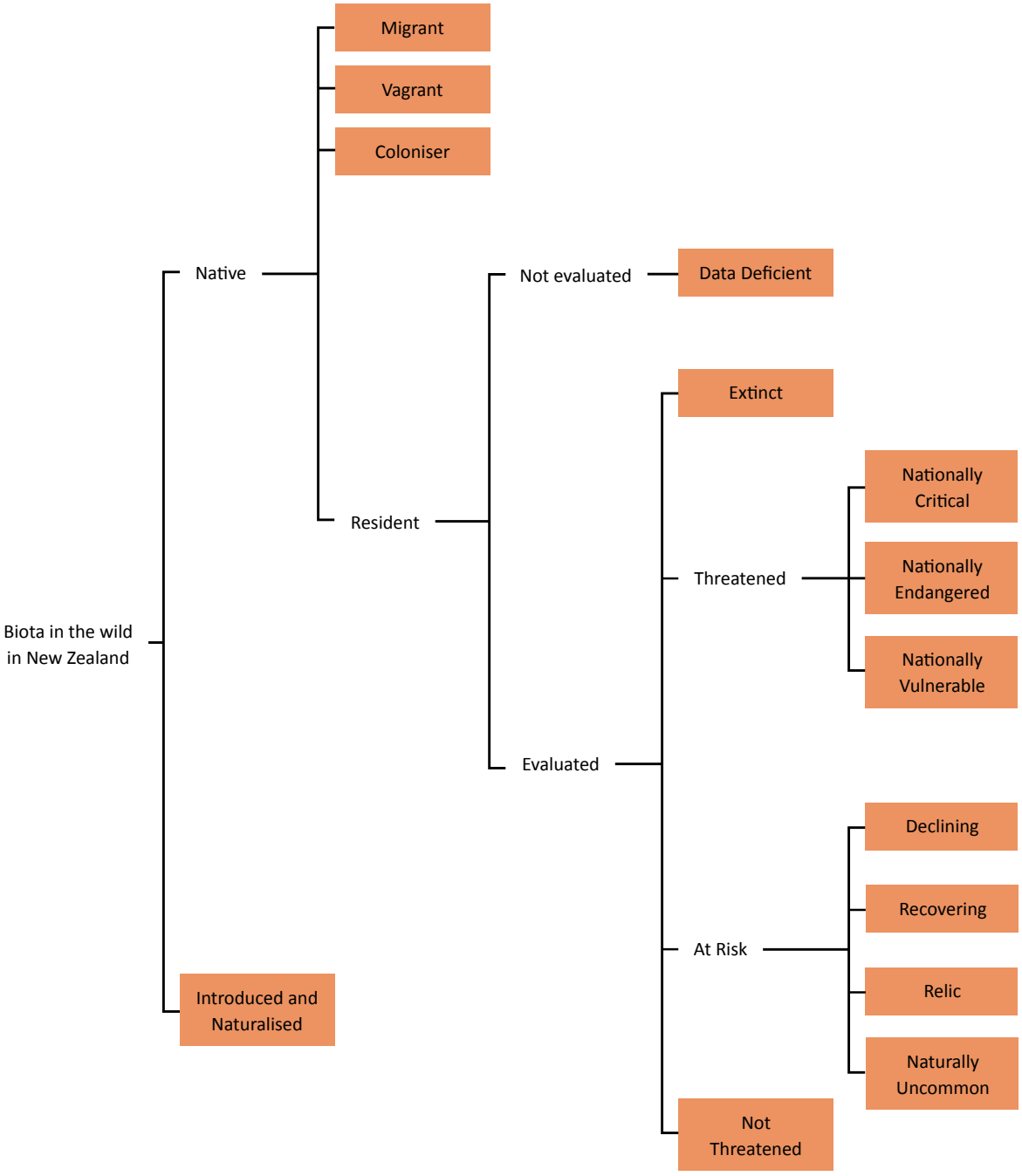
7 Department of Conservation (2008). *New Zealand Threat Classification Manual*. Retrieved March 5, 2013 from: http://www.doc.govt.nz/documents/science-and-technical/sap244.pdf

8 *IUCN Red List of Threatened Species*. Retrieved March 8, 2013 from: http://www.iucnredlist.org

9 Department of Conservation (2008). *New Zealand Threat Classification System* (Factsheet). Retrieved March 5, 2013 from: http://www.doc.govt.nz/documents/science-and-technical/bbb8.pdf

10 Department of Conservation (2008). *New Zealand Threat Classification System* (Factsheet). Retrieved March 5, 2013 from: http://www.doc.govt.nz/documents/science-and-technical/bbb8.pdf

Figure 5: Categories in the New Zealand Threat Classification System
(Source: Department of Conservation, 2008[11])



11 Department of Conservation (2008). *New Zealand Threat Classification Manual.* Retrieved March 5, 2013 from: http://www.doc.govt.nz/documents/science-and-technical/sap244.pdf

EXCERPT FROM THINK PIECE 16

Opportunity 5: Most importantly, promote the inquisitorial role of the Board. The Board must have the skills, resources and time to inquire into a case. Its members should not rely on submitters who are challenging the application to provide expertise. Unless the Board takes on the responsibility to inquire, there will be an inappropriate advantage for the applicant, who pays its experts and benefits from the outcome, whereas submitters challenging a proposition are simply responding to an application, with no potential financial upside other than maintaining the status quo. The Board must look beyond contested issues and explore more broadly effects that may occur over the long-term duration of the proposal. Such an inquisitorial approach will remove the risk that the quality of the debate is purely a function of the relative resources of the applicant and submitters. Ultimately New Zealanders require robust decisions that will stand the test of time.

Recommendation 15: The Board should be more proactive and inquisitorial, controlling the process throughout the hearing

Although I was impressed with the professionalism of the Board members and the EPA staff, I consider a more proactive approach and additional expertise at the beginning of the process could significantly help all parties engage in the process more effectively. No doubt the Board may have done things differently if it was to start the process again, and it would be useful if its knowledge could be accessed in order to shape and improve future hearings. Suggestions include:

1. Require every Board of Inquiry to review its resources, skills and expertise as a matter of good practice: (i) at the start of the process; (ii) in the middle of the process, and (iii) during the writing-up stage. I suggest this should take the form of a written report to the EPA.

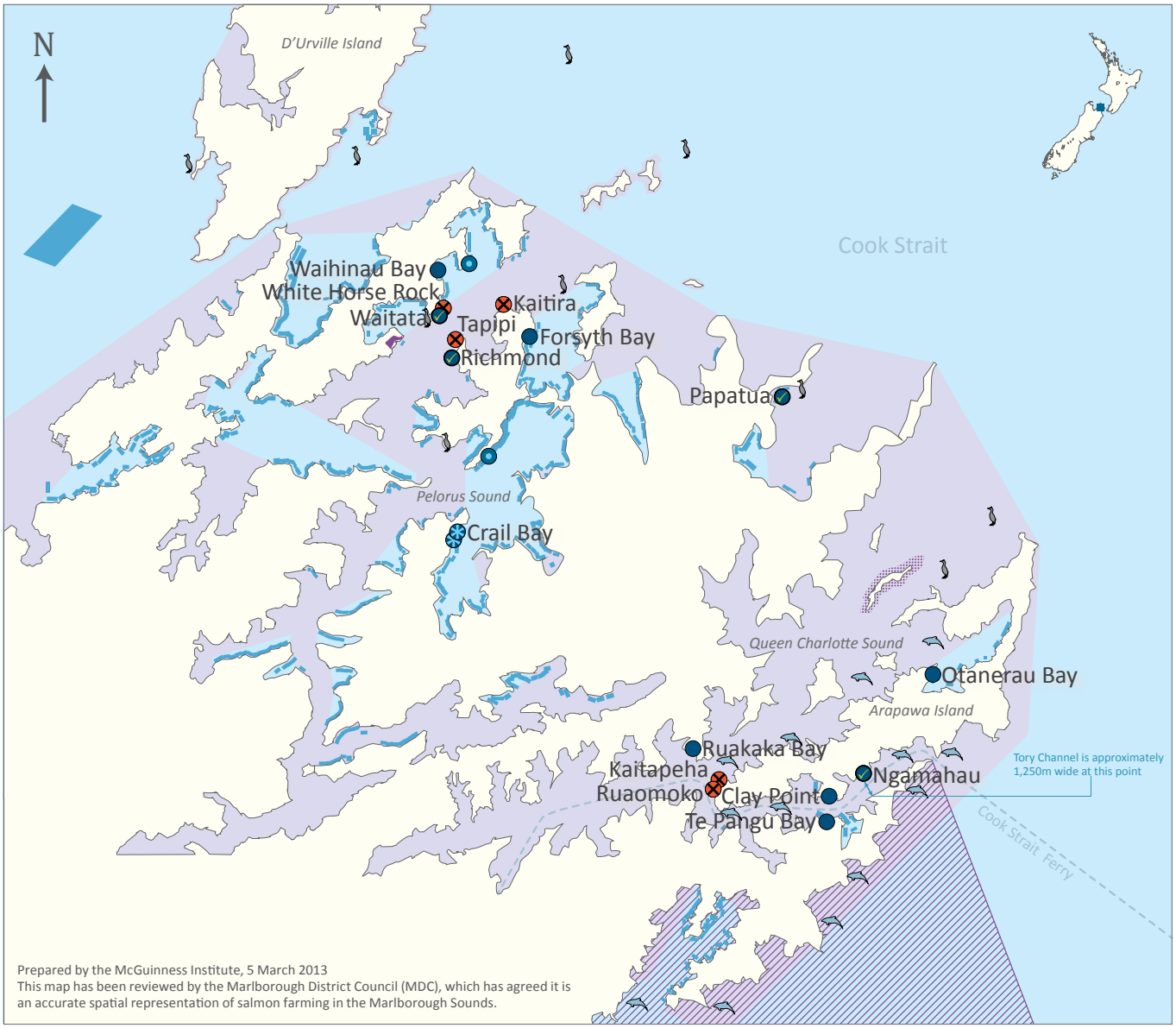
2. The EPA should work to provide clear guidance on commonalities shared among all resource management decisions.

3. The Board must work hard to control the process; it must ensure that it carries out its responsibility to inquire, irrespective of the way in which an applicant has framed their application.

4. The Board must recognise the inherent imbalance between the resources of applicants and those of submitters, and work to minimise obstacles to public engagement.

5. The Board cannot rely on parties to question and test experts. It must take on the role of testing the evidence that comes before it, and if need be obtain independent advice to assist it in doing so.

6. All decisions of *national significance* should be reviewed by the EPA (say, five years after the decision is made). In its report it should outline what has happened, what are the lessons that can be learned from the decision, and what are its suggestions for the future. This is not about changing the consent that has been granted, but providing decision-makers with the time to reflect and learn from the process. This is particularly important since there is no facility to appeal a decision based on new evidence.



1. Salmon Farm Key

- An existing NZKS salmon farm in operation
  Consent expires 31 December 2024.
- An existing NZKS salmon farm not in operation
  Consent expires 31 December 2024.
  NZKS purchased the two Crail Bay farms from Pacifica in order to purchase their salmon. NZKS have told the Board of Inquiry that both farms are uneconomic and will not be operated except for research in the future.
- Granted marine farms that may be converted from mussel to salmon
  A consented finfish farm exists in Beatrix Bay, it is owned by Ngāi Tahu Seafoods Ltd, but is not yet in operation.
  A consented finfish farm exists in Danger Point (Port Ligar), it is owned by KPF Investments Ltd and is under appeal.
- A new approved NZKS salmon farm
  Approved as a result of the February 2013 Board of Inquiry. Salmon farming is now permitted as a discretionary activity in a newly created Coastal Marine Zone 3. The consent will run for 35 years once commencement is determined.
- A declined NZKS salmon farm
  Declined as a result of the February 2013 Board of Inquiry.

2. Marine Zones, Reserves and Sanctuaries Key

- Coastal Marine Zone 1 (CMZ1)
  New aquaculture activity is prohibited.
- Coastal Marine Zone 2 (CMZ2)
  Aquaculture activity is permitted once consent is granted by the Marlborough District Council.
- Coastal Marine Zone 3 (CMZ3)
  See 'An approved new salmon farm' above.
- Kokomahua (Long Island) Marine Reserve
- Marine Mammal Sanctuary
- Tui Nature Reserve
- Granted Marine Farms

A *marine farm* includes resource consents approved and still current under (i) the Marine Farming Act 1971 and (ii) the Resource Management Act 1991 (RMA) (which replaced the Marine Farming Act 1971). 'Marine farm' is defined by MDC as 'any form of aquaculture characterised by the use of surface and/or sub-surface structures located in the coastal marine area.' Consent applications for granted marine farms will outline the species able to be farmed at the site. Most marine farms have consent for more than one species. For example, it is relatively common for a marine farm to be granted consent to farm mussels, oysters and seaweed, enabling owners to change water use from one to another without a new consent process. Currently, no marine farms, other than the eight existing and four newly approved salmon farms, have consent to farm salmon. This means that if NZKS, or any other party, wishes to farm salmon in the Marlborough Sounds they must apply for a resource consent. If a consent holder wants to change to a new species and/or change the structure outside the previous consent, they must apply for a new consent. However, if a site is sold, the coastal permit can be transferred to the new owner without a new consent process.

3. Marine and Birdlife Key

There is no regionally based system to identify all threatened marine and birdlife in the Marlborough Sounds. There are in effect two systems, one reflecting the situation at the national level and the other at the global level. The Department of Conservation operates a 'New Zealand Threat Classification System', which classifies taxa into *extinct*, *threatened* (nationally critically, nationally endangered, and nationally vulnerable), *at risk* (declining, recovering, relict and naturally uncommon) and *non-threatened* native biota. In contrast, an 'IUCN Red List of Threatened Species' uses a continuum: *extinct*, *extinct in the wild*, *critically endangered*, *endangered*, *vulnerable*, *near threatened*, *least concern* and *data deficient*. The two systems have different numerical thresholds and criteria and may classify the same species differently because of differences in scale; hence they should be seen as complementing each other rather than conflicting. For example, the king shag is reported as *nationally endangered* in New Zealand but *vulnerable* on the IUCN Red List. In contrast, the Hector's dolphin is considered *nationally endangered* in New Zealand and *endangered* on the IUCN Red List. Other species found in the Sounds that are known to be classified include the orca (NZ: *nationally critical*; IUCN: *data deficient*), southern right whale (NZ: *nationally endangered*; IUCN: *least concern*) and bottlenose dolphin (NZ: *nationally endangered*; IUCN: *least concern*). DOC notes that any human-induced mortality of *nationally critical* or *endangered* species must be considered with a high degree of concern.

- Hector's Dolphin

Hector's dolphins are endemic to New Zealand; they are one of the smallest cetaceans, and New Zealand's only endemic cetacean. There is a pod of Hector's dolphins, about 20–30 in number, that reside in Cloudy Bay (off the coast near Blenheim). During the summer months this pod travels through the Tory Channel and is often sighted by staff at Dolphin Watch Ecotours in the bays around Arapawa Island. Their natural predators are sharks, but DOC notes on its website that other 'potential threats to their survival include trawling, marine pollution, disease and impacts of tourism and aquaculture'. All dolphins are protected under the Memorandum of Understanding for the Conservation of Cetaceans and Their Habitats in the Pacific Islands Region.

- King Shag Roosting Site

The New Zealand king shag is endemic to the Marlborough Sounds. There is considerable uncertainty as to their actual ecology due to the remote nature of their breeding locations and the high sensitivity of birds to disturbance. The species is strictly marine, with all foraging occurring in the Sounds area. There is at least one known king shag roosting site north of this map, and therefore not shown.

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