

SUSTAINABLE
SEAS

Ko ngā moana
whakauka

Auahatanga from Authenticity: Maximising opportunities for Akaroa Salmon and Ōnuku Rūnanga

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2023



Report

This document was prepared by Jay Whitehead, Matthew Rout, Jason Mika, John Reid, Fiona Wiremu, Annemarie Gillies, Georgia McLellan, Corey Ruha, Rik Tainui, for Ko Ngā Moana Whakauka Sustainable Seas National Science Challenge.

Ko Ngā Moana Whakauka Sustainable Seas National Science Challenge is committed to the appropriate protection, management and use of mātauranga Māori within its research, outputs and outcomes. This is expressed through the respect and integrity of our researchers, both Māori and non-Māori, and in our approach to ethics and the management of intellectual property. Where mātauranga Māori is sourced from historical repositories, we recognise the obligation to take all reasonable steps to ensure its protection and safeguard for future generations. We also acknowledge the findings of the Waitangi Tribunal in relation to *Ko Aotearoa Tēnei: A report into claims concerning New Zealand law and policy affecting Māori culture and identity* and are committed to working with Māori researchers and communities to refine our approach.

Acknowledgements

Ngā mihi ki a tātou, we thank:

- The Māori enterprises and organisations who contributed their mātauranga to the research for the benefit of whānau, hapū, iwi and Māori communities.
- Duncan Bates. Managing Director at Akaroa Salmon NZ Ltd. For his time in providing an overview of their operations and insights into the global salmon market.
- Jymal Morgan. Te Kāhui o Ōnukua and Ahi Mokopuna for providing feedback on the report.
- Ōnuku Rūnanga for cultural insights, aspirations and context that guided the report.
- Craig Ellison, CEO of Ngāi Tahu Holdings, Dec 2021 - Mar 2023. For providing direction on the tribe's future aspiration in aquaculture.
- Anne Austin for proofreading the final manuscript.
- Desna Whaanga-Schollum for the design work of this document.

About the Sustainable Seas National Science Challenge

Our vision is for Aotearoa New Zealand to have healthy marine ecosystems that provide value for all New Zealanders. We have 60+ research projects that bring together around 250 scientists, social scientists, economists, and experts in mātauranga Māori and policy from across Aotearoa New Zealand. We are one of 11 National Science Challenges, funded by the Ministry of Business, Innovation and Employment.

www.sustainableseaschallenge.co.nz

Executive Summary

Recommendations

- Explore the potential to sell into currently underrepresented markets such as Korea and Thailand for new opportunities
- Lower current over-exposure to the USA market
- In the short to medium term, focus on developing the systems and processes to increase price premiums rather than expanding production
- Target consumers who place importance on country of origin and ecolabels
- Construct an identity based on authenticity
- Focus the salmon value proposition on people, place, and kaitiaki responsibilities
- Pay particular attention to communication and ensuring a broad audience has access to the unique story of Ōnuku
- Investigate options for assurance, certification, or transparency enhancing mechanisms that can communicate and enhance authenticity for consumers.

Contents

Context	6
Introduction	9
Ōnuku Rūnanga	10
Ōnuku's Values	13
The New Zealand Salmon Industry	15
Products and Product differentiation.	18
New Zealand King Salmon	18
Sanford	20
Akaroa Salmon	21
Summary of the three major sea cage salmon producers' product differentiation focuses.	21
Constraints on Maximising Production.	22
Methods	28
Results	32
Untapped Potential in International Markets	32
Consumer Opportunities: Credence Attributes and Willingness to Pay	35
Country of Origin and Destination	37
Animal Welfare	37
Eco-Labels	38
Age, Education, Gender and Income	38
Indigenous Credence Attributes	40
Discussion: Capturing Opportunities	45
New Market opportunities	45
Communication	45
Summary: Markets and Consumers, and Value Chains - Capturing Opportunities	43
Establishing an Identity to Generate Premiums Through Authenticity	48
The strategy diagonal	51
The competition diagonal	52
The communication horizontal	52
The interaction vertical	53
Summary	53
Conclusion and Pathways Forward	54
Recommendations	55
References	56
Figures	
Figure 1. Tonnes of salmon exported. Source. Wattie (2020)	18
Figure 2. Value of New Zealand Salmon exports. Source Wattie (2020)	18
Figure 3. Percentage of total export volumes by country (top five countries by volume). Source Wattie (2020).	18
Figure 4. New Zealand King Salmon Investments Ltd NZK.ASX	27
Figure 5. Importing markets for the product exported by New Zealand in 2021: Product: 0302 Fish, fresh or chilled. The bubble size is proportional to the share in world imports of partner countries for New Zealand fish. Data sourced from ITC Trade Map (https://www.trademap.org)	31
Figure 6. Untapped potential in export markets. The width of the line represents the amount of potential currently used	36
Figure 7. Identity Matrix (Urde and Greyser 2016)	48
Figure 8. Establishing the Identity of a Salmon Product from Ōnuku	49
Figure 9. Connecting elements of identity to reputation	50
Figure 10. Trends in Google searches for the term 'social wellbeing'	51

Context

The Sustainable Seas National Science Challenge (SSNSC) has two goals:

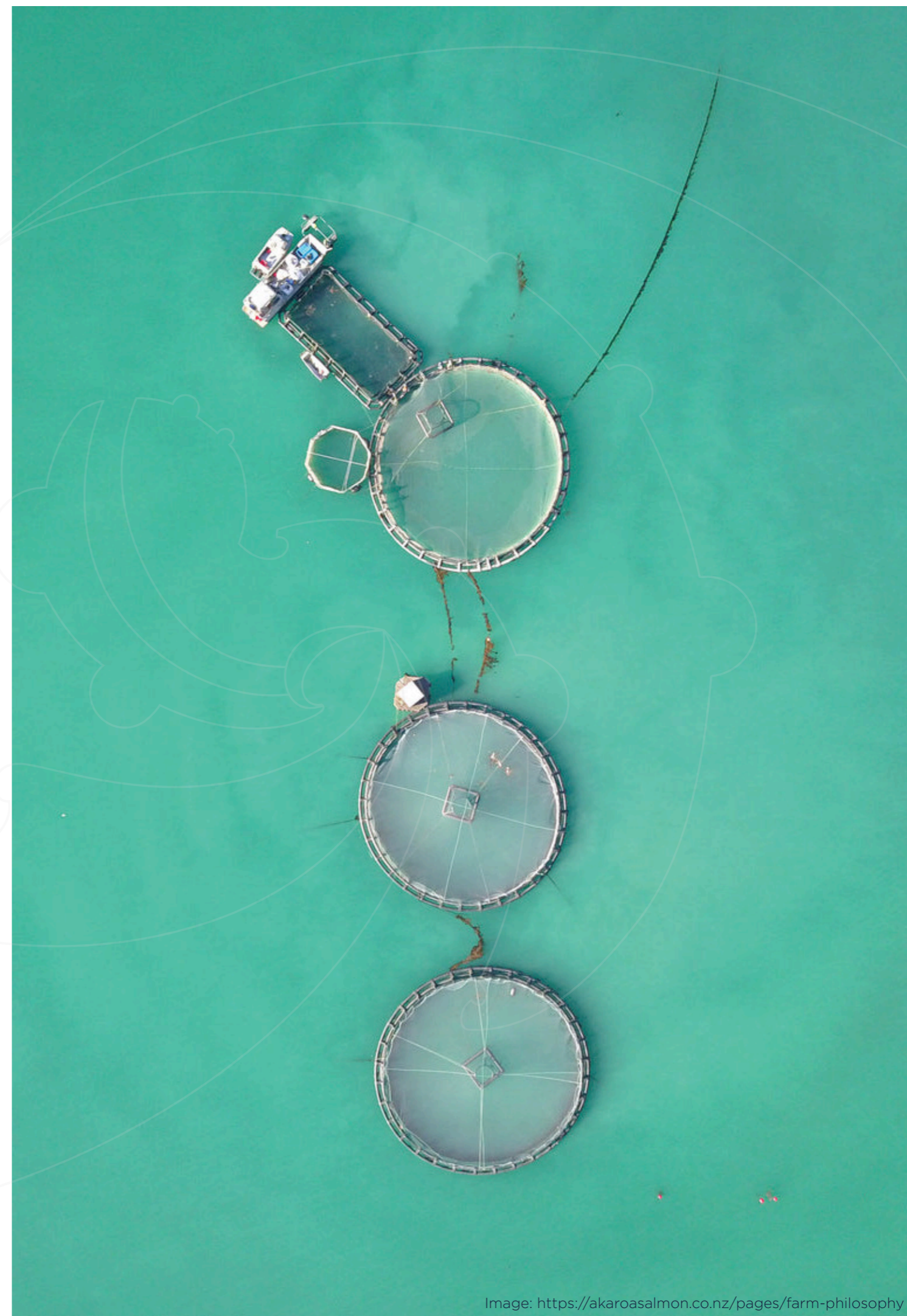
1. Improving marine resource decision-making and the health of our seas through EBM
2. Transforming New Zealand's ability to enhance our marine economy into a blue economy

Within the SSNSC, a programme was developed named Indigenising the Blue Economy Programme. This is the programme under which the current research sits. Indigenising the Blue Economy is focused on three key themes:

1. **Pāhekoheko (integration)**— supporting Māori-led, multi-generation, integrated planning across economic sectors in their marine jurisdictions to maintain te mauri o ngā taonga katoa (the mauri of all things) and enhance the efficiency of asset holding and resource utilisation.
2. **Auahatanga (differentiation)**— differentiating kaitiaki-generated products from commodities and diversifying Māori activity in the marine economy.
3. **Whakatautika (balance)**— creating employment, enterprise, and other economic opportunities for whānau and hapū in coastal communities, leveraging the assets of iwi and pan-iwi authorities.

In this report, we are concerned primarily with Auahatanga – Generating differentiation. We address this theme by working with Ōnuku Rūnanga to explore solutions, including indigenous market options, premium markets, new economic opportunities, and strategies to attract high value for an indigenous salmon product. Our research focuses on product differentiation in the marine economy and the reduction of market risk through diversification. The following specific challenges have been identified in Indigenising the Blue Economy proposal that the Ōnuku Rūnanga case study will address:

- Exploring market assurance systems that communicate to high-end customers the Indigenous values to differentiate products and obtain premiums.
- Exploring ways in which mātauranga- and tikanga-guided governance, management, and operations can be utilised to add value in international markets through branding and marketing.
- Identifying high-end national and international market segments willing to pay a premium for goods produced according to Māori values, ethics, and practices.



Introduction

Ōnuku Rūnanga boasts an extensive history in Akaroa Harbour, thanks to the area's abundant kai moana. Recently, the rūnanga made a significant investment in Akaroa Salmon, a well-established sea cage salmon farming operation in the harbor. This report explores the integration of Ōnuku with Akaroa Salmon and the unique opportunities arising from this relationship. Instead of being prescriptive, the report presents a distinctive identity for a salmon product produced by Ōnuku. Currently, Ōnuku is one of four shareholders in Akaroa Salmon, aspiring to deepen its involvement in aquaculture. The insights offered in this report aim to support incremental change and future aspirations rather than prompt immediate identity and practice changes for Akaroa Salmon.

The report examines international market opportunities, consumer preferences, and willingness to pay (WTP) for salmon products, and the creation of a unique salmon offering distinguished by authenticity and quality. The acquisition of a substantial stake in Akaroa Salmon resulted from years of research and discussions about building intergenerational wealth for Ōnuku. The current study's objective is to bolster the resilience and returns from this investment while establishing a novel direction and market position for a salmon product underpinned by indigenous values and practices.

Although the New Zealand salmon industry is small on a global scale, it is considered a premium product primarily because



Source: <https://www.onuku.nz/>



Ōnuku Rūnanga

Chinook salmon, also known as King salmon, is more challenging to farm than the widely farmed Atlantic salmon. This boutique and premium focus offers exclusive opportunities to command a premium price in export markets. The report contrasts the strategies and identities used by New Zealand salmon producers to market their products with Akaroa Salmon's current approach, emphasizing product differentiation and price premiums over increased production for financial returns.

Ōnuku operates based on a strong set of values reflected in all its activities. Utilizing data from a choice experiment conducted with the rūnanga, we outline these values that underpin Ōnuku's aspirations in the salmon industry and are integral to its identity. We identify new opportunities to secure price premiums through two primary analyses. First, we assess New Zealand salmon producers' representation in international markets and examine risks and opportunities. We construct a statistical trade model that identifies untapped market opportunities among New Zealand's trading partners. Next, we perform a meta-analysis of consumer WTP studies to pinpoint the desired credence attributes in a salmon product. We explore indigenous credence attributes in depth and identify international market opportunities for price premiums that these attributes can

secure. A close alignment exists between consumer WTP for credence attributes and Ōnuku's values and practices, offering a significant opportunity for Ōnuku to provide an authentic product that meets consumer preferences.

Analyzing new market opportunities and consumer WTP offers insights into potential salmon sales to enhance financial returns and reduce risk. Furthermore, we determine the salmon features most desired by consumers, assisting Ōnuku in tailoring its brand identity and production practices to consumer demand and maximizing potential returns. Based on a triangulation of Ōnuku's values, new market opportunities, and consumer WTP for credence attributes, we develop a salmon brand identity for Ōnuku that is uniquely indigenous yet caters to international consumer demands. This identity revolves around a framework designed to enhance reputation by focusing on strategy, differentiation, communication, and interaction.

Ōnuku Rūnanga

Ōnuku Marae, located in Akaroa Harbour on Banks Peninsula, is home to the hapū (sub-tribe) of Ngāi Tārewa and Ngāti Īrakehu, approximately an eighty-minute drive from Christchurch. Generations of whānau have



Ōnuku Catchment

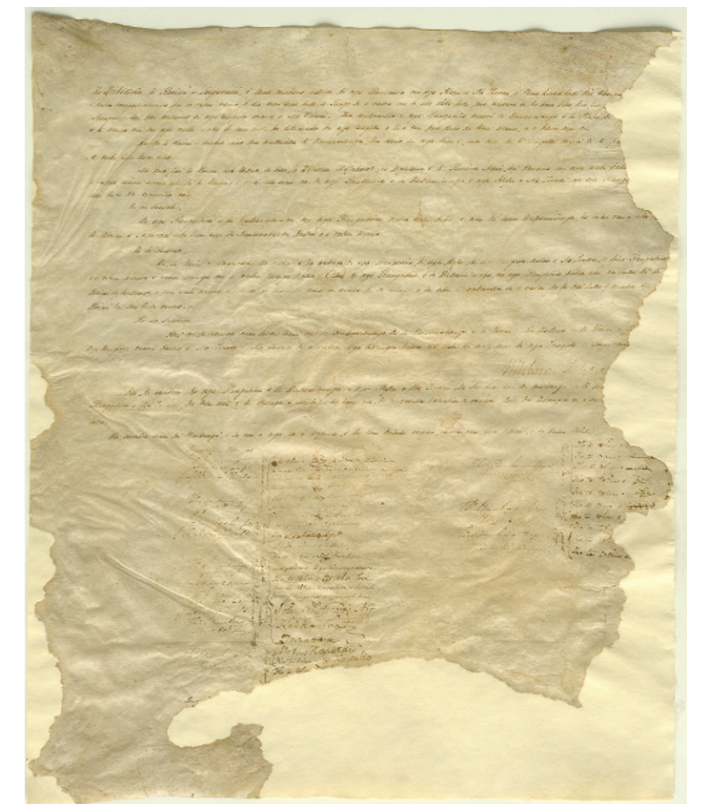
made their home at Ōnuku, which holds immense significance for Ngāi Tahu as an iwi. On May 30, 1840, the Treaty of Waitangi was first signed within the Ngāi Tahu takiwā at Ōnuku, marking the first of three signings on Te Waipounamu.

Tahu at Ōnuku. The marae remains a gathering place for Ngāi Tahu to discuss crucial tribal issues, and serves the broader community for wānanga (learning gatherings), birthday celebrations, weddings, conferences, and retreats. The marae is known for its tranquil surroundings and the kai provided to manuhiri.

Although the entire Akaroa Harbour was traditionally used for mahinga kai, some specific areas were regularly used by Ngāi Tawera. One such area was the Ōnuku beachfront, where whata were established for drying tuna and shark. Cockle, pipi, and pakaka (crab) were gathered from other harbor areas and consumed on the beachfront. At Tikao Bay, nets were placed across the harbor to catch sharks at Red Point, which were then dried and shared among the whānau.



Ingoa wāhi (Place Names) associated with Akaroa Harbour.



Te Tiriti o Waitangi



Akaroa Salmon Sea Cages. Source: Akaroa Salmon

Ngāi Tarewa has long aspired to develop Amiria Wharf at Ōnuku. The wharf holds potential as a new gateway for marae visitors and a catalyst for commercial māhika kai and other activities. In partnership with WSP Opus, Ngāi Tarewa has taken significant steps toward constructing Amiria Wharf. In previous research with Ōnuku (Whitehead and Gunther 2019), the potential for economic wealth creation through Amiria Wharf's establishment was investigated. Ngāi Tarewa has maintained continuous occupation (te ahi kā) at Ōnuku and now wishes to see more of the hapū return to the homeland (kāika tupu).

The construction of Amiria Wharf will offer opportunities for new business development and expansion of existing businesses. Research identified aquaculture opportunities, leading to a follow-up research program that further investigated the best aquaculture species for Ōnuku to prioritize. This research culminated in Ahi Mokopuna, a joint venture partnership that included Ōnuku

and purchased a significant stake in Akaroa Salmon.

Akaroa Salmon Ltd. harvests sea-reared King Salmon from Akaroa Harbor and processes and distributes the salmon on the same day from its Christchurch-based facility. Ahi Mokopuna consists of three partners—Ngati Porou Seafoods Ltd., Te Kahui o Ōnuku, and Archipelago Capital Management Ltd.—which jointly acquired 84 percent of Akaroa Salmon Ltd. The company's original owner, Duncan Bates, retains his role as managing director. The four partners in Akaroa

The four partners in Akaroa Salmon (Duncan bates and the three entities within Ahi Mokopuna) comprise the board that governs the operations of Akaroa Salmon.

The purchase of a stake in Akaroa Salmon was a significant investment for Ōnuku. Rik Tainui, chair of Ōnuku Rūnanga, described the research undertaken as vital for bringing together the community's values and aspirations and directing them towards a clear business opportunity. These values and

aspirations are crucial for any considerations on the operation and future directions of Ahi Mokopuna and will be discussed in more detail in the following section. Ahi Mokopuna encompasses the connection between the partners; some principles of this whakawhanaungatanga are¹.

- Commit to sustainable environmental practices considering the local environment and local stakeholders.
- Have an intergenerational view and approach to business strategies that focus on growing and expanding salmon production within environmental boundaries.
- Use this investment to contribute to the growth, development, and employment opportunities for Ōnuku and Ngāti Porou people.

Aquaculture is not new to Ōnuku. Pre-European aquaculture undertaken by tangata whenua included deliberate seeding and cultivating kaimoana species using traditional methods akin to elements of modern marine farming. These included kaimataitai seeding via the use of poha (kelp containers) and the raising of shellfish in artificial environments such as taiki (storage pits) (Crengle, Ōnuku et al. 2000). Crengle, Ōnuku et al. (2000) explored potential aquaculture expansion in the Akaroa harbour over twenty years ago. Based on this research, a set of objectives was developed by Ōnuku for the waters and resources of the Akaroa Harbour. These



Objectives include:

- Commitment to informed and inclusive integrated management of the Harbour waters and fisheries, with strong tangata whenua and community participation
- Restoration of the ecology to remedy existing degradation and restore the health of the mauri of the harbour and its resources on a long-term timeframe of 50-100 years to meet obligations to tupuna (ancestors) and uri whakatupu (future generations)
- Elimination of offensive discharges to the waters and restoration of degraded water quality
- Maintenance and enhancement of the character of the Harbour as a well-loved, beautiful and productive natural environment.
- Conservation and protection of shellfish beds, spawning and fishing grounds, wahi tapu, mahika kai sources, and all species; and

1. <https://ngatiporou.com/article/ngati-porou-seafoods-new-co-owner-south-island-based-salmon-farming-company>
2. <https://matatihi.nz/ahumoana>



Source: Ōnuku Rūnanga Inc Soc.



Church at Ōnuku. Source: Ōnuku Rūnanga Inc Soc.



Kai at Ōnuku. Source: Ōnuku Rūnanga Inc Soc.

- Preserving customary uses and traditions of kaitiaki, manaaki, and mahika kai, and community uses of recreational fishing and tourism.
- Preventing the interruption of the spiritual balance and interference with wairua kaitiaki within the harbour.

- (environment),
- 2. Supporting Oranga (livelihoods) through profitability,
- 3. Protecting Taonga (things of cultural value),
- 4. Creating Mahi (employment) for rūnanga members.

Ōnuku's Values

In 2020 we investigated Ōnuku's values and aspirations using a choice modelling exercise². The choice experiment aimed at determining the most appropriate aquaculture species for Ōnuku to focus on. We brought together a group of business, aquaculture, and marine biology experts to provide Ōnuku with a starting list of nine potential species, including seaweeds, fin fish, and shellfish. The intention was to match Ōnuku's values and aspirations to the most appropriate species. This experiment considered the relative importance of four critical values for Ōnuku in their aquaculture operations:

1. Maintaining and enhancing Te Taiao

The choice experiment was completed by 30 Ōnuku whanau and a representative council of Ōnuku leaders. The choice experiment elicited importance ratings (higher values = more important) for each of these values as follows:

- Te Taiao = 3.1
- Taonga = 2.9
- Mahi = 2.3
- Oranga = 1.7

This process revealed that protecting the environment and taonga was 1.8x more important to Ōnuku than making money. Based on balancing a range of values, aspirations, and practical considerations, Ōnuku determined that the best path forward was to pursue salmon. Salmon was found to

occupy a middle ground in balancing Ōnuku's values and aspirations. Additionally, a salmon farming operation was already underway in Akaroa and relationships were already established with this operation. The purchase of a stake in Akaroa Salmon allowed Ōnuku to enter a complex industry with high capital start-up requirements without the complexity of establishing the operation themselves. This decision was strategic because Ōnuku has other future ambitions for aquaculture within their takiwa; therefore, partnering with an existing enterprise allows Ōnuku a more gradual learning curve and lower risks as they grow a presence in the aquaculture industry. Ōnuku's purchase of a significant stake in a salmon farming operation, following our previous research, sets the context for this report. This report continues with the themes of our previous research, which has provided Ōnuku with information to help them make sound business decisions. Where our previous

work was based on getting into business, the current report focuses on optimising the business model.

It is essential for Ōnuku that their whanau's value preferences are incorporated into any business strategy for salmon production as the business develops. These value preferences have a strong influence on the direction of the current research. An overarching Ngā Paetae (objective) of Ōnuku, described in the Mahaanui Iwi Management Plan (Jolly and Group 2013), is:

Customary fisheries and the marine environment of Akaroa Harbour are maintained and enhanced mō tātou, ā, mō kā uri ā muri ake nei, through the use of tikanga based fisheries management tools.

Maintaining and enhancing the environment are crucial requirements that underlie much of the analysis in this report.

3. <https://niwa.co.nz/aquaculture/species/chinook-salmon>



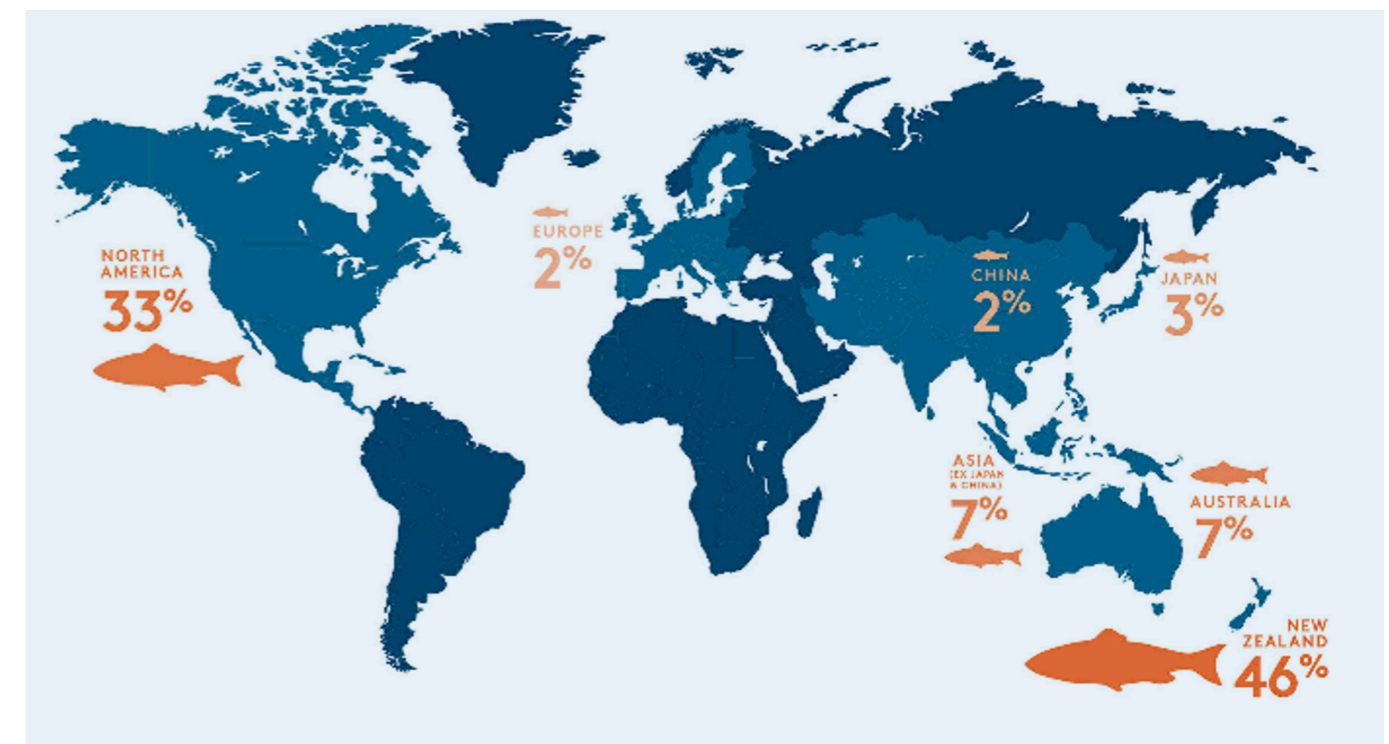
* Production percentages from the New Zealand Salmon Farmers Association <http://www.salmon.org.nz/new-zealand-salmon-farming/farming-regions/>

The New Zealand Salmon Industry

New Zealand King salmon is “largely considered to be the highest quality salmon product on the market in terms of flavour, texture and nutritional content. As a result of the high quality and low supply, Chinook salmon fetches a premium price both locally and internationally”³. Three main sea cage salmon farming operations in New Zealand comprise 94 percent of the total salmon industry. Recent production statistics have been difficult to find; however, an analysis by Coriolis (2012) stated that Sanford Limited controlled 24 percent of NZ King salmon production, New Zealand King Salmon Limited controlled 68 percent, and Akaroa Salmon 2 percent. The remaining 6 percent comprises river farming operations across several small producers. Akaroa Salmon is a

small producer compared to the other two far larger sea cage operations. Based on information from multiple articles, company websites, and Coriolis (2012), we have produced a map of the most prominent farms (over 50t p.a.).

New Zealand can farm Chinook salmon/King salmon as NZ waters lack the major diseases that impact this species elsewhere. Chinook is significantly differentiated from Atlantic salmon and only available in low quantities; thus, it typically achieves a 5-15% premium above Atlantic Salmon (Coriolis 2012). However, New Zealand’s current salmon production (15,000 tonnes per annum) makes up a small proportion of the global output of approximately 2.7 million tonnes per annum (Wattie 2020). Seafood exports



Export proportions for New Zealand King Salmon. Source: <https://www.kingsalmon.co.nz/our-brands/>

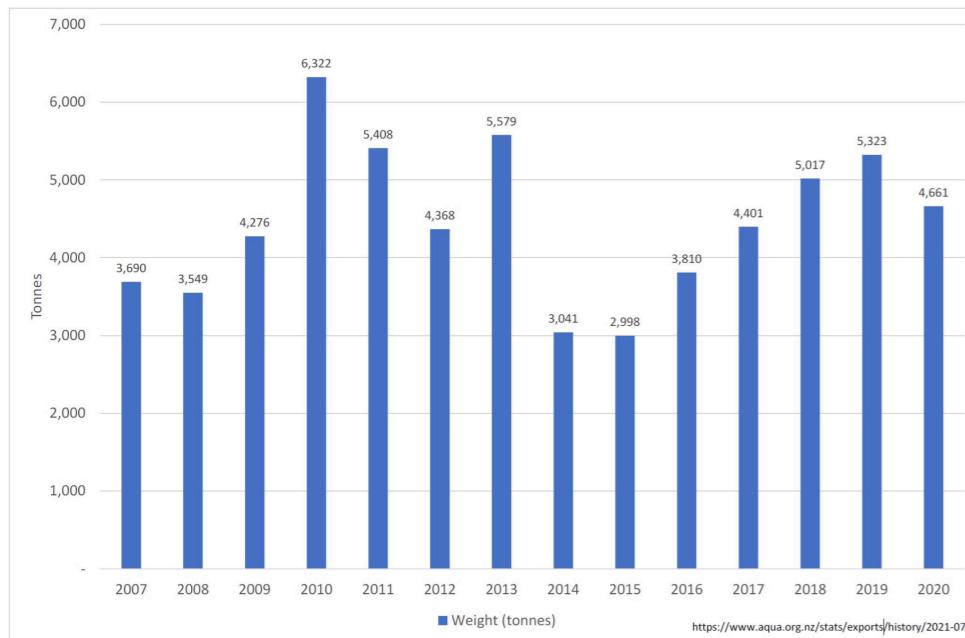


Figure 1. Tonnes of salmon exported. Source Wattie (2020)

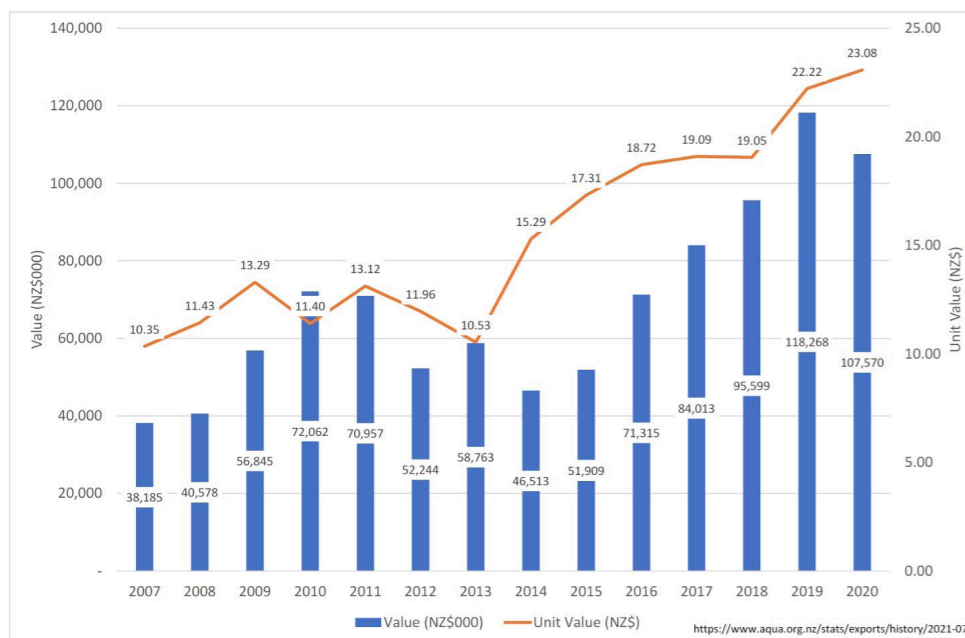


Figure 2. Value of New Zealand Salmon exports. Source Wattie (2020)

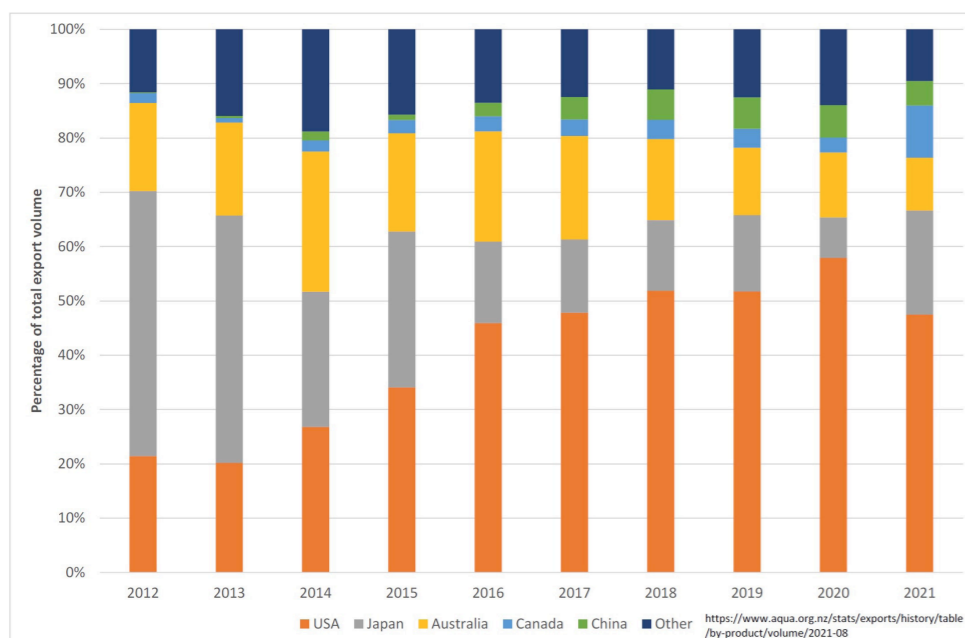


Figure 3. Percentage of total export volumes by country (top five countries by volume). Source Wattie (2020).

Country	2021 Export Value	% Change 2020-21	Proportion of finfish
China	\$285m	9%	12%
USA	\$142m	18%	54%
Australia	\$114m	19%	73%
Japan	\$32m	-18%	87%
Thailand	\$20m	-33%	71%
Canada	\$19m	-14%	
Spain	\$18m	-59%	
Poland	\$18m	125%	
Hong Kong	\$16m	-11%	
South Korea	\$15m	-57%	

Table 1. New Zealand finfish exports to international markets

to the end of June 2021 totalled NZ\$843 mil with 119,407 tonnes exported, 70 percent of which was finfish (NZ 2021). The largest markets for total seafood exports were China, the United States and Australia (Table 1). During this period, salmon export value rose from \$40m to \$48m.

Export volumes of salmon have shown a lot of variation over time (Figure 1).

Despite the variation in volume, the value of these exports has steadily increased (Figure 2).

There has also been significant variation in the percentage of exports reaching different markets, with the USA growing substantially, while other markets like Japan and Australia have declined. The trajectory has seen a greater product concentration in a smaller number of markets (Figure 3).

Products and Product differentiation

The three sea cage salmon producers farm the same species: King (Chinook) Salmon (*Oncorhynchus* smaller number of markets (Figure 3).

However, their products are sold under multiple brands, each with a slightly different focus. In this section, we draw from each company's website and marketing materials to document the credence attributes and image each seeks to convey.

New Zealand King Salmon

New Zealand King Salmon sells products under multiple brands. The front page of their website emphasises their sustainability credentials and their certifications. Most consumers will not interact with this side of the business, so it is assumed that this focus is directed more towards stakeholders,

Our Difference

Our salmon are sustainably raised in the clean & cold waters of the Marlborough Sounds.

We have complete ownership of our supply chain ensuring the best quality at every step.

We produce King Salmon, a rare salmon species that makes up 0.7% of the world's salmon population. Our salmon have superior flavour, colour, texture & healthy omega 3s.

Our goal is to have 100% reusable, recyclable or compostable packaging by 2025.

Packed full of nutrients essential for health

Selenium, Vitamin B6, Vitamin B12, Vitamin D, Omega 3s, Protein, Zinc, Astaxanthin

General health & wellbeing

Source: <https://www.kingsalmon.co.nz/>

regulators, and potential investors than consumers. Consumers are more likely to interact with individual brands, each of which has its own website.

New Zealand King Salmon – Regal Salmon Brand

The theme of sustainability is reflected in the Regal Salmon brand. The key areas of product differentiation are sustainability, quality, and health. From these credence attributes, nutrition and health is emphasised above all else.

Multiple processed salmon products are offered by the Regal brand, each of which is designed for supermarket-style retail sales channels.

New Zealand King Salmon owns the Southern Ocean brand. This product is similar to their

Regal brand; however, it is positioned at a more budget and ‘no frills’ end of the market. The product is sold solely on its health and nutrition benefits.

New Zealand King Salmon also operates a pet food brand called OMEGA PLUS. While this brand operates in the pet food sector, its marketing focuses heavily on health and nutritional benefits.

Finally, New Zealand King Salmon operates a prestige brand called Ora King. New Zealand King Salmon describes this salmon as genetically distinct from other King Salmon. Little information is provided on how this salmon is genetically different. New Zealand King Salmon has crafted a high-value identity around this product, describing it as New Zealand’s seafood version of Japanese Wagyu beef. Within this brand, they have

Wood Roasted Portions

Cold Smoked Slices

HEALTH BENEFITS

Delicious and healthy - salmon is high in protein, vitamins and is a natural source of omega-3s.

Source: <https://www.regalsalmon.com/nz/>

gone one step further, creating an additional brand called Tye, salmon that continue to grow beyond their usual life span. On their marketing company’s website, they state that:

Ōra King Tye has been wildly successful. When Tye launched it fetched the highest price ever paid for a King Salmon, with an American foodie paying \$1700 NZD for one Tye.

There are no other salmon producers worldwide that are offering salmon within the ultra-premium category. It is already highly sought after by discerning chefs worldwide, and is being praised for its delicate flavour, herbaceous palate, beautiful layered flesh, and firm texture. Tye are so popular that they are sold out months in advance⁴.

4. <https://www.downing.nz/project/tyee/>

Slices - 100g Twin Pack

Slices - 150g

Pieces - 300g value pack

HEALTH BENEFITS

Delicious and healthy - salmon is high in protein, vitamins and is a natural source of omega-3s.

Source: <https://www.southernocean.co.nz/>

Sanford

Sanford takes a different approach to New Zealand King Salmon. They focus primarily on place and the image associated with a ‘pure’ New Zealand environment.

Beyond this place-based image, Sanford promotes nutrition, quality, and sustainability similarly to New Zealand King Salmon. However, regarding sustainability, they emphasise policies and strategies rather than certification.

The products offered by Sanford are more simple than that of New Zealand King salmon, with fewer processed offerings. The Sanford products seem to sit between

Salmon Superfood for your pet




- #1** New Zealand King Salmon is the #1 Ingredient – an easily digestible protein that helps support healthy organs and lean muscles
- 100%** Made in New Zealand – Sourced from the crystal clear waters of New Zealand's Marlborough Sounds
- 3** Providing a balanced and nutritionally complete diet that is high in protein & marine-based Omega-3
- Premium quality** – Premium pet food designed by Vets, approved by Pets
- ALL NATURAL** NO GMO added – all our recipes are formulated without GMO ingredients, instead we use ingredients from natural sources

Source: <https://www.omegaplus.co.nz/>

OUR SALMON

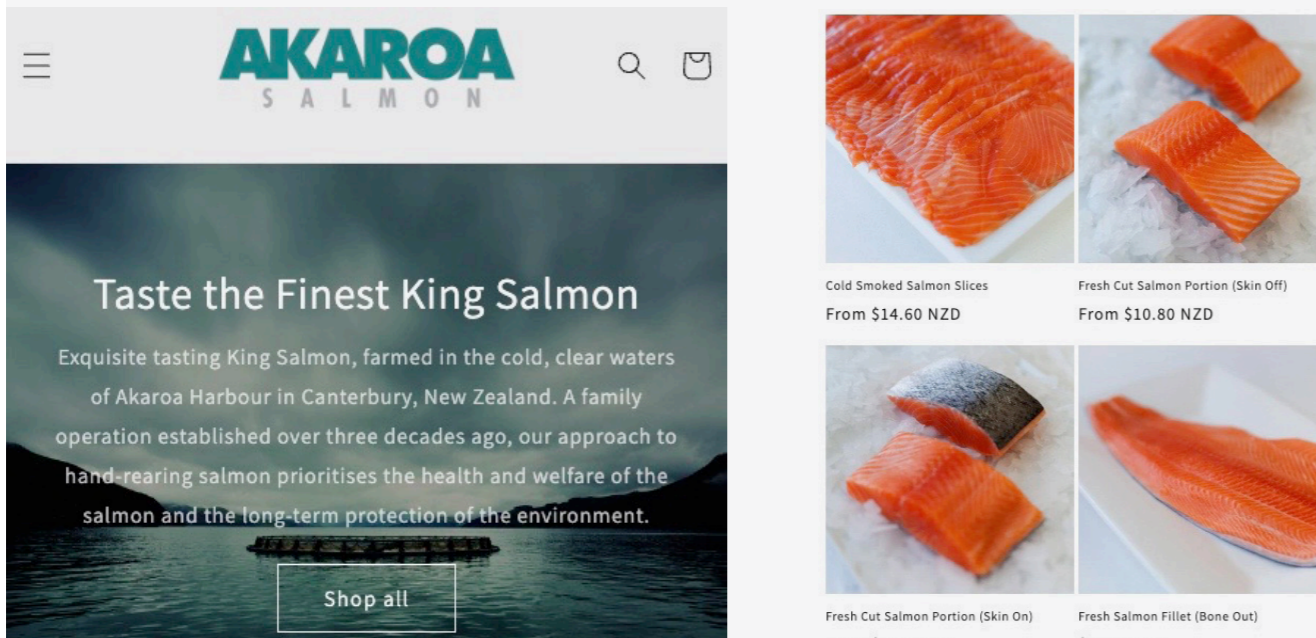
Ōra King has been perfecting sustainable husbandry practices and breeding expertise for a quarter of a century. Through New Zealand King Salmon's programme we have created a unique breed, called Ōra King, genetically distinct from any other King salmon found in New Zealand or the world.



ŌRA KING IS TO SALMON AS WAGYU IS TO BEEF

The naturally high oil content in Ōra King salmon can be seen in the striking marbled fat lines within the bright orange flesh, instantly drawing comparison to Wagyu.

Source: <https://orakingsalmon.co.nz/>



AKAROA SALMON

Taste the Finest King Salmon
Exquisite tasting King Salmon, farmed in the cold, clear waters of Akaroa Harbour in Canterbury, New Zealand. A family operation established over three decades ago, our approach to hand-rearing salmon prioritises the health and welfare of the salmon and the long-term protection of the environment.

[Shop all](#)

- Cold Smoked Salmon Slices From \$14.60 NZD
- Fresh Cut Salmon Portion (Skin Off) From \$10.80 NZD
- Fresh Cut Salmon Portion (Skin On) From \$8.10 NZD
- Fresh Salmon Fillet (Bone Out) \$39.80 NZD

Source: <https://akaroasalmon.co.nz/>

NUTRITION

Our seafood not only tastes wonderful, it's a great source of healthy omega-3 fats, high in protein and rich in vitamins and minerals – an essential part of our diet.

QUALITY

At Sanford we have a saying: "what we catch today may be on your plate tomorrow night". It reminds us all that quality is everyone's responsibility; from the moment the fish is caught, through the processing and shipping, all the way to our customers' plates.

Sustainability sits at the heart of our business – it is fundamental to our connection with New Zealand and the growth of our business. We understand our environmental, economic and social choices have an impact, now and in the future. We are committed to a sustainable future for our business and stakeholders, our people, customers and communities. Sanford's vision is to be the best seafood company in the world through the sustainable growth of our business, and we embrace the contribution we will make towards achieving the United Nations Sustainable Development Goals (UN SDGs).

Our sustainability agenda focuses on six performance outcomes, aligned with our operational processes and long term vision, as set out in our [Sustainability Policy](#).

Further details on our sustainability framework, strategy, progress and plans for the future are set out in our [latest Annual Report](#)

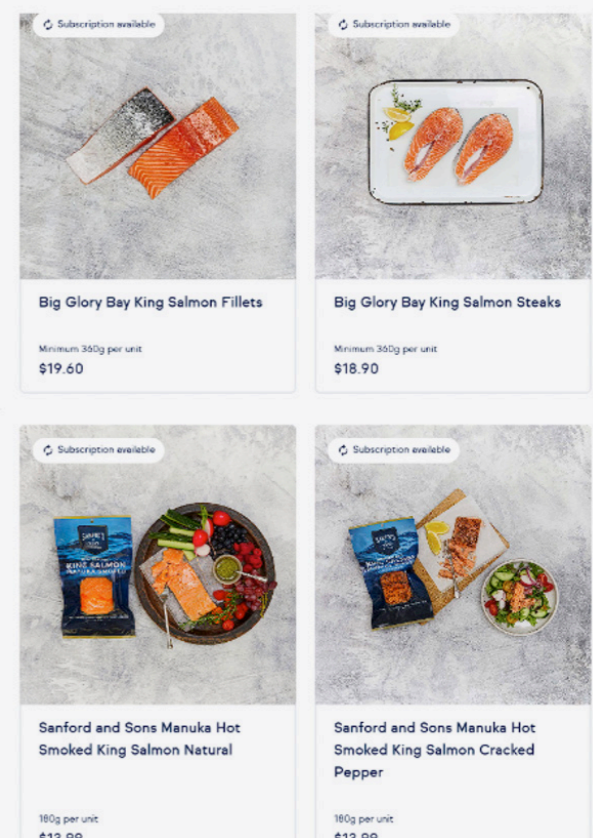
FROM A REMOTE, NATURAL PARADISE

OUR PEOPLE CARE DEEPLY ABOUT OUR UNIQUE RESOURCE

HARVESTING AND HANDLING OUR SEAFOOD WITH THE RESPECT IT DESERVES

ENSURING ITS QUALITY AND SUSTAINABILITY

Source: <https://www.sanford.co.nz/>



- Big Glory Bay King Salmon Fillets**
Minimum 350g per unit
\$19.60
- Big Glory Bay King Salmon Steaks**
Minimum 350g per unit
\$18.90
- Sanford and Sons Manuka Hot Smoked King Salmon Natural**
180g per unit
\$13.99
- Sanford and Sons Manuka Hot Smoked King Salmon Cracked Pepper**
180g per unit
\$13.99

PRISTINE AND ISOLATED

WHERE **96%** OF OUR TERRITORY IS UNDERWATER

BEAUTIFUL - NEW ZEALAND - SEAFOOD

JUST A FEW DOTS OF GREEN IN 4 MILLION SQ KM OF BLUE

New Zealand King Salmon’s Regal and Deep South brands.

Akaroa Salmon

Akaroa Salmon has the most straightforward product offerings, focusing mainly on raw products with little processing. Their offerings are presented in more of a boutique, farmers market manner than a large-scale retail environment.

In terms of credence attributes, Akaroa Salmon are somewhat unique in what they do not seek to communicate. While some mention of animal welfare, the environment, and nutrition, none of these are presented as core characteristics of the business. An emphasis is placed on health and nutrition similarly to the other two major salmon producers.

Summary of the three major sea cage salmon producers’ product differentiation focuses:

New Zealand King Salmon

- Exclusivity
- Prestige
- Sustainability

Sanford

- ‘Pure’ New Zealand Image
- Health and Nutrition
- Sustainability

Akaroa Salmon

- Health and Nutrition
- Quality

Constraints on Maximising Production

New Zealand has excellent theoretical potential to produce salmon; however, this strong hypothetical potential for continued growth is unlikely to be realised due to various factors. Below we list some of the main constraints. We do not address market constraints in depth here, as these are discussed in the following section.

Space Constraints

- Salmon can only be farmed in a limited range of areas globally as the fish require cold water.
- The coastline of the South Island of NZ is highly suited to salmon farming in many areas. Sheltered bays containing cold waters can be found in the Marlborough Sounds, Banks Peninsula, Stewart Island and Fiordland.
- The opposition of recreational fishermen, inshore fishing companies, holiday homeowners and environmental advocates oppose its growth.
- A large amount of the best coast for salmon farming is inside parks
- Uncertainty and cost around ocean space tenure and renewability of tenure.
- Increasing space requires a huge investment of time, effort, and money with an unclear chance of success

Regulatory constraints

- Application to the courts required to develop new sea area

- Uncertainty around the ability to obtain resource consent and no prior knowledge of the conditions that will be attached.
- Difficulty in modifying operations in response to changing conditions, changing technology etc. without needing to seek a change to the consent or a new consent.
- Compliance monitoring costs
- Uncertainty around the likelihood of consent renewal.

Business and Market Constraints

- New Zealand industry is not at a scale relative to international competitors
- No integration within the 30 largest global salmon firms and limited access to their networks
- Uncertainty whether the difference between the Atlantic and New Zealand King salmon is sufficiently discernible that it will support greater volumes of New Zealand salmon while maintaining the price premium.
- Small scale of New Zealand presence in international markets. New Zealand represents only 0.5% of global production
- Horizontally dispersed value chains lack integration and provide less control over product quality, quantity, and sustainability credentials.

The Ministry for Primary Industries (MPI) has developed a plan for achieving the gains from

the primary sectors set out in the “Fit for a Better World” roadmap (the Roadmap). The aquaculture sector is expected to contribute to MPI’s goals for ‘accelerating our economic potential’, which requires the sector to include its revenues. The Government’s 2019 Aquaculture Strategy set a target of growing the aquaculture sector’s revenue from approximately \$650 million per annum to \$3 billion by 2035. Related to this strategy, MPI has estimated that salmon farming could generate \$1.5 billion in revenue, almost all from exports, if production volume increases from the current level of approximately 15,000 tonnes to 70,000 – 80,000 tonnes per annum, a five-fold increase. However, significant constraints the Salmon industry faces make large increases in production volumes difficult to achieve. Where other reports have focused on the challenges and opportunities for meeting the Government’s revenue targets through increasing production, this report focuses instead on maximising returns through adding value. Specifically, we investigate the potential of concentrating on Māori values in the international production and sale of salmon as a pathway to increased value and revenue potential.

Economic analysis of aquaculture’s potential to realise considerable revenue growth has focused primarily on increasing production (Wattie 2020). While New Zealand represents a small proportion of King salmon production, it is not prudent to assume a significant increase in production can be absorbed by international markets. New Zealand King

salmon is a speciality or niche product. Wattie (2020) states that:

“New Zealand producers compete with one another for customers, which might suggest that there are not as many customers for New Zealand salmon as might be assumed and supports the proposition that it is a speciality product. If there was an abundance of customers, then it would seem less likely that New Zealand producers would be competing given the small volumes produced.”

Wattie (2020) proposes that current New Zealand salmon producers may not yet have focused on opening new markets and developing a wider customer base. It is risky to spread the limited product too thinly across many customers. Wattie (2020) defines New Zealand producers’ challenge as determining how to maintain current prices while increasing production volumes fivefold. This is an essential line of investigation, particularly considering the Government’s aquaculture aspirations. In this report, we seek to address some of the uncertainties raised by Wattie (2020). As the salmon industry has significant capital costs for establishing operations, it is unlikely that production will increase rapidly unless there is apparent demand and good achievable prices for salmon in international markets. The size of potential demand and the economic

opportunities presented by different markets and consumer segments is the key focus of this report. We undertake this analysis from the perspective of maximising the value of Ōnuku’s salmon interests through the incorporation of indigenous credence attributes.

New Zealand King Salmon, the nation’s largest salmon producer, provides an important case study to illustrate that focusing on production is not enough to ensure success. Despite high levels of demand internationally for salmon, NZ King Salmon lost \$73 million in the 2021-2022 financial year, losing 71 percent of share value and coming in as the worst-performing stock on the New Zealand share market⁵. NZ King Salmon reported a further \$24.5m loss in the financial year’s first half. Much of the loss has been attributed to warming waters and poor fish health. Over a longer period, NZ King Salmon has performed even worse, from a high of 1.35 AUD per share in April 2019 to 0.23 AUD in November 2022. NZ King Salmon has experienced an 83 percent decline in value (Figure 4).

Climate change is not going away; therefore, the New Zealand salmon industry is facing significant challenges to its traditional



Figure 4. New Zealand King Salmon Investments Ltd NZK.ASX6

model, indicating that new approaches will be required to ensure its viability. Ōnuku’s operations are further South and located in colder water, mitigating some of the challenges faced by NZ King Salmon. However, eventually, the challenges currently being faced by NZ King Salmon are likely to affect Ōnuku to ever-increasing degrees.

This report concerns the opportunity for Ōnuku Rūnanga to realise greater value through their business relationship with Akaroa Salmon. Akaroa Salmon is the smallest sea cage salmon producer in New Zealand, representing around 2% of New Zealand’s total salmon production. There is potential, subject to the constraints described above, for Ōnuku to increase its salmon farming interests by acquiring additional water space in the Akaroa Harbour. While recognising the potential opportunities this expansion could provide, this report is focused on adding value rather than increasing production.

Incorporating and communicating indigenous values as credence attributes in the salmon industry has the potential to provide

multiple value-creating opportunities for Ōnuku. This is an area of research that is sparse in comparison to reports focusing on productive concerns or the regulatory barriers to expansion. We are concerned with unique indigenous product differentiation, the incorporation of Ōnuku’s values into a commercial salmon product, the opportunities in export markets to attract a price premium for the incorporation of these values into the product, and the potential mechanisms to communicate the unique attributes of an Ōnuku salmon product.

Ōnuku has expressed a clear aspiration to protect the environment and care for the taonga in their water. This is also a constraint on production; however, it is a constraint that can be used to inspire the development of a high-value product that reflects these ideals. Environmental concerns are significant in salmon farming⁷. While this impact can be mitigated in many ways, we are most concerned with an overall reduction in environmental impact per dollar earned through maximising the product’s value.

5. <https://www.stuff.co.nz/business/opinion-analysis/128751989/nz-king-salmon-shares-have-lost-71-of-their-value-this-year--5-things-you-should-know#:~:text=Investors%20in%20New%20Zealand%20King,So%20what's%20behind%20the%20slump%3F&text=NZ%20King%20Salmon%20reported%20a,to%20the%20end%20of%20January.>

6. <https://www.forsythbarr.co.nz/markets/nzk-ax>

7. <https://www.theguardian.com/news/2020/sep/15/net-loss-the-high-price-of-salmon-farming>

Methods

The core of the research involves the development of an international trade model that can be used to explore market opportunities and consumer willingness to pay for a uniquely Māori salmon product. This model includes the following key components:

- Willingness to Pay Studies
- Consumer Sustainability Surveys
- Supply chain hotspot identification
- Credence attribute opportunities
- Market access requirements
- Market Insights and trends

The statistical model is also complemented by our previous research into the aspirations of Ōnuku and additional qualitative insights gained through interviews with key people from Ōnuku and Akaroa Salmon. The model has four primary components representing a bundle of variables drawn from multiple data sets.

1. Product Information and Sustainability Opportunities
2. Market Opportunity
3. Price premium potential from credence attributes
4. Price premium potential from consumer profiles

The research uses a mixed-methods approach to build insights for Ōnuku and Akaroa Salmon. Additional details on methods used are reported throughout the next section.



Source: <https://bigglorybay.co.nz/new-zealand-king-salmon>

Results

Untapped Potential in International Markets

The first stage of identifying new salmon opportunities for Ōnuku is considering the potential opportunities presented by different international markets. In Figure 5 and Table 2 (over page), we draw together data on three crucial variables.

- **New Zealand's current exports of fish products to existing international markets.** This variable identifies where New Zealand fish products already have a presence and associated reputation in markets.
- **The growth trends in imports of fish products from those international markets.** This variable identifies the outlook for each market by determining whether imports are growing or declining
- **The relationship between export growth from New Zealand to each market and the import growth of each market.** This variable identifies to extent to which New Zealand exporters are responding to growth trends in importers.

Data sets and formulas have been constructed from a range of ITC resources⁸.

Table 2. Importing markets for the product exported by New Zealand in 2021: Product: 0302 Fish, fresh or chilled. The bubble size is proportional to the share in world imports of partner countries for New Zealand fish. Data sourced from ITC Trade Map (<https://www.trademap.org>)

(www.trademap.org)

Figure 5 reveals that New Zealand has a very strong presence in the USA market. New Zealand is overrepresented in meeting the USA's import growth for fish products compared to other countries. While Figure 5 considers a broader range of finfish that are not exclusively salmon, the proportion of New Zealand's salmon exports follows a similar pattern. For example, around 60 percent of New Zealand King Salmon's international exports are to the USA. Figure 5 also reveals several markets where New Zealand may be underrepresented and have some opportunities to expand exports. Markets such as Thailand and Korea are growing, however, they represent a small share of New Zealand's exports, and New Zealand is underrepresented in meeting this growing demand. By bringing in additional data, we can explore the export potential of each market.

In Table 3 we rank markets based on their export potential for New Zealand salmon exporters.

Box 1 describes a set of functions used to determine the export potential presented by different export markets.

Having established the size of potential markets, we need to consider how much of the market potential is already realised by New Zealand exporters. This is known as 'tapped potential'. Tapped potential captures the extent to which the export potential has already been utilised for a product, market or supplier.

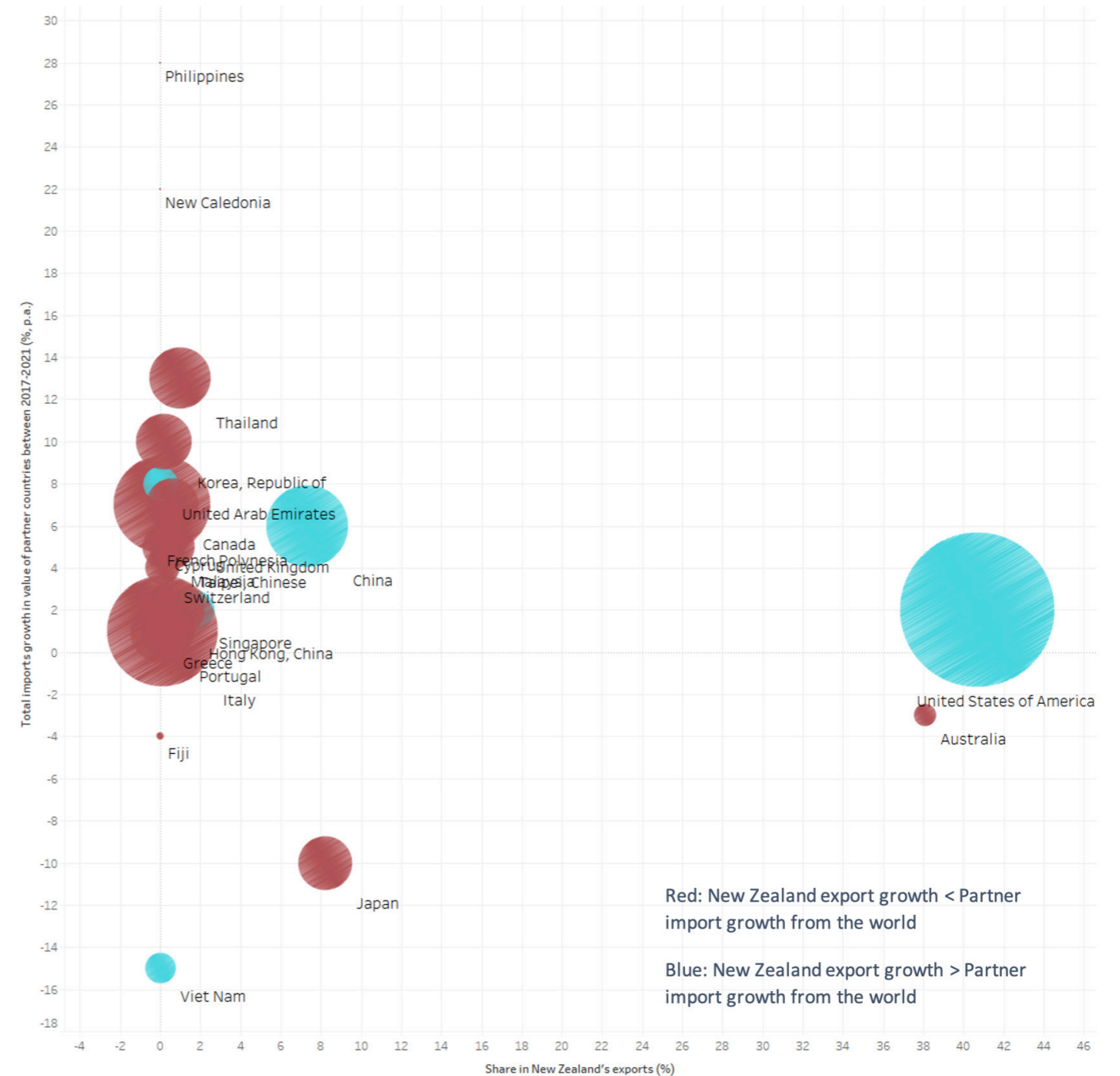


Figure 5. Importing markets for the product exported by New Zealand in 2021: Product: 0302 Fish, fresh or chilled. The bubble size is proportional to the share in world imports of partner countries for New Zealand fish. Data sourced from ITC Trade Map (<https://www.trademap.org>)

8. https://www.trademap.org/Country_SelProductCountry.aspx

Country	Growth Difference	Share in New Zealand's exports	(%) Share of partner countries in world imports	(%) Total imports growth in value of partner countries between 2017-2021 (% p.a.)
Viet Nam	15	0	0.4	-15
United States of America	1	40.7	10.8	2
United Kingdom	-7	0.1	4.2	7
United Arab Emirates	77	0	0.5	8
Thailand	-18	1	1.7	13
Taipei, Chinese	-4	0.6	0.9	5
Switzerland	-6	0.1	0.5	4
Singapore	31	1.7	0.7	2
Portugal	-1	0.1	1.8	1
Philippines	-14	0	0	28
New Caledonia	-32	0	0	22
Malaysia	-3	0.2	0.8	5
Korea, Republic of	-31	0.2	1.4	10
Japan	-1	8.2	1.3	-10
Italy	-33	0.1	5.5	1
Hong Kong, China	-5	0.7	1.6	2
Greece	-58	0	0.6	1
French Polynesia	-19	0.1	0	5
Fiji	-53	0	0.02	-4
Cyprus	-15	0.2	0.05	5
China	10	7.3	3	6
Canada	-24	0.6	1.2	7
Australia	-1	38.1	0.2	-3

Table 2. Importing markets for the product exported by New Zealand in 2021: Product: 0302 Fish, fresh or chilled. The bubble size is proportional to the share in world imports of partner countries for New Zealand fish. Data sourced from ITC Trade Map (<https://www.trademap.org>)

The potential export value of product k supplied by country i to market j, in dollars, is calculated as supply × demand (corrected for market access) × bilateral ease of trade.

Supply and demand are projected into the future based on GDP and population forecasts, demand elasticities and forward-looking tariffs. The supply side in the export potential indicator is based on the projected market share. As a result, the share of country i's exports of product k in total exports of product k, multiplied by the exporter's expected GDP growth rate (relative to expected GDP growth of other exporters of the same product) capture the relative increase in overall supply performance. This indicator is corrected for global tariff advantages of country i in product k: it is meant to capture projected market share, and thus supply performance, in the absence of tariffs (the impact of tariffs on exports to a particular market is considered in the demand component).

The demand component is based on projected imports, thus market j's imports of product k, augmented by expected growth of GDP per capita (subject to estimated revenue elasticities of import demand per capita at sector and development level). The indicator also considers the future tariff advantage in the target market and the bilateral distance as compared to the average distance over which the target market usually imports the product.

Ease of trade is based on the ratio of actual trade between exporter i and market j for products with potential relative to their hypothetical trade if exporter i had the same share in market j as it has in world markets. The numerator captures the actual trade between the exporter i and market j and the denominator capture trade complementarities between the exporter i and market j. If Ease > 1, country i finds it easier to trade with market j than with world markets on average, augmenting the potential to trade any product with market j. This can reflect in a high numerator, resulting for instance from the two countries being in proximity, sharing the same language or culture or having established commercial links in the past. It can also reflect in a low denominator due to a limited complementarity of the countries' export and import baskets. By contrast, if Ease < 1, country i finds it relatively more difficult to trade with market j, lowering its potential to trade with that market across all products.

Box 1. Composite formula to identify export opportunities.

Country	Export potential	Actual exports	Untapped potential remaining
China	11.00m	5.50m	5.50m
United States	5.30m	37.00m	-31.70m
Taipei, Chinese	3.60m	0.67m	2.93m
Thailand	2.50m	1.40m	1.10m
Australia	2.50m	5.70m	-3.20m
France	2.40m	0.00m	2.40m
Japan	1.80m	4.10m	-2.30m
Korea, Republic of	1.70m	0.17m	1.53m
Viet Nam	1.50m	0.01m	1.49m
Hong Kong SAR	1.00m	0.85m	0.15m
Indonesia	1.00m	0.00m	1.00m
Italy	0.89m	0.03m	0.86m
Spain	0.79m	0.63m	0.16m
Canada	0.66m	0.99m	-0.33m
Brazil	0.60m	0.00m	0.60m
Poland	0.56m	0.00m	0.56m
United Arab Emirates	0.54m	0.06m	0.48m
United Kingdom	0.52m	0.05m	0.47m
Germany	0.46m	0.11m	0.35m
Singapore	0.40m	1.00m	-0.60m

Table 3. Ranking of export market opportunities

At the most disaggregated level, by country, product and market, the tapped potential corresponds to the potential to actual exports gap (in % terms) whenever potential > actual exports and to 100% whenever potential < actual exports. At the aggregate level (e.g., export potential in a regional market

or by sector), the tapped potential may be below 100% even though aggregated actual exports exceed potential exports. This occurs when individual exporter-product-market combinations still hold underutilised potential that should not be masked by the fact that others have exceeded their potential.

In Figure 6 (overleaf), we present an analysis of the untapped potential remaining in several key markets. Several key markets are absent from Figure 6 as New Zealand outperforms statistical expectations in these markets. When actual exports exceed potential exports, this can be driven by an exporter’s exceptional export performance in some markets while neglecting others. Conversely, the untapped potential value signals room for export growth if frictions, for example, in the form of regulations or buyer-seller mismatches, can be overcome. This market analysis provides a good starting point for determining opportunities for Ōnuku; however, several other key considerations need analysing before market opportunities can be better determined. We will return to considering international market opportunities after analysis additional key considerations within the following sections.

Figure 6 (overleaf) shows that China presents the most considerable untapped potential, despite 50% of China’s predicted market potential for New Zealand fish exports already being realised.

The analysis presented here is not prescriptive. Instead, it considers potential opportunities particularly for ensuring resilience and diversification in supply chains. Currently, New Zealand is heavily invested in the USA market. While New Zealand’s outsized presence in this market demonstrates a remarkable achievement, it presents risks in that New Zealand’s exports are highly concentrated in a market that has relatively low growth. Sixty-three percent of total exports are currently to the USA. The

three largest export markets, USA, China, and Australia, account for 83 percent of exports. This high concentration in a small number of markets leaves New Zealand exporters exposed to risks from shifting geopolitical or market conditions.

Consumer Opportunities: Credence Attributes and Willingness to Pay

Wild fish stocks are in decline, and the aquaculture sector has begun to play an increasingly important role in meeting the growing worldwide demand for fish products. However, aquaculture can negatively impact environmental resources due to the factors relating to intensive fish farming practices. These include issues such as the escape of genetically modified farmed fish, contamination of wild fish stocks, and release of effluents, disrupting the natural performance of marine ecosystems (Uchida, Onozaka et al. 2014, Maesano, Di Vita et al. 2020). Consumers consider multiple intangible features of food products, known as credence attributes. Credence attributes comprise multiple features such as the sustainable management of natural resources and environmental protection, support for small-scale enterprises, maintenance of local communities, shorter transportation distances of products to local markets, attention to animal welfare, avoidance of incidentally by-caught non-targeted species, and sustainable fishing methods. Typically, these credence attributes are communicated to consumers through product labels. Food labels allow consumers to make choices in

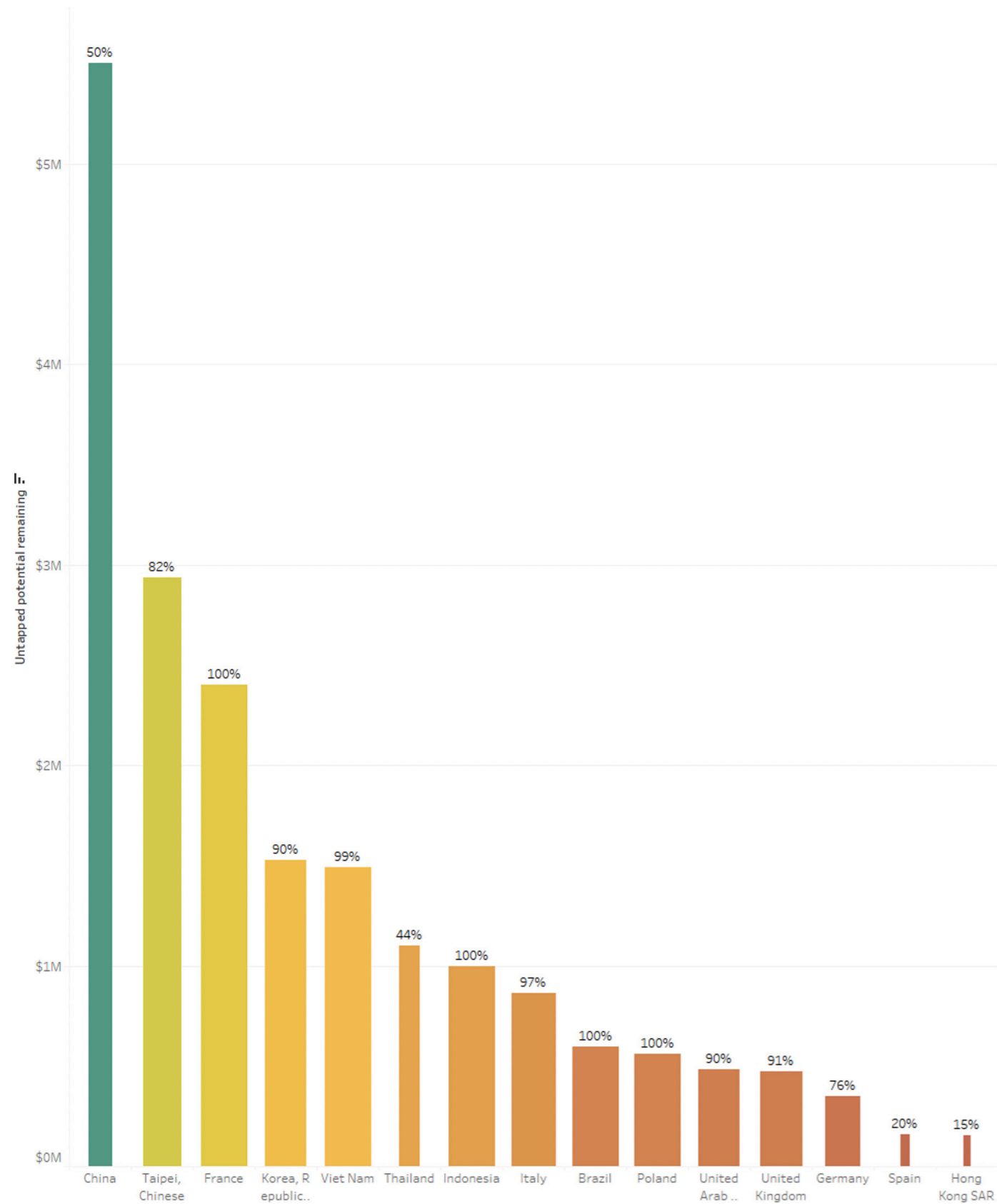


Figure 6. Untapped potential in export markets. The width of the line represents the amount of potential currently used.

line with their attitudes and preferences. However, although consumer attitudes toward sustainability are generally positive, behavioural patterns are not always consistent with consumer choices (Konefal 2013, Lanfranchi, Giannetto et al. 2014, Maesano, Di Vita et al. 2020). In this section, we review multiple studies on consumer willingness to pay for the credence attributes of fish products. We compile these data to provide an overview of market preferences so that Ōnuku can best target key markets and demographics.

The findings in this section are categorised under the key demographic and attitudinal factors that have a material influence on consumer preference.

Country of Origin and Destination

Across countries, WTP for sustainable seafood is relatively similar; however, the specific credence attributes consumers are willing to pay more for differ between countries. The country of origin exerts one of the most significant influences on consumer choices (Brécard, Hlaimi et al. 2009). Most studies show that consumers tend to prefer domestic over imported fish products.

Consumers of seafood are willing to pay a higher premium price for local production than for organic production, giving more importance to the origin than to the production method (Costanigro, McCluskey et al. 2010). Fonner and Sylvia (2015) demonstrated that in the USA, consumers prefer domestic seafood products over imported alternatives and are willing to pay a

premium price of 21% for local salmon. Also, in the USA, Lim, Grebitus et al. (2015) found that consumers are willing to pay a premium price of approximately 42.5% for the origin label of seafood products.

In the United Kingdom, Asche, Larsen et al. (2015) demonstrated that consumers are willing to pay a 4% premium price for the origin label of seafood products. Likewise, Zander and Feucht (2018) showed that consumers would pay an average premium price of 9.4% for the country of origin label of fish and seafood products across EU countries.

Animal Welfare

Consumers consider animal welfare an important issue in general, but they are often not necessarily willing to change their consumption choices (Maesano, Di Vita et al. 2020). Where consumers are concerned with animal welfare, they tend to view it as their responsibility, but rather the responsibility of the producer (Te Velde, Aarts et al. 2002). Olesen, Alfnes et al. (2010) found that Norwegian consumers are concerned about animal welfare and are willing to pay a 17% premium price for welfare-labelled salmon.

In Denmark, Solgaard and Yang (2011) demonstrated that consumers are willing to pay a 25% premium price for welfare-farmed rainbow trout with the animal welfare attribute. In Norway Grimsrud, Nielsen et al. (2013) revealed that Norwegian consumers are willing to pay a 15% premium and accept tax increases for animal welfare improvements in farmed seafood. More

broadly across Europe, Zander and Feucht (2018) found an average premium price of 14% for the animal welfare label in the seafood sector.

Eco-Labels

Ecolabels provide important information to consumers, enhancing their awareness of ecological and environmental features in purchasing fish products. Ecolabels are the most researched area of consumer willingness to pay for seafood credence attributes; we, therefore, summarise multiple studies in the table opposite (Table 4).

Age, Education, Gender, and Income

Zander and Feucht (2018) took a unique approach to consider consumer WTP for sustainable seafood products across several European countries. This study was unique in that it correlated WTP with attitudinal and cultural contexts. On average Zander and Feucht (2018) found that across all countries, additional WTP was highest for organic production (+14.8%), followed by sustainably produced (+14%), produced with higher animal welfare (+14%), locally produced (+12.6%), by coastal fisheries (+11.7%), without discards (+10.3%), and produced in Europe (+9.4%).

Consumers who purport to hold 'traditional' values have a significantly lower probability of having a high WTP, while consumers who

hold to 'universalism' values had a higher WTP (Zander and Feucht 2018). Zander and Feucht (2018) speculate that a reason for the low presence of more tradition-oriented people in the high WTP group might be that they are less open to new sustainability concepts, such as organic practices and animal welfare because they tend to emphasise the conservation of the status quo. In addition, more tradition-oriented consumers might perceive the status quo as sustainable enough, thus showing a lower WTP for the tested sustainability attributes. Zander and Feucht (2018) also found that having a higher subjective knowledge of sustainability concerns did not correlate with a higher WTP. Other studies have considered this seeming discrepancy and determined that consumption behaviour is found to be significantly driven by habits, past experiences and cultural factors; thus, even highly knowledgeable people do not necessarily make sustainable seafood choices (Honkanen, Olsen et al. 2005, Almeida, Altintzoglou et al. 2015).

These findings point towards a population segment that does not have a high WTP for sustainable seafood. They tend to be more traditional in values, highly educated, have a high household income, and are older. Interestingly, income, education, and knowledge are often not positively correlated with WTP. This has significant implications for positioning a sustainable salmon product in a market.

Ratliff, Vassalos et al. (2020) found that few demographic variables statistically affect seafood preferences. In particular, income

and education were found not to influence WTP. However, Ratliff, Vassalos et al. (2020) find that gender had a significant impact, with female respondents more likely to have their purchasing decisions influenced by sustainability. This finding is supported by several other studies (Hunter, Hatch et al. 2004, Xiao and McCright 2015).

Ratliff, Vassalos et al. (2020) present the following profile of a consumer with the highest WTP for seafood: principally female, living alone, informed about environmental issues through mass communication and had a strong intrinsic motivation to protect marine habitats. It was also found that angler communities, people living in coastal areas,

Country	Description	WTP	Source
USA	eco-labelled shrimp and cod	27%	(Johnston, Wessells et al. 2001)
USA	eco-labelled salmon	21.6%	(Fonner and Sylvia 2015)
USA	eco-labelled salmon	50%	(Johnston and Roheim 2006)
USA	eco-labelled tuna	13%	(Sun, Chiang et al. 2017)
Norway	eco-labelled shrimp and cod	22%	(Johnston, Wessells et al. 2001)
UK	eco-labelled farmed salmon	22%	(Whitmarsh and Wattage 2006)
UK	eco-labelled cod	12.7%	(Sogn-Grundvåg, Larsen et al. 2014)
France	eco-labelled pollack	10.9%	(Erwann 2009)
France	10% premium price for eco-labelled sole	10%	(Salladarré, Brécard et al. 2016)
France	eco-labelled fish	4%	(Chen, Alfnes et al. 2015)
China	eco-labelled seafood products	5%	(Xu, Zeng et al. 2012)
Spain	eco-labelled sea bream	32%	(Fernández-Polanco, Loose et al. 2013)
Japan	eco-labelled tuna	24%	(Ariji 2010)
Japan	eco-labelled products	37%	(Uchida, Onozaka et al. 2014)
Sweden	eco-labelled cod	7%	(Blomquist, Bartolino et al. 2015)
Italy	eco-labelled anchovy	20%	(Vitale, Biondo et al. 2020)
	MEAN	20%	

Table 4. Meta-analysis of WTP ecolabel studies

and consumers who utilise farmers markets as their most frequent seafood purchasing outlet, are more likely to have their preferences influenced by the sustainability and environmental effects of seafood products.

The results of multiple studies suggest that there is a small consumer segment with a high WTP and a small segment with a medium WTP for sustainable seafood products. In Europe, about 9% of consumers belong to the high WTP group, with a WTP of 40-50%, and about 20% of consumers belong to a medium WTP group, with a WTP of about 20% (Maesano, Di Vita et al. 2020).

Indigenous Credence Attributes

A credence attribute is an intangible product feature that cannot be directly perceived. Dalziel, Saunders et al. (2018) describe how ‘food’ has physical attributes – such as taste, freshness, or appearance; however, intangible attributes influence the consumer, although they cannot be directly seen or experienced at the point of purchase. These are called credence attributes. Examples cited by Dalziel, Saunders et al. (2018) are food safety, environmental stewardship, animal welfare, social responsibility, cultural authenticity, fair trade, functional foods, organic production, GM-free, water footprint, biodiversity and local foods.

Rout and Reid (2020) consider the relationship between credence attributes and Māori cultural attributes, describing how typically cultural attributes are viewed as a

sub-set of credence attributes. However, Rout and Reid (2020) state that “‘to place’ cultural attributes’ as a subset of credence attributes is problematic for Māori”. Instead, due to the fundamental role that ‘culture’ plays in Māori food, they can be seen as equivalent categories. Therefore, for Māori, credence attributes are cultural attributes (Rout and Reid 2020).

This perspective implies that a food product’s physical and intangible attributes can be considered credence attributes from a Māori perspective. This is particularly relevant for salmon, which is not a traditional Māori food. Consumers cannot easily determine credence attributes in a product. Moser, Raffaelli et al. (2011) suggest that an authority figure such as a certification agency, government or organisation that people trust is required to lend support to the promotion of credence attributes in a product. Some consumers are willing to accept a producer’s claims of credence attributes, while other consumers require third-party assurance of any claims made.

Rout and Reid (2020) investigate the fundamental cultural credence attributes underpin Ngāi Tahu food. As Ōnuku are a hapu of Ngāi Tahu, this analysis is highly relevant to the current case study. Rout and Reid (2020) conclude that the two fundamental cultural credence attributes underpin Ngāi Tahu food are mauri and mana, going on to state that:

“The procurement, production, and supply of food is either mauri and mana enhancing or reducing, based upon whether the food emerges

from environments and social processes that are underpinned by kaitiaki-inspired actions and relevant observances.”

Additionally, Rout and Reid (2020) describe a range of cultural values that can be expressed as credence attributes; these values are reproduced in Table 5 (over page).

These findings imply that the people and process involved in creating a salmon product produce the credence attributes. A small amount of research has been done to explore consumer willingness to pay (WTP) for Māori credence attributes in food products. Tait, Driver et al. (2020) explored UK consumer WTP for selected attributes of New Zealand lamb products. Tait, Driver et al. (2020) found that UK consumers were willing to pay around 25% more for New Zealand lamb that was ‘produced on Māori farms’. Rout and Reid () investigated the use

of indigenous cultural attributes to obtain premiums in international perfume markets, focusing on taramea, a taonga species for Ngāi Tahu. Rout and Reid () found that consumers in New York were willing to pay up to 38% extra per bottle of perfume for authentic Ngāi Tahu credence attributes. The full range of attributes and average WTP are presented in Table 6 (below).

It is important to note that across all studies of WTP for Māori credence attributes, the historical significance of the product to Māori is not a significant factor. Rather, the values imbued within the product as a consequence of the people, practices, and values involved in the product’s production lend cultural significance. While salmon is not a traditional product for Ōnuku, this is not a limiting factor in producing a product with strong indigenous credence attributes.

Perfume Attribute	Description	WTP as a Percentage Premium
Authenticity	The origins and story surrounding this fragrance will be verified to the consumer.	31
Purity	The ingredients of the fragrance come from the pristine mountains in New Zealand.	27
Exclusiveness	This fragrance will be made in small batches, assuring its exclusiveness, and conferring status and dignity to the wearer.	22
Empower	This fragrance is made using restored cultural knowledge and processes and supports the social and economic development of the tribe that makes it.	17
Vitality	The fragrance is understood by Māori to confer vitality on the wearer.	15

Table 6. WTP for taramea credence attributes (Rout and Reid)

Related Value Or Concept	Indigenous Understanding	Western Understanding
Mana	Consumption of the food enhances the mana or dignity of the person consuming it and that of the atua domain from which it derives.	Consumption of the food enhances the moral standing of the person consuming it and that of non-human community from it emerges.
Mauri	Consumption of the food enhances the mauri or vitality of the person consuming it and that of the atua domain from which it derives.	Consumption of the food enhances the health vitality of the person consuming it and that of the non-human-community/ecosystem from which it emerges.
Noa	The food is spiritually safe to consume after undergoing a transition from tapu (protected sacred state) to noa (usable sacred state).	The food has been produced, or procured, in a way that observes the intrinsic value and dignity of living and non-living things and is therefore ethically safe to consume.
Utu	The food is formed through a relationship of balance between the atua and tangata whenua, which ensures the mauri and mana of each is enhanced.	The food is formed through a health-creating relationship of mutualism, balance, and respect between humans and the ecological systems that support them.
Tino Rangatiratanga	The food is produced by manawhenua seeking management over their lands to fulfil their kaitiaki (guardian) obligations to ngā atua.	The food is produced by indigenous people seeking self-determination over their lands and waters to ensure that their non-human relatives (lands and waters) are cared for.
Tūrangawaewae	The food is produced by those that are deeply related and interconnected with non-human whanaunga from which the food emerges.	The food is produced by those who deeply care for place and have had a long enduring connection to its lands and waters.
Kaitiakitanga	Food that is produced by those guarding the environmental for future generations of non-human communities, and in turn feeling guarded and supported by them.	The food is produced by those who feel an obligation to act as stewards and guardians of the lands and waters from which the food derives.
Manaakitanga	Food that is provided to grow, support, and nurture the mana and welfare of those consuming it.	Food that is provided to grow, support, and nurture the moral standing and welfare of those consuming it.
Whanaungatanga	Food from communities that uplift and enhancing kinship ties between people and the environment so that both may flourish.	Food from communities that uplift and enhancing kinship ties between people and the environment so that both may flourish.
Kaihaukai	The food comes from methods of exchange that acknowledge the tapu/sanctity of whānau-to-whānau and community-to-community connections and relationships.	The markets and supply chains from which the food derives are built on ethical relationships of care, trust, and respect.
Self-sufficiency		The food has been sourced by traditional hunter-gatherers who have a strong connection with the ecosystems in which they operate.
Seasonality		The food is produced by those with a history of travel, enterprise, and movement with the seasons. Such food is fresh and wild.
Kinaki		The food is rare and a delicacy produced for special occasions only - such as weddings, tangi (funerals), and mana-enhancing tribal exchanges.
Modern Vitalism		Food that has an attribute of being both contemporary yet produced according to an indigenous wisdom tradition
Cultural Regeneration		Food that is rare and has an attribute of maintaining cultural practices at risk of extinction.
Indigenous Investment		Food that has the attribute of supporting the wellbeing and welfare of indigenous people and their lands and water.

Table 5. Indigenous credence attributes (Rout and Reid 2020)

Discussion: capturing opportunities

New Market opportunities

New Zealand has been highly successful at exporting salmon to a small number of international markets. The research findings on export market opportunities revealed that there might be new market opportunities that are not being realised. Table 7 below illustrates how the results can be used to identify new opportunities.

Thailand and Korea are underrepresented in New Zealand's salmon exports. New Zealand accounts for less than 2 percent of salmon imports in both cases, yet both markets have grown by over 10 percent in the last few years. In contrast, the USA market, which accounts for over 40 percent of New Zealand's exports, has only grown by 2 percent in the same period. The potential to export to these underrepresented markets is a topic that requires more examination if Ōnuku determines these opportunities to be worth exploring. Maintaining a significant proportion of exports concentrated in a single market presents significant risks, particularly concerning geopolitical and regulatory conditions. The research suggests

it would be valuable to explore new market opportunities.

Communication

A clear insight that can be drawn from the findings, particularly relating to WTP, is that communication is important. Credence attributes are intangible and therefore need to be communicated to customers. Numerous credence attributes were explored alongside studies of WTP for those attributes. It was found that demographic characteristics do not have a significant influence over WTP. However, by combining several studies, a few key demographic characteristics can be compiled to construct a profile of a person who may have the highest WTP for New Zealand Salmon. They would be female, concerned with environmental issues, connected to mass communication (e.g., social media), live in a coastal area, interact with fishing communities, and shop at farmers' markets. However, three other factors have a much larger influence on WTP: country of origin of product labelling, animal welfare, and demonstration of care through ecolabels.

Country	Thailand	Korea	Canada	U.K	USA
Share in New Zealand's exports (%):	1	.2	.6	.1	40
Share of partner countries in world imports (%):	1.7	1.4	.2	4.2	10
Total imports growth in value of partner countries between 2017-2021 (% , p.a.)	13	10	7	7	2

Table 7. New market opportunities

Earlier, we suggested that the values imbued within a salmon product because of the people, practices, and values involved in the product's production lend cultural significance. These are the crucial ingredients for Ōnuku to establish their salmon as an indigenous product. Where Ōnuku's values overlap with consumer preferences, an opportunity arises to produce a high-value indigenous salmon product. The bridge between Ōnuku's values and consumer preferences is communication. The high levels of WTP for an eco-labelled salmon product signal the opportunities presented by clear communication of a product's credence attributes. Ecolabels are a means of communicating authenticity. This is often achieved through third-party certification, such as through an MSC label⁹. Moser, Raffaelli et al. (2011) suggest that an authority figure is required to support any claims of credence attributes in a product. This does not require a certification agency but must come from an organisation people trust. No third-party assurers have a deep understanding of Māori values and the incorporation of those values into a product. While third-party certification may be helpful for market access in some cases, such as when retailers require it, it is not required to access market premiums in general. Consumers seek authenticity (Lu, Gursoy et al. 2015) and the most authentic organisation with knowledge of Ōnuku's values and the incorporation of those values in a product in

Ōnuku itself. The challenge faced by Ōnuku is constructing an authentic story about their salmon.

The largest impact on consumer WTP comes from associating a product with its place of origin. When taken together, the need for authenticity, information on place of origin, and the need to communicate this information to customers through a label suggests that telling an authentic and place-based story of Ōnuku's salmon presents the best opportunity to attract a premium for the product. Ōnuku's salmon has a deep story that explains multiple authentic credence attributes. Constructing and communicating this story is partly a marketing exercise; however, the structures, systems, practices, and evidence base must be in place to ensure the story is authentic and accurate. Here we focus less on how to tell the story and more on the structures that could be implemented to ensure that Ōnuku can communicate their products' credence attributes.

Summary: Markets and Consumers, and Value Chains – Capturing Opportunities

Several key insights can be distilled from the research on markets, consumers, and marketing strategies.

- New Zealand salmon exporters are highly focused on a small number of export markets, particularly the USA.
- Some markets that fall outside this focus,

such as Thailand, Canada, the UK, and Korea, have shown significantly stronger market growth compared to the largest three export markets.

- The lack of diversification in export markets is potentially risky if there are any changes to trade conditions.
- Research is inconclusive as to whether demographic variables significantly influence the premium that can be achieved for seafood except for gender. Women are consistently found to be willing to pay more for environmental and nutritional credence attributes in salmon.
- Country of origin exerts a strong influence over consumer preferences for seafood. While some of this is a preference for domestic production, it also includes preferences for products from perceived premium locations.
- Consumers care about animal welfare; however, it does not significantly influence purchasing behaviour.
- Seafood products with ecolabels can attract significant premiums, reflecting a solid preference for environmental concerns.
- Consumers will pay a premium for authenticity. How this authenticity is communicated (e.g. ecolabels or transparent processes) does not strongly influence the value added to a product.

Taken together, these insights can provide for the basis of a strategy for Ōnuku to develop a high-value salmon product for international markets. Authenticity is critical. The most significant value-added preferences relate to the country of origin and ecolabels. Country of origin tends to be related to the producer's perceived quality, safety, and environmental condition. Ecolabels signify environmental quality or sustainability and provide a means of communicating authenticity transparently. The research has been focused on increasing returns to Ōnuku from the salmon farming enterprise by adding value rather than increasing production. Several constraints on salmon farming operations in conjunction with the values held by Ōnuku make a focus on value-added processes a promising short to medium-term strategy. It is expected that if Ōnuku were to explore future expansions in production, a solid value-added product would create a strong foundation upon which to grow.

The pathway to selling a salmon product that truly reflects Ōnuku requires a focus on authenticity. Ōnuku has a strong set of values, particularly relating to kaitiakitanga. Consumers want to know that the premium they are paying for a product contributes to positive sustainability outcomes.

9. <https://www.msc.org/>

Establishing an Identity to Generate Premiums Through Authenticity

Here we draw upon a brand identity framework (Figure 7) developed by Urde and Greyser (2016) to explore the potential for Ōnuku to create a unique indigenous identity through Akaroa Salmon. A brand is a 'sign' that can communicate meaning (Mick 1986).

Each component of the framework can be discovered by answering a set of key questions:

Brand core (Identity) – promise and core values: What does the organisation promise, and what are the core values that the brand stands for?

Value proposition: What are the key offerings, and how does the organisation

want them to appeal to customers and non-customer stakeholders?

Relationships: What should be the nature of the organisation's relationship with key customers and non-customer stakeholders?

Position: What is the intended position in the market and the minds of key customers and non-customer stakeholders?

Expression: What is unique or special about how the organisation communicate and expresses itself, making it possible to recognise it at a distance?

Personality: What combination of human characteristics or qualities forms the corporate character?

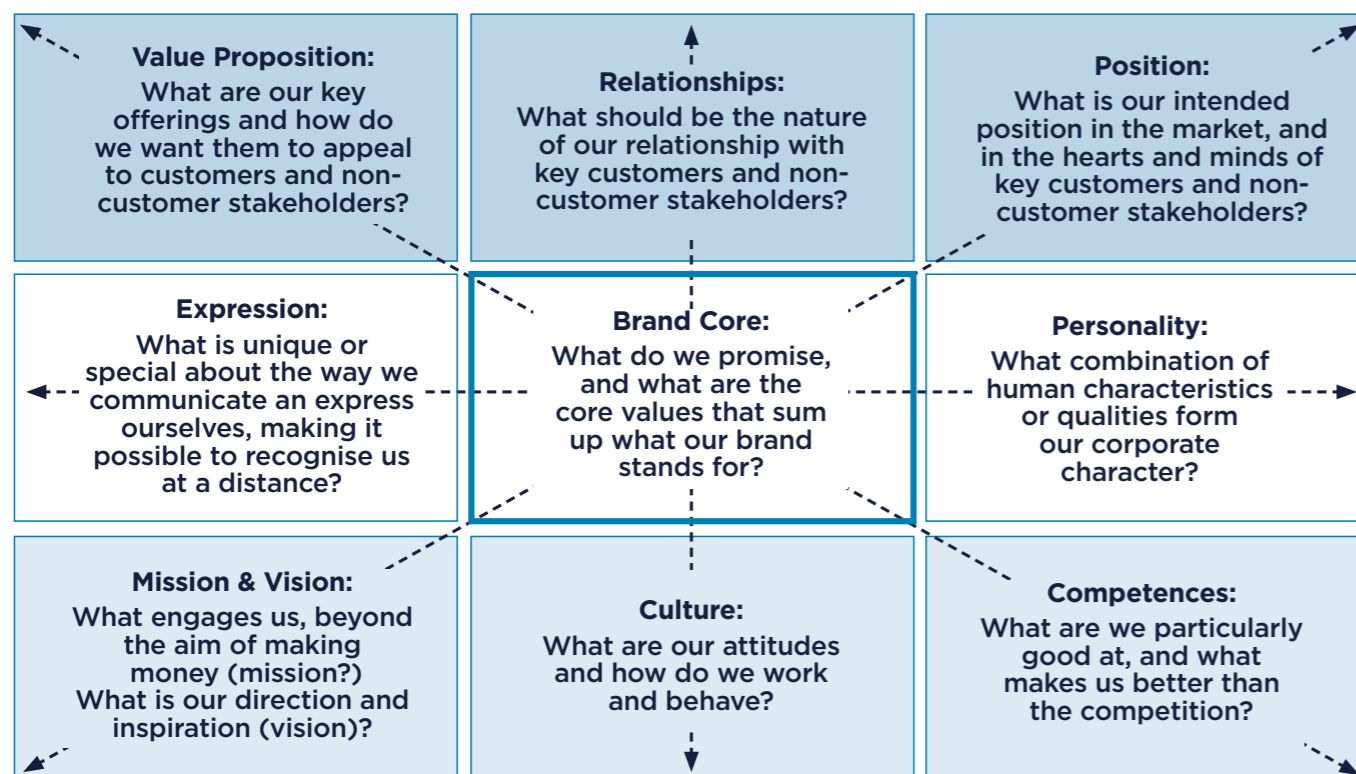


Figure 7. Identity Matrix (Urde and Greyser 2016)

Value Proposition: A product that is unique to its place and people	Relationships: Tauutuutu (reciprocity), mutual respect, educating, sharing, trust	Position: Authentic people, environmental quality, boutique production, history and tradition, a meaningful experience
Expression: Imagery, web presence, community recognition	Identity: An authentic product from a people deeply entwined with a beautiful place	Personality: Kaitiakitanga, manaakitanga, sense of place, tradition
Mission and Vision: Building inter-generational wealth for whānau	Culture: A focus on values, provenance, and tikanga	Competences: Small scale non-corporate production, connecting product to place

Figure 8. Establishing the Identity of a Salmon Product from Ōnuku

Mission & Vision: What engages the organisation beyond making money (mission)? What is the direction and inspiration (vision)?

Culture: What are the attitudes, and how does the organisation work and behave?

Competences: What is the organisation particularly good at, and what makes it better than the competition?

In Figure 8 we explore answers to some of these questions for Ōnuku regarding their identity reflected through the sales of salmon. The answers have been derived through discussions with Ōnuku.

The reputation elements can be explored in the same way as identity through a set of key questions:

- **Relevance:** How appealing and meaningful is the value the organisation offers?
- **Trustworthiness:** How dependable are the organisation's words and deeds?
- **Differentiation:** How distinctive is the

organisation's position in the market?

- **Recognisability:** How distinct, visible and consistent are the organisation's overall communications?
- **Credibility:** How believable and convincing is the organisation?
- **Willingness-to-support:** How engaging and inspiring are the organisation's purposes and practices?
- **Responsibility:** How committed and accountable is the organisation?
- **Performance:** How solid and consistent is the organisation's quality and performance?

Having established the core identity of an Ōnuku salmon product, we can bring together the identity and reputation elements to explore the strategic implications of different combinations of linkages. The linkages can help to provide insights on strategy, competition, communication, and interaction that could be useful in guiding Ōnuku's future direction in the salmon industry.

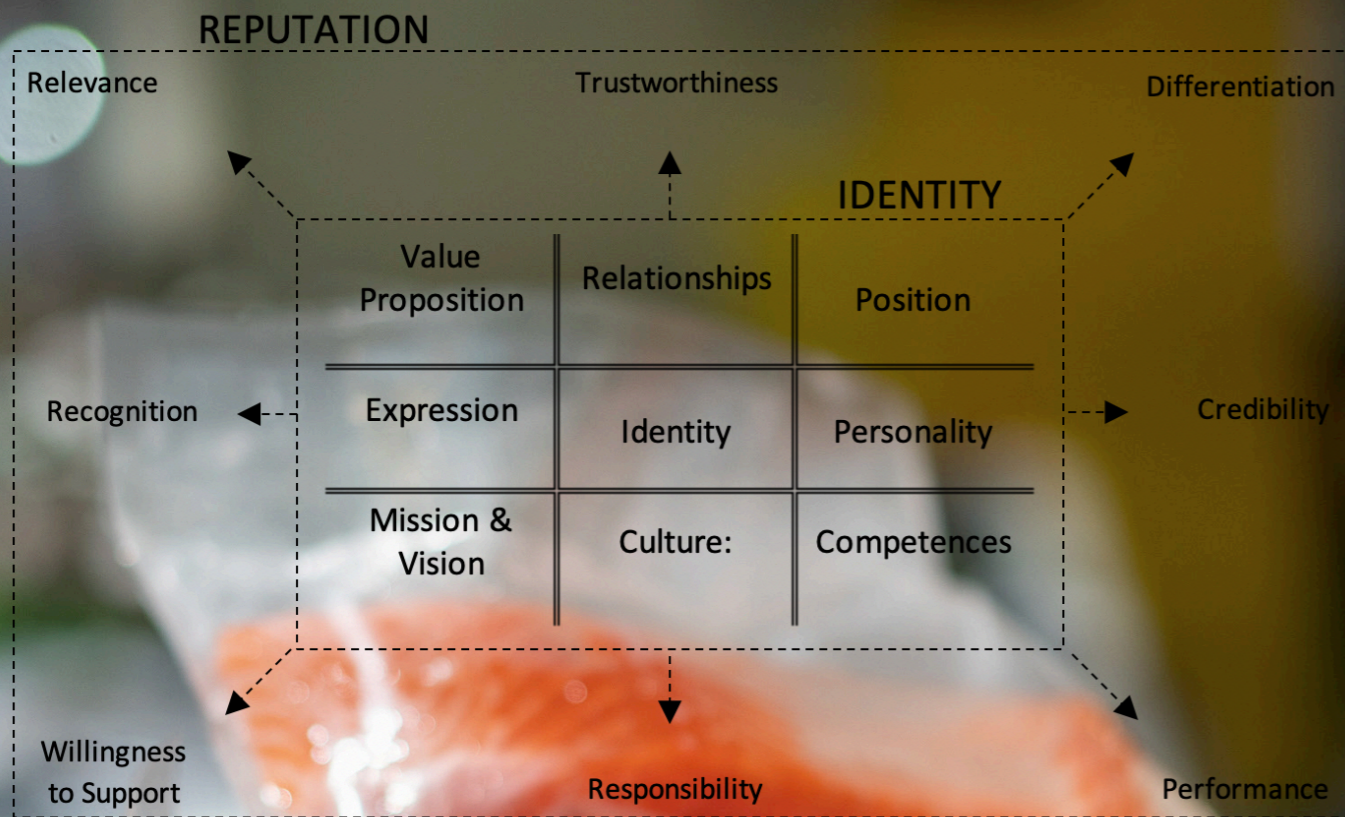
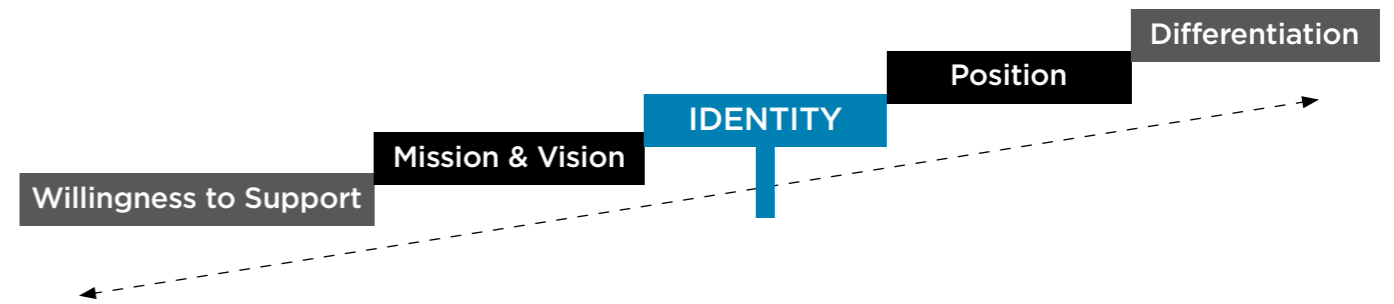


Figure 9. Connecting elements of identity to reputation



The strategy diagonal

Strategy can be formed for Ōnuku based on analysis of diagonal linkages across Identity and Reputation. The elements within this diagonal can be considered in pairs to build a strategy. Ōnuku's mission and vision connect to the reputational benefit of 'willingness-to-support'. Ōnuku's mission and vision are to build inter-generational wealth for whanau. Willingness-to-support is explained by the guiding question, 'How engaging and inspiring are Ōnuku's purposes and practices? Social wellbeing is a topic that has grown steadily in interest globally (Figure 10).

This growing interest supports the idea that Ōnuku can obtain reputational benefits from its operations by appealing to its vision of social wellbeing. The next pair to consider is position and differentiation. The wanted

position emphasises the ambition of Ōnuku and how it would like to be perceived by internal and external stakeholders. Ōnuku's wanted position is based on authenticity, quality, and meaning. This position relates to the reputational benefit of differentiation, addressed through the question How distinctive is their position in the market? Having reviewed the other major NZ salmon producers, we found some focus on place and quality. Still, there is no current offering with a te ao Māori interpretation of the meaning of place, people, and the values that underpin quality. These unique characteristics of Ōnuku's position could create a clear differentiation for salmon in domestic and international markets.

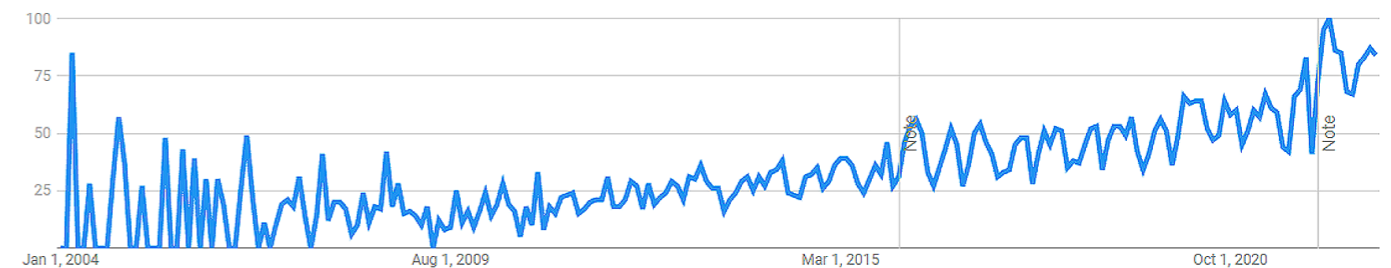
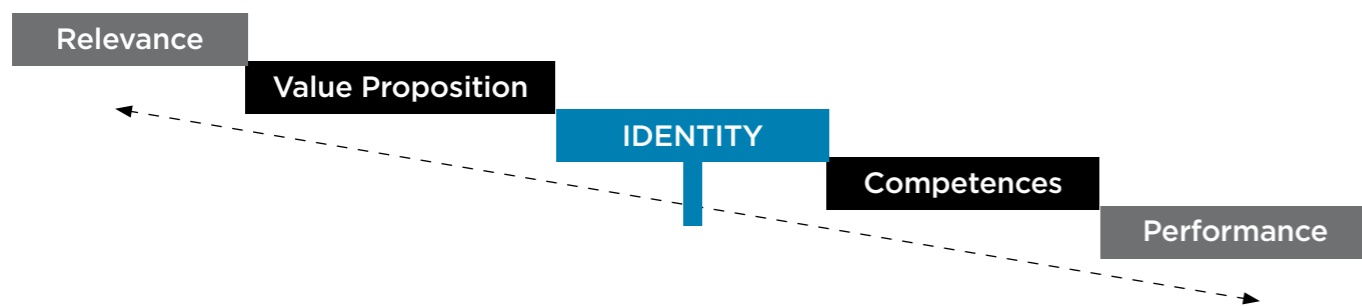


Figure 10. Trends in Google searches for the term 'social wellbeing'



The competition diagonal

The competition diagonal encompasses value-creating processes. Competence concerns how Ōnuku can use its capabilities to establish value-creating processes and potential competitive advantages. The strength and clarity of the competition diagonal are reflected by the stakeholders' perceptions of the reputation elements relevance and performance.

The value proposition is linked to relevance. Ōnuku's value proposition is to create a salmon product that is unique to its place and people. The relevance of this value proposition to consumers can be explored by asking, 'How appealing and meaningful is the value Ōnuku offers?' Figure 10 demonstrates that caring for communities is meaningful to the

broad public. We also know that place is perhaps the most important factor influencing consumer premiums for salmon. The appeal of Ōnuku's value proposition can be seen clearly reflected in social preferences and consumer willingness to pay.

The competition diagonal also links competences to performance. Its small-scale and boutique nature strongly influences Ōnuku's competencies. The associated reputation element performance can be explored by asking, 'How solid and consistent are their quality and performance?'. The long history of Akaroa Salmon and Ōnuku demonstrates that their competences are proven, both in market and society.



The competition horizontal

The identity element of personality is closely linked to the reputational benefit of credibility. Expression encompasses all forms of communication, including advertising, design and choice of media. This is primarily related to the reputational benefit of recognisability. The personality of Ōnuku is based strongly in te ao Māori and encompasses multiple values.

There is no question as to the credibility of this personality, ensuring that Ōnuku can quickly obtain these reputational benefits. Ōnuku does not express its presence strongly at present. As the expression of Ōnuku's identity is focused locally, the reputational benefits of recognisability are largely restricted to a local demographic.



The interaction vertical

The interaction vertical demonstrates how 'trustworthiness' and 'responsibility' are connected to and influenced by Ōnuku's identity. Trust recognises the nature of the relationships Ōnuku strives to build with its customer and non-customer stakeholders. Perceived responsibility is shaped by Ōnuku's internal culture. Ōnuku has established deep relationships within their community and through the country. They have partnered with other entities in establishing their presence in the salmon industry and have built large amounts of trust with multiple stakeholders. Ōnuku's culture is indistinguishable from Ōnuku.

Their entire existence is rooted in their culture, reflected in their behaviour and aspirations. Perceived responsibility can be addressed by asking, 'How committed and accountable are Ōnuku?' Ōnuku has demonstrated their commitments to culturally aligned quality aquaculture through multiple research programmes and significant investments. This commitment aids their perceived responsibility; however, this reputational benefit could be extended by investigating potential approaches to accountability and transparency in their salmon farming.

Summary

The investigation of Ōnuku's brand identity through exploring multiple linkages between identity and reputation has highlighted several strengths and weaknesses for creating a uniquely Ōnuku salmon product. Strategically, Ōnuku is well placed to establish a market position based on people and place. This can lead to a differentiated market position that seems to be increasingly important to society and strongly influences consumer willingness to pay for salmon. Considering industry competition, Ōnuku has a unique value proposition and established competences capable of offering unique and meaningful value to consumers. Analysing the strategic and competition diagonals reveals that Ōnuku is strongly positioned to provide a unique and high-value product that consumers demand.

The communication horizontal and the interaction vertical reveal areas where Ōnuku needs to focus more attention to fully realise the strategic and competition benefits identified. To obtain the full benefits of recognition, Ōnuku could consider how it expresses itself to a broader demographic. Currently, Ōnuku has a firmly established local position; however, additional communication strategies are required to broaden this influence. Finally, the interaction vertical demonstrated that Ōnuku has established a high level of trustworthiness. To establish the same high level of perceived responsibility from consumers and stakeholders, systems must be in place to communicate Ōnuku's responsible practices to external parties. This requires more investigation around assurance, certification, assessment methods, and transparency in their salmon operations. This limitation is common to many salmon producers; however, it also offers further opportunities for Ōnuku to enhance its reputational benefits by adopting new strategies to boost perceived responsibility.

Conclusion and pathways forward

The research has identified several unique opportunities for Ōnuku in the salmon industry. Ōnuku highly values their role as kaitiaki in the Akaroa Harbour and strongly desires to protect taonga. These aspirations can underpin a solid market strategy and identity in the salmon industry. To support Ōnuku in this endeavour, we analysed international market opportunities, risks, and consumer WTP for credence attributes in salmon. Based on these analyses, in combination with an understanding of Ōnuku's aspirations and values, we explored how Ōnuku could develop an identity and strategy in the salmon industry to increase premiums for Akaroa Salmon.

The report found that the New Zealand salmon industry is highly concentrated in the USA and China markets. This exposes the industry to risk from changing geopolitical, trade, and market conditions. Our trade modelling revealed several promising markets with untapped potential that could be investigated to reduce risk exposure and open new opportunities. The report identifies consumer attitudes towards salmon and

associated WTP premiums for credence attributes. We contrast this consumer demand with the brand identities portrayed by major NZ salmon producers. This analysis, combined with insights into Ōnuku's values and competencies and Akaroa Salmon's current identity, provided us with a foundation to construct a potential brand identity for Ōnuku in the salmon industry. The identity emphasises authenticity, quality, people, and place in a way that is unique to Ōnuku. This unique identity within New Zealand's salmon industry allows for a highly differentiated product offering. In working towards this identity, we revealed that there are a small number of key areas that Ōnuku are not currently maximising. These primarily relate to communication, particularly towards building a stronger presence outside its local area.

The research is not intended to be prescriptive and is focused on a long-term development journey; however, the research revealed several insights that have been configured as recommendations.

Recommendations

- **Explore the potential to sell into currently underrepresented markets such as Korea and Thailand for new opportunities**
- **Lower current over-exposure to the USA market**
- **In the short to medium term, focus on developing the systems and processes to increase price premiums rather than expanding production**
- **Target consumers who place importance on country of origin and ecolabels**
- **Construct an identity based on authenticity**
- **Focus the salmon value proposition on people, place, and kaitiaki responsibilities**
- **Pay particular attention to communication and ensuring a broad audience has access to the unique story of Ōnuku**
- **Investigate options for assurance, certification, or transparency enhancing mechanisms that can communicate and enhance authenticity for consumers.**

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