

Investment opportunities in the New Zealand **Salmon** industry

Part of the Food & Beverage Information Project

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STAGE III

This document represents the third stage of a wider industry screen designed to identify, develop & highlight emerging growth opportunities in New Zealand food and beverage exports for potential investors and other interested parties

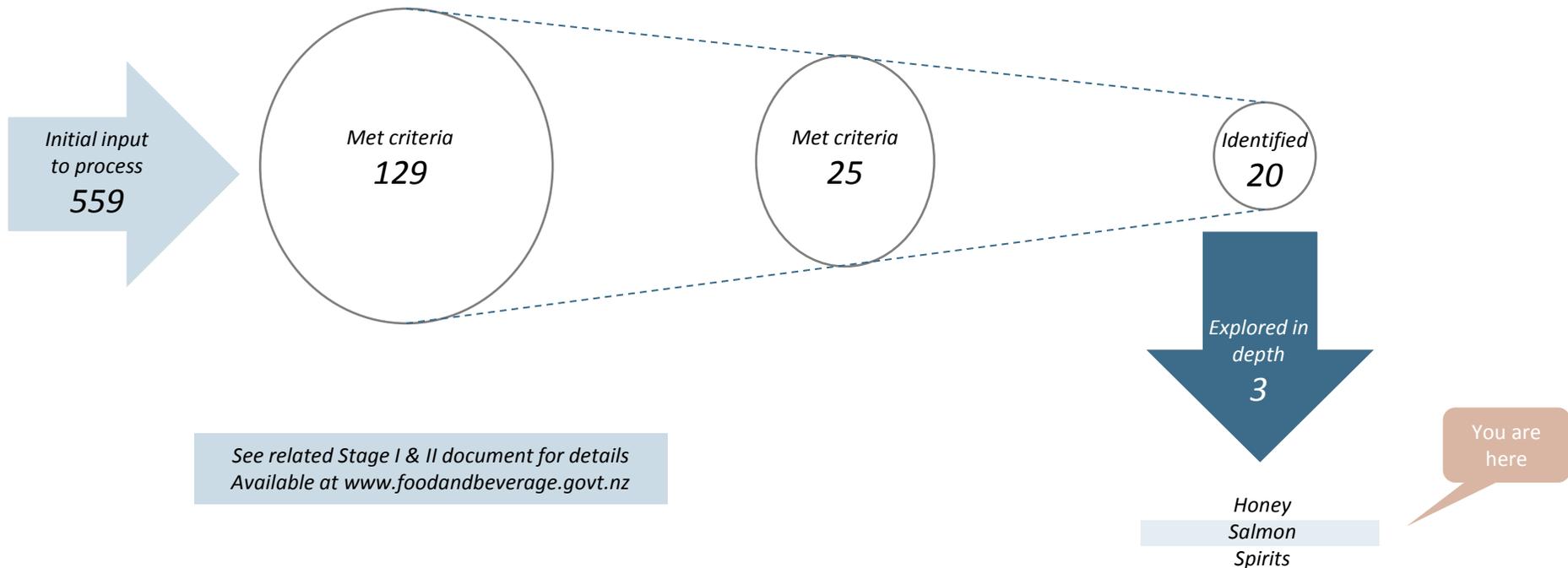
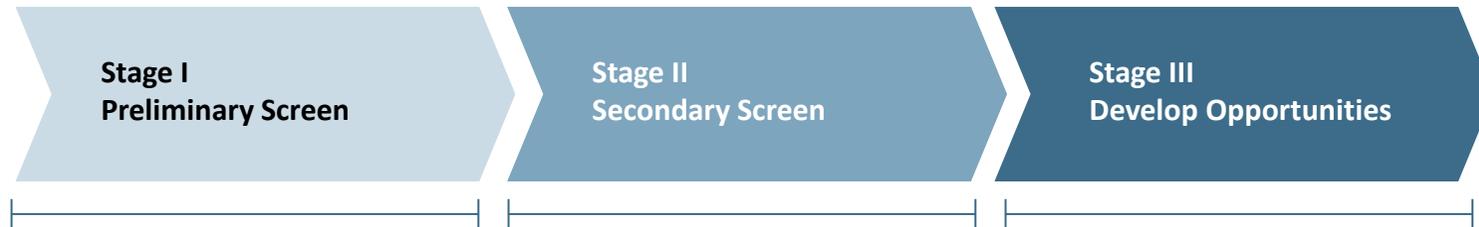




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GLOSSARY OF TERMS

This report uses the following acronyms and abbreviations

ANZSIC	AU/NZ Standard Industry Classification
b	Billion
CAGR	Compound Annual Growth Rate
e	Estimate
f	Forecast
FOB	Free on Board
FT	Full time
HS Codes	Harmonised System Codes for commodity classifications
m	Million
n/a	Not available/not applicable
NZ	New Zealand
NZ\$/NZD	New Zealand dollar
PT	Part time
S.H./N.H.	Southern/Northern Hemisphere
T/O	Turnover
t	Tonne
US/USA	United States of America
US\$/USD	United States dollar
UK	United Kingdom

METHODOLOGY & DATA SOURCES

Data was from a variety of sources, and has a number of identified limitations

- This report uses a range of information sources, both qualitative and quantitative.
- The numbers in this report come from multiple sources. While we believe the data are directionally correct, we recognise the limitations in what information is available.
 - In many cases different data sources disagree (e.g. Statistics New Zealand vs. FAO* vs. UN Comtrade).
 - Many data sources incorporate estimates of industry experts.
 - As one example, in many cases, the value and/or volume recorded as exported by one country does not match the amount recorded as being received as imports by the counterparty [for understood reasons].
- In addition, in some places, we have made our own clearly noted estimates.
- Coriolis has not been asked to independently verify or audit the information or material provided to it by or on behalf of the Client or any of the data sources used in the project.
 - The information contained in the report and any commentary has been compiled from information and material supplied by third party sources and publicly available information which may (in part) be inaccurate or incomplete.
- Coriolis makes no representation, warranty or guarantee, whether express or implied, as to the quality, accuracy, reliability, currency or completeness of the information provided in the report.
- All trade data analysed in all sections of the F&B Information project are calculated and displayed in US\$ (other than a few places where detailed data is not available). This is done for a range of reasons:
 1. It is the currency most used in international trade
 2. It allows for cross country comparisons (e.g. vs. Denmark)
 3. It removes the impact of NZD exchange rate variability
 4. It is more comprehensible to non-NZ audiences (e.g. foreign investors)
 5. It is the currency in which the United Nations collects and tabulates global trade data
- The opinions expressed in this report represent those of the industry participants interviewed and the authors. These do not necessarily represent those of Coriolis Limited or the New Zealand Government.
- If you have any questions about the methodology, sources or accuracy of any part of this report, please contact Tim Morris, the report's lead author at Coriolis, on +64 9 623 1848

SUMMARY – THE SALMON OPPORTUNITY

New Zealand salmon is unlikely to realise its potential and – as the industry is already highly consolidated – there are limited investment opportunities

Overview

- Salmon can only be farmed in a limited range of areas globally as the fish require cold water. In addition, the industry is highly capital intensive leading to salmon farming only occurring in a politically stable countries that offer long term sea space leases. Salmon aquaculture emerged in Norway and Scotland in the early 60s and 70s. From there it has spread to a handful of other countries at any scale.
- 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.

Drivers of success

- NZ is able to 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 achieves a 5-15% premium.
- Only Tasmania has sent any quantity of fresh salmon to New Zealand in the last decade (for unclear reasons¹). This lack of competition has meant that growing NZ domestic consumption has been met by NZ firms.
- The devastation caused by ISA* in Chile over the past three years drove up world prices and hence the value of NZ salmon exports.
- Relative to other proteins, salmon is a premium product farmed sustainably with positive health attributes.

Investment opportunities

- The NZ salmon industry emerged in the late 70s early 80s with great fanfare. Large numbers of firms entered, many listed on the stock exchange and were investment darlings for a period of time. However, the combined effect of falling global salmon prices (driven by increased efficiencies and increased production) and the on-going requirements for additional capital to fund growth pushed the NZ salmon industry into crisis in the early 90s. From this crisis emerged two key industry players: New Zealand King Salmon (NZKS) and Sanford.
- **New Zealand King Salmon [NZKS]** (68% of NZ production) is currently owned by the Tiong Group of Malaysia (an Asian conglomerate with interests ranging from palm oil to newspapers) and Direct Capital (a NZ based Private Equity Firm). It is not obvious that either of these owners are clear long term holders. King Salmon

has announced the desire to add +206 hectares, allowing it to grow turnover to \$500m/year.

- **Sanford** (24% of NZ production) is a NZX-listed seafood company with activities ranging from deep sea fishing through to mussel farming. Privately owned Amalgamated Dairies is a cornerstone shareholder at 37%.
- Beyond these two large firms, there are four small scale salmon producers – three in fresh water hydroelectric canals and 1 using sea-cages in Akaroa. Of these Mt Cook salmon has recently announced a \$20m expansion plan to fuel a 1,400% production increase over the next four years.

Growth potential?

- New Zealand has excellent theoretical potential to produce salmon: Norway, a country of a similar size to New Zealand, produces 75 times as much salmon; and, at a smaller scale, the Faeroe Islands produces 218 times as much salmon as the Banks Peninsula region.
- However, this strong hypothetical potential for continued growth is unlikely to be realised. Unlike Norway or the Faeroes, the rule book has been regularly changed. It is too early to tell at this stage whether the rules introduced last year will make things easier in practice.
- The fundamental issue is that NZ as a society has yet to come to a consensus on salmon aquaculture, with the proponents arguing for it to become a billion dollar industry, while a wide ranging opposition of recreational fisherman, inshore fishing companies, holiday home owners and environmental advocates oppose its growth. There is also historic uncertainty around foreshore and seabed ownership.
- In this environment it is difficult to recommend investment in the NZ salmon industry due to the high levels of risk, uncertainty and cost around ocean space tenure and renewability of tenure. Any use change is slow, uncertain and costly. NZKS has recently spent NZ\$6m on a resource consent and filed a 2,600 page application from 40 experts with an unclear chance of success. It is hoped that the recently introduced EPA, deciding on consents of national significance, will improve the process.
- NZ's largest seafood company Sealord recently invested in salmon aquaculture in Tasmania.



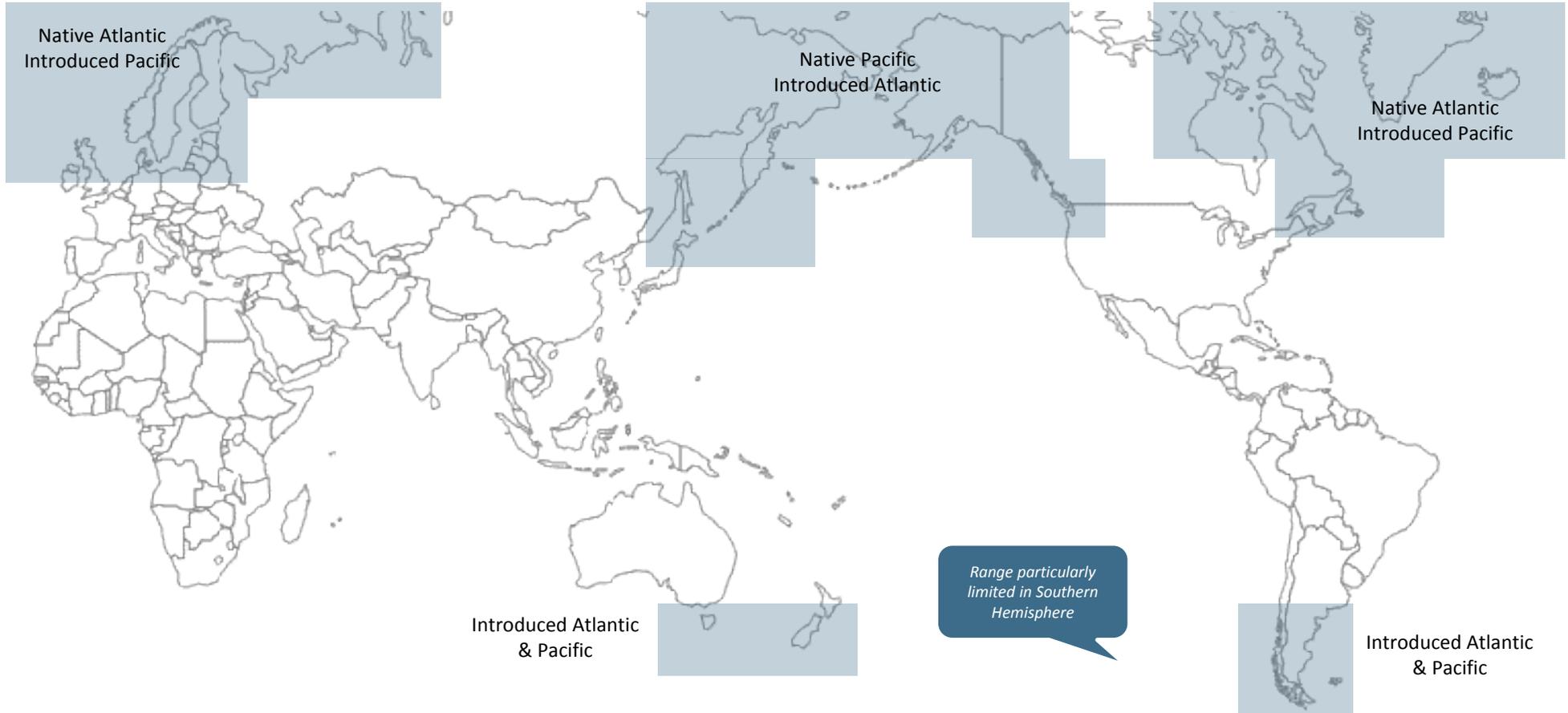
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SALMON – PRODUCTION REGIONS

Salmon can only be produced in a limited range of areas globally

Salmon producing regions
(2011)



SALMON – KEY SPECIES

There are six key salmon species globally – three farmed (Atlantic, brown trout and Coho) and three wild (Pink, Chum and Sockeye); New Zealand farms a minor species Chinook/King salmon

Overview of the key/secondary species in the global salmon industry
(various; 2008-2010 as available)

Scientific name	Common name(s)	Wild capture (t; 000; 08)	Aquaculture production (t; 000; 08)	Key aquaculture producing countries		Comments/notes
Salmo salar	Atlantic salmon	3	1,457	Norway Chile Scotland Canada	Faeroe Isl. USA Others	<ul style="list-style-type: none"> - Most important species globally - Most suitable for farming - Strong breeding programs in place improving performance
Salmo trutta	Brown trout Sea trout	TBD	TBD			
Oncorhynchus kisutch	Coho salmon	21	105	Chile Japan		<ul style="list-style-type: none"> - Valuable enough for farming - Primarily for Japanese market
Oncorhynchus gorbuscha	Pink salmon Humpback salmon	307	-	-	-	- Of low value so not attractive to aquaculture
Oncorhynchus keta	Chum Dog salmon Keta salmon	343	-	-	-	- Of low value so not attractive to aquaculture
Oncorhynchus nerka	Sockeye salmon	136	-	-	-	- Less adaptable for farming because it has lower growth and survival rates, it has a lower fillet yield and it is more susceptible to stress leading to poor product quality
Oncorhynchus tshawytscha	Chinook salmon King salmon Columbia river salmon Copper river salmon	6	9	N. Zealand Canada		<ul style="list-style-type: none"> - Other countries getting out of not into this species due to its poor performance relative to Atlantic (e.g. rate of growth, real world FCR, etc.) - Persistent fish health challenges in other markets (bacterial kidney disease, rickettsia) - Effectively only two firm farming this species globally (NZKS and Creative Salmon [B.C.. Canada]) at scale - New Zealand produces 70%+ of global farming output

SALMON – CANNED VS. FRESH

In most markets farmed Atlantic salmon and trout are sold as a premium fresh or smoked product while wild Pacific salmon is sold in canned form

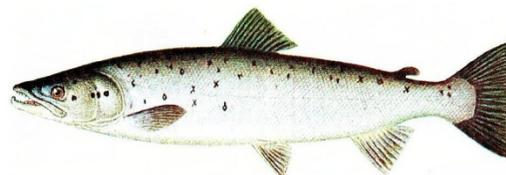
Typical usage of three key salmon species by usage form (2012)



Sockeye or Red salmon
Oncorhynchus nerka



Pink salmon or humpback salmon
Oncorhynchus gorbuscha



Atlantic salmon
Salmo salar



Rainbow trout
Oncorhynchus mykiss



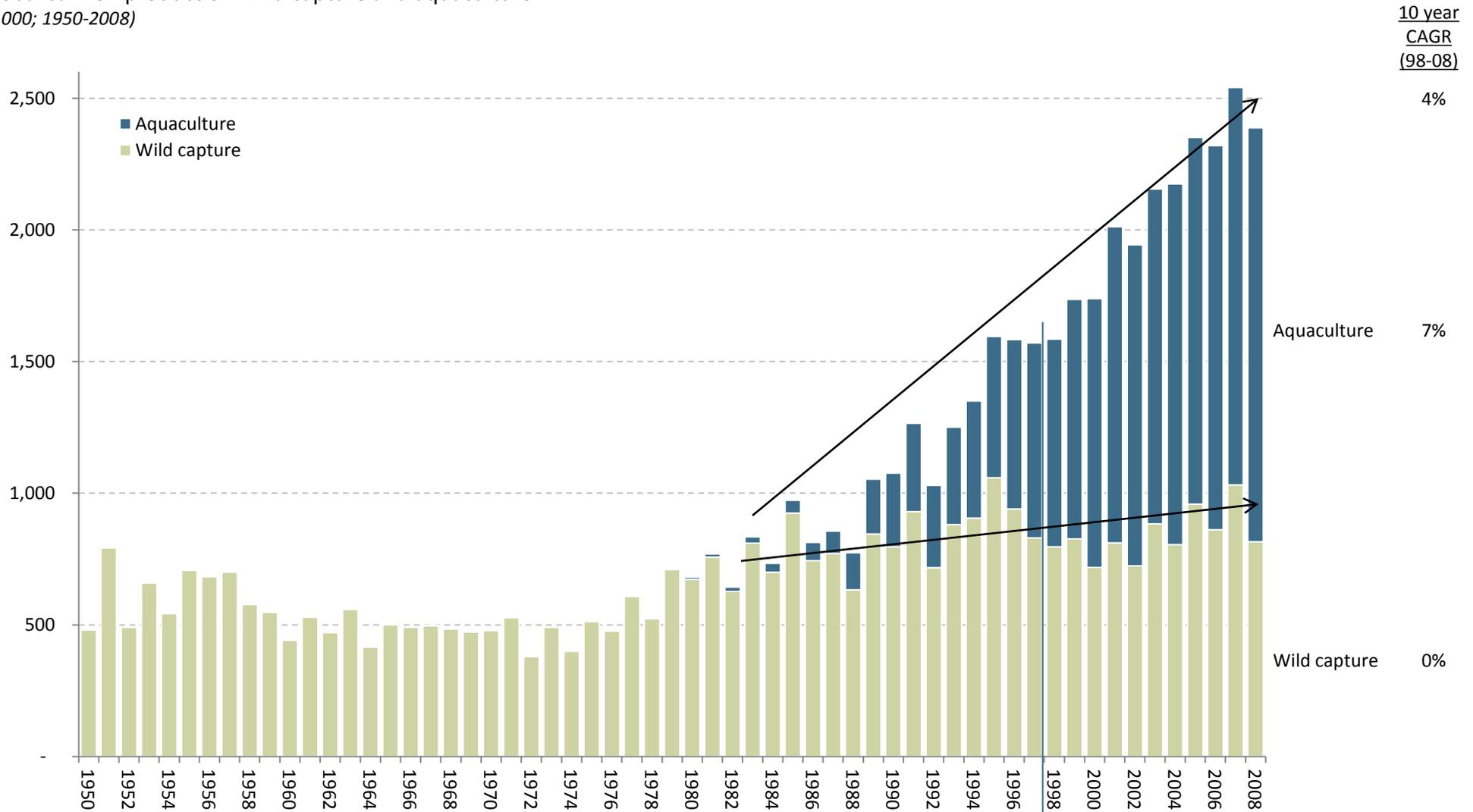
Brown trout
Salmo trutta



SALMON – GLOBAL PRODUCTION

Globally wild capture of salmon is flat; salmon aquaculture took off in the early 80's and has achieved strong growth such that aquaculture now exceeds wild capture

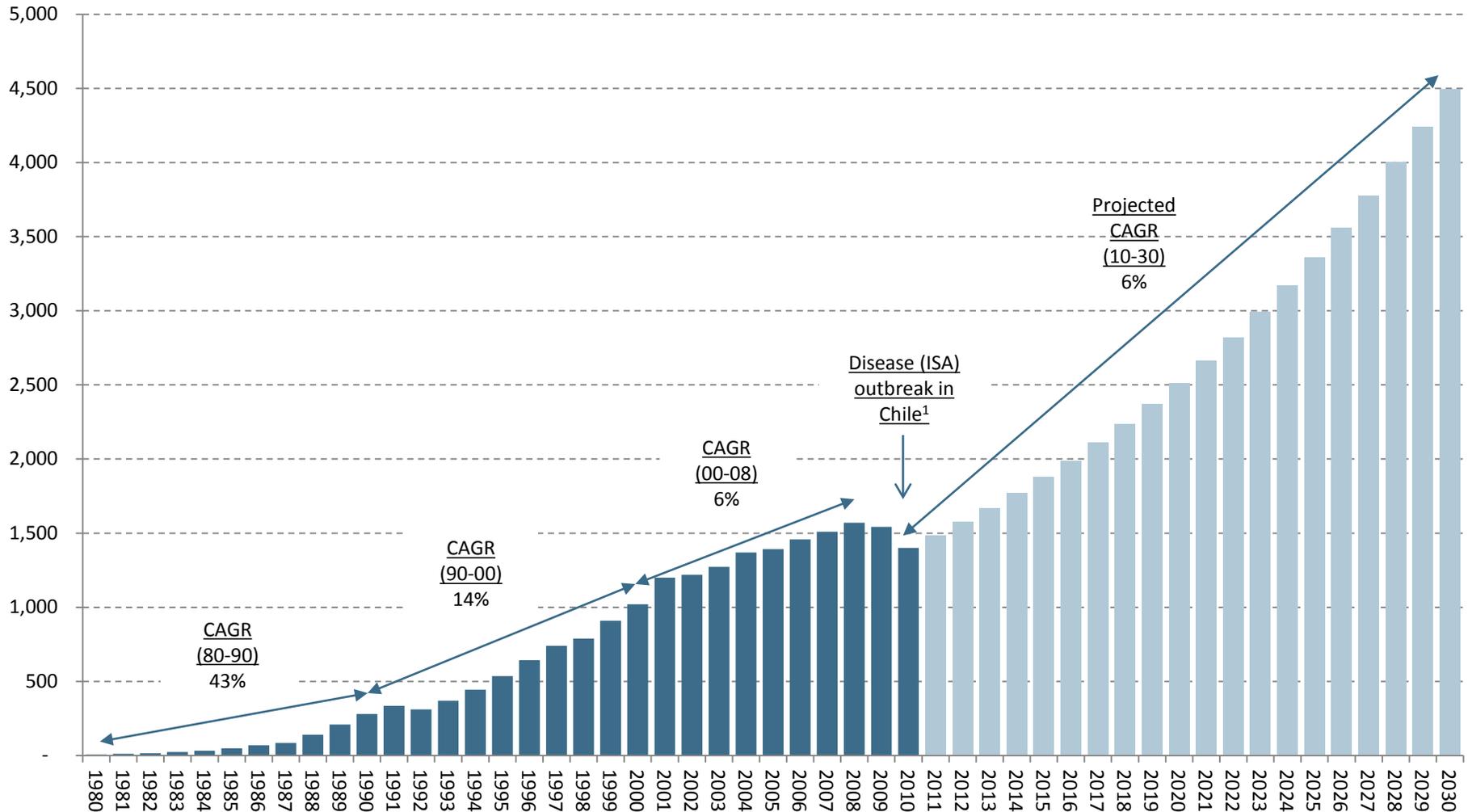
Global salmon production: wild capture and aquaculture
(t: 000; 1950-2008)



SALMON – FORECAST GROWTH

The rate of growth in farmed salmon production has slowed as the industry has matured; however Marine Harvest (the global #1 salmon firm) forecasts 6% global production growth through 2030

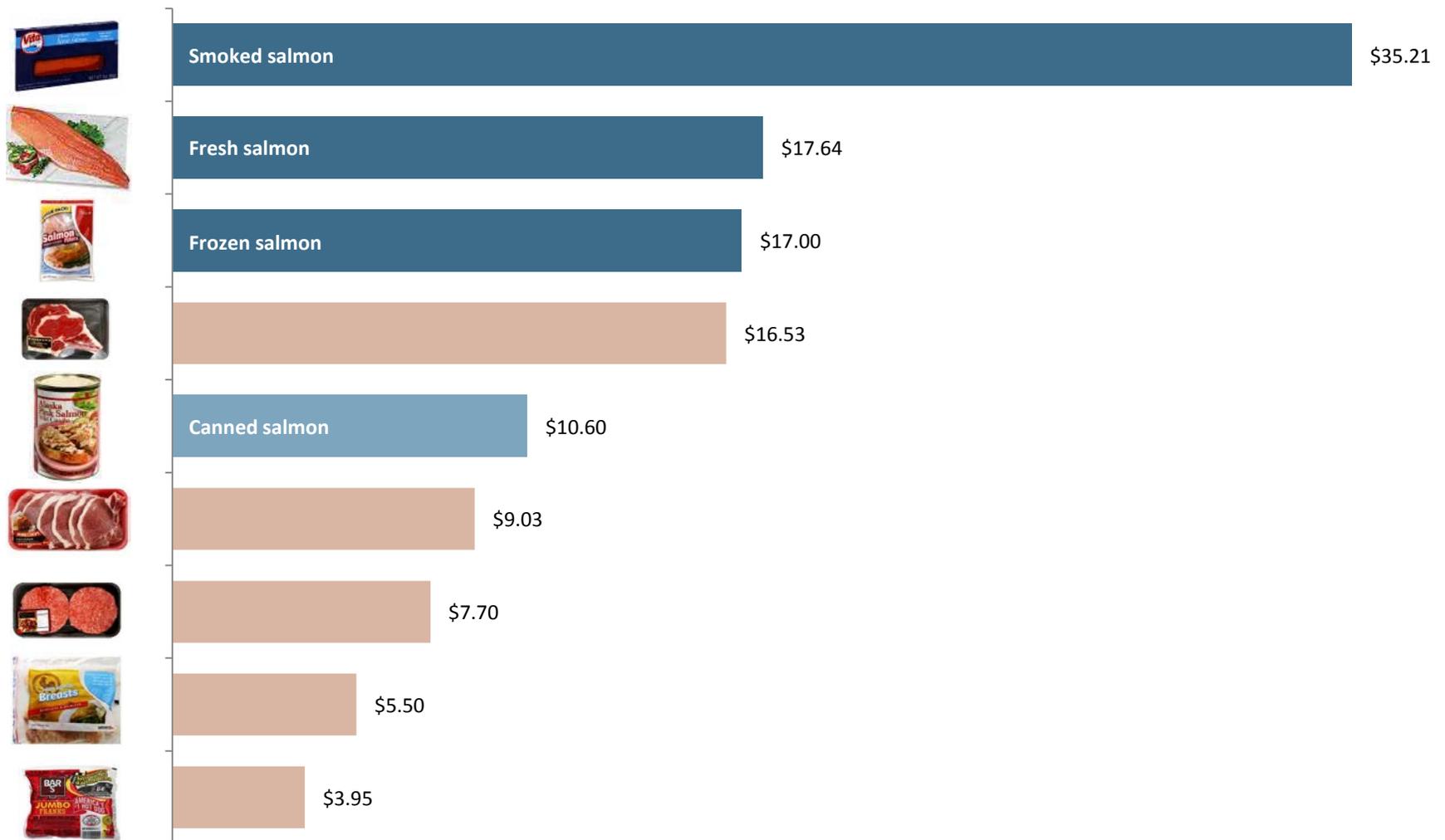
Global salmon aquaculture production: actual and forecast
(t: 000; 1980-2030f)



SALMON – PRICE VS. OTHER MEATS

Salmon is a premium product that achieves higher prices than most other proteins

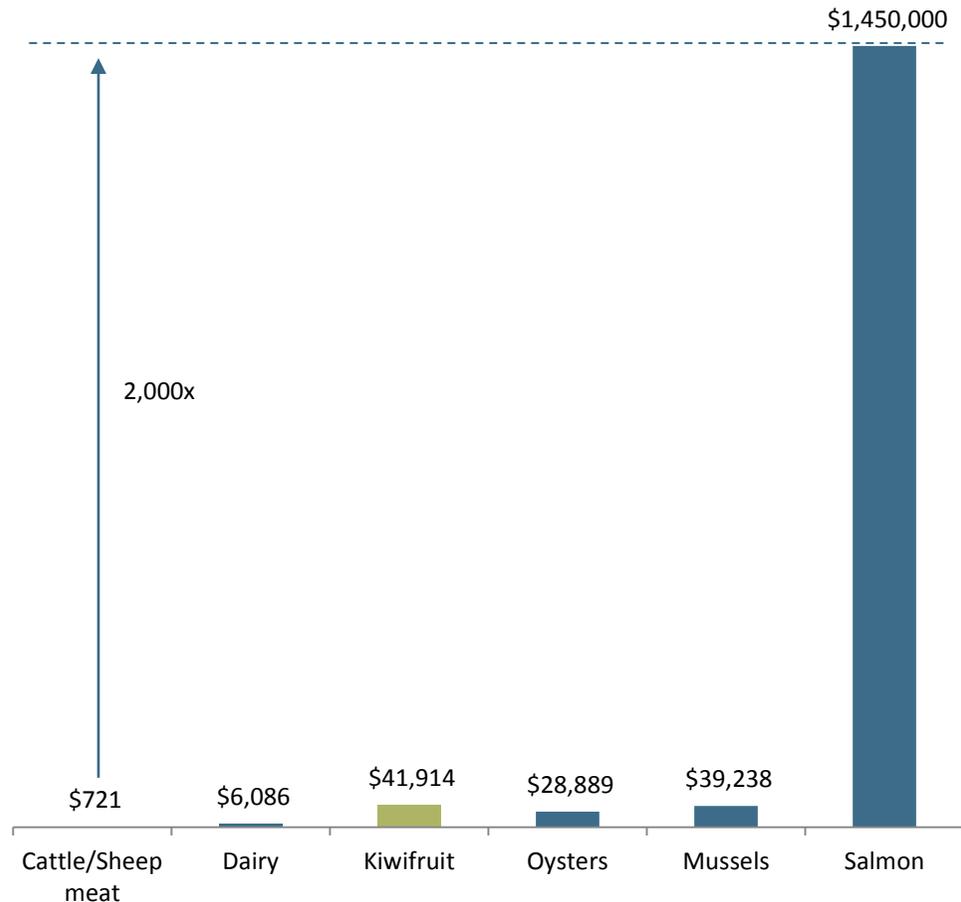
EXAMPLE: Price per kilogram of salmon and select other meats in the United States
(US\$/kilogram; March 2011)



“FARMGATE” RETURN PER HECTARE

Salmon returns dramatically more per hectare than other forms of agri/aqua-culture; for example, salmon returns 2,000 times as much per hectare as beef and sheep meat

Realised “New Zealand farmgate” value per hectare of space
(NZ\$; 2011 or as available)



Incremental New Zealand “farmgate” value of +700ha of space
(NZ\$; millions; 2011 or as available)

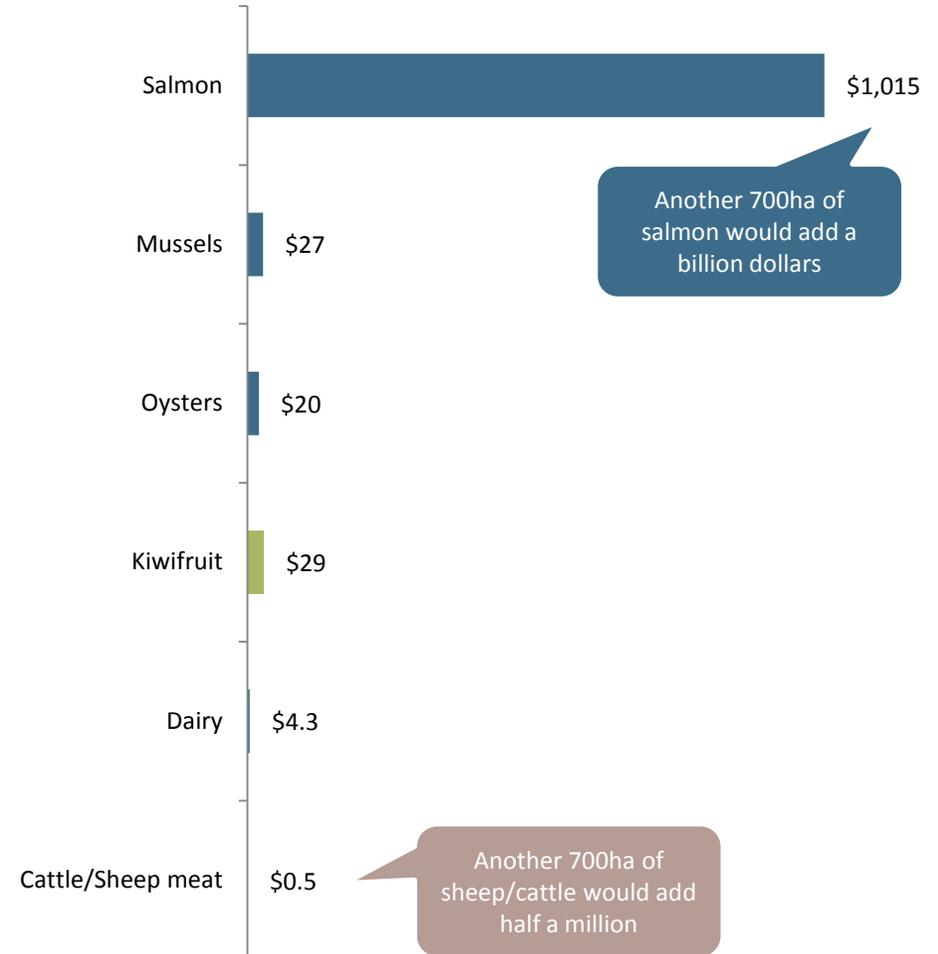




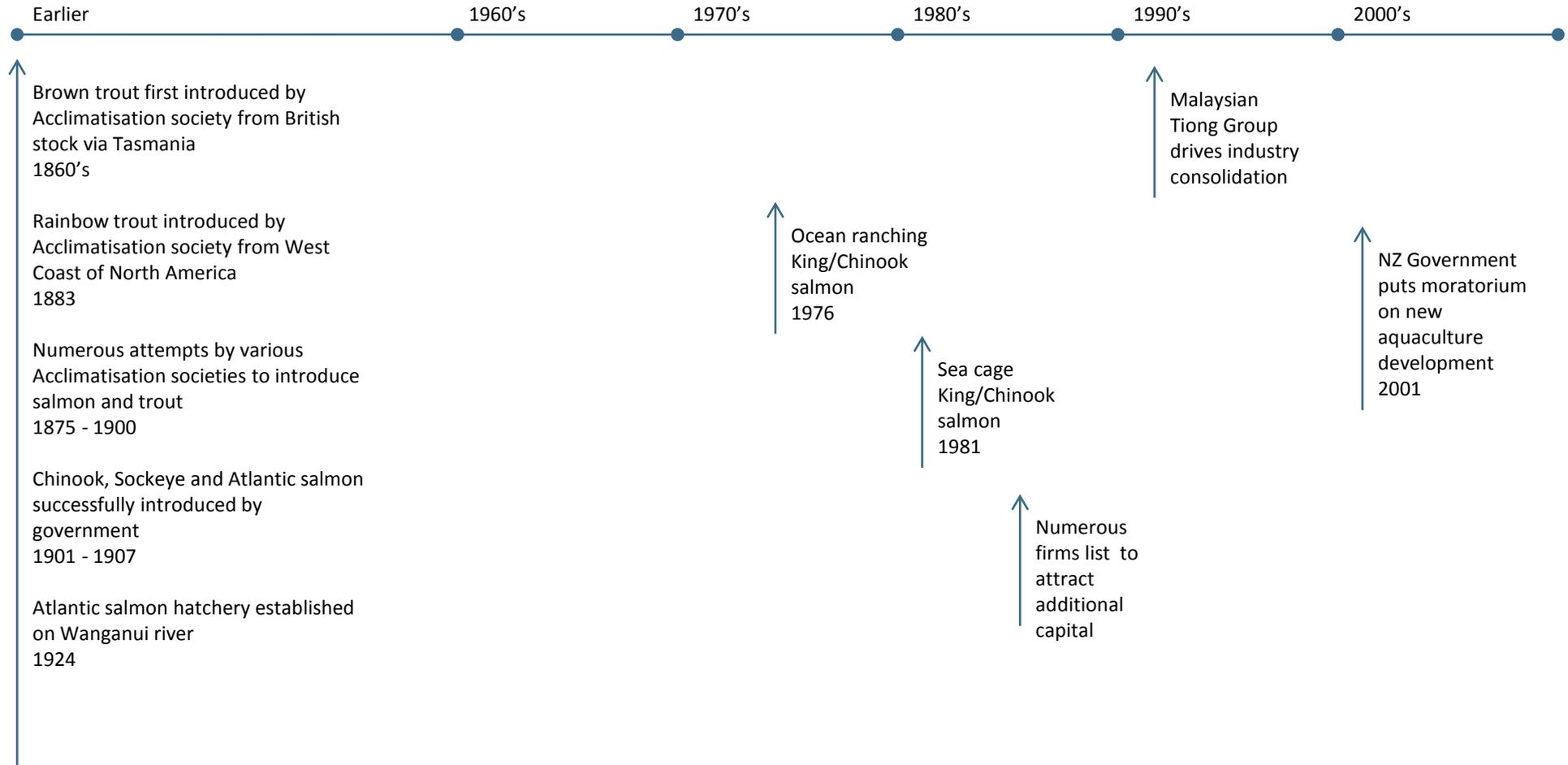
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TIMELINE

Salmon were introduced into New Zealand more than 100 years ago; salmon farming started in 1976 and the industry has expanded since then

Timeline of salmon and salmon aquaculture development in New Zealand
(1860-2010)



INTRODUCED SPECIES

Five key members of the Salmon family were introduced to New Zealand over 100 years ago; only one species (Chinook) is currently farmed at any scale

Key member of the Salmon (Salmonidae) family introduced in New Zealand¹
(1850-1910)

Illustration	Species	Year introduced	Source	Current status in wild	Farmed elsewhere?	Farmed in New Zealand?
	Brown trout <i>Salmo trutta</i>	1860's	British stock via Tasmania; subsequent introductions	Widespread south of Coromandel Peninsula	Yes (Primarily in UK)	No (illegal)
	Rainbow trout or steelhead <i>Oncorhynchus mykiss</i>	1883	From Sonoma Creek, California	N & S Island; rivers that flow into lakes (not seagoing)	Yes (widespread)	No (illegal)
	Atlantic salmon <i>Salmo salar</i>	1901 - 1907	British stock via Australia; numerous attempts to seed around country	Close to extinction ² ; remnant wild stocks confined to lakes in Southland's upper Waiau catchment	Yes (widespread)	No (Past trials; no current farms)
	Sockeye or Red salmon <i>Oncorhynchus nerka</i>	1902	Gift from Canadian Government	Virtually extinct; remnant population around Lake Ōhau (S Island)	No (Not economic)	Limited (1 small firm)
	Chinook or King salmon <i>Oncorhynchus tshawytscha</i>	1875 (failed) 1901 - 1907	From Baird Fish Station, McCloud River in California.	Mainly on South Island East Coast	Limited (2 farms; disease; poor economics)	Yes (Primary species farmed currently)

WHY CHINOOK?

Unlike the rest of the world¹, New Zealand farms Chinook salmon; this is the result of historical accident rather than any plan or strategy

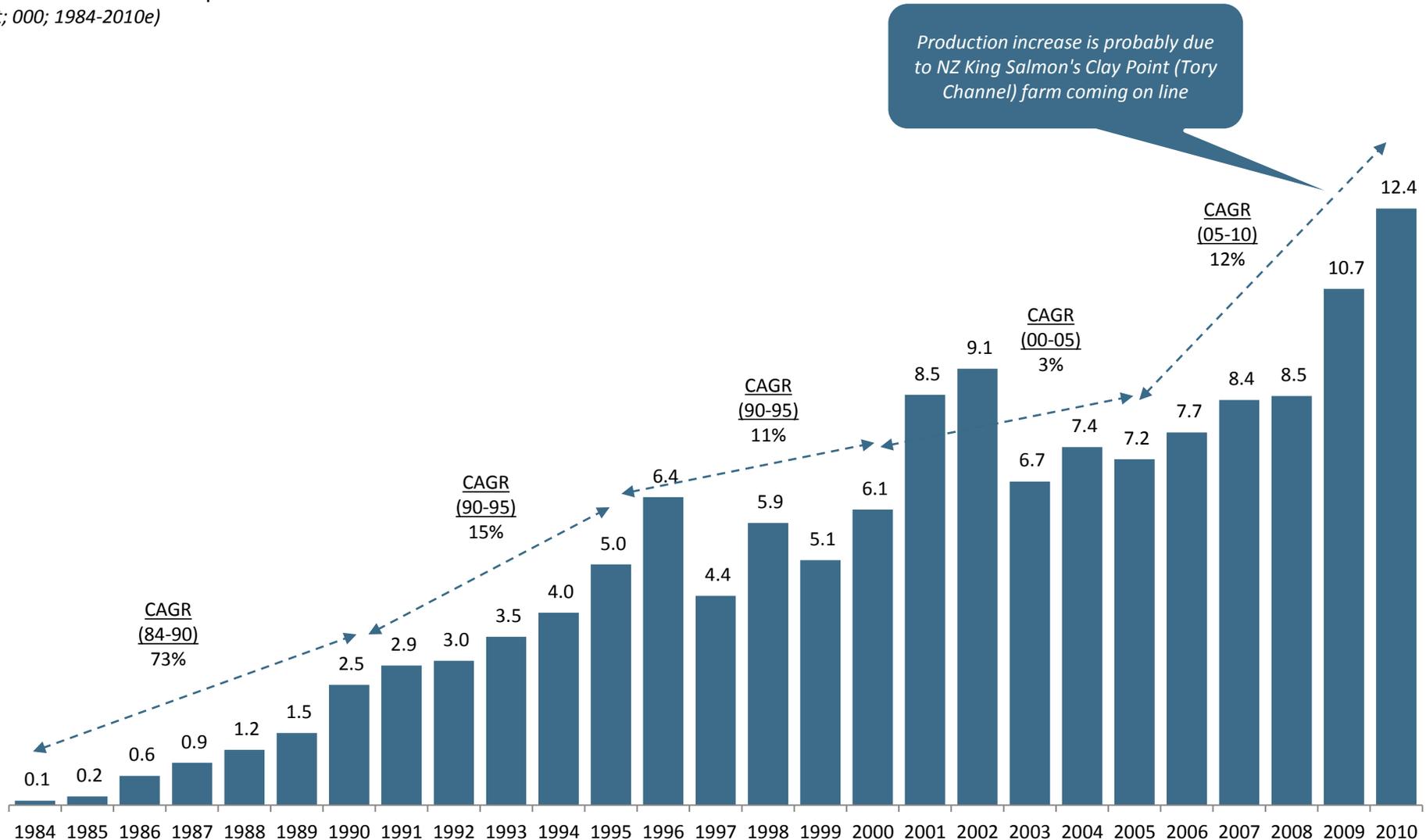
Identified reasons for and against Chinook salmon farming
(2012)

	Why do other countries not farm Chinook?	Why does New Zealand farm Chinook?
Disease	<ul style="list-style-type: none"> - Chinook farming has persistent fish health challenges (Bacterial Kidney Disease, Rickettsia) in other regions (Canada, Chile) which are profound challenges to production for North American or European market - These diseases are difficult and expensive to treat² 	<ul style="list-style-type: none"> - Chinook in NZ are free of most diseases and parasites - If key diseases were to arrive (cf. oysters, kiwifruit), the industry would likely collapse (and need to transition to Atlantic)
Economics	<ul style="list-style-type: none"> - Chinook grow more slowly than Atlantic salmon (time is money) - Chinook have a poorer feed conversion ratio (FCR) than Atlantic salmon - Norway has a major breeding program underway for Atlantic salmon continuously improving the production efficiency of Atlantic 	<ul style="list-style-type: none"> - Significant fresh/frozen imports of salmon do not happen, for unclear reasons, therefore New Zealand producers can be less efficient - Lack of diseases improves economics (cost of treatment, rate of growth, yield, survival rate)
History (path dependence)	<ul style="list-style-type: none"> - "Atlantic salmon have become the dominant farmed species for a number of reasons. Most notable is that Norway's-and to a lesser extent Scotland's-early development of Atlantic salmon aquaculture meant that the techniques and technologies for cultivating this particular species, as well as markets for its sale, were well established by the time the industry spread to other countries. In addition, Norway's dominance of the market, combined with its pioneering role in developing salmon aquaculture, has meant that aquaculture research and experience in Norway has strongly influenced the industry's development. Well-established Norwegian breeding programs have developed highly domesticated broodstock (Amos and Appleby, 1999) with "...faster growth rates, greater tolerance for higher stocking densities, superior disease resistance, and more efficient feed conversion rates" (<i>The Standing Senate Committee on Fisheries, 2001</i>) 	<ul style="list-style-type: none"> - Chinook salmon widespread around South Island of New Zealand - Atlantic salmon only in one river (Waiau) at time salmon aquaculture emerged in New Zealand (1976/1981) - Industry emerged locally rather than through investment by Top 10 global (i.e. Norwegian) salmon aquaculture firms

SALMON – NZ PRODUCTION

The New Zealand salmon industry experienced a period of strong growth through the mid-90's; growth since was slowing until a recent surge 09/10e

New Zealand salmon production
(t; 000; 1984-2010e)



LISTED FIRMS

The excitement around salmon farming led to five salmon companies being listed on the stock exchange and one listed firm (Salmond Smith Biolab) acquiring a salmon company; all were to be poor long term investments

New Zealand salmon farming companies which were publicly listed in New Zealand
(1980-1990)

Listed firm	When listed	Details	Effective outcome	Today
New Zealand Salmon	1983	<ul style="list-style-type: none"> - Set up; is listed; loses lots of money; diversified into vegetable processing (Cedenco) and packaging (Drum); gets export commendation from TradeNZ; didn't achieve scale; was sold 	Lost investors money; acquired by Regal; eventually acquired by Tiong Group	Now part of NZKS
Big Glory Seafoods	Oct 1986	<ul style="list-style-type: none"> - First NZ sea cage operation set up by British Petroleum in 1981 - Went through a number of hands; was listed; diversified; gets export commendation from TradeNZ; was acquired; sold 	Acquired by 80's era conglomerate which became Montana Wines; sold salmon operation	Now a division of Sanford
New Zealand Marine Farms	1986	<ul style="list-style-type: none"> - Reverse takeover by Como - Como sells salmon operations to South Pacific Salmon; SPS sells to Fleetwing Ent.; Fleetwing converts site to mussel farming 	Lost investors money; eventually acquired	Gone
Regal Salmon	Sep 1986	<ul style="list-style-type: none"> - Created in merger of South Island Salmon Partnership and the South Island Salmon Company - Initial success; further capital raising; diversifies into wine and wasabi; loses money; wins TradeNZ export award; sells more shares; alleged insider trading; Securities Commission investigation; fined; loses more money; acquired by Tiong 	Lost investors money; eventually acquired by Tiong Group	Now part of NZKS
Crowe Corporation	Jan 1987	<ul style="list-style-type: none"> - Goat farming and ocean ranching of salmon 	Lost investors money; receivership; acquired by DFC	Gone
Salmond Smith Biolab	[1965]	<ul style="list-style-type: none"> - Listed firm buys into salmon industry pioneer, diversifies; loses money 	Acquired by Tiong Group	Now part of NZKS

EARLY HYPE

The industry initially had strong hype about the potential for growth

- “[Investors will] participate in two of the most exciting primary industries to emerge in New Zealand in the last five years, Goat farming and ocean ranching of salmon.” *Tony Crowe, Managing Director, Crowe Corporation, Jan 1987 (at time of listing)*

MORE DIFFICULT THAN EXPECTED

Salmon farming proved more difficult than expected

- "The number of listed salmon companies is unjustified yet more are expected before the end of this year... Ocean ranching is a very volatile business with no guarantee of returns after large initial capital costs. Operating costs are lower than for sea cages but it should not be considered a low-cost exercise. Sea cage profit margins are at best moderate and are likely to deteriorate with salmon prices falling through the world-wide production explosion... [We note] a similar pattern occurred in other glamour industries such as thoroughbred breeding and goats. Initial prices for these stocks proved unsustainable and rationalisation of salmon stocks is expected over several years." *Analyst report, O'Connor Grieve and Co. (sharebrokers), May 1987*
- "Salmon farming is a new speculative venture capital industry carried out in remote areas... A combination of unforeseen circumstances had led to the present position." *Sir Ronald Scott, Chairman, New Zealand Marine Farms, July 1987*
- "Listed salmon farmer New Zealand Marine Farms Ltd is in a liquidity crisis and the future of the company depends on the banker devising a rescue plan. The company yesterday reported to the stock exchange its plans to develop new licences in the newly identified Port Underwood area had taken a severe setback through the company's share price falling below par (\$1) on the stock exchange... A pilot salmon farming scheme operated in the port Underwood area had shown good results, Mr Baigent said. However, more cash was needed to set up a full operation but time had run out." *New Zealand Herald, Feb 1987*
- "The New Zealand Salmon Co Ltd has not yet been able to identify the algae bloom responsible for killing a proportion of its salmon stock from seacage farming operation in Big Glory Bay, Stewart Island." *New Zealand Herald, Jan 1989*

WORLD PRICES DOWN

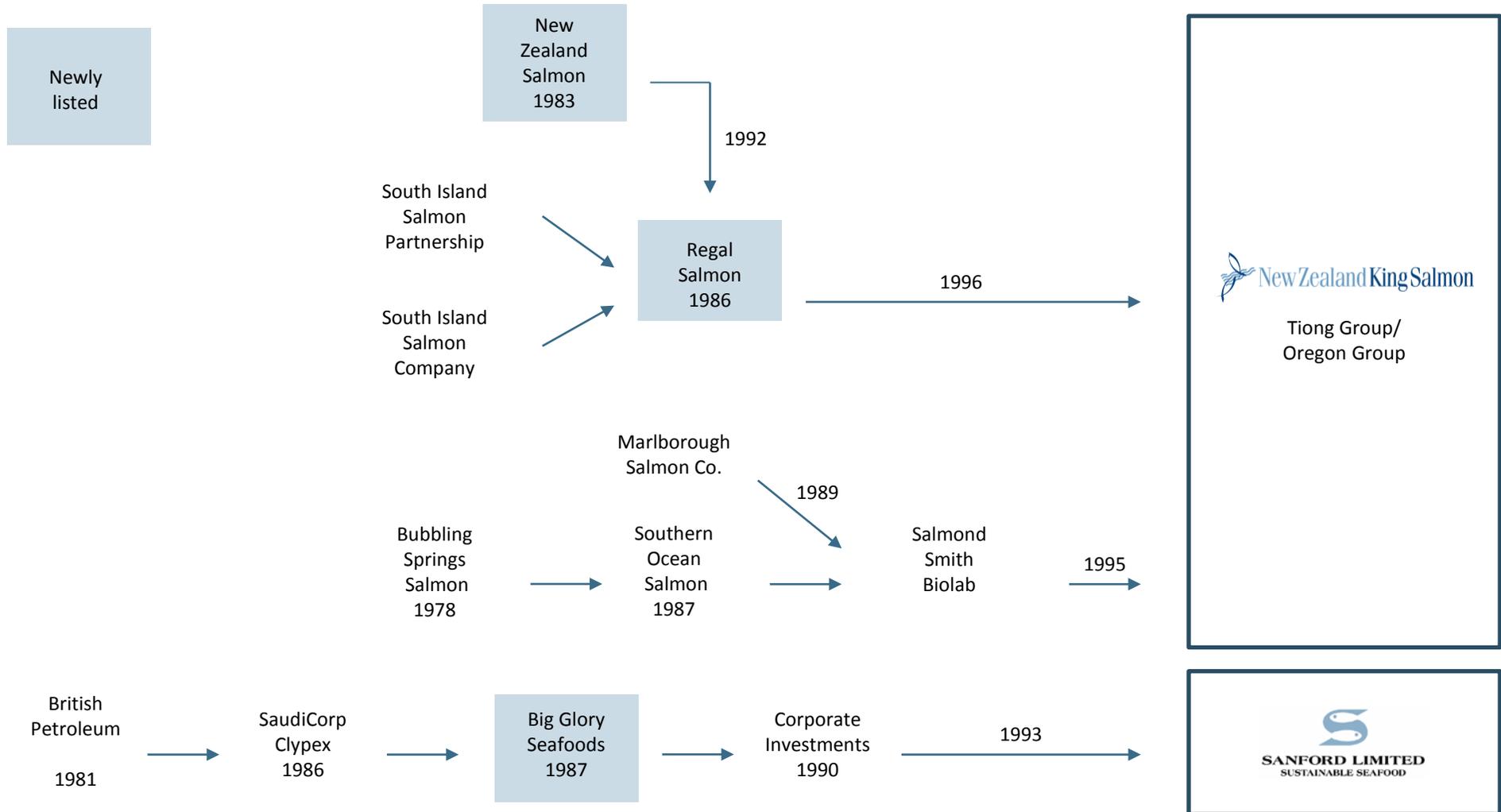
Increasing global production of farmed Atlantic salmon drove down world prices impacting New Zealand firms

- “A combination of losses from the January 1989 algae bloom, weaker world salmon prices and an international oversupply of fish has prompted Regal Salmon to revise downwards its profit forecast.” *New Zealand Herald, Feb 1990*
- “New Zealand companies involved in salmon farming are being hit hard by a fall of 25 to 30 per cent in world prices for frozen and chilled salmon.” *New Zealand Herald, April 1990*
- “News of a disappointing result from New Zealand Salmon Co Ltd has focused attention again on the skyrocketing world production of salmon, and the question of how well New Zealanders can foot it in such a climate. Hard on the heels of Regal Salmon Ltd's 18-month loss of \$940,000 to March 31, NZ Salmon turned in a six-month loss of \$1.797 million to March 31, compared with a loss to the same time last year of \$425,000. Both companies have pointed to world oversupply as the main source of their woes on the salmon side of their businesses, but hold out hope for a brighter future for the industry.” *National Business Review, July 1990*
- “Worldwide prices have not risen as expected.” *Terry Shagin, Managing Director, Regal Salmon, June 1992*
- “Trouble came in 1993 when [Regal Salmon] announced a \$4.63 million loss for the six months ended September.. The company blamed the loss on a 25% drop in prices for fish sold to Japan and a general world oversupply, stemming principally from an unanticipated increase from Norway. Regal's share price immediately fell from 80c to 48c, both figures being a substantial slump from the \$2.50 reached in 1992 for shares issued at 50c in 1986. The company then came under the control of Malaysia's Tiong Group, which acquired Salmond Smith Biolab in late 1995/early 1996 and merged the two.” *Peter V. O'Brien, National Business Review, Dec 1997*
- “Regal Salmon yesterday reported an expected trading loss for the six months to September 30, but pulled a surprise by adding that its prospects of meeting a predicted annual profit and dividend had diminished considerably. The company blamed the \$4.63 million interim loss on foreign exchange losses and a sharp decline in the price of salmon on the Japanese market.” *New Zealand Herald, Dec 1993*

INDUSTRY CONSOLIDATION

The New Zealand salmon farming industry went through a number of phases of industry consolidation in the late 80's and early 90's leading to the current situation of two key firms

Chart of key takeovers and acquisitions in the farmed salmon industry in New Zealand (1978-1996)



KEY ACQUISITIONS

Acquisitions in the New Zealand salmon industry have been driven primarily by a search for additional scale

Key historical acquisitions in salmon farming sector in New Zealand
(1990 - Feb 2012)

Date	Target	Price	Buyer	Seller	Details
Feb 1992	NZ Salmon	\$3.7m	Regal Salmon	NZ Salmon	<ul style="list-style-type: none"> Listed NZ Salmon sells domestic NZ salmon farms leaving investment in Chilean salmon farm sea cages at Stewart Island, the Trentburn Hatchery, its 50% share in the feed mill owned with Regal Salmon
Mar 1993	Big Glory Seafoods	\$14m	Sanford Ltd.	Corporate Investments	<ul style="list-style-type: none"> 700-800t/year production Includes other seafood assets Original BP sea cage business
Oct 1995	Salmond Smith Biolab	N/A	Tiong Group	Listed	<ul style="list-style-type: none"> Tiong Group acquires listed salmon firm
Jul 1996	Regal Salmon	N/A	Tiong Group	Listed	<ul style="list-style-type: none"> Tiong acquires Regal salmon operations in stages during crisis leaving shell company
Oct 2008	Silverstream Hatchery	N/A	Salmon Smolt NZ	NIWA (Government agency)	<ul style="list-style-type: none"> Government hatchery bought by joint-venture of Mt Cook, Akaroa, Skeggs, High Country, Benmore & Sanford
Jan 2011	Pacifica Salmon Limited (Island Aquafarms)	NZ\$950k (???)	New Zealand King Salmon (Tiong & others)	Skeggs Group	<ul style="list-style-type: none"> Two salmon farms in Marlborough Sounds and a hatchery in Canterbury Part of Skeggs exit from aquaculture (sold other operations to Sanford)

SALMON – KEY NZ FIRMS

New Zealand has two salmon aquaculture firms producing more than 1,000 tonnes – New Zealand King Salmon and Sanford – and a range of smaller, primarily river-based firms

Profiles of the key firms in New Zealand salmon aquaculture sector

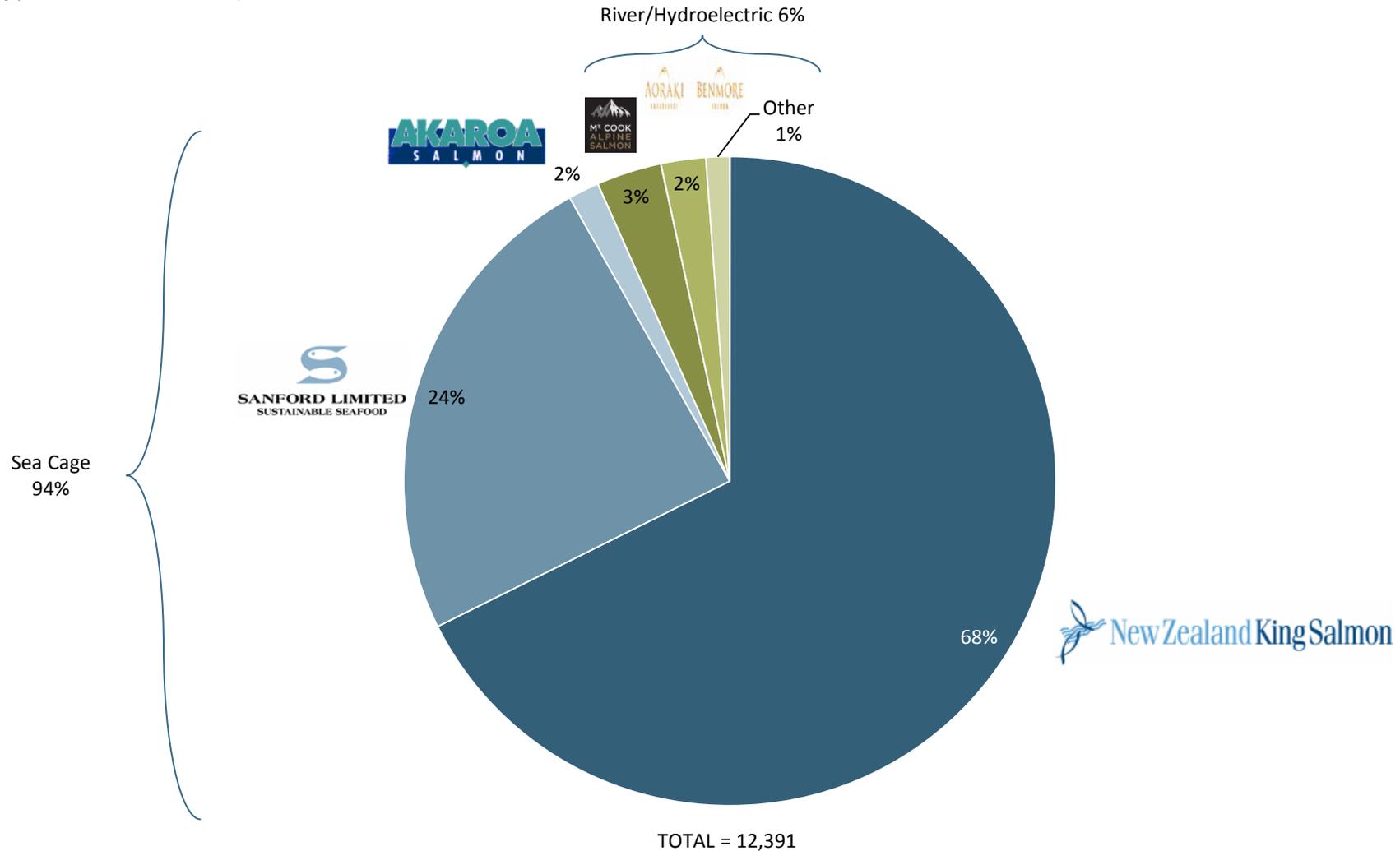
(various; 2010 or as available)

Company	Year founded	Salmon prod (t)	Turnover	Employees	Ownership	Note/comments
 New Zealand King Salmon	1996 merger	7,961 ²	NZ\$115m	420	Evergreen/Tiong 53% Direct Capital 43.5% Management 3.5%	<ul style="list-style-type: none"> - Formed in 1996 merger of Southern Ocean & Regal Salmon - 7 sea farms (Marlborough Sounds (M.S)); 2 hatcheries; 4 processing facilities - Recently acquired 2 salmon farms from Skeggs - www.kingsalmon.co.nz
 SANFORD LIMITED SUSTAINABLE SEAFOOD	1993 acquired	2,613	Group NZ\$421m	1,055 FT/PT	Amalgamated Dairies 37% Others 63%	<ul style="list-style-type: none"> - 1 farm; Big Glory Bay, Stewart Island - Purchased in 1993 - Recently acquired Pacifica Seafood, did not incl salmon operations in M.S. - NZ\$7m upgrade in 2007; 1,900t to 3,000t - www.sanford.co.nz
 AORAKI BENMORE	1994	256	N/A	N/A	Matt Evans	<ul style="list-style-type: none"> - Operate in Central Otago hydroelectric canals - Lease Isaac quarry - www.smokedsalmon.co.nz
 AKAROA SALMON	1984	189	\$3m	22	Bates family	<ul style="list-style-type: none"> - 1 farm; Lucas Bay, Banks Peninsula - www.akaroasalmon.co.nz
 M ^T COOK ALPINE SALMON	1992	74	N/A	N/A	Various	<ul style="list-style-type: none"> - Operate in Central Otago hydroelectric canals - www.mtcooksalmon.com
 HIGH COUNTRY SALMON	1992	66	N/A	N/A	Logan family	<ul style="list-style-type: none"> - Operate in Central Otago hydroelectric canals - No website
 isaac	N/A	15 (?)	N/A	N/A	Isaac family	<ul style="list-style-type: none"> - Ex-quarry; production highly variable - www.isaac.co.nz/salmon_farm.html

NZ PRODUCTION SHARE

New Zealand salmon aquaculture production is now highly consolidated

New Zealand salmon aquaculture production share by key producers by species
(% of production volume; 2010)



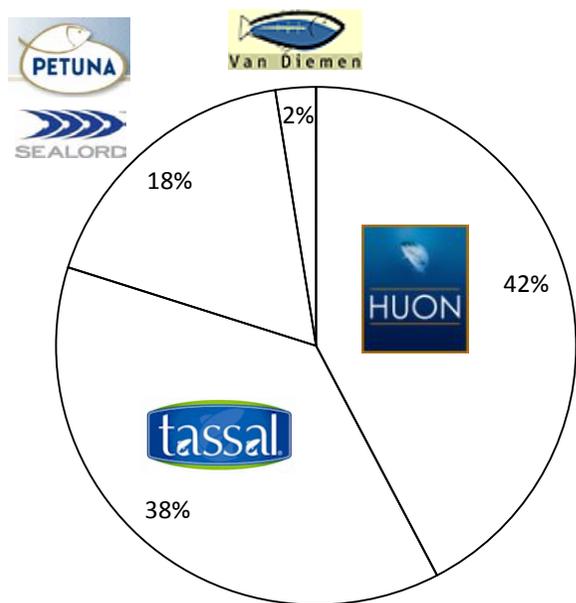
CONSOLIDATION ELSEWHERE

Other markets are also consolidated, indicating strong economies of scale in salmon farming

Farmed salmon production share by firm across select countries

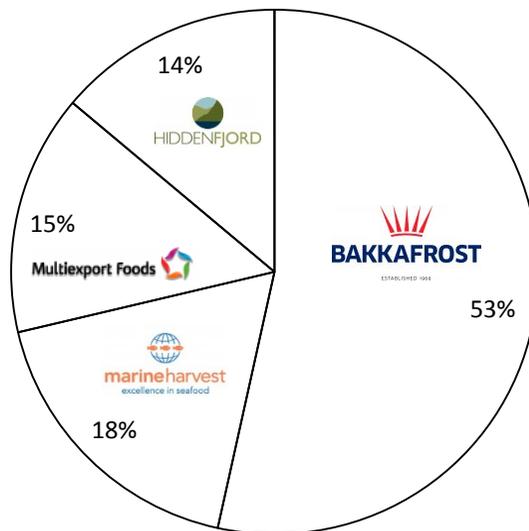
(% of tonnes; 2010 or as available)

Tasmania



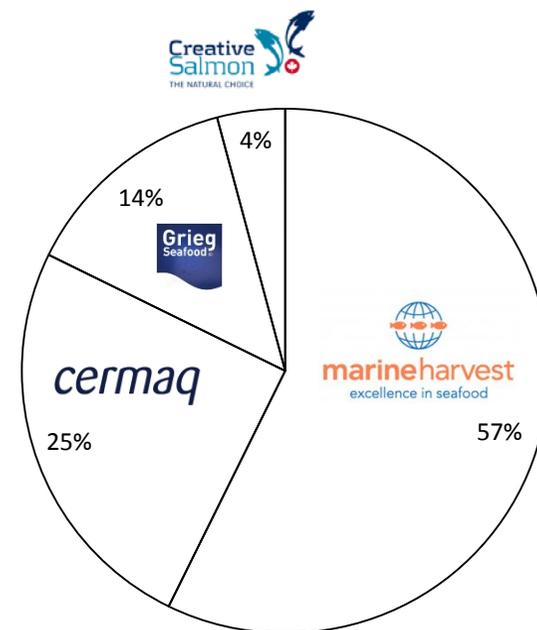
TOTAL = 31,915

Faeroe Islands



TOTAL = 41,357

British Columbia



TOTAL = 73,600

FARM LOCATIONS

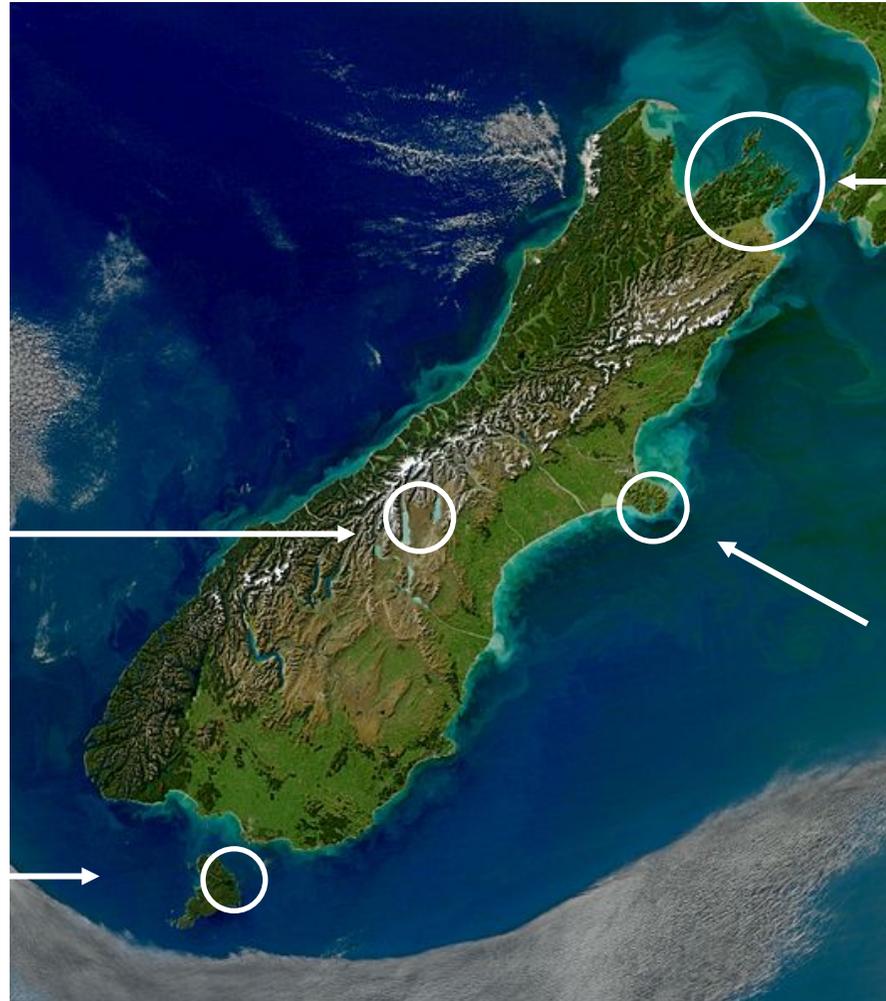
New Zealand has nine (~eleven) sea farms located across three regions and three producers in hydroelectric canals

Location of salmon farming operations over 50t in New Zealand
(2011 or as available)

Central Otago Hydroelectric canals
3 firms operating



One sea farm at Big Glory Bay



- 7/9 sea farms in Marlborough Sounds
- Otanerau (near Picton)
 - Ruakaka (near Picton)
 - Te Pangu (near Picton)
 - Crail Bay (near Picton)
 - Forsyth Bay (Marlborough Sounds)
 - Waihinau (Marlborough Sounds)
 - Clay Point (Marlborough Sounds)
 - Plus recent acquisition of 2 farms from Skeggs/Pacifica



One sea farm in Lucas Bay, Akaroa

*Less than 50t not shown
Isaac, Anatoki & Leslie*



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SALMON – NZ UTILISATION

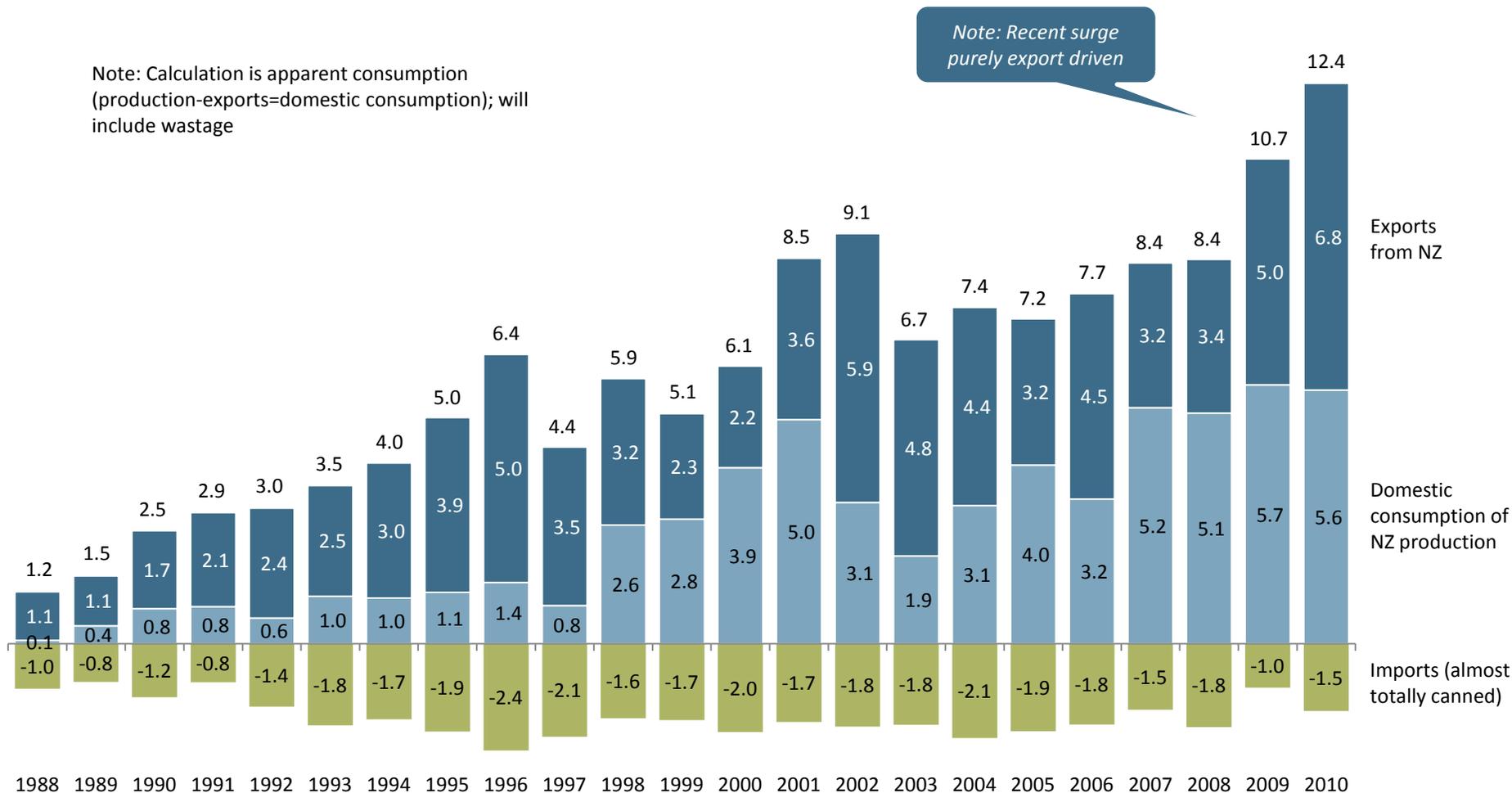
Growing NZ salmon production has gone to both domestic and export markets

Production and flow of salmon in and out of the New Zealand market (utilisation by market)

(t: 000; 1988-2010e)

Note: Calculation is apparent consumption (production-exports=domestic consumption); will include wastage

Note: Recent surge purely export driven

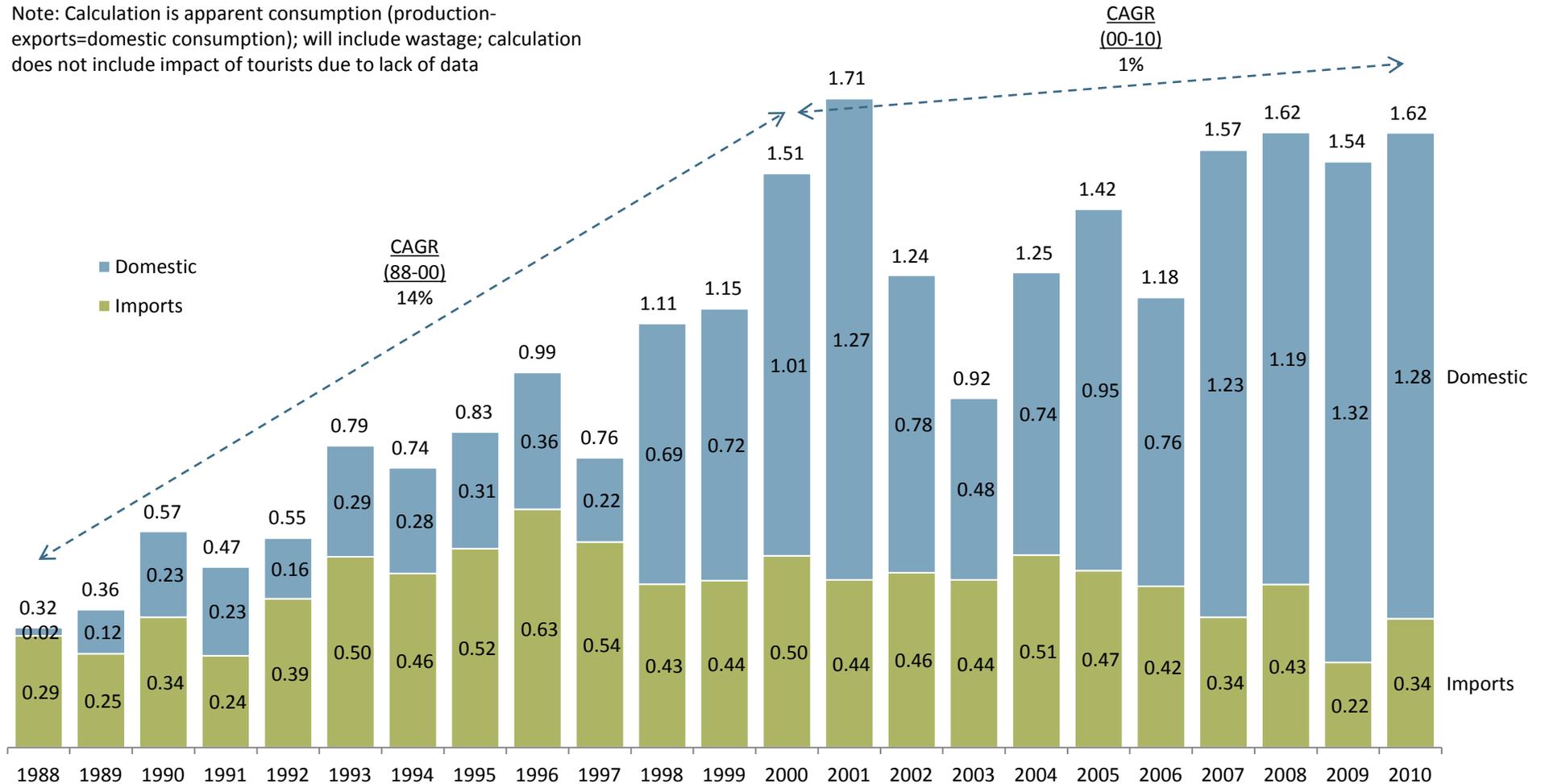


NZ – CONSUMPTION PER CAPITA

After a period of strong growth, New Zealand salmon consumption per capita appears to have flattened and stabilised

Apparent New Zealand salmon consumption by source
(kg/capita; 1988-2010e)

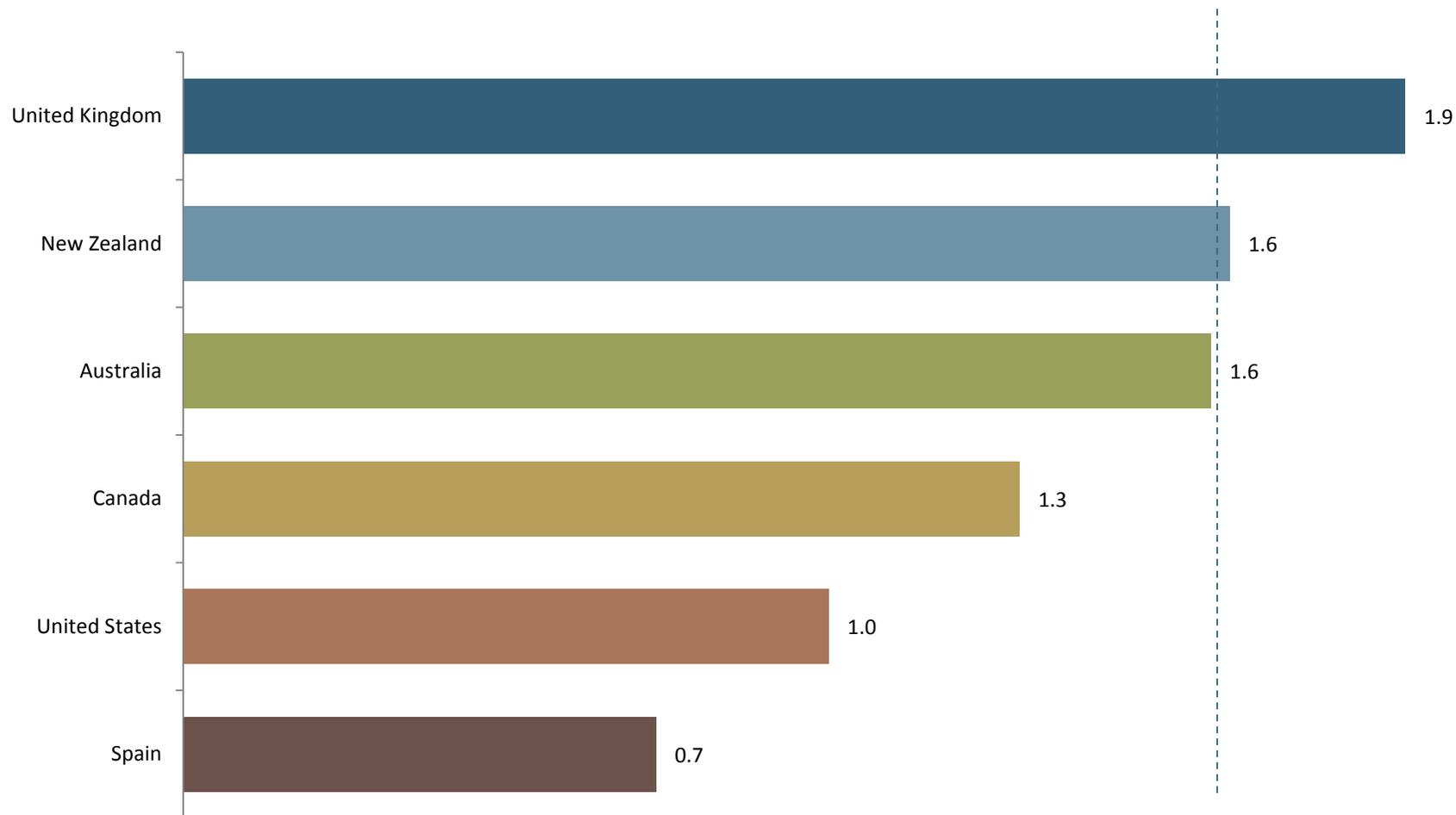
Note: Calculation is apparent consumption (production-exports=domestic consumption); will include wastage; calculation does not include impact of tourists due to lack of data



SALMON – CONSUMPTION PER CAPITA

New Zealand salmon consumption per capita is at or above most peers suggesting limited domestic market growth going forward

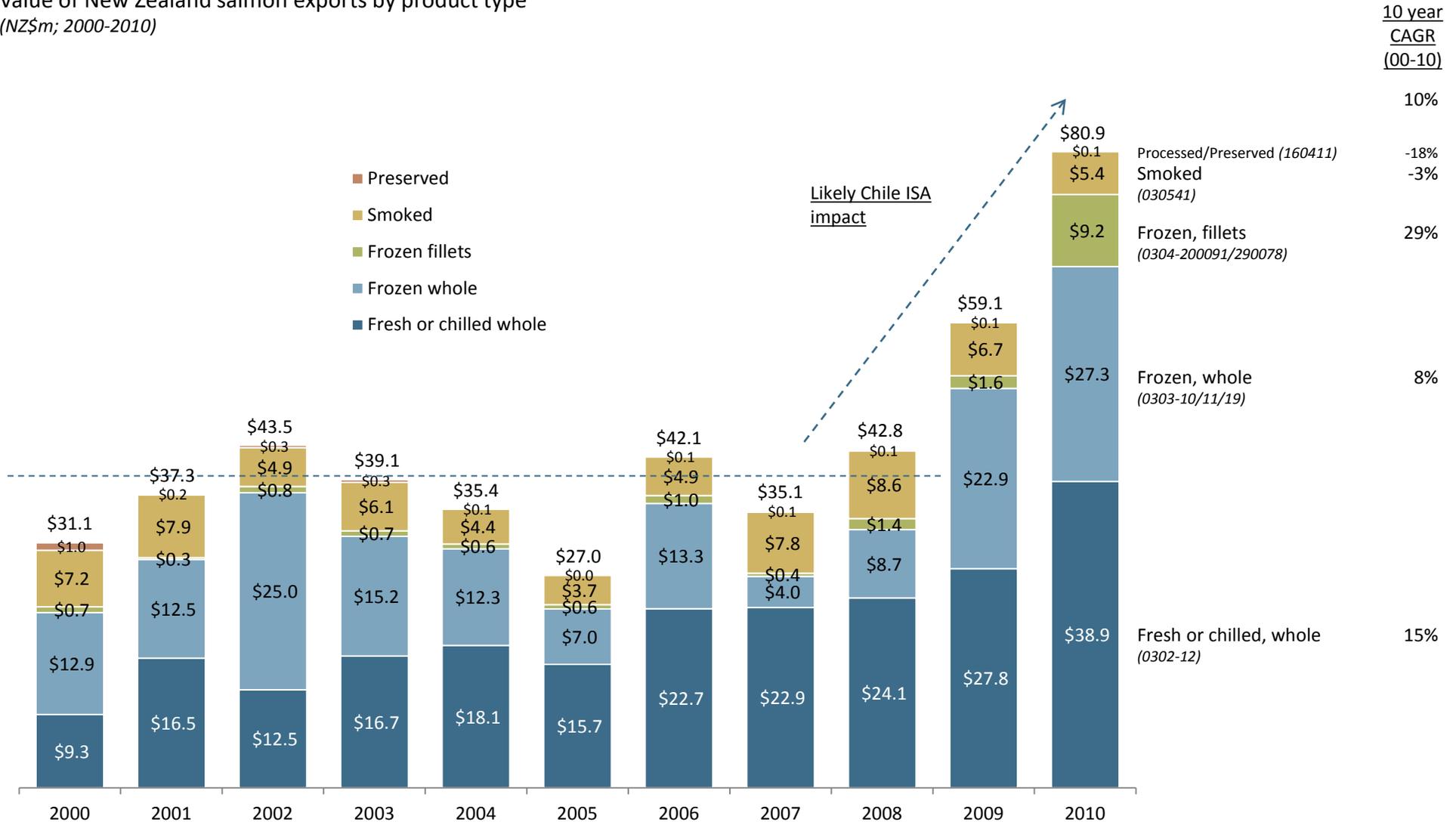
Salmon consumption per capita: New Zealand vs. select peers
(kg/capita; 2008-2010)



SALMON – NZ EXPORT VALUE

The value of New Zealand’s salmon exports were relatively flat until the last two years; we suggest the recent surge is related to the Chilean ISA outbreak driving up world prices +18% (09) and +16% (10)

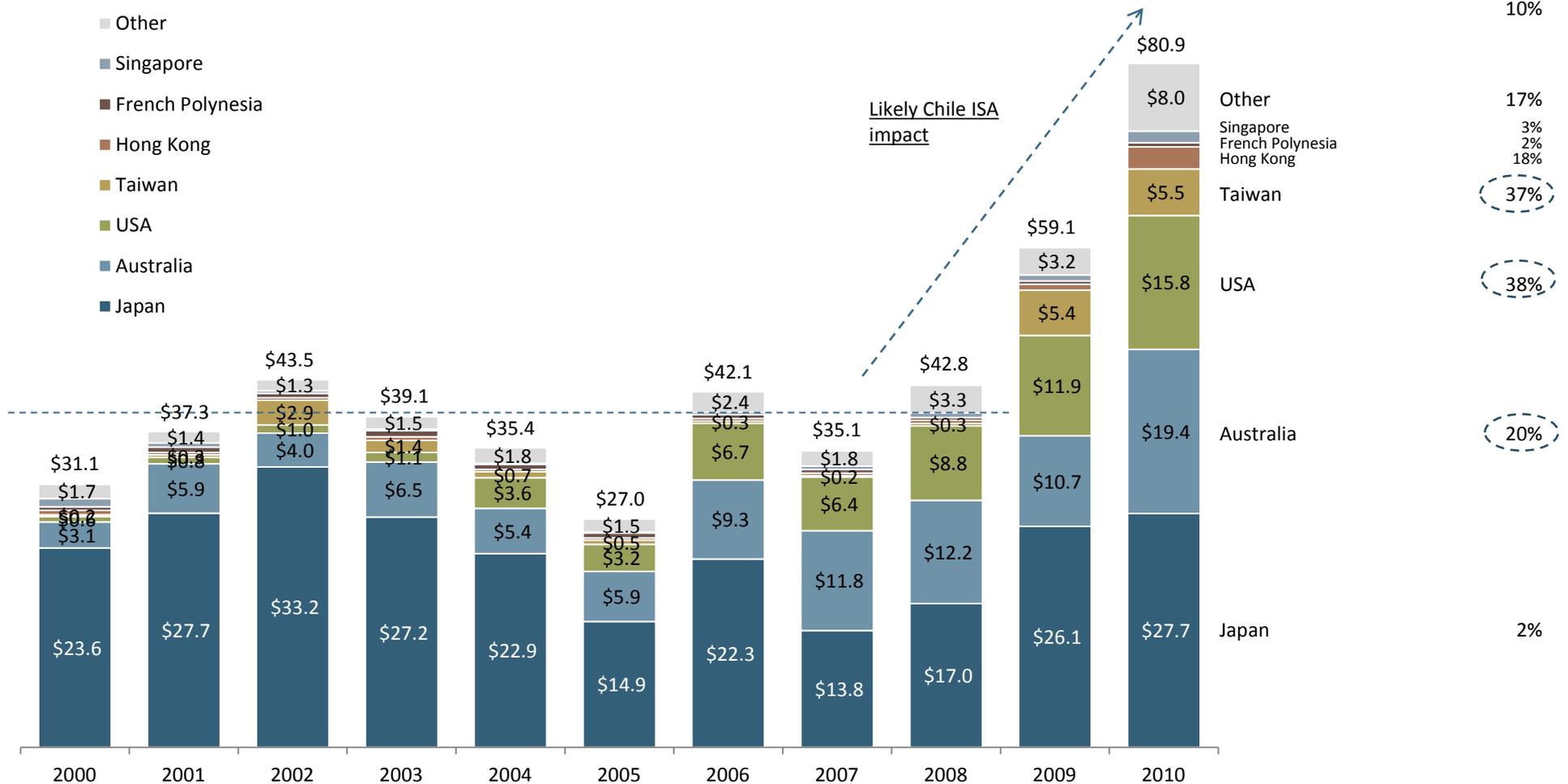
Value of New Zealand salmon exports by product type
(NZ\$m; 2000-2010)



SALMON – NZ EXPORT VALUE

Growth has come from a surge in sales to Australia, the US and Taiwan (among others)

Value of New Zealand salmon exports by destination
(NZ\$m; 2000-2010)



SALMON – INFLATION ADJUSTED \$/KG

New Zealand export price tracks (above) the world price; as Chile recovers from ISA, we would expect prices to return to their downward trend

Inflation adjusted export price per kilogram of fresh whole salmon
(US\$/kilogram; inflation adjusted 2010\$; 1988-2010)

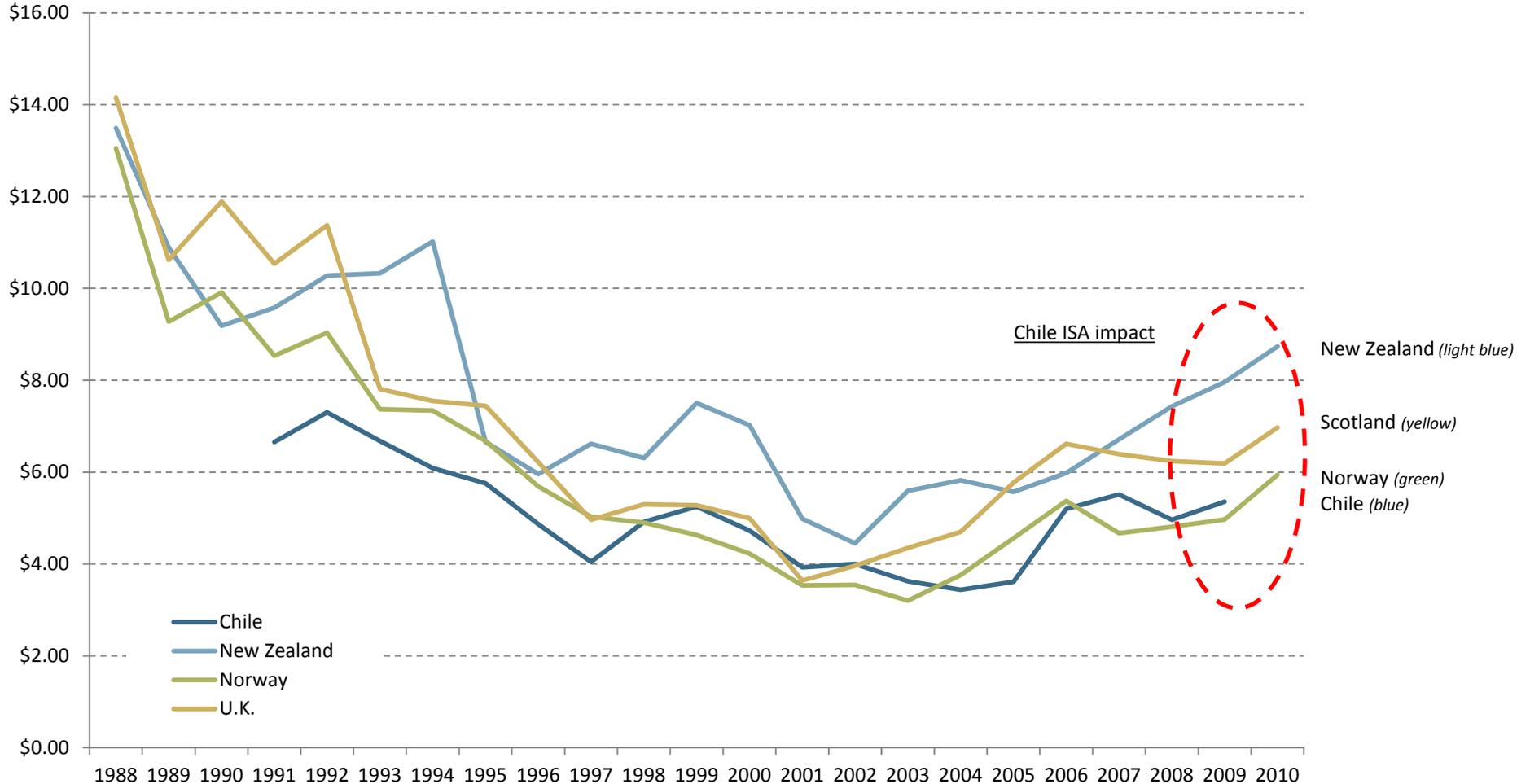




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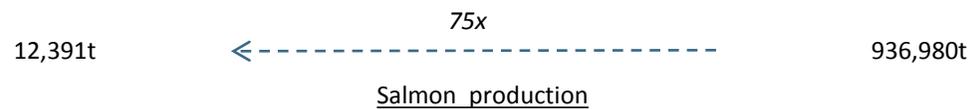
NEW ZEALAND SALMON – SWOT ANALYSIS

While salmon has strong potential for continued growth, in practice this potential is unlikely to be realised

Strengths	Weaknesses
<ul style="list-style-type: none"> - Farms King Salmon not Atlantic Salmon (low supply, no diseases, premium) - 30 years experience in sea cage salmon farming - Isolated South Pacific location, exposure to disease low - Strong biosecurity system - Industry consolidated around two firms (NZKS & Sanford) 	<ul style="list-style-type: none"> - Farms King Salmon not Atlantic Salmon (slower growing) - Industry not at scale relative to competitors (~40,000t) - Large amount of best coast for salmon farming inside parks (areas highly valued by other users of environment) - Increasing space requires huge investment of time, effort and money with unclear chance of success; impossible to develop new sea area without going to court - Competing land/sea uses and users - Changeable government behaviour towards industry over past 30 years; limited clear cross-party consensus going forward - Close to impossible to introduce new genetics - Negative attitudes towards genetic modification - No presence of global top 30 salmon firms; not tied into their networks - Residual uncertainty around ownership of foreshore and seabed
Opportunities	Issues/Threats/Risk
<ul style="list-style-type: none"> - Strong theoretical potential for much greater production (NZKS plans to double production by 2015) - Most recent new legislation (Aquaculture law reform October 2011) 	<ul style="list-style-type: none"> - Potential arrival of salmon diseases, particularly those which impact King Salmon severely (cf. PSA in kiwifruit; oyster “herpes”) - Atlantic salmon imports from Tasmania – and potentially imported salmon from other countries impacting profitability of domestic market - Much larger Atlantic Salmon breeding program improving production economics faster (compare Ross/Cobb chickens with any heritage breed)

SALMON – NZ VS. NORWAY

New Zealand has excellent theoretical potential to produce salmon; Norway, a country of a similar size to New Zealand, produces 75 times as much salmon



SALMON – FAEROE ISLANDS VS. BANKS PENINSULA

As an example, the Faeroe Islands produces 218 times as much salmon as Banks Peninsula region



Faeroe Islands
~40km

41,357t of salmon; 4 firms

“There is a fish farm in almost every suitable bay and fjord in the Islands.”



218x as much
farmed salmon



Banks Peninsula/Akaroa
~40km

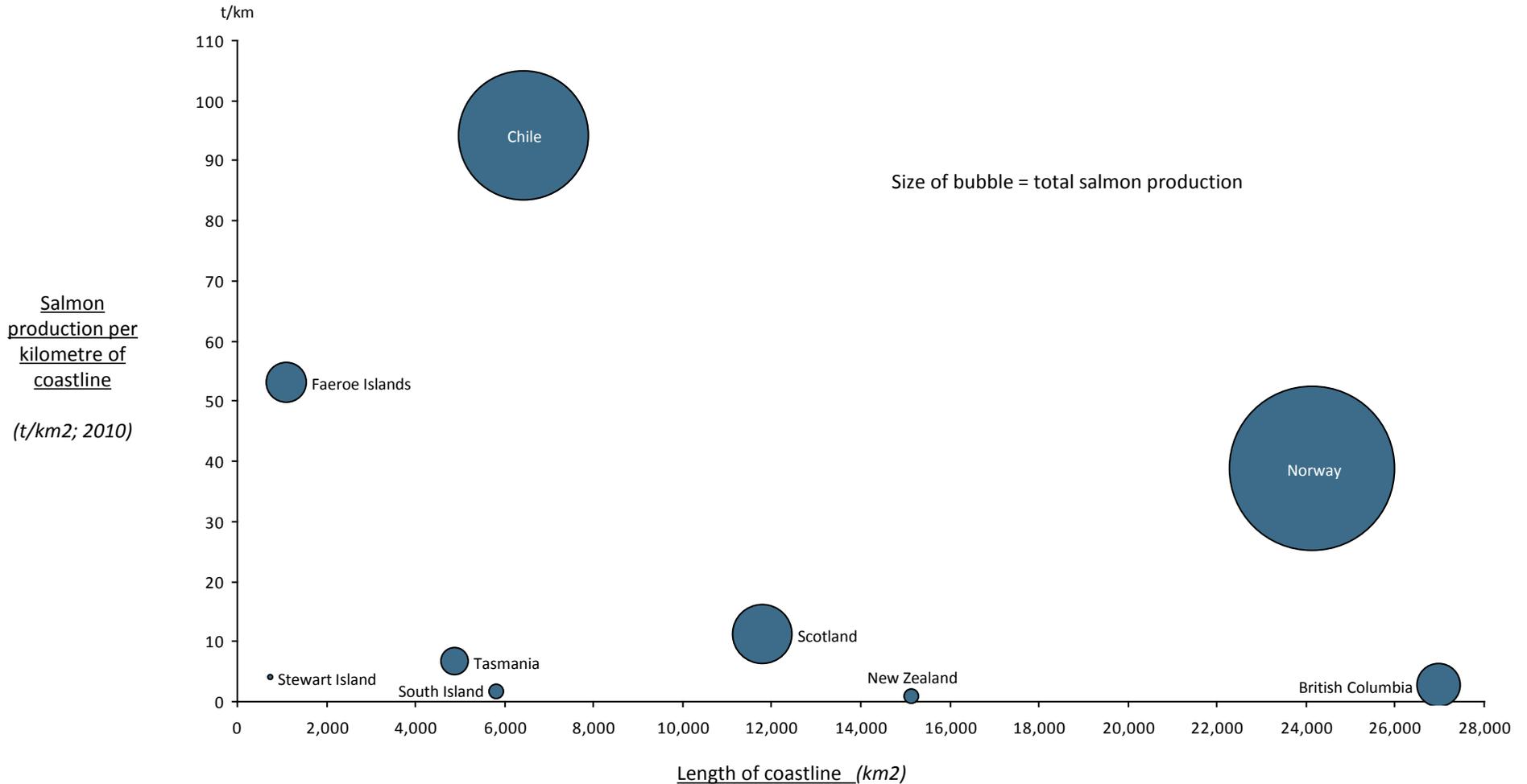
189t of salmon; 1 firm

One farm, similar in size to a Kentucky Fried Chicken outlet (excluding the car park).

PRODUCTION MATRIX

A comparison with peers suggests New Zealand is not intensively farmed

Salmon production matrix: coastline vs. coast productivity vs. total production for New Zealand and peer group countries (2010 or as available)



SALMON – THE GREAT OPPORTUNITY

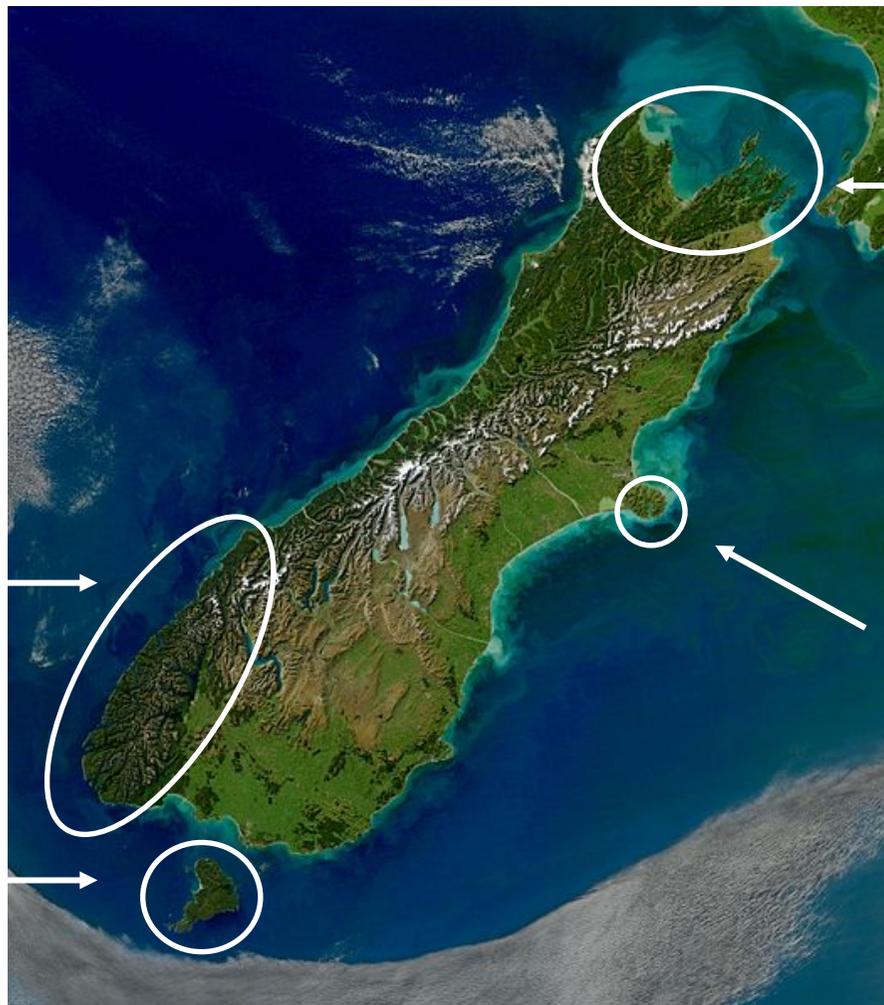
The salmon industry is heralded by many as a great opportunity with investors planning further expansions

- “The biggest opportunity is salmon. We just need to maintain the premium, it’s a premium product, high fat content, great eating quality, it’s a very successful product.” *Industry representative, 2011*
- “We have worked out how to get a premium for King salmon; it’s a rare species. We have to because it takes more to feed, it’s not as efficient as Atlantic salmon. We get a 30-40% premium.” *CEO, Seafood company, large, 2011*
- “Why not go for the low hanging fruit, like salmon, it is the biggest opportunity” *Industry representative, 2011*
- “Salmon is still in its infancy. There is such opportunity there.” *GM, Seafood Company, medium, 2011*
- “Growth will come from salmon.” *CEO, large Seafood Company, 2011*
- “New Zealand King Salmon is applying to increase its current production of 7,500 tonnes of salmon a year to 15,000 tonnes by 2015. If successful, New Zealand King Salmon believes it can double its production in three to five years in support of the aquaculture industry’s target of \$1 billion in sales by 2025.” *New Zealand King Salmon, April 2011*
- “Mt Cook Alpine Salmon CEO, Matthews is driving a bold \$20 million expansion plan he says will fuel a 1400 per cent production increase for the company within four years...When Matthews took over, Mt Cook was producing 160 tonnes per year. This year it will produce 400 tonnes. And with a \$20 million expansion, including a processing factory and a value-added plant, Mathews says they will be turning out 1000 tonnes in 2012 and 2000 tones in 2013.” *Matthews, CEO, Alpine Salmon, Aquaculture NZ, July 2011*

CHALLENGES IN POTENTIAL GROWTH REGIONS

While four regions of New Zealand's South Island have good hypothetical potential for salmon aquaculture, there are significant limitations

Potential areas for salmon farming in New Zealand
(hypothetical model)



Nelson/Marlborough Sounds

Hypothetical potential: 40,000-100,000t
Similar in size to Northern Scotland
Significant tourism
Holiday homes
Recreational fishing
National parks
Inshore fishing

Fiordland

Hypothetical potential: 100,000-200,000t
Similar in size to Southwest Norway¹
Almost all land inside national park
Effectively uninhabited; poor access

Banks Peninsula/Akaroa

Hypothetical potential: 5,000-15,000t
Similar in size to Faeroe Islands
Significant tourism
Holiday homes
Recreational fishing
National parks

Stewart Island

Hypothetical potential: 5,000-15,000t
2/3 as much coastline as the Faeroe Islands
Almost all of the island owned by Government
80% of island is national park

SALMON – CHALLENGE – ACCESS TO SPACE

The salmon industry, in particular, is restricted by space limitations

- “The salmon sector has got such huge potential. It’s a unique product which is getting its feed conversion rate down, which will increase productivity. All it needs is additional space allocated and it will hum.” *Industry body representative, 2011*
- “The biggest limitation with salmon is the access to water space in the Marlborough Sounds. Some of the decisions we make and the places we deploy our efforts is so **inefficient**. We **waste resources** with **bad decision-making**. 70% of all marine assets are in the **wrong place**. They are not producing what they should. We could move a farm 20 metres and double our production. The system is **incapable of making decisions**. We make the choice to have a small 14,000 tonne salmon industry as opposed to a 1m tonne one. Ideally we would be in Marlborough it has the infrastructure and great environment, close to the airport, town.” *CEO, Seafood company, large, 2011*
- “We want to change some space from mussels to salmon, the **cost is just too prohibitive**. The process is too much, it doesn’t make it feasible.” *CEO, Seafood Company, medium, 2011*
- “The whole water space allocation is a **debacle**. Salmon compared to mussels has 5 times the value to the water space. There is complete halt until the legislative reform. Salmon need more space to develop.” *GM, Seafood Company, medium, 2011*
- “The biggest hold up to development is the **regulatory environment**. Consenting process to get water space and the ability to change the use of the water space. Even when you do get a change it still takes 18 months to 2 years to start developing and selling something.” *Manager, Seafood company, Medium, 2011*
- “The industry needs scale. The government seems keen, yet access is still a huge issue.” *CEO, Seafood Company, medium, 2011*
- “Consent changes are a **nightmare**. We can change to salmon, but it is a huge cost.” *Manager, Seafood company, Medium, 2011*



www.foodandbeverage.govt.nz