

The Social and Community Effects of Salmon Farming and Rearing

A case study of the top of the South Island

Prepared for Aquaculture Unit
Ministry for Primary Industries

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Executive Summary

This research continues the Ministry for Primary Industries (MPI) Aquaculture Unit work programme on the social effects of aquaculture. MPI commissioned research on a case study in Southland in early 2015. In a similar vein, this case study research, focusing on the salmon-farming industry in the top of the South Island, aims to describe *what has* or *what is* occurring in social terms as a result of the industry's activities (retrospective and current). This research is intended to fill a gap in the knowledge base about the social effects of salmon farming developments and thereby contribute to informing more complete assessments of future developments (prospective) wherever they may be proposed.

The research used a mix of desk-based, face-to-face interviews (more than 80 representatives of local organisations), and a survey of 360 employees in the industry (response rate of 36 percent). The geographical scope of the research related to salmon-farming activity in the region, covering Golden Bay, Nelson-Tasman and the Marlborough region. The salmon-farming "industry" incorporates commercial salmon-farming operations from hatcheries to sea-pen farming, to processing and transportation to market, activities in the education and science sectors, and a salmon tourist venture.

The findings are summarised below.

Golden Bay findings

For individuals and households

Salmon-farming operations (NZ King Salmon Hatchery and Anatoki Salmon) contribute 23 direct jobs to Golden Bay. All permanent staff live in Golden Bay and seasonal staff are a mix of locals and visitors.

Because of the small scale of the salmon-farming operations just one additional full-time equivalent job is created by supply-chain businesses. The historical trend from salmon farming employment over the past 25 years has been steady from the Takaka Hatchery, with recent employment growth (from 2005 onwards) from the development of Anatoki Salmon. This has coincided with total job growth in Golden Bay between 2001 and 2013. At present, 2.5 percent of all jobs available in Golden Bay are from salmon-farming operations.

For the community

In a small town like Takaka every local job is highly valued by the local community. Supply-chain businesses in Takaka gain just a small fraction (typically 1 to 2 percent) of their annual income from salmon-farming operations. The supply businesses very much appreciate the effort taken to buy locally and the benefits were more likely to be described as reputational rather than financial.

However, one-off developments (and the consequent increase in spending) had a substantial positive financial and reputational effect on the supplier businesses. Salmon-farming operations have also supported one supplier business to increase their product knowledge and contribute to staff enjoying their work.

Both Anatoki Salmon and NZ King Salmon have a low profile regarding corporate social responsibility in Golden Bay. While NZ King Salmon offers school visits to the hatchery, this has been in an ad-hoc manner in the past (becoming more structured this season).

A significant display of environmental responsibility, however, is flying under the radar of most people. This relates to NZ King Salmon's efforts to enhance indigenous stream environments by weeding and re-planting.

Both Anatoki Salmon and NZ King Salmon are well regarded by the community. Salmon farming employees contribute to their community through a diversity of club memberships and roles. The

effect of the salmon-farming operations on the region's image was generally positive. In particular, Anatoki Salmon creates substantial community value through its family-oriented service and its efforts to attract visitors to Golden Bay in general (not just to their own venture).

Marlborough Sounds findings

For individuals and households

Salmon farming currently employs 74 staff in the Marlborough aquaculture operations, of whom an estimated 18 (24 percent) are residents of Picton, Havelock and the Sounds. In the mid-1990s, the local salmon-farming industry used to involve a processing factory in Picton. Total employment then was considerably higher than it is now.

All the Picton/Sounds-resident employees earn above the regional median income and none came from a previous situation of being unemployed. Slightly more reported taking a drop in annual earnings compared with those reporting an increase. Nevertheless, none have sought other paid work, and a substantially higher percentage (70 percent) than other regional employees (52 percent) report sufficient household income to meet basic daily needs.

Most employees see themselves as more employable as a result of their industry experience and their acquisition of work-related skills, particularly so for those living in Picton, Havelock and the Sounds. The work-style of Picton/Sounds residents working in the salmon-farming industry appears conducive to good physical and mental health, as well as their opportunities for social contact and their sense of self-respect and satisfaction with life.

For the community

Salmon farming activities have retained people, income and skills in the Marlborough Sounds community at a time when employment opportunities generally have been declining. Compared with pastoral farming, forestry and tourism, salmon farming provides consistent, year-round work and wages.

At least 15 other businesses in the Marlborough Sounds provide goods and services to the salmon-farming industry. Five of these businesses are substantially dependent on salmon-farming activities and their business activities have grown steadily in recent years. For another six businesses, salmon farming provides a significant portion of their revenue, for which there is considerable local competition.

The business links with salmon farming are important for a variety of reasons – commercial viability and a diversified customer base, positive brand and reputation, future growth opportunities, technical innovation, developing new skills and new market opportunities.

A total of 20 full-time and 2 part-time jobs in these supply chain companies are currently directly related to the links with salmon farming at a time when job numbers in the Marlborough Sounds have declined. In terms of employee spend in local businesses, these 22 employees are a significant addition to the 18 local residents who work directly in salmon-farming operations.

The salmon-farming industry has contributed financial resources and staff support to a variety of local community initiatives. Forty-one percent of the industry's total contributions to community organisations (in the most recent financial year) were directed to communities in the Marlborough Sounds (including Picton, Waikawa, Havelock). These include local festival events, recreational activities, and conservation work, community education and community facilities.

While only one-in-five local salmon-farm staff are actively involved in community organisations, their partners are just as likely to be involved as well, and their children invariably have attended local schools.

Many people use their boats for private recreational purposes in the Sounds. Most of the boaties who responded to our survey have been boating in the Sounds during the time when salmon farms were established and also before that. About half the boatie respondents had spent more than 15 days boating in the Sounds in the past 12 months with the most common boating activity being fishing trips and general cruising. The likelihood that boaties have visited a particular salmon farm is well correlated with salmon farm locations that have the highest levels of boat traffic and proximity to trip start points. Just over half the boatie respondents reported no effect of salmon farms on their experience of the Sounds, while almost one-third reported a negative effect. The most common negative effects reported by boaties were visual blight (12 percent), a feeling of displacement from the bay (10 percent), and course change or navigational risk (6 percent). A few boaties describe a salmon farm as an attraction. However, boaties were more inclined to report specific benefits than they were to report specific disadvantages.

Given the spread of homes and bachs throughout the Marlborough Sounds, the existing salmon farms are generally located in bays which are occupied by full-time and occasional residents, although, in most cases, the number of close neighbours is small. While the social effects caused by reductions in environmental amenity values tend only to be negative, there can also be positive social effects associated with social interactions with farm staff, and the occasional benefits of subsidised transport services.

People's responses to the presence of salmon farms varies a great deal, depending on the nature of their own occupancy (full-time vs occasional), and the experiences, personalities and attitudes of the individuals concerned. Responses also tend to be influenced by proximity.

Distance certainly has a powerful influence on perceptions of visual impact – at 1.5 to 2.0 kilometres, a salmon farm is no longer an intrusive element. The threshold for being disturbed by the noise of diesel generators or water blasters seems to be a distance of about 700 metres, where there is no intervening topography. When the sea-pens are being cleaned, which happens periodically, unpleasant odours can be experienced, particularly downwind, at distances up to 500 metres. Neighbours have not reported noticeable adverse effects from salmon-farm lighting, whether it be from the accommodation block, navigational aids or under-water lighting. Salmon farms inevitably attract gulls and seals, in local concentrations well in excess of normal wildlife patterns. These have resulted in nuisances associated with fouling of jetties by gulls and occasional encounters with aggressive behaviour of seals. Being residents of the Sounds, they all associate the health of the marine environment with the identity of the Sounds and do not wish to see this compromised.

In the past, there have been situations where a local resident has worked on a salmon farm for a period of time. In several cases, neighbours have gained rental income from providing short-term accommodation, and most neighbours have benefited at some time from access to discounted transport services. Neighbours' visits to the nearby salmon farm have declined in recent years, although they still sometimes take friends and visitors out to see the seals.

Most existing immediate neighbours do not see themselves as being prevented from doing anything they would otherwise like to do, because the salmon farm is nearby. Neighbours have generally enjoyed positive relations with salmon farm staff in the past, and some still do.

It is clear, however, that some of these relationships became strained during the process of the EPA Plan Change hearings in 2012 and have not recovered since.

Blenheim and the wider Marlborough Region findings

For individuals and households

Of the 74 people currently employed in the Marlborough salmon farming aquaculture operations in Picton and the Sounds, it is estimated that 35 (47 percent) live in and around Blenheim. The Marlborough region is home to an estimated 53 employees (71 percent) in total. The remainder live

predominantly across the top of the South Island (24 percent) or further afield in places such as Wellington or Christchurch (5 percent).

All Marlborough-resident salmon-farming employees are earning above the regional median income. Even though the proportion earning more than \$50,000 annually is more than twice the regional average, more employees took a decrease in annual earnings than gained an increase compared with their previous employment.

A high proportion of employees living in the region see themselves as more employable because of the skills gained in their salmon-farming work. In the regional context, workers in salmon farming and harvesting are much more likely to report accidents than those working in the Aquaculture Unit in Picton. The personal health effects experienced as a result of work-style appear more mixed than for those employees living in the Sounds communities. There are similarly small differences in other work-style effects on personal wellbeing.

For the community

Employees living in and around Blenheim are much more likely than not to be actively involved in community organisations and unpaid voluntary work, and much more likely than their counterparts living in the Sounds communities.

Businesses in Blenheim and the wider Marlborough region which supply goods or services to the salmon-farming industry tend to have much lower levels of dependence on such business activity than their counterparts closer to the Marlborough Sounds. Nevertheless, the association with salmon farming as a strong regional brand is clearly important to these businesses.

Accounting for eight full-time jobs, the level of indirect employment in these Blenheim businesses is 6 percent of their total workforce, compared with 23 percent for the corresponding businesses in the Marlborough Sounds themselves.

In the most recent financial year, some 33 percent of all the salmon-farming industry's financial contributions to community organisations have been targeted towards Blenheim and the Marlborough region (except Picton/Waikawa/Havelock and the Sounds – see above) to organisations involved in local business promotion, sport and tourism development.

The Plan Change process in 2011/12 had a strong polarising effect on the regional community, which manifested itself from top to bottom – that is, from the Marlborough District Council down to individual families. To some extent, these tensions arose because protagonists chose to focus on different effects – ecological and environmental effects or effects associated with business development and community support. Some acknowledge that the extent of community polarisation has moderated since the EPA process. A more recent resource consent application attracted far less adversarial public submission and did not go to a hearing.

There is no researched evidence that the existing salmon farms have had any effects on the level of recreational boating in the Marlborough Sounds.

Comparing the results of two national surveys on social perceptions of the Marlborough Sounds (2001 and 2012), commissioned by the Marlborough District Council, indicates that salmon farming has not had any noticeable adverse effects on the most valued qualities of the Sounds. The surveys indicate that public concern over potentially damaging activities declined between 2001 and 2012. In 2012, both national and regional survey respondents expressed substantially higher levels of concern about the adverse effects of bush clearance, residential subdivision and forestry compared with marine farming. Furthermore, the 2012 regional survey responses clearly reflect the degree of polarisation in the regional community that had occurred by that time.

Nelson-Tasman findings

For individuals and households

NZ King Salmon operations (typically processing and head office) contribute 272 direct jobs in Nelson City, with all staff living in the surrounding area. A further 37 jobs are provided from supply-chain businesses servicing the salmon operations.

Sited alongside the populous urban areas of Nelson City and Richmond, it is not surprising that the 309 jobs represent a small fraction (0.7 percent) of all jobs available in the Nelson-Tasman regions. However, this fraction hides the fact that NZ King Salmon is one of the biggest single employers in the regions.

NZ King Salmon staff were predominantly on permanent employment contracts (95 percent), providing job security for staff. The range of salaries is wide due to the mix of part-time and full-time work. Despite this, over 90 percent of staff have an annual income that is above the median income for Nelson-Tasman residents.

Nearly half of the staff (47 percent) earn greater than \$50,000 per annum, compared with one-fifth of people in the Nelson-Tasman (22 and 21 percent, respectively). Also, for most Nelson-Tasman resident staff, the pay received in their current job is higher than their previous job. Nearly one-third of the NZ King Salmon jobs were filled by people entering the labour market for the first time, re-entering the labour market, or moving from less-secure employment.

Even with all of this positive economic data, some staff struggle to meet their everyday needs and some staff have also taken on more than one paid job to get extra money, while the majority of staff live in households where more than one person is contributing to household income.

Staff turnover is low in the Nelson processing factories and head office compared with other industries and sectors. NZ King Salmon staff see themselves as 'more employable' since starting the job, likely related to the high level of new skills developed and training provided, however; accidents and injuries occur and are typical risks faced by staff in such jobs (and are being managed by staff and management).

Since starting their NZ King Salmon job, there has been little change regarding staff physical or mental health, while for nearly all staff their self-respect and overall satisfaction with life has either been maintained or increased.

For three-quarters the number of social contacts and outings remained the same or increased, while one quarter reported fewer.

For the community

The jobs created by NZ King Salmon in Nelson were valued, but few interviewees were aware of just how many staff were employed. Having the head office in Nelson meant supply businesses could offer corporate-type services and the (relatively) higher paid employees lived in the city. This aspect of operations was greatly appreciated by many interviewees.

Supply-chain businesses in Nelson and Richmond gain either a small fraction of their income from supplying services/products to NZ King Salmon; a substantial fraction; or for three businesses it underpinned their viability. Several supply businesses appreciated the effort taken to buy locally though this view was not universally held. Not only were there financial benefits described by supplier businesses, but benefits were also described as reputational.

One-off projects also had a substantial positive financial effect on the supplier businesses due to the large size of these projects. The salmon produced by NZ King Salmon has supported local businesses, and provided a valuable case study for another local company to follow regarding develop national and international markets for regionally produced premium products.

NZ King Salmon has supported substantial innovation in technology and fostered collaborations with scientific institutes which are long standing and contribute to important outcomes. These include growth in jobs and growth in knowledge. In particular world leading research with spin-offs for New Zealand (services to sell); research to improve company outcomes (such as efficiency and quality); and also research to deliver potential benefits to environmental stakeholders. The knowledge growth is supporting the development of the next generation of New Zealand's scientists and helps to answer the questions posed by the community about the commercial use of the Marlborough Sounds. In turn this growth in knowledge underpins the ability to apply innovative solutions such as the *Best Practice Management guidelines for salmon farm monitoring and management*. The guidelines have reduced stakeholder tensions around a recent resource consent application.

NZ King Salmon has a low profile regarding corporate social responsibility in Nelson and Richmond, however; their donation to the Fifehire Foundation is substantial. It provides certainty to the Foundation's activities which in turn supports many local families experiencing severe hardship.

The Nelson Marlborough Institute of Technology (NMIT) has its own substantial programme of activities, including tertiary level courses and a Salmon in Schools programme in 11 Nelson, Marlborough and Golden Bay schools. The Top of the South Trades Academy completes the suite with a National Certificate in Aquaculture and Marine (for Year 11, 12 and 13s). NMIT's programmes are supported by NZ King Salmon and others in the aquaculture industry. The education outcomes for the tertiary students are substantial as it grounds their studies in the real world and ultimately teaches the students the skills desired by employers.

The Salmon in Schools programme gives the tertiary students the chance to develop their management and communication skills, while for the school students it reinforces the curricula learning across several subject areas. Also, the reach is substantial with several thousand students engaged each year. The teachers are highly engaged with Salmon in Schools due to the benefits of the teaching approach and the engagement of students. The benefits include student engagement, consolidation of learning, responsibility, and helping to keep children in school for longer. Teachers want to be involved in this program which is a strong endorsement by them as they are dealing with a full curriculum in a busy year.

Finally, Salmon in Schools allows students to study aquaculture in primary school through to tertiary level. Ultimately the students can work in the industry when they become adults, all within their home region. Such a connected education/skills pathway is most likely unique in New Zealand.

Some staff had experienced negative interactions with a very small number of local people as the staff went about their daily life. In stark contrast to these few negative interactions, NZ King Salmon was well regarded by interviewees. Also, about one-third of staff contribute to their community via involvement in community organisations, as do their partners. Similarly, their children have typically attended local schools and supported community organisations through their membership. Regardless, a large proportion of staff (30 percent) cannot name any social contribution from NZ King Salmon to their community (beyond jobs and income). This underlines the low level of awareness of social impacts from this industry.

Most interview participants did not believe NZ King Salmon contributed to local identity. This is further reflected by the lack of social divisions described by Nelson interview participants arising from the past resource consent applications (unlike in the Marlborough Sounds where interview participants did describe how some members of the community took polarising positions). Neither was the product itself (salmon) seen as a local product. While the role of NZ King Salmon as a business and environmental case study is likely deserved, the local awareness of the company's achievements is low. Much of NZ King Salmon's social and environmental work is unknown, even by several of its supplier businesses.

1 Introduction and Rationale

In 2012, the Ministry for Primary Industries (MPI) Aquaculture Unit began a work programme dealing with the social effects of aquaculture, including:

- guidelines on how to undertake social impact assessment within the aquaculture industry; and
- a report on how primary industry might improve its social licence to operate (Quigley and Baines, 2014).

The guidelines work identified that while employment (paid jobs) was often listed as a social outcome of aquaculture, there was little detail about the flow-on social effects of these paid jobs. Therefore, the Ministry for Primary Industries wanted to improve its information base on the social impacts of job creation, so the social benefits of new primary industry development proposals can be better considered.

As a result, two further investigations were commissioned by the MPI Aquaculture Unit.

In 2014, a literature review was prepared (Quigley and Baines, 2014a) on the social value of a paid job, exploring the flow-on social effects that may occur from creating paid jobs. The literature review confirmed a causal link – that having a paid job does indeed cause beneficial social outcomes to occur. Furthermore, these beneficial outcomes occur for the individual, their household and the community in which they live and work.

The report on the social value of a paid job suggested some useful lines of enquiry for any future research/assessments. In particular, it could inform a practical conceptual framework¹ for any future social assessment of primary industry developments.

Consequently, in 2015 MPI commissioned the researchers to conduct a Southland case study to describe *what has* or *what is* occurring in social terms as a result of the aquaculture industry's activities (retrospective and current) in Stewart Island and Bluff (Baines and Quigley, 2015). This research was intended to fill a gap in the knowledge base about the social effects of aquaculture development and thereby contribute to informing more complete assessments of future aquaculture developments (prospective) wherever they may be proposed.

The Southland case study prompted MPI to commission this case study of the social and community effects of salmon farming in the top of the South Island.

¹ Refer to Tables 1 and 2 in Quigley and Baines (2014a) pp.2-3.

2 Discussion

The social effects of the salmon-farming industry's presence and operation across the top of the South Island are captured in the following four diagrams, indicating the range of social effects experienced in Golden Bay, the Nelson-Tasman region, Picton and the Sounds, and Blenheim and the wider Marlborough region.

The community of Golden Bay experiences modest scale effects from the two modest scale operations Anatoki Salmon and the NZ King Salmon Takaka Hatchery). The businesses are set within a small rural community and so both businesses are well known, and both are also well regarded. All jobs are highly valued in such a small community, though of course the number of flow-on supply chain jobs created is understandably small. Beyond employment and income, the major benefits are regional promotion, a family-based activity (via Anatoki Salmon) and the indigenous stream remediation by NZ King Salmon. Because of the very small sample size of the staff survey, it is unwise to make broad comments about staff, however; it was clear that staff contributed substantially to local community organisations via their leadership and membership.

Nelson-Tasman (excluding Golden Bay) is where the majority of NZ King Salmon staff reside and work (largely in processing and head office at Nelson City). The ability to provide corporate services to head office was seen as a big positive by supply-chain businesses and the faith shown by NZ King Salmon to keep the head office in Nelson City was appreciated by local government and other interviewees. Despite having the largest employment base, there was a low profile to corporate social responsibility in the area, beyond the highly valuable support of the Fifeshire Foundation. The educational outcomes delivered via the Nelson Marlborough Institute of Technology (supported by NZ King Salmon and others in the aquaculture sector) are excellent. Touching each age group in the education section via such a well-regarded programme is a substantial achievement. Similarly, the quality of the science relationships is exceptional, driving substantial benefit for NZ King Salmon, the science institutes and the communities.

The communities of Picton and the Sounds experience the widest range of positive social effects within the Marlborough region, as well as the direct negative effects on amenity values. This includes the small number of households which experience salmon farms as neighbours. Not surprisingly there is a concentration of supply-chain businesses here, resulting in the greatest number of dependent jobs outside NZ King Salmon itself. The influence of corporate support for community facilities, activities and events is more evident in Picton, Waikawa and Havelock than the contributions from individual employees in these communities.

In addition to job-related benefits from salmon-farming operations, Blenheim and the wider Marlborough region is where the contrasting community-level effects of regional branding and community polarisation are most in evidence.

Table 1. Summary of social effects in Golden Bay community

Golden Bay	Effects	
	Direct effects	Community effects
Salmon operations (NZKS Hatchery and Anatoki Salmon)	NZKS and Anatoki Salmon employment (23 jobs)	<ul style="list-style-type: none"> -Retained resident workers and attracted new arrivals -Every local job is highly valued -All staff live locally -Staff and businesses are well regarded locally -Local staff contribute substantially to local community organisations via their leadership and membership
	NZKS financial donations, product donations and voluntary staff time	<ul style="list-style-type: none"> -NZ King Salmon delivers improved indigenous stream environments via weed and planting programme -Anatoki Salmon contributes substantially to the region's image via its family oriented service and via efforts to attract visitors to Golden Bay (not just their own venture)
Supply-chain businesses	Supply-chain business employment (1 additional full-time equivalent job)	<ul style="list-style-type: none"> -Very much appreciate the effort to buy locally -Small fraction of annual income for all businesses, but important for local reputation -One-off projects have a more substantial financial effect for some -Contributes to greater understanding of specific products that could then be offered to other clients

Table 2. Summary of social effects in Picton and Sounds communities

Picton & Sounds communities	Effects		
	Direct effects	Community effects	Individual and household effects
Salmon-farming industry	NZKS employment (18 jobs)	-Created new jobs during a period of employment downturn, particularly in the engineering, manufacturing and transport sectors -Retained resident workers and attracted a few new arrivals -Helps to financially sustain community businesses year round (not seasonal)	Proportion of salmon-farming staff: <ul style="list-style-type: none"> • None were previously unemployed • All earn above the regional median income • 40% earn more than in their previous job, while 50% earn less • 70% earn enough or more than enough to meet their everyday needs • All see themselves as more employable, having gained new skills on the job, 90% on courses • 70% have reported an accident or injury to their employer
	NZKS financial donations, product donations and voluntary staff time	-Supports major regional and local festivals which, in turn, support a variety of community groups through funding contributions -An alternative source of financial support to winery funding, for family oriented events -Supports conservation and restoration activities -Co-funder of a major new community facility at Endeavour Park, providing accessible facilities for groups previously without -Supports primary school values education (Kiwi Can) and secondary school occupational training (Aquaculture Academy) -Supports local sporting events	Since starting their current job, the proportion of staff who have maintained or improved: <ul style="list-style-type: none"> • physical health (90%) • mental health (100%) • social contacts (90%) • self-respect (100%) • satisfaction with life (100%)
	Salmon farm visits	-Hosts annual visit by Aquaculture Academy students	
Supply-chain businesses	Supply-chain business employment (22 additional jobs)	-Created new jobs during a period of employment downturn, particularly in the engineering, manufacturing and transport sectors -Retained resident workers and attracted new arrivals -Helps to financially sustain community businesses year round (not seasonal)	22% of local NZKS staff are actively involved in community organisations, as are a similar number of their partners.
	Benefits to supply-chain businesses	-Underpins the commercial viability of some businesses -Important component of a diversified client base for some local businesses -Association with the NZKS brand is important for marketing local businesses here and overseas -Stimulates technology innovation and new skills	Residents living near salmon farms are likely to experience a localised loss of environmental amenity values (visual, noise, odour, wildlife, water quality) but also sometimes positive interactions with salmon-farm staff and occasional subsidised transport services. No neighbours are prevented from doing what they would like to.

Table 3. Summary of social effects in Nelson-Tasman communities

Nelson-Tasman region	Effects		
	Direct effects	Community effects	Individual and household effects
Salmon operations	NZKS employment (272 jobs)	-One of the largest employers in the region -Providing entry-level jobs and head office level jobs onto a modest-sized city setting -Retained resident workers, attracted new arrivals -All staff live locally	Proportion of salmon-operation staff <ul style="list-style-type: none"> 95% on permanent employment contracts 30% were previously unemployed, re-entering the labour market or leaving less secure employment 90% earn above the regional median income 53% earn more than in their previous job, while 29% earn less 12% earn "not enough" to meet their everyday needs 80% see themselves as more employable, 92% having gained new skills on the job 74% of processing staff had reported an accident or injury to their employer, while 24% of head office staff had done so.
	NZKS financial donations and voluntary staff time	-Providing certainty to the Fifeshire Foundation's activities as they support large numbers of vulnerable local families	
	NZKS supporting science and innovation	Fostered long standing collaborations with scientific institutes, contributing to: <ul style="list-style-type: none"> additional science services for NZ to export improving efficiency and quality of NZKS processes and products science and understanding to underpin environmental improvements supporting young scientists answering community questions about commercial use of the Sounds applying innovative solutions such as the Best Management Practice guidelines for salmon farms in the Marlborough Sounds, and ultimately reducing stakeholder tensions 	
Supply-chain businesses	Supply-chain business employment (37 additional jobs)	-Retained resident workers and attracted new arrivals -Able to supply 'head office/ corporate' type services -Underpins viability for some businesses and important source of income for others -One-off project work is substantial (financially) for some businesses -Association with the NZKS brand is important for reputation of supplier businesses -Efforts to buy locally are appreciated -Shows other local businesses how exporting internationally and focusing on high quality can work	Since starting their current job, the proportion of staff who have maintained or improved: <ul style="list-style-type: none"> physical health (73%) mental health (84%) social contacts (75%) self-respect (92%) satisfaction with life (87%)
Nelson Marlborough Institute of Technology	Educational outcomes	Tertiary level courses; Salmon in Schools in 11 secondary and primary schools in the top of the South Island. Contributes to: <ul style="list-style-type: none"> grounding studies in the real world teaches students employable skills reinforces school curricula student and teacher engagement; consolidation of learning; student responsibility; keeping students in school Presents a unique school/university pathway from education to work, all in the students' home region.	31% of NZKS staff are actively involved in community organisations, as are 28% of their partners. Staff turnover at NZ King Salmon is low compared with other sectors and industries.

Table 4. Summary of social effects in Blenheim and Marlborough communities

Blenheim & Marlborough region	Effects		
	Direct effects	Community effects	Individual and household effects
Salmon-farming industry	NZKS employment (35 jobs)	-Retained resident workers and attracted new arrivals in equal numbers	Proportion of salmon-farming staff: <ul style="list-style-type: none"> • 3% were previously unemployed • All earn above the regional median income • 45% earn more than in their previous job, while 48% earn less • 70% earn enough or more than enough to meet their everyday needs • 87% see themselves as more employable, having gained new skills on the job, 84% on courses • 78% of farming or harvesting crews have reported an accident or injury to their employer, while 33% of Aquaculture Unit workers did so <p>Since starting their current job, the proportion of staff who have maintained or improved:</p> <ul style="list-style-type: none"> • physical health (84%) • mental health (78%) • social contacts (87%) • self-respect (93%) • satisfaction with life (94%)
	NZKS financial donations, product donations and voluntary staff time	-Supports Destination Marlborough's food & beverage marketing collective -Supports the Marlborough brand as both a visitor destination and also a source of high-quality product in the international market -Supports an expanded base of participation in Marlborough Boys College rugby	
	Salmon farms and salmon farm visits	-Expanding farms numbers created tensions and mistrust within all levels of the regional community, which are only slowly abating -Shared ownership of a salmon farm has enabled Te Ātiawa to become more actively involved in the development of their traditional marine resources -Farm visits support a growing market for local services to national and international tourists For recreational boaters in the Sounds: -50% are from the Marlborough region -principal boating activities are fishing (64%) and general cruising (93%) -there is a high degree of familiarity with salmon farms, particularly Ruakaka Bay (74%) and the Tory Channel farms (69-71%) -53% experience 'no effects at all' from the presence of salmon farms -32% experience negative effects -15% experience neutral or positive effects	
Supply-chain businesses	Supply-chain business employment (8 additional jobs)	-Retained resident workers and attracted new arrivals	65% of NZKS staff are actively involved in community organisations, as are 47% of their partners.
	Benefits to supply-chain businesses	-Important component of a diversified client base for some regional businesses -Association with the NZKS brand is important for marketing regional businesses here and overseas -Stimulates the development of new skills	

2.1 *The drivers or causes of social effects*

We have found that social and community effects associated with salmon farming in the communities of the top of the South Island are brought about through a variety of mechanisms.

Businesses involved in salmon farming:

- a) **provide employment**, which has a range of social benefits for the individuals employed, influences where these individuals choose to live, and thereby makes available the skills and energy of these individuals to contribute to community activities and community organisations outside of the workplace;
- b) **make financial and/or free product contributions** to various community organisations and events, many of which operate on a substantially voluntary basis;
- c) **provide revenue for materials or services supplied by other companies**, that in varying degrees support these other business activities, the level of local employment they provide, and broaden the base and self-reliance of local community business activity and innovation;
- d) **create a range of other benefits for these supply-chain businesses** such as providing a steady year-round flow of income, enabling them to develop new skills and experience in marine equipment, and providing new types of business activity not available elsewhere. In Marlborough, supply-chain businesses in Havelock, Picton and Waikawa had higher levels of dependence on salmon-farming operations than businesses further away in Blenheim. Consequently, higher numbers of supply-chain employees were from companies in these Sounds communities than from Blenheim.

Through this range of mechanisms, salmon farming activity contributes to the development of human (individual) capital and social (collective) capital available in the communities.

Unlike the situation with aquaculture in Southland², where marine farming is currently permitted only in a relatively remote and unpopulated location (Big Glory Bay on Stewart Island) or in Bluff Harbour, marine farms have been permitted in relatively extensive areas of the Marlborough Sounds (the Sounds). Furthermore, marine farming is a comparatively recent type of activity in the Marlborough Sounds when compared with traditional pastoral agriculture, production forestry, commercial fishing and recreational activities associated with private baches, lodges and recreational boating and fishing. Salmon farms presently exist in the outer Pelorus Sound and several locations in Queen Charlotte Sound and Tory Channel³.

Because of the long-established competing interests and relatively close proximity to these other activities, the advent of salmon farming gives rise to the potential for other social effects, most notably:

- a) **off-site amenity effects** due to the presence of permanent structures on the water or the generation of noise, water pollutants and odours which can be experienced close to salmon

2. Baines and Quigley, 2015, p.36.

3. Refer to Section 4.12 for details of salmon farm locations.

farms;

- b) **physical displacement of other water-based activities** due to the requirement to navigate around salmon farms;
- c) **social tensions and divisions within communities arising from competing responses to plans for expanding the scale of salmon farming and the numbers of salmon farms** and related concerns about the cumulative effects of salmon-farming operations on benthic ecology beneath salmon farms and visitor perceptions of environmental quality and the attractiveness of the Marlborough Sounds.

Through this range of mechanisms, salmon farming activity creates challenges to its social licence to operate, particularly in the Marlborough Sounds.

2.2 *The human dimension*

Salmon farming's contributions to human capital in these communities comes in both personal and corporate ways. The 'personal' is in the form of employees of the salmon farming and supply-chain businesses who live locally and are enabled to support households – partners and dependent children – who similarly are then available to participate in community activities and community organisations. Employees, their partners and their children contribute to the membership of teams and community organisations, and sometimes to the administration of some of these community organisations. The 'corporate' occurs when employees of salmon companies contribute their time and energy, on behalf of their company, assisting with company sponsored events or company supported educational activities, for which ample evidence has been reported.

2.3 *The time dimension*

The time dimension is critical in various ways to any consideration of the significance of the social and community effects of salmon-farming activities in these communities:

- a) **Timing:** what else is happening in these communities during the period when salmon farming has become established? In the Marlborough Sounds salmon farming has become an established employer at a time when these communities – particularly Picton – were experiencing significant declines in job opportunities in other historically important industries. While salmon farming development so far in the region has not been on a scale that could compensate for these other job losses, these circumstances serve to highlight the significance of its contribution. Another significant contemporaneous trend has been the expansion of other forms of aquaculture, most notably green-lip mussel farming and the beginning of oyster farming.
- b) **Change over time:** while most of the detail on social and community effects in this case study describes the current situation, it is clear that the present scale of effects did not occur immediately; nor has it been constant over time.
- c) **Consequential and cumulative changes over time:** some of the community effects evident

now have taken time to accumulate – the establishment of the brand and the contribution of that brand to regional identity; the community concerns that have emerged over plans to expand the presence of salmon farms in the Marlborough Sounds where the competition between competing interests in the use of water space and seascape has intensified progressively.

2.4 The geographic dimension

The focus of this report has been four distinct communities and each has experienced different effects and a different scale of effects due to location, particularly:

- numbers of staff residing/employed in each area (from a high of 309 in Nelson-Tasman, to 18 in Picton/Sounds)
- the type of operations (hatchery; farms; processing; head office; educational institutions; tourist venture)
- the proximity of operations to urban/rural populations (for example, the processing factories and head office are sited within a modest-sized New Zealand city)
- the uniqueness of operations to the area (for example, the NZ King Salmon processing factories are the norm within the industrial area in which they are sited)

3 Social findings

3.1 Golden Bay

3.11 Social findings for individuals and households in Golden Bay

3.111 Jobs

Salmon-farming operations contribute 23 direct jobs to Golden Bay. All permanent staff live in Golden Bay and seasonal staff are a mix of locals and visitors.

Because of the scale of the salmon-farming operations just one additional full-time equivalent job is provided to supply-chain businesses.

The historical trend from salmon farming employment over the past 25 years has been steady from the Takaka Hatchery, with recent employment growth (from 2005 onwards) from the development of Anatoki Salmon. This has coincided with total job growth in Golden Bay between 2001 and 2013.

In the present day, 2.5 percent of all jobs available in Golden Bay are from salmon-farming operations.

The NZ King Salmon Takaka Hatchery currently contributes 14 jobs directly into Golden Bay (eight full-time and six seasonal), while Anatoki Salmon tourist attraction contributes a further nine jobs (three full-time, one part-time and five seasonal part-time). The seasonal jobs are filled by a mix of locals and visitors, whereas the other jobs are filled by people who live locally (out of a total resident population in Golden Bay of 3756).

Other businesses supply these salmon farming activities with products and services, for example, with engineering services, transport, and plumbing. This contributed another one full-time equivalent job across three supply businesses (0.5 FTE, 0.25 FTE and 0.25 FTE). For most businesses interviewed, the amount of supplies/services involved did not affect their staffing levels.

Historical data (from interview) indicates the following trend in salmon-related employment in Golden Bay. The Takaka Hatchery has had stable employment (despite changing functions) over its lifespan. The more recent growth in employment from 2005 onwards is due to the development and expansion of Anatoki Salmon. Growth in jobs has also occurred in each of the last three censuses (2001, 2006 and 2013) across total jobs in Golden Bay⁴.

Table 5. Historical employment data

Year	Numbers employed (full-time, part-time and seasonal)
1990	14
1995	14
2000	14
2005	15
2010	19
2015	23

When jobs in salmon farming (23) are compared with all jobs available in Golden Bay (930), 2.5 percent of total local jobs are based on salmon farming (See Table 6).

⁴ Population by Status and Employment. Accessible at the community.infometrics.co.nz

Table 6. Number of jobs in the aquaculture industry and supply-chain businesses

Salmon farming jobs in Golden Bay	Golden Bay jobs dependent on salmon farming	Total jobs based on salmon farming	Total local jobs in Golden Bay (2013)	Percent of total local jobs based on salmon farming
23	1	24	930	2.5 percent

3.112 Income from jobs

To protect confidentiality and because of the extremely small sample size, only a few general comments can be made about the Golden Bay staff survey data.

The employee survey responses⁵ indicate that all of the salmon operation employees earn above the median income (\$23,300) when compared with the following 2013 census data for Golden Bay. All staff reported they had “only just enough” or “enough” money to meet their everyday needs.

Some of the hatchery staff had previously not been looking for work prior to taking their current job (for example, previously studying, was looking after young children), and all staff believed they were now more employable and had learned new skills on the job.

Hatchery staff generally self-reported their physical health and mental health had either stayed the same since starting the job or improved. Similar results were reported for life satisfaction and self-respect since starting their employment at the hatchery.

Several staff had reported accidents to their employer.

3.12 Social findings for the Golden Bay community

3.121 Local employment and its contribution to Golden Bay

In a small town like Takaka every local job is highly valued by the local community.

Several participants noted that salmon-farming operations create necessary jobs within what is a small local economy. Salmon-farming operations were not seen as a big employer in the region⁶, but participants were aware that every job counts.

“The employment is good, it flows onto everyone. Everything helps in a little place like this.”

3.122 Aquaculture company spend on supply-chain businesses

Supply-chain businesses in Takaka gain just a small fraction of their annual

For the Takaka businesses which supply salmon-farming operations, the majority (11 of 12) described salmon-farming operations as contributing a small fraction of income (4 percent or less of income), whereas for one business salmon-farming operations contributed a solid source of income (5 to

⁵ From NZ King Salmon employees only.

⁶ Top five industries in Takaka by employee number: Retail trade (170); Education and training (120); Accommodation and food services (110); Healthcare and social assistance (80); Manufacturing (70).

income from salmon-farming operations ...

24 percent of income). Reflecting this, all suppliers described the salmon-farming operations as 'part of diverse client base'. Four businesses reflected that the income contributed to a steady flow of income throughout the year, which was not the case for the majority of supply businesses. Salmon-farming operations did not underpin the viability of any of the 12 Takaka companies.

...the supply businesses very much appreciate the effort taken to buy locally and

While the income streams were small, several supply businesses appreciated the effort the salmon-farming operations made to buy locally.

"They take buying in the Bay seriously – they could get a cheaper price elsewhere but they buy from us. It helps us keep our stock levels up too. They're a key business in the Bay – good at paying their bills and an asset to the Bay."

Table 7. Revenue from salmon-farming operations

Percent current revenue from salmon-farming operations	Number of companies
>50 percent	0
25-49 percent	0
5-24 percent	1
0-4 percent	11

... the benefits were more likely to be described as reputational than financial.

Half of the supply businesses described how it was 'good for their own company brand' to be doing work for the salmon-farming operations.

"It's good for our company reputation, definitely. Locals know them, and it makes us look good."

"They're well recognised, it's good to be associated with them. They run a pretty smart operation."

However, one-off developments (and the consequent increase in spending) had a substantial positive financial and reputational effect on the supplier businesses.

Three supplier businesses described how 'large-scale developments/changes' were important. At such times, the contribution to revenue increased substantially (up to 15 percent of total annual revenue). In turn, such work allowed the supplier businesses to foster and grow their own relationships with suppliers, passing on such benefits to the whole community.

"Sometimes it's hard to maintain a direct account with a big supplier if you're seen as small fry. Instead of needing one or two of something, suddenly we'd need 100. Then the suppliers want our business and we get a good price on an ongoing basis, which we pass on to all our customers."

"One time NZ King Salmon got us to supply across their whole operation [outside Golden Bay]. That was massive for us."

Salmon-farming operations have also supported one supplier business to increase their product knowledge and contribute to staff enjoying their work.

One supplier described how the solutions needed by NZ King Salmon were different to what they normally dealt with, contributing to an interesting work environment. Furthermore, it has driven knowledge transfer for the same supplier business. The supplier business had installed 10 water pumps for NZ King Salmon. In turn this helped the supplier business develop a relationship with the supplier of the pumps. This was important for helping the supplier business understand the best way to install the pumps on a fragile electricity network (as is common in Golden Bay's). Subsequent pump installations in the dairy sector have gone well due to the knowledge transferred.

"It makes our work more enjoyable. The questions they ask are outside the day-to-day dairy issues. It's technically challenging."

"When the dairy industry started needing these units we were able to apply our knowledge directly to help the dairy farmers."

3.123 Corporate social responsibility in Golden Bay

Both Anatoki Salmon and NZ King Salmon have a low profile regarding corporate social responsibility in Golden Bay.

Both Anatoki Salmon and NZ King Salmon have a low profile regarding their corporate social responsibility. Most participants were unable to name any relevant activities undertaken by the two salmon-farming operations. This reflects the fact that neither has a substantial financial or product-related programme in operation. Instead, the financial donations/promotional vouchers given to local causes are on an ad-hoc basis.

"I don't know much about what they do for the community."

While NZ King Salmon offers school visits to the hatchery, this has been in an ad-hoc manner in the past. A significant display of environmental responsibility however is flying under the radar of most people. This relates to NZ King Salmon's efforts to enhance indigenous stream environments by weeding and re-planting.

While NZ King Salmon offers school visits to the hatchery, this has been in an ad-hoc manner in the past.

NZ King Salmon have a substantial programme of stream remediation work which they are funding. It operates alongside their site (and beyond) on Department of Conservation land and consists of removal of noxious weeds and exotics; replanting with natives; restoring wetlands for terrestrial birds; and shading the stream. Over 10,000 plants have been planted. The effect has been substantial according to two environmental interviewees.

"Without the planting and weeding, the bank would be weed-dominated vegetation. It's been transformed from a weed-ecology to an indigenous-ecology over the space of 10 years work."

"NZ King Salmon are a positive role model to terrestrial farming. It's how it should work. But it's not promoted, the council and NZ King Salmon should promote their environmental image more, but they don't. I have a passion for conservation and NZ King Salmon are doing their bit. They've brought forward the regeneration of that area by 25 years. Actually it may never have been done without them."

3.124 Level of civic engagement by salmon farming employees

Both Anatoki Salmon and NZ King Salmon are very well regarded by the community.

Several participants described their positive personal interactions with the salmon-farming operations. This was also true of the land-based neighbours of NZ King Salmon. This was best demonstrated when Anatoki Salmon was hit by a massive flood which killed all of their fish stock and ruined much of their site. Every day for six weeks Anatoki Salmon had up to 30 volunteers with pumps, diggers, trucks, shovels and brooms to help clean out and re-open. NZ King Salmon also helped by selling Anatoki Salmon 15,000 smolt. This saved substantial transport costs (because they were local) and substantial time to re-establish (normally Anatoki Salmon buys eggs to grow).

"When Anatoki Salmon got knocked over by the floods we helped by providing equipment at no cost to them. They were in hard times and we could help. We could show we did actually care."

"After the flood, half the town showed up to help them out. Now that's

community spirit.”

“They’re are great to deal with. The manager’s lovely. We all get along, it’s a small community.”

“They’re good people and they run a good business.”

“The staff are well liked. They’re good to deal with. You can see that in the interactions they have with people as you go about town.”

Salmon farming employees contribute to their community through a diversity of club memberships and roles.

During a group interview with employees, the employees described how they, their partners and children had made a significant contribution to the local community clubs and groups over the years. Participation has been with: Golden Bay Promotions Board; Riding for the Disabled; NZ Deerstalkers Association, RSA, Pupu Hydro Society (historic site maintenance, trapping, track maintenance and noxious weed removal); local community board member; meals on wheels; folk dancing; Project Jonah (trained in whale rescue); volunteer fire brigade; school netball coach; local church member; football club; board of trustees primary school; Whitaker Trust (assisting sick and elderly); tennis club committee; pony club committee; and Tae Kwon Do club.

Those staff with dependent children have all placed their children in local schools, and the children have also been involved in local community organisations.

Despite this, in the staff survey and in contrast to other geographical areas, most salmon operation staff said that the number of social contacts and outings had decreased since they started the job.

3.125 Contribution to local community identity

The effect of the salmon operations on the region’s image was generally positive. In particular ...

All participants were asked whether they believed the salmon-farming operations detracted from the regions image in any way? Most participants strongly disagreed with this view, expressing wholly positive associations with the operations. The only partially negative sentiment was from one participant who described how the salmon-farming operations would increase the nutrient load in the rivers. This was said in a matter of fact way and the participant went on to say such an outcome is not unexpected. Also unprompted, the participant acknowledged the operations were meeting consent conditions regarding water quality.

...Anatoki Salmon creates substantial community value through its family oriented service and its efforts to attract visitors to Golden Bay in general (not just to

In contrast, most others in the community defended the environmental record of the operations. In particular, the work by the NZ King Salmon Takaka Hatchery was described by two environmental commentators as very good environmental management (see corporate social responsibility section). All participants commented on the positive effects of Anatoki Salmon regarding tourism. In particular, the family friendly nature of the venture was reflected several times. Several described how Anatoki Salmon was a stand-alone attraction for people to the region⁷. Participants knew many of those people stayed on in the Bay to do more, be that retail, accommodation or dining. Anatoki Salmon is one of three major tourist attractions in Golden Bay (along with Waikoropupu Springs and Farewell Spit tours). Furthermore, an

⁷ There are 385,000 visitors annually to Golden Bay according to the Golden Bay iSite.

their own venture).

owner of Anatoki Salmon is on the Board of Golden Bay Promotions (local tourist promotion not-for-profit), where he contributes his skill and expertise to attracting people to the region in general. Efforts to jointly promote Golden Bay alongside Anatoki Salmon are also obvious in Anatoki Salmon marketing (website and brochure).

“Anatoki salmon is good for tourism – it reflects well on us when we send friends/family/contacts to something they enjoy.”

“Anatoki Salmon makes the Bay look good – people have a good time and recommend others come.”

“We take the kids up there and they all want to catch a salmon. It's a good family place. It's a problem when one of the kids catches two and the other hasn't caught any!”

“It's a good day out with the kids.”

“Anatoki is the main attraction beyond beaches and Farewell Spit. You do Farewell spit trip once, but you go back to Anatoki again and again.”

“Anatoki is a successful tourist venture – it's chalk and cheese to NZ King Salmon who keep a low profile. A large number of tourists go to Anatoki – and the people running it have promoted the Bay too, helping out other tourist based businesses.”

3.2 Marlborough Sounds and Picton

3.21 Social findings for individuals and households in Marlborough Sounds

3.211 Direct jobs

Salmon farming currently employs 74 staff in the Marlborough aquaculture operations, of whom an estimated 18 are residents of Picton, Havelock and the Sounds.

As at June 2015, NZ King Salmon employed 74 aquaculture staff in its Marlborough salmon-farming operations. These included farm staff, farm managers, harvest crew and other support staff at the Picton aquaculture base. Twenty-nine percent of these 74 aquaculture employees live outside Marlborough and 53 live somewhere in Marlborough. The survey of NZ King Salmon employees reveals that these 53 Marlborough-resident aquaculture staff are split roughly 2:1 between Blenheim and Picton. Thus, we estimate that the salmon-farming industry in the Marlborough Sounds currently employs 18 residents of Picton, Havelock and the Sounds.

In the mid-1990s, the local salmon-farming industry used to involve a processing factory in Picton. Total employment then was considerably higher than it is now.

In the mid-1990s, a former salmon company employed a sizeable workforce at its processing factory in Picton, processing salmon from the Ruakaka and Otanerau farms “*many of whom were Te Ātiawa people*” living in the Picton/Waikawa area. However, this research has been unable to quantify these earlier levels of local employment.

3.212 Income from jobs

All employees are earning above the median income for the region ...

Current levels of gross income are spread across a wide range. The employee survey responses indicate that all current salmon-farming employees living in Picton and the Sounds are earning above the median income when compared with the following 2013 census data for the Marlborough region (See Table 8 below).

Table 8. Census income data for Marlborough region

Income descriptor	Income level
36 percent of Marlborough residents 15+years	Less than \$20,000
Median, for people aged 15 years and over	\$27,900
23 percent of Marlborough residents 15+years	More than \$50,000

... and none came from a previous situation of being unemployed.

The proportion of Picton/Sounds-resident salmon-farming employees earning more than \$50,000 annually, at 30 percent, is somewhat above the regional average of 23 percent. A large majority (80 percent) of Picton/Sounds-resident salmon-farming employees came from previous full-time employment in other jobs, while none came from a previous situation of unemployment.

More local employees reported taking a drop

Although overall they are earning well above the median income, somewhat fewer (40 percent) experienced an increase in annual income over their

in annual earnings than reported an increase, when they started working in salmon farming ...

...however none have sought other paid work.

previous employment, compared with the 50 percent who reported a decrease. Nevertheless, the experience of salmon-farming employees living in Picton and the Sounds appears different from the overall regional pattern (see section 3.412 below) in respect of secondary employment and adequacy of income. None of the local salmon-farming employees who responded to the survey reported having other paid work, and a substantially higher proportion (70 percent compared with 52 percent of the remaining Marlborough region employees) reported having “enough” or “more than enough” household income “to meet everyday needs”. However, they were just as likely to report other household members contributing to household income (80 percent compared with 76 percent).

3.213 Social outcomes from jobs

Most employees see themselves as more employable as a result of their industry experience and acquisition of work-related skills...

Most employees (78 percent) working in salmon-farming operations or harvesting now see themselves as more employable as a result of their experience in the industry. This sentiment is clearly linked to the opportunities for gaining new skills while working in the salmon farming or harvesting operations (89 percent), with gaining skills on the job being a common factor (84 percent). The company has sent 76 percent of these staff on training courses, while 68 percent have received workplace training. Twenty-four percent of staff put themselves through a training course.

.... particularly so for those living in Picton Havelock and the Sounds.

The picture for Picton/Sounds-resident salmon-farming employees is even more marked – all (100 percent) now see themselves as being more employable, having gained new skills on the job (100 percent) but also because the company has sent them to training courses (90 percent) or provided workplace training (70 percent). In addition, 40 percent have put themselves through a training course of some kind.

The work-style of Picton/Sounds residents working in the salmon-farming industry appears conducive to good physical and mental health ... as well as their opportunities for social contact and their sense of self-respect.

The effects of work-style on an individual's physical health appear to have been largely benign (50 percent) or positive (40 percent) for Picton/Sounds-resident employees working in salmon farming, and the findings for effects on mental health favourable (60 percent and 40 percent respectively). These staff typically have a positive disposition to their work and their association with the company – *“being in the Sounds; away from town”; “bringing more work and stability to the area”; “we have a top-class product known worldwide being grown here”; “the rules are in place and the company works to be eco-friendly”*. Almost all local survey respondents reported that their number of social contacts had either not changed (60 percent) as a result of work-style since they began working in salmon farming or had increased (30 percent), and that their sense of self-respect had either remained the same (60 percent) or improved (40 percent). Their sense of satisfaction with life has also either remained the same (60 percent) or improved (40 percent).

3.22 Social findings for the Marlborough Sounds communities

3.221 Local employment

Salmon farming activities have retained people, income and skills in the

There are a number of ways in which the socio-economic activities of an industry contribute to the resources available to its host communities. They include:

Marlborough Sounds community ...

- the dollar spend from NZ King Salmon itself in buying goods and services essential to its operations and the additional indirect employment which this sustains;
- the dollar spend from NZ King Salmon employees' wages and salaries in local businesses;
- the contributions to community services, events and fund-raising activities by NZ King Salmon;
- the involvements of NZ King Salmon employees or their family members in community services.

...at a time when employment opportunities generally have been declining.

The communities of the Marlborough Sounds have had a recent history (2001-2013) of overall population decline, although Waikawa has gone against this overall trend⁸. Similar trends have occurred in total numbers employed⁹. Just prior to this period Picton suffered the loss of both its meatworks and the fish processing plant. And during this period, Picton has lived with the uncertainty of whether or not the Cook Strait ferry services might relocate their southern terminus from Picton to Clifford Bay.

Compared with pastoral farming, forestry and tourism, salmon farming provides consistent, year-round work and wages.

Another theme also received considerable emphasis in interviews for this assessment – the fact that salmon farming and harvesting is a steady, year-round activity, providing revenue and wages all year round, in contrast to pastoral farming, forestry and tourism, which are the other predominant industries in the Marlborough Sounds. Interviewees observed:

“Our work for NZ King Salmon has more of a spread across the seasons than our work with recreational customers.”

“The year-round nature of aquaculture work is different from the seasonal agricultural work which has been our staple in the past; has allowed us to diversify our client base from total reliance on agriculture and spreads our business risk.”

“Maintains a steady flow of income over the year.”

“Helps us maintain a steady cash-flow.”

Indeed, out of the 15 businesses interviewed, 10 referred to this attribute in some way.

3.222 Salmon farming spend on supply-chain businesses in Picton and Havelock

At least 15 other businesses in the

For this case study, 15 businesses operating in Picton and Havelock were interviewed, representing marine transport (4), land transport (2), marine

⁸ Between 2001 and 2013, the usually resident population of Picton declined from 3000 to 2754, while the inner and outer Sounds communities increased from 3267 in 2001 to 3459 in 2006, but then declined to 3267 again in 2013. Havelock's population remained static (471 in 2001 to 486 in 2013), but Waikawa's increased markedly from 987 to 1308. Statistics NZ, Census of Population and Dwellings.

⁹ Total employed in Picton, Waikawa and Havelock declined from 2325 in 2006 to 2205 in 2013. Statistics NZ, Census of Population and Dwellings.

Marlborough Sounds provide goods and services to the salmon-farming industry.

engineering (3) and mechanical and operational support services (6). All these businesses have commercial dealings with NZ King Salmon and all are staffed by people who live in the nearby communities. Collectively, they are currently staffed by 87 full-time, 16 part-time and 8 casual workers, corresponding¹⁰ to 5 percent of the workforce in these two towns.

The degree of business dependence on the salmon-farming industry, as represented by the percent of current annual business revenue earned from NZ King Salmon is summarised in the following table.

Table 9. Significance of salmon farming supply-chain revenue¹¹

Percent current revenue from supplying goods or services to salmon farming	Number of businesses
>50%	4
25–49%	1
10–24%	6
0–9%	4

Five of these businesses are substantially dependent on salmon-farming activities and their business activities have grown steadily in recent years.

For another six businesses, salmon farming provides a significant portion of their revenue, for which there is considerable local competition.

Of the 15 businesses, five have experienced steady or significant growth in their salmon farming-related business activities over the past five years. Notably, four of the five businesses with the highest levels of inter-dependency (more than 25 percent of current revenue) have experienced such growth. Two businesses have experienced significantly declining levels of activity as a result of local competition, while the remaining eight have experienced a steady level of salmon farming-related business activity.

The business links with salmon farming are important for a variety of reasons – commercial viability and a diversified customer base, positive brand and reputation, future growth opportunities, technical innovation, developing new skills and new market opportunities.

As the following comments illustrate, the nature and degree of dependence on the salmon-farming industry varies from company to company.

“It underpins the business with a steady, guaranteed revenue stream for the life of the contract.”

“For us, it’s the difference between being commercially viable and not.”

“We need every customer we have. Our business with NZ King Salmon helps maintain a steady flow of income throughout the year.”

“Has on occasions been borderline for our viability; been a few winters when salmon farming work got us through because everything else is so seasonal.”

“Our relationship with NZ King Salmon gave us credibility when applying for R&D funding.”

¹⁰ Counting only full-time and part-time workers.

¹¹ Based on most recent financial year.

"We've been prepared to do the urgent after-hours and weekend work that's sometimes required to keep the farms operating, and staff have to be ready to do this."

"Has made it easier to enter the fish farming market overseas."

"Our association with NZ King Salmon has been good for our brand and company reputation."

"We are trying to build a longer-term business relationship with NZ King Salmon because we have products and expertise that NZ King Salmon does not have and other local companies do not have."

"Our business relationship has resulted in us acquiring new, specialist equipment."

"Has resulted in technological innovations and new market opportunities."

"We have been able to get more involved in sponsoring local events and other businesses and community groups."

A total of 20 full-time and two part-time jobs in these supply chain companies are currently directly related to the links with salmon farming at a time when job numbers in the Marlborough Sounds have declined.

As a co-owner of the Clay Point salmon farm, the Te Ātiawa Trust, has accumulated knowledge and experience from its dealings with NZ King Salmon and NZ King Salmon's wider business network which have been helpful to its other business activities – regular meetings with operations managers, chief financial officers, marketing people – *"gaining understanding of industry opportunities and constraints and factors that need to be considered in business planning"*.

Companies whose business relationship with NZ King Salmon is at the higher end of the dependency scale – the more symbiotic business relationships – tend to emphasise the innovation that results, the skills and expertise that develop, and the importance of the NZ King Salmon brand to their own marketing. More than half the companies view their business with NZ King Salmon as an important component of a diverse client base.

Total employment in Picton and Havelock declined from 2325 in 2006 to 2205 in 2013, a decline of 5 percent¹². However, the decline in the manufacturing sector (which incorporates engineering and mechanical services) was slightly less at 4 percent (a reduction of 12 jobs), while employment in transport services increased over this period by 8 percent (an increase of 18).

The current level of indirect employment for these 15 companies, which they

¹² Employment in some sectors declined more substantially: agriculture, forestry and fishing – 13% (183 to 159); construction – 20% (213 to 171); rental and hire services – 23% (144 to 111); while employment in other sectors grew more substantially: public administration +13% (45 to 51); health services +20% (123 to 147). Source: Census of Population and Dwellings, 2006 and 2013. Statistics NZ.

relate to NZ King Salmon' spending on supplies of their goods and services is estimated to be 20 full-time and two part-time positions. This indirect employment is found across eight of the 15 businesses interviewed (at least half) and, not surprisingly, predominantly (all except three full-time positions) in those businesses at the higher end of the inter-dependency scale. This indirect employment is found entirely within the transport and manufacturing sectors, and corresponds to 7 percent of current transport-related employment and 1.5 percent of current manufacturing-related employment in these communities.

3.223 Employee spend

In terms of employee spend in local businesses, these 22 employees are a significant addition to the 18 local residents who work directly in salmon-farming operations.

Adding the 22 employees in the supply chain companies to the 18 NZ King Salmon employees who live in these Marlborough Sounds communities comprises at least¹³ 2 percent of all employed residents in these Marlborough Sounds communities. As several interviewees explained, *"These workers are here all the year, spending their money in local shops"* and *"It helps businesses that struggle in the winter months"*.

3.224 Corporate social responsibility in Marlborough Sounds communities

The salmon-farming industry has contributed financial resources and staff support to a variety of local community initiatives. More than 40 percent of the industry's total current financial contributions to community organisations are directed to communities in the Marlborough Sounds.

Apart from providing jobs for local residents, the salmon-farming industry has sought to play its part in supporting a variety of host community initiatives and activities, spanning social and community activity, environmental restoration, education and recreation. Notwithstanding that its head office and processing factory is in Nelson, 74 percent of its current financial contributions are directed towards communities in Marlborough, and slightly more than half of this (56 percent in the most recent year) to the communities of the Marlborough Sounds.

In some instances, the financial contributions from the salmon-farming industry are described as "top tier" in terms of private-sector sponsorships from businesses operating in the Marlborough Sounds, while in others it plays a lesser role. During the most recent financial year, NZ King Salmon made direct financial contributions to at least 12 organisations in the Marlborough Sounds communities, totalling \$50,000. Three involved multi-year contributions which began three to five years previously, while two involved multi-year contributions for the next two to three years, and two involved multi-year contributions from the past continuing into the future. To date, the longest period of continuous contribution to a single organisation is six years.

These include local festival events ...

The most obvious and public support for local community events can be seen

¹³ The data for total employed are taken from the 2013 census of Population and Dwellings, which was carried out in early March 2013. This timing means that such census data will likely over-estimate the numbers associated with tourism and recreation activities on a year-round basis, particularly the categories of Recreation Services, Transport, Rent/Hiring Services and Food & Accommodation Services, which collectively made up 33% of total employment in these communities in March 2013.

at the various festivals and sporting events, for example, the Havelock Mussel Festival, the Picton Maritime Festival and the Waikawa Boating Club.

Havelock Mussel Festival

The Havelock Mussel Festival is the biggest event in Havelock's calendar and features as a large-scale event for the region as a whole. The festival, which has been running on a Saturday in March for the past 10 years, attracts 4000 to 5000 people each year¹⁴. Over this period, the festival has raised \$200,000 of funding to support various community groups in Havelock and Pelorus. The festival has 50 stalls as well as an Industry marquee and a cooking marquee. *"Mussel is the hero; salmon is in support."* Festival funding is entirely through sponsors, and NZ King Salmon has been one of six top-tier sponsors since 2014. With naming rights to the cooking marquee, it provides cooking demonstrations and free tasting. *"The cooking marquee is a big part of the festival. It would be hard to replace NZ King Salmon sponsorship within the region. Since the festival is oriented towards families we don't want to saturate with winery funding."* In addition to the financial and product contributions, three NZ King Salmon staff are usually involved in setting up for the festival, while about 20 typically turn up on the day to assist with the marquee. Recognising the increasing breadth of aquacultural produce on show, the festival's name was changed in 2015 to Havelock Seafood Festival.

Picton Maritime Festival

The Picton Maritime Festival has been running as *"a family fun festival"* on the Picton foreshore on a January day every year since 2004, providing entertainment during the town's busiest time of year when it is full of holidaymakers. The daylong festival involves a stage with bands and other groups performing, a boat show and raft race on the harbour, surf life-saving displays, as well as a range of food stalls and market stalls on High Street and London Quay, ending with a fireworks display. NZ King Salmon provides a financial contribution to support a children's entertainer, as well as the costs for a marquee, with salmon filleting and cooking demonstrations and free samples. *"The King Salmon contribution enabled the committee to add quality entertainment for our event, which is focused on families and youth. Their staff also put in time at the festival."* The total value of the NZ King Salmon contribution is equivalent to the Marlborough District Council contribution in scale, and puts it in the top tier of corporate sponsorships for the day.

... recreational
activities ...

Waikawa Boating Club Winter Series

Sailing is described as *"the most active part of the club. We have organised sailing events which overall involve approximately 70 of the 450 boat owners in the club"*. About 80 percent of the club's funds come from members' subscriptions and the club's cash bar, with about 10 percent coming from sponsorships. NZ King Salmon is the sponsor for the 2015 Winter Series – a series of nine races which take place every second Sunday from May through to August. The industry cash sponsorship covers the costs of operating the

¹⁴ Organiser's records indicate that 60% of patrons come from the Marlborough region, with the remaining 40% mainly from Nelson and Canterbury.

... and conservation work, community education and community facilities.

start boat, *“otherwise these costs have to come from club funds”*. NZ King Salmon also provided a corresponding amount of product for use in club events. This is a case where the industry's financial contribution is second tier when compared with corporate sponsorships for the Spring and Twilight Series or the New Year regatta – *“the Winter Series has always been sponsored by someone – this time it is NZ King Salmon”*. About 10 out of the total club membership of 650 are employees of NZ King Salmon, while the current communications manager for the club is the partner of an NZ King Salmon employee.

Less obvious to people from outside the Marlborough region is the support provided by the salmon-farming industry for conservation work, community education and community facilities – Kaipupu Point Wildlife Sanctuary; Sounds, Salmon and Songbirds; and the Endeavour Park Pavilion shared by the communities of Picton and Waikawa.

Kaipupu Point Wildlife Sanctuary

The Kaipupu Point Wildlife Sanctuary involves restoring the native flora and fauna on a substantial block of land close to Picton. Substantial volunteer effort¹⁵ is focused on weed and pest removal and restoration planting. *“Persistent volunteer effort is required for active trapping, monitoring and recording and maintenance of the tracks.”* Funding comes from grants to cover the costs of a part-time coordinator, as well as sponsorships and members' subscriptions. NZ King Salmon has just completed a three-year sponsorship and just renewed this for another three years. *“NZ King Salmon is the principal sponsor. It's difficult to find another company of a similar scale which operates in the Marlborough Sounds.”* In addition to the annual cash grant, NZ King Salmon donates products for events and staff time to participate in a lecture series.

“The salmon-farming industry is involved across the broad spectrum of social and community interests, and is trying to be environmentally conscious – it's a good brand for Marlborough, and NZ King Salmon is a good corporate citizen.”

Sounds, Salmon and Songbirds

NZ King Salmon has also teamed up with a Marlborough tour company and a winery to organise the Sounds, Salmon and Songbirds initiative¹⁶, which began in 2013 and involves a series of seven half-day education trips in the Sounds, visiting the Ruakaka salmon farm and the Kaipupu Point Wildlife Sanctuary. *“It is very much a local Marlborough product, priced and aimed at locals and families.”* In the two years since it began, the initiative has attracted several hundred Marlborough residents each year. In 2014, several local service clubs made additional bookings for their members. NZ King Salmon staff, including senior management, have participated as guides on the trips to

¹⁵ For example, 800 hours of volunteer time over the most recent three months, which is equivalent to more than one person full-time.

¹⁶ “Salmon” refers directly to salmon farming, while “Songbirds” refers to the return of native birds to Kaipupu Point as a result of the restoration work undertaken.

provide explanations and answer questions. This educational initiative is also aimed at broadening the base of interest and support for the Kaipupu work: *“\$5-a-head goes directly to supporting the Kaipupu restoration work.”*

Endeavour Park Pavilion

The pavilion, located in the middle of Endeavour Park and opened in 2013, provides a state-of-the-art 'auditorium' seating 230 at tables, with a commercial kitchen and bar, and a separate meeting room, as well as six international-quality sports changing rooms downstairs; the pavilion is used by a wide range of sports (rugby, football, cricket, netball, touch, MTB, waka ama) and also by a wide range of community groups (pre-school, ballet/dance, women's exercise, Probus, indoor bowls, Kaipupu Wildlife Trust, Garden Club, Marlborough District Council meetings, etc.). The pavilion has also hosted conferences, weddings, birthdays and funerals for local residents. NZ King Salmon has been a second-tier financial supporter¹⁷. Its contributions over the period 2011–2015 went towards the fit-out of the pavilion auditorium, to which it has naming rights. *“Together with the other financial contributions, these have created a sport and recreation hub for all of Picton. Many local groups previously had no facilities at all and some had very basic facilities – the pavilion is seen as ‘a big asset’ in the community.”* Out of 21 potential time slots during Monday to Friday each week (three slots per day), 19 are currently booked on a regular basis.

NZ King Salmon has also made several significant financial contributions to educational programmes in Picton that are probably not in the realm of common knowledge – support for the Kiwi Can programme at Picton School and for the Aquaculture Academy at Queen Charlotte College.

Kiwi Can Programme

Picton School was one of four Marlborough primary schools to begin a trial of the Kiwi Can programme in 2014. Now in its second year, a fifth school has been added. The Kiwi Can programme is a values-based educational programme provided by external tutors from the Foundation for Youth Development (FYD). Kiwi Can involves four modules¹⁸ – one each term. The class teacher is present all the time, so that lessons and language can be translated back into the classroom setting. The Kiwi Can programme is closely aligned with Picton School's own charter vision values, so they were keen to take part in the trial and keen to continue for the second year. The programme is subsidised by sponsors so that schools (parents) do not have to pay the whole cost. NZ King Salmon sponsorship of the FYD activities is considered a 'middle-tier' sponsorship. *“It's difficult to quantify benefits yet since the programme is relatively new.”* However, the staff see the benefit derived from having new, fresh faces expressing the school's values messages – *“it's not always just the teachers saying these things – there is another voice saying it”*. School staff have noticed that *“the children are starting to use the Kiwi*

¹⁷ Port Marlborough has been the major sponsor, contributing \$100,000 compared with NZ King Salmon's \$40,000, which is the same level of contribution as from another local company.

¹⁸ Positive relationships; Respect; Integrity; Resilience.

Can language spontaneously”, suggesting that the values messages are starting to become embedded. Parents have also provided positive feedback comments about their children’s behaviours.

Aquaculture Academy

The Aquaculture Academy at Queen Charlotte College (QCC) in Picton was first established in 2002 by the Marine Farming Association and Port Mussel Company. The Academy began with Year 11 only and then evolved into a three-year diploma course addressing a range of species (pāua, mussels, oysters, salmon) as well as a range of occupational skills (boatmaster, day skipper, first aid, etc.) within the school curriculum. The academy has various facilities including a mini land-based salmon production unit at the school, a barge, and experimental mussel lines in the harbour. These facilities provide hands-on experience for students. The three-year course involves typically 20 students/per year. NZ King Salmon supplied the plant and equipment for the small-scale salmon farm located at QCC, as well as smolt, fish feed and staff time to provide advice to staff and students and troubleshoot if necessary. The company’s staff are involved typically at least monthly, delivering supplies and/or contributing to classes. NZ King Salmon also initiated a scholarship programme some years ago – equivalent to half the fees for the two-year NMIT diploma course in aquaculture. Initially this was for QCC students only, but is now open to students of all Marlborough colleges. The company still provides prizes for QCC students in each year of the three-year course, and hosts a day-trip visit to a salmon farm for the Year 12 students in the academy.

Without the NZ King Salmon contribution, there would be minimal salmon-farming component to the academy programme and very little hands-on experience. The NZ King Salmon financial contribution is at a similar level to that from the Marine Farming Association¹⁹. Collectively, this means that the academy students pay no extra fees or costs for their academy studies. This initiative has led to a cascade of effects: many students have gone on to work in the wider aquaculture industry, including salmon farming and mussel farming; Queen Charlotte College has developed aquaculture-related curriculum materials which have been requested by other colleges around New Zealand and salmon produced in QCC’s salmon farm has provided product for QCC Tourism and Hospitality Academy.

3.225 Employee involvement in community organisations

While only a minority of salmon-farm staff are actively involved in community organisations, their partners are just as likely to be involved as

A minority (22 percent) of individual Picton/Sounds-resident salmon farm staff reported being actively involved in community organisations and unpaid voluntary work. Those that were identified Coastguard Marlborough, the Waikawa Sailing Club, Marlborough Freshwater Anglers, Blenheim Smallbore Rifle Club and a water polo team. A similar proportion of staff partners are

¹⁹ Two mussel companies (Sanford and Port Mussel Company) each provide the profits from one line of mussels as financial support for the academy programme.

well

actively involved, sometimes in the same community organisations and sometimes in others – the Picton Play Centre, Picton Whale Centre and a school reading programme.

Interviews noted the ongoing contribution of company staff to the activities of the Aquaculture Academy, including its Board, and also the volunteer effort supporting the annual Picton Maritime Festival.

....and their children invariably have attended local schools.

In all employee households with dependent children (currently 22 percent), these children have invariably attended local pre-schools and schools.

3.226 Effects of salmon-farming operations on recreational boating in the Sounds

Many people use their boats for private recreational purposes in the Sounds.

There are many people who use their boats for private recreational purposes in the Sounds. Two boating clubs²⁰ agreed to invite their members to participate in an on-line survey²¹ about their experiences of salmon farms when undertaking their boating activities. As shown in Table 10 (below), half of the respondents live in the Marlborough region. Of these Marlborough residents, 60 percent live in the Sounds, including Waikawa, Picton and Havelock, while 40 percent live in Blenheim, Raupara or Renwick. Just less than a quarter of respondents (23 percent) own a bach or home in the Sounds.

Table 10. Location of residence

Location	Number	Percentage
Marlborough	30	50%
Nelson-Tasman	10	16%
Canterbury	13	22%
Other South Island	1	2%
North Island	6	10%
Not resident in NZ	0	–
TOTAL	60	

Demographics of respondents

Demographically, the sample of respondents is highly skewed by age and sex. However, this is likely to reflect the demographics of boat ownership and use generally. Ninety-seven percent of respondents²² were aged over 40 years, and there was only one female respondent. Practically all respondents were typically the skipper of their boat, except four who were typically passengers.

²⁰ The Waikawa Boating Club maintains a weekly email newsletter to members, through which members were invited to participate in the survey. The Pelorus Boating Club was holding its Annual General Meeting during the period of the research and agreed to include the survey invitation in their notices to members regarding the AGM

²¹ After being open for on-line responses for a period of two months, the survey was closed, with a total of 60 respondents, almost equally from each club (Waikawa BC respondents = 31; Pelorus BC respondents = 29)

²² Note: Only 41 out of 60 respondents identified their age.

Most of the boaties who responded to our survey have been boating in the Sounds during the time when salmon farms were established and also before that.

Boating history and type of boating activity

Table 11 (below) summarises the length of boating experience in the Sounds. It is evident that more than two-thirds of respondents have a length of experience of boating in the Sounds that extends over much of the time that salmon farms have been in existence. Indeed, one-third of respondents began boating in the Sounds before the first salmon farms were established.

Table 11. Length of boating experience in the Sounds

Length of boat ownership & use	Number	Percentage
Up to 5 years	6	10%
6–10 years	12	21%
11–15 years	4	7%
More than 15 years	36	62%
began pre-1985	19	33%
TOTAL	58	

Table 12 (below) indicates the level of boating use over the past 12 months and reveals that the sample of respondents covers a wide range of experience, from occasional users to very frequent users.

... with the most common boating activity being fishing trips and general cruising.

Table 13. Types of boating activity

Type of activity	Number of respondents	Percentage
Accessing own home/bach	9	16%
Accessing another's home/bach	18	31%
Visiting other locations in the Sounds	21	36%
Fishing	37	64%
General cruising	54	93%
Other	16 ²³	28%
TOTAL	58	

Familiarity with salmon farm locations

Table 14 (below) summarises responses when asked about which salmon farm sites they had “ever travelled to or travelled past”. The pattern is not unexpected. Those farms mentioned most often are in locations with highest

The likelihood that boaties have visited a particular salmon farm

²³ Includes 11 involved in yacht racing and three living aboard their boat.

is well correlated with locations that have highest levels of boat traffic and proximity to trip start points.

levels of boat traffic and greatest proximity to trip start points.

Table 14. Likelihood of boat trips visiting or passing salmon farm locations

Location of salmon farm	Number of respondents who have ever visited or passed the farm	Percentage
Ruakaka	43	74%
Te Pangu	41	71%
Clay Point	40	69%
Otanerau	32	55%
Forsyth Bay	34	59%
Waihinu Bay	27	47%
None	1	2%
TOTAL	58	

Table 15 (below) indicates which salmon farm locations are most frequently passed by the survey respondents. Unsurprisingly, the salmon farm closest to principal trip start points – Ruakaka – is the most frequently passed salmon farm. It is also the oldest established salmon-farming operation currently in existence in the Sounds.

Table 15. Salmon farm most frequently visited or passed

Salmon farm location	Number of respondents for whom it is the most frequently passed site	Percentage
Ruakaka	31	54%
Tory Channel (Te Pangu and Clay Point)	11	19%
Otanerau	4	7%
Waihinu/Forsyth Bay	10	18%
Unidentified	1	2%
TOTAL	57	

Four of the 60 respondents stated that they can see a salmon farm from their home/bach. Two are in Ruakaka Bay and two in East Bay, Arapawa Island.

Just over half the boatie respondents reported no effect of salmon farms on their experience of the Sounds...while almost one-third reported a negative effect.

Experience of existing salmon farming activities in the Sounds while boating
When asked the question “As a boat user, has your experience of the Sounds been affected in any way by the presence of a salmon farm?” slightly more replied “No” (53 percent) than “Yes” (47 percent). Of those who answered “Yes”, two-thirds (67 percent) described the effect as “negative”, 29 percent as “neutral” and 5 percent as “positive”. Thus, overall responses from the survey sample are summarised in Table 16 (below). While an absolute majority reported no effect at all, a significant minority reported negative effects on their boating experience. Nevertheless, based on this survey sample, boat users are twice as likely **not** to regard the experience of visiting or passing a salmon-farming operation as negative, if they happen to venture close to them than they are to experience them negatively.

Table 16. Overall responses²⁴ to the question “As a boat user, has your experience of the Sounds been affected in any way by the presence of a salmon farm?”

Response	Percentage of survey sample
No effect at all	53%
Negative effect	32%
Neutral effect	13%
Positive effect	2%

Particular negative effects reported are summarised in Table 17 (below).

Table 17. Particular negative effects reported

The most common negative effect reported by boaties are visual blight (12 percent), a feeling of displacement from the bay (10 percent), and course change or navigational risk (6 percent).

Negative effect	Number of respondents reporting this negative effect	Percentage ²⁵
Visual blight or intrusion; unsightly	6	12%
Feeling of displacement from the bay	5	10%
Navigational risk; required course change; required avoidance in bad weather	3	6%
Intrusive noise	2	4%
Attracting seals, shags and/or sharks	2	4%

²⁴ Based on 51 responses.

²⁵ Based on 51 responses.

Unpleasant smell	1	2%
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Some survey respondents (5) referred to damage to the seabed beneath the salmon farm. While responses make it clear that at least one respondent has experienced this phenomenon directly, having dived in the vicinity of a salmon farm, these responses are more likely to be expressions of concern about an issue, which nevertheless can affect a person's experience of being in the location, rather than first-hand reports of observed seabed effects.

A few boaties describe a salmon farm as an attraction.

The few positive effects reported in response to this question came from people who saw the salmon farm operation as an attraction: *"They are actually quite an attraction in my view. They are something interesting to look at and cruise past"; "interesting and mysterious"*.

Eighteen respondents reported having had some form of interaction with salmon farm staff. Of these, the majority (13) described the interaction as positive, including several (2) who had received assistance from salmon farm staff in a breakdown emergency. Negative interactions reported involved the failure of salmon farm staff in one location to do an adequate job of beach cleaning²⁶, and the occupation of boat club car parks by farm staff who are not club members.

However, boaties were more inclined to report specific benefits than...

Two further questions enquired whether or not boat users have experienced actual benefits or disadvantages from the presence of salmon farms. Those who reported *"No benefits experienced"* at all (55 percent) were outnumbered by those who reported *"No disadvantages experienced"* at all (64 percent). Furthermore, respondents were more likely to report specific benefits:

... they were to report specific disadvantages.

- *"a point of interest to take visitors to" (45 percent)*
- *"fishing nearby, to enhance your chance of a catch" (28 percent)*
- *"assistance from staff" (6 percent).*

than they were to report specific disadvantages:

- *"visually intrusive and objectionable" (30 percent)*
- *"an interference with your boat journey" (4 percent)*
- *"displacement from the bay" (4 percent).*

²⁶ However, it should be noted that, unlike mussel farms, which may have a debris clean-up condition attached to their consents, salmon farms have no such requirement, although staff do participate in beach clean ups from time to time on a voluntary basis.

3.227 Site-specific social effects in the Sounds

Given the spread of homes and baches throughout the Marlborough Sounds, the existing salmon farms are located in bays which are occupied by other people as well.	<p><u>(i) The potential for social effects</u></p> <p>There is potential for a variety of social effects to occur within the immediate vicinity of a salmon farm.</p>
While the social effects caused by reductions in environmental amenity values tend only to be negative, ...	<p>The physical presence of a salmon farm can affect environmental amenity values, which people enjoy. These relate to:</p> <ul style="list-style-type: none">• visual effects – the physical appearance and permanent presence of the salmon farm structure within the immediate seascape and landscape;• noise effects – the noise of activities on the salmon farm, particularly the noise of motors used to drive various pieces of equipment such as generators, harvesting equipment and water blasters for cleaning nets;• odour effects – unpleasant odours occurring when sea-pen nets are raised for cleaning;• lighting effects – the introduction of additional lights into an area with few other lighting sources;• changing wildlife patterns – salmon farms attract significant numbers of seals and birds, resulting in concentrations of such wildlife in the immediate vicinity, which can have a variety of effects on environmental amenity values that neighbours enjoy;• effects in the water – visible effects observed in the sea water surrounding a salmon farm.
... there can also be positive social effects associated with social interactions with farm staff, and the occasional benefits of subsidised transport services.	<p>The presence of salmon farm staff in the neighbourhood on a full-time basis and the daily servicing needs of the salmon-farming operation, involving boat or barge traffic, present the opportunity for social interaction with staff, as well as the opportunity to provide services or the opportunistic access to services, particularly transport services. There have also been occasions when staff on some salmon farms have lived in their immediate neighbourhood.</p>
It is clear that salmon farms commonly attract boaties and visitors on visitors on charter vessels.	<p>The presence of a salmon farm influences patterns of boating behaviour in its vicinity, acting as a point of interest for visitors to the location.</p>
People's responses to the presence of salmon farms varies a great deal, depending on the nature of occupancy, and the experiences, personalities and attitudes of the individuals concerned.	<p>It is evident that the variety and nature of social effects experienced depends on the nature of occupancy²⁷. The nature of social effects experienced also depends on the nature of the relationships that evolve over time between salmon farm staff and their neighbours. These relationships in turn depend on the personalities and attitudes of the individuals concerned. Therein lies the reason for the variety of individual and household experiences. However, we give less weight to single, idiosyncratic observations and highlight observations which were corroborated by multiple observers.</p>

²⁷ This case study research has focused on the experiences of permanent or semi-permanent neighbouring residents, as well as the transient experiences of occasional visitors (see section 3.226 on recreational boating).

Responses also tend to be influenced by proximity.

(ii) Numbers of resident households

The existing salmon farms are located in bays which have relatively few dwellings at all, and even fewer dwellings where people live permanently. Two dwellings have direct line of sight to their nearby salmon farm, at distances of 350 metres and 750 metres, respectively. In the latter case, the view is screened by trees.

The information summarised below is based on the responses from six permanent or semi-permanent households²⁸, three of whom were also interviewed in 2011 as part of previous research.

(iii) Environmental amenity effects

As neighbours living relatively close by the salmon farms, it is not surprising that some common themes arise in their observations about adverse amenity effects – to do with visual impact, noise, odours, lights and the behaviour of wildlife. However, their responses to these effects show marked variations amongst individual respondents, as the following comments reveal:

Distance certainly has a powerful influence on perceptions of visual impact – at 1.5 to 2.0 kilometres, a salmon farm is no longer an intrusive element.

(A) Visual effects:

The 2011 research concluded that when viewed at close range in the setting of the Marlborough Sounds, neighbours describe a salmon farm as an un-natural element, sometimes described as *“ugly and an eyesore”, “intrusive”, “aesthetically unpleasant”, “like an industrial activity”,* or simply *“unacceptable”,* and therefore detracting from the visual amenity of the neighbourhood that they live in. These responses relate to observations at distances between 300 metres and 1200 metres. The intensity of response appears to reflect a gradient related to distance. Indeed, several of the respondents acknowledged that distance has a powerful moderating influence on this effect, making the observation, also based on their direct experience, that at 1.5 to 2.0 kilometres a salmon farm is no longer an intrusive element and at 3.0 kilometres it is barely noticeable. Other aspects which they reported as making a difference to the visibility of a salmon farm are the colour of the structures and the height of the accommodation barge (single-storey or double storey). The 2015 interviews evoked the following range of responses:

- *“Views are quite contrasting from different parts of the bay – in some places it’s OK; in others the salmon farm’s presence is quite intrusive. I would not like to have to look out on the farm every day.”*
- *“Visually low impact.”*
- *“Unsightly.”*
- *“A presence, which is reassuring when we are not there.”*
- *“We deliberately sited our house so we cannot see the farm, but in*

²⁸ While this may not seem a large number of respondents, it represents a high proportion of those people who have direct experience of living near an operating salmon farm. Collectively, their reported experience represents the primary documented record of community experience of salmon farm operations. These interviews provided a considerable degree of cross-corroboration of the individual observations reported, particularly in view of the fact that interviews invariably adopted the approach of unprompted but deliberative enquiry (avoiding the use of leading questions, but also interrogating initial responses).

fact protection from the prevailing wind was the most important factor.”

The threshold for being disturbed by the noise of diesel generators or water blasters seems to be a distance of about 700 metres, where there is no intervening topography.

(B) Noise effects:

The 2011 research found that people living at close quarters (300 to 700 metres) consistently report a common experience of noise from salmon farm operations. They report that at 300 to 400 metres salmon farm noise is not a literally continuous nuisance, but they report that frequently (on a daily basis) salmon farm noise detracts from what is otherwise the peace and quiet of the Bay, and also that *“it’s more noisy when they’re harvesting”*, *“harvest time is like a factory in the Bay”*. There is agreement amongst respondents that under certain circumstances (for example, wind direction, time of day, acoustic protections not in place), the most intrusive noise sources are the generators and the water blasters, with nuisance from the latter reported at distances up to 600 to 700 metres.

Taken together, these responses indicate that, while neighbours report hearing salmon farm noise even at much greater distances (1000 to 3000 metres) on an occasional basis, they do not tend to experience a significant loss of residential amenity at distances of 700 to 1000 metres or more. Some of those interviewed acknowledged that NZ King Salmon has made improvements in recent years to reduce its levels of noise generation from salmon farm operations, in response to issues raised by neighbours. They also acknowledged that intervening topography is an effective way of eliminating adverse noise effects, even at relatively close distances, if there is no direct line of sight. The 2015 interviews drew the following responses:

- *“There’s a small amount of noise but it doesn’t impact on our quiet enjoyment of our home.”*
- *“I’ve never been annoyed by the salmon farm operation at 700 metres, but mussel harvesting does get noisy.”*
- *“The most noticeable noise is from water blasters; motors work when they are needed; ... these noises are not continuous; ... the noise from feed spinners is not obtrusive; ... but when harvesting is in progress, there is constant noise – it’s like having a small factory in the bay – and harvesting lasts about two months²⁹ each year.”*
- *“At night, noise from the salmon farm is generally not a problem.”*

When the sea-pen nets are being cleaned, which happens periodically, unpleasant odours can be experienced, particularly downwind, at distances up to 500 metres.

(C) Odour effects:

The 2011 interviews elicited responses on the topic of odour effects indicating that their experience of adverse odour effects occurs within a much more confined spatial area around a salmon farm than is the case for the adverse noise effects reported. Five respondents with experience of salmon farm operations at 500 metres or less reported unpleasant odour experiences on occasions, described as *“stinking on occasions within 200 metres”*; *“periodic stench”* at 350 metres; *“can be unpleasant*

²⁹Note that harvesting is undertaken only during a part of each day, typically between 7am and 3pm.

downwind” at 500 metres. These responses are consistent that the effect is not present continuously. The responses invariably attribute the odour to the lifting and cleaning of nets. Several also commented that they used to experience adverse odour from the presence of morts³⁰, but that NZ King Salmon has amended its farm management practices to address this issue. The 2015 interviews reinforced these earlier findings:

- *“In certain wind conditions, a strong odour that is generated by the farm is evident in our part of the Bay.”*
- *“A smelly place.”*

Neighbours have not reported noticeable adverse effects from salmon-farm lighting, whether it be from the accommodation block, navigational aids or under-water lighting.

(D) Lighting effects:

The 2011 interviews found that generally, lights on the existing NZ King Salmon farms have not created any noticeable adverse effects in the experience of the neighbours. This observation applies to lights in the accommodation block, navigational safety lights on the farm structure, or underwater lighting used to moderate fish maturation rates. One neighbour ventured the observation *“under-water lights – these are a non-event; we can vaguely see the gleam”*. Another observed that the potential for an adverse social amenity effect could arise for an existing resident accustomed to not seeing any other lights at night if a salmon farm is introduced to their visual environment, thereby detracting from a desired sense of isolation. The 2015 interviews elicited no further comments about effects from salmon-farm lighting.

Salmon farms inevitably attract gulls and seals, in local concentrations well in excess of normal wildlife patterns. These have resulted in nuisances associated with fouling of jetties by gulls and occasional encounters with aggressive behaviour of seals.

(E) Wildlife effects:

The 2011 interviews with neighbouring residents reported several wildlife-related issues which they associate with the presence of a salmon farm. These issues concern gulls, seals and sharks.

Three off-site effects are reported relating to gulls and their presence around a salmon farm. Firstly, in the case of two existing salmon farms, gulls were reported to create a significant mess on nearby jetties and boats as a result of fouling by the birds. Whilst acknowledging that gulls are an expected element in their residential environment in the outer Sounds, the residents attributed the exceptional extent of this effect to the presence of the salmon farm and its influence in attracting large numbers of birds. Secondly, again in the case of two existing salmon farms, dead or injured gulls were reported periodically or occasionally on nearby beaches. Residents attributed this to the practice by salmon farm staff of using guns to deter gulls from being a nuisance on the salmon farms themselves. Thirdly, in the case of another existing salmon farm, the shooting of gulls was reported as causing concern to nearby residents on the grounds of personal safety for those on shore. It was also reported that this fire-arms-related issue has been raised with the NZ King Salmon manager of the farm, and subsequently resolved. NZ King Salmon introduced a new policy in 2011 prohibiting the presence of fire-arms on its salmon farms.

³⁰ Salmon which have died in the sea-pens.

(F) Regarding effects observed in the surrounding water.

When interviewed in 2011, nearby residents invariably expressed a desire to ensure that the health of the marine environment is not harmed by salmon-farming operations, or any other activities for that matter. This appeared to have strong associations for many residents with the identity and integrity of the Sounds. The residents interviewed generally acknowledged that they were unfamiliar with the state of monitoring and science surrounding the effects of salmon-farm operations on the water column or the benthic substrate. They were aware in a general sense of the volumes of fish feed being used by observing the weekly barge deliveries, and some expressed knowledge of the volume of fish waste products being discharged. Against this background of a general lack of information, several interviewees reported their own observations – “some discolouration downstream”; “seen bubbles coming to the surface”; “the water went murky”. Such observations need to be interpreted in light of the monitoring activities now being carried out as a result of the *Best Management Practice guidelines for salmon farms in the Marlborough Sounds* (the Guidelines) (see section 4.16).

Being residents of the Sounds, they all associate the health of the marine environment with the identity of the Sounds and do not wish to see this compromised. Nevertheless, some neighbours have on occasions observed unusual phenomena in the water near the salmon farms.

In the past, there have been situations where a local resident has worked on a salmon farm for a period of time. In several cases, neighbours have gained rental income from providing short-term accommodation, and most neighbours have benefited at some time from access to discounted transport services.

(iv) Relationships with salmon farm staff and opportunistic access to services

Interviews in 2011 reported a variety of positive local social effects for neighbours including farm workers living locally, revenue from rental accommodation and access to barge services³¹. Most neighbours at that time knew of local residents who had been employed in the past although this had not persisted. Two neighbours reported receiving rental revenue – in one case this arrangement had not continued while in the other the level of business had reduced – “we got a reasonable amount of business out of it”. Most neighbours reported either having benefitted directly themselves from cost-sharing on barge services, or knowing other local residents who had – “farm managers have always offered us assistance with transport”. The 2015 interviews confirmed all these observations. Furthermore, one of the barge services involved confirmed that such co-loading or back-loading arrangements still occur for residents in remoter parts of the Sounds on more than half of their salmon-farming trips. These barge services occur on at least a weekly basis throughout the whole year, and sometimes more frequently. Access for Sounds residents depends on the availability of unused capacity on any trip.

The 2015 interviewees also pointed out that, many years ago, they were sometimes given or allowed to buy salmon direct from the neighbouring farm. However, this practice was discontinued – “sadly so” as several long-standing residents remarked.

(v) Point of interest for visitors to the salmon farm locations

Visiting the nearby salmon farm has been a common occurrence for the majority of neighbouring residents. However, the frequency of this appears to have declined in recent years:

³¹ Taylor Baines, 2012, p.79.

“Not so much recently – mostly because of the farm’s Health and Safety concerns.”

“Not since King Salmon have ‘become more corporate.’”

Neighbours’ visits to the nearby salmon farm have declined in recent years, although they still sometimes take friends and visitors out to see the seals.

Similarly, the majority of neighbours have taken friends or visitors out to the farms, noting that the main attraction is often the wildlife attracted by the farms:

- *“We drive our boat around the farm, but we don’t go onto the farm.”*
- *“Only by boat to give them a closer look at the seals and bird life that the farm attracts – we don’t land on board the farm.”*
- *“Only to visit the seals”.*

Furthermore, the majority of neighbouring residents observe other boaties visiting salmon farms, although the frequency clearly varies from farm to farm:

- *“A lot of boaties do this – seals are a major attraction.”*
- *“Yes, but not landing on the farm.”*
- *“Rarely.”*
- *“Yes – they come to see what is going on.”*
- *“People are always asking if they can go there.”*

(vi) Salmon farm operations as neighbours

A final line of questioning explored two aspects of being neighbours to a salmon farm: the potential for interference with the normal range of activities by residents, and the nature of the neighbourly relationships.

Most existing immediate neighbours do not see themselves as being prevented from doing anything they would otherwise like to do, because the salmon is nearby.

The majority of immediate neighbours do not see themselves as being prevented from doing anything they would otherwise like to, if the salmon farm was not in their bay:

- *“No.”*
- *“Not at all.”*
- *“No; we can take it or leave it – not a worry to us.”*
- *“No, but we made it clear to the operators of the farm that we would not tolerate any increase in size of the existing structure.”*

However, a couple of interviewees did indicate that the location of the salmon farm affected where they went fishing or diving:

- *“Yes – it stops us fishing near our home in a quiet bay”*
- *“Don’t go fishing there – the smell is too bad – but there are some good reefs there; don’t go diving - because of the pollution beneath the salmon farm; cannot dredge for scallops because you might get tangled in the mooring ropes – overall this doesn’t have that much effect on us – we use our immediate bay a lot for wind surfing – there’s enough space.”*

Neighbours have generally enjoyed positive relations with salmon farm staff in

The 2011 interviews found that neighbours’ dealings with salmon farm staff were generally positive and favourable, although several described having little to do with NZ King Salmon staff. The 2015 interviews tended to confirm

the past, and some still do. However, it is equally clear that some of these relationships became strained during the process of the EPA Plan Change hearings and have not recovered since.

these earlier findings. However, some pointed to a loss of relationship as a consequence of the EPA Plan Change process:

- *“We’ve always had a good relationship with King Salmon which has only improved over time.”*
- *“NZ King Salmon are certainly reasonable neighbours; responsive to complaints.”*
- *“In the past, most people in the Bay had a positive relationship with farm staff – worked with them, attempted to include them in the local community on occasions - there is a benefit in remote communities from people being prepared to help each other; can call out for help if needed – reasonably benign prior to the EPA process – however relationships have changed since the Plan Change hearing – became very antagonistic.”³²*
- *“Whilst the locals accept the current size, form and position of the farm, we would not want any further enlargement, encroachment or numbers in the Queen Charlotte Sound area.”*
- *“No problems with having the farm as a neighbour and no change in our relationship with NZ King Salmon or their workers.”*

Thus, the evidence points to several conclusions. Firstly, the nature of the relationship is likely to depend on the personalities, attitudes and expectations of the individuals concerned – both farm managers, farm staff and neighbouring residents. Secondly, the stressful Plan Change process has had a noticeable adverse effect on some of the previously positive relationships. If considered in the context of NZ King Salmon’s social licence to operate, these findings demonstrate that such social licence can never be taken for granted, and needs continual effort to sustain. Furthermore, these findings reinforce the proposition that social licence is both site-specific and operator-specific. A positive social licence – a high level of mutual trust – in one location is no guarantee of the same in another location with a different community of interest.

³² NZ King Salmon note that company staff have made considerable efforts to rebuild relationships since the Plan Change hearing.

3.3 Nelson-Tasman

3.31 Social findings for individuals and households in Nelson-Tasman³³

3.311 Jobs

NZ King Salmon operations contribute 272 direct jobs in Nelson City, with all staff living in the surrounding area.

A further 37 jobs are provided from the supply-chain businesses servicing the salmon operations.

The historical trend from salmon operation employment over the past 25 years is not known because data from Regal and Southern Ocean Seafood is not available.

Sited alongside the populous urban areas of Nelson City and Richmond, it is not surprising that the 309 jobs represent a small fraction (0.7 percent) of all jobs available in Nelson-Tasman. However, this fraction hides the fact that NZ King Salmon is one of the biggest single employers in the regions.

At 30 June 2015 the NZ King Salmon processing factories contribute 212 jobs while the head office contributes a further 60. This totals 272 direct jobs for Nelson City. Of these it appears all Nelson City staff live in the Nelson-Tasman areas³⁴.

Other businesses throughout Nelson-Tasman supply NZ King Salmon with products and services, for example, with IT, packaging, printing, transport, science services, etc. This contributed another 33 full-time equivalent jobs and four part-time jobs across 14 supply businesses.

The historical trend from salmon operation employment over the past 25 years is not known because data from Regal and Southern Ocean Seafood is not available.

Table 18. Historical salmon operation related employment data

Year	Numbers employed (full-time, part-time and seasonal)
2010	292
2015	272

When total direct and indirect jobs in salmon operations (309) are compared with all jobs available in Nelson-Tasman, 0.7 percent of total local jobs are based on salmon operations (See Table 19 below). This signifies how the Nelson-Tasman areas are the main employment region for NZ King Salmon, followed by Blenheim/Marlborough, Picton/Sounds, then Golden Bay.

Table 19. Number of jobs in salmon operations and supply-chain businesses in Nelson-Tasman

Salmon operations jobs	Jobs dependent on salmon farming	Total jobs based on salmon operations	Total local jobs in Nelson-Tasman Region (2013)	Percent of total local jobs based on salmon operations
272	37	309	43,880 ³⁵	0.7 percent

NZ King Salmon staff were predominantly on permanent

Over 90 percent of the NZ King Salmon staff were on permanent full-time employment contracts with a further five percent on permanent part-time

³³An earlier, separate section of this report is dedicated to Golden Bay (despite it officially being in Tasman) and the Golden Bay findings are therefore not included within this section. All references to Tasman in the section exclude Golden Bay.

³⁴Based on NZ King Salmon's staff home address data.

³⁵24,940 in Nelson Region and 18,940 in the Tasman Region. From QuickStats, Business Demographics. Nelson Region and Tasman Region; 2013 Census.

employment contracts (95 percent), providing job security for staff.

employment contracts. Such contracts provide substantial job security for staff, with only five percent of staff on less-secure fixed term contracts. This security is reflected by the type of positions on offer, with half of the survey respondents working in processing-type jobs and 39 percent working in head office-type jobs. The balance worked in farming/harvesting.

3.312 Income from jobs

The range of salaries is wide due to the mix of part-time and full-time work. Despite this, over 90 percent of staff have an annual income that is above the median income for Nelson-Tasman residents.

Current levels of gross income are spread across a wide range due to the part-time nature of work for some employees. Human Resources data from NZ King Salmon shows the average salary across their operation (not differentiated by processing or head office) is \$46,390 per annum. The employee survey responses indicate that over 90 percent of Nelson-Tasman salmon operation employees are earning above the median³⁶ income (\$23,100) when compared with the following 2013 census data for Nelson-Tasman. Seven percent of employees reported being within a wage bracket spanning the median income of each Region (\$22,800-\$31,299) while just 2 percent were in a wage bracket below the median income.

Table 20. Census (2013) income bands for Nelson-Tasman

Income descriptor	Nelson	Tasman
Percent of people with an annual income less than \$20,000	37%	39%
Median, for people aged 15 years and over	\$27,200	\$25,700
Percent of people with an annual income greater than \$50,000	22%	21%

Nearly half of the staff (47 percent) earn greater than \$50,000 per annum, compared with one fifth of people in the Nelson-Tasman Regions (22 and 21 percent respectively). Also, for most Nelson-Tasman resident staff, the pay received in their current job is higher than their previous job.

The proportion of Nelson-Tasman resident salmon operation employees earning more than \$50,000 annually (47 percent) is well ahead of the Nelson-Tasman resident population as a whole (22 and 21 percent, respectively).

As well as earning above the median regional incomes, 53 percent of staff experienced an increase in annual income over their previous situation, 18 percent were about the same, while 29 percent reported a decrease. Again this is important as it shows that for most people an aquaculture job has been a boost to their income. This is in contrast to Picton/Sounds and Blenheim/Marlborough staff who were more likely to have reported a decrease in income from their previous job.

Importantly, nearly one-third of the NZ King Salmon jobs were people entering the labour market for the first time, re-entering the labour market, or moving from less-secure employment.

Over two-thirds of Nelson-Tasman resident aquaculture employees came from previous full-time employment in other jobs (70 percent), while nearly one-third (30 percent) were previously engaged in seasonal, casual work, from a previous situation of unemployment, or a previous situation of not looking for work (from school, from caring for children). This is important as the academic literature is clear that the individual social benefits of employment are greatest for those people moving from a situation of no paid employment/insecure employment to paid employment/secure employment.

³⁶ Median is the value lying at the midpoint of the distribution of all values, so there is an equal chance of being above or below it. Whereas average is the value calculate by dividing the sum of the values in the set by their number. With salaries, it would be expected for the average to be higher than the median in the same data set.

However, even with all of this positive economic data, some staff struggle to meet their everyday needs, ...

... and some staff have also taken on more than one paid job to get extra money, ... while the majority of staff live in households where more than one person is contributing to household income.

Staff turnover is low in the Nelson processing factories and head office compared with other industries and sectors.

This situation is reflected in responses about the adequacy of household income to meet everyday needs, where 15 percent of Nelson-Tasman region aquaculture staff report that they “do not have enough” money to meet their everyday needs. In contrast 31 percent have “only just enough” money and just over half have “enough” (42 percent) or “more than enough” (12 percent) total household income to meet their everyday needs. This is similar to national norms from the 2013 New Zealand Household Economic Survey³⁷, reflecting that even those in employment often struggle to meet their everyday needs.

From this small sample of staff who reported they did “not have enough” money to meet their everyday needs, several characteristics differed from their co-workers. Sixty percent of those who reported having “not enough” money were earning less in their current job than in their previous job; 30 percent were in other paid work at the same time; 28 percent had not gained skills on the job and just 50 percent had been on training. Two-thirds had dependent children (65 percent).

Sixteen percent of all staff have had more than one paid job while working in the aquaculture industry. For the majority of these staff, the reason cited was for extra hours/money.

Two-thirds of staff (63 percent) have another person in their household contributing to household total income.

Annual staff turnover at the Nelson processing factory is 13 percent and 12 percent at the Nelson head office. This is at the low end of the range (10 to 35 percent) of typical turnover rates across public and private organisations across multiple sectors in New Zealand in 2014 (Lawson Williams, 2014).

3.313 Social outcomes from jobs

NZ King Salmon staff see themselves as ‘more employable’, ...

The large majority of Nelson-Tasman resident salmon operation employees (80 percent) saw themselves as more employable as a result of their experience in the aquaculture industry.

...likely related to the high level of new skills developed and training provided.

This was likely linked to the opportunities for gaining new skills while working in aquaculture where 92 percent of staff said they had learned new skills. Most (88 percent) had learned new skills on the job, 70 percent had received workplace training, while 60 percent had been sent on a training course by their employer and 18 percent had put themselves through additional training. Working in aquaculture is not without its physical and occupational risks. Over half (56 percent) of all Nelson-Tasman resident salmon operation employees acknowledged accidents or injuries during the course of their employment which they had reported to their employer. The difference when comparing processing staff (74 percent) versus head office staff (24 percent) was substantial.

However accidents and injuries occur, particularly for processing staff.

Since starting their NZ King Salmon job, there has been little change regarding staff physical or mental health, ...

Effects of work-style on individual physical health did not appear to have been significant for these people since starting their job – with 59 percent self-reporting no change, while 14 percent self-reported an improvement and 27 percent self-reported a deterioration in physical health. Mental health results

³⁷ Fifty-seven percent of nationwide respondents reported their income was enough or more than enough to meet their everyday needs.

were very similar.

... while for nearly all staff their self respect and overall satisfaction with life has either been maintained or increased.

Self-respect followed a different pattern where 92 percent of staff reported either an increase in self-respect (25 percent) or self-respect staying the same (67 percent). Very similar results existed for overall satisfaction with life since starting the job, where life satisfaction had generally improved (38 percent) or stayed the same (49 percent). Staff who reported either reduced life satisfaction or reduced self-respect, all also reported having “not enough money to meet their everyday needs” or “only just enough money to meet everyday needs”.

For three-quarters the number of social contacts and outings remained the same or increased, while one quarter reported fewer.

Regarding social engagement and participation, the results show the vast majority of Nelson-Tasman resident staff have maintained the number of social contacts and outings since beginning their job (59 percent), with about equal numbers reporting increased numbers of social contacts and outings (17 percent) and 22 percent reporting fewer. These results were lower than those reported by Picton/Sounds and Blenheim/Marlborough staff.

3.32 Social findings for the Nelson and Richmond communities

3.321 Local employment and its contribution to Nelson and Richmond

The jobs created by NZ King Salmon in Nelson were valued, but few interviewees were aware of just how many staff were employed.

Nearly all participants valued that NZ King Salmon created jobs within what is a modest-sized regional city. However, only a few interviewees commented on the scale of employment and only a few commented on how NZ King Salmon provided opportunities for lower-skilled workers to get a job. This likely reflects that NZ King Salmon does not specifically target beneficiaries or first-time workers for employment, and instead has a straight focus on matching skills to the tasks. While this is true, it belies the fact that 30 percent of staff at NZ King Salmon were entering the workforce for the first time, re-entering the workforce, or leaving less secure employment to take up the NZ King Salmon job.

Having the head office in Nelson means supply businesses could offer corporate-type services and that the (relatively) higher paid employees lived in the city. This aspect of operations was greatly appreciated by many interviewees.

Several interviewees commented how having the head office in Nelson (and staying in Nelson) was important. It meant corporate-type services were required, and higher-paid employees lived in the city. In turn that suited the products offered by certain supply businesses, for example, corporate travel, IT (for head office), restaurants, and science-based services.

“They’re a very important part of the Nelson employment scene. In a town of this size they have a significant number of workers. Nelson is a processing-heavy town already and they contribute to that.”

“There’s only a few iconic companies in Nelson, and NZ King Salmon are one of them.”

“They could have moved their head office to Wellington or Auckland but they haven’t done that. That’s great for Nelson.”

“They have higher-end executive jobs, which is perfect for our type of business.”

3.322 Aquaculture company spend on supply-chain businesses

Supply-chain businesses in Nelson and Richmond gain either a small fraction of income from supplying services/products to NZ King Salmon; a substantial fraction; ... or for three businesses it underpinned their viability.

For the Nelson and Richmond businesses which supply NZ King Salmon with products or services, four described a small fraction of income (4 percent or less of income) came from NZ King Salmon, whereas for six businesses the salmon operations contributed a solid source of income (5 to 24 percent of income) and for two others it was substantial (25 to 49 percent of income).

Reflecting this, nearly all suppliers described the NZ King Salmon as “part of diverse client base”, while it was a ‘steady source of income for about half (six businesses). NZ King Salmon were of such a level of importance for three businesses they said their viability was underpinned by NZ King Salmon.

Even for those where the income stream was between 1 to 4 percent, several reported NZ King Salmon to still be one of their “top ten clients”, reflecting the large number of clients some supply businesses have.

Several supply businesses appreciated the effort NZ King Salmon made to buy locally. Though one supplier business questioned NZ King Salmon’s loyalty to local suppliers after losing a contract.

Several supply businesses appreciated the effort taken to buy locally though this view was not universally held.

“They’ve been a long standing customer who’ve supported us over many years.”

“They’re very loyal, you can always get a cheaper price somewhere else in NZ, but they support us as a local company. And in return we support them.”

“Surely a good relationship was worth more than a few dollars?”

Table 21. Revenue from NZ King Salmon for supplier businesses

Percent current revenue from salmon operations	Number of companies
>50 percent	2
25-49 percent	2
5-24 percent	6
1-4 percent	4

Not only were there financial benefits described by supplier businesses, but benefits were also described as reputational.

Half of the supply businesses described how it was “good for their own company brand” to be doing work for the NZ King Salmon.

“We’ve picked up another account on the back of our credentials working for King Salmon.”

“Yes, very good for our brand.”

“We’ve leveraged off the recognition of their brand to sell our services to others.”

One-off projects also had a substantial positive financial effect on the supplier businesses due to the large size of these projects.

Five supplier businesses described how large-scale projects were important. At such times, the contribution to revenue increased substantially (sometimes doubling and quadrupling revenue).

“It really ramps up when a big project is on.”

"Small and steady, except when a big project is on. Once the project's done it's back to small and steady again."

A sixth supplier business noted a substantial seasonal effect with services required at a much higher level at a certain time of the year.

"NZ King Salmon is massive for us, especially over Christmas."

The salmon produced by NZ King Salmon has supported local businesses, and ...

Both restaurants interviewed described how the Ora King promotion run by NZ King Salmon provided substantial national and international attention to their work. One restaurateur described how this flowed through into bookings and a "buzz" about the restaurant, for both the staff and the diners. The other restaurateur described how it provided a national and international platform to show off their skills.

"Everything happens on Facebook now. Our most recent dish in the Ora King competition had over 5000 likes. It was our biggest promotion by a mile!"

... provided a case study for a second company to follow regarding how it is possible to sell nationally and internationally.

Another example is NZ King Salmon's focus on international markets. One interviewee described how this has provided a case study on how a regional provider can sell their product nationally and internationally. The interviewee described how they worked with a second local food producer to show them it was possible – using NZ King Salmon as the example. Consequently, each now cross-subsidises the other, meaning both now get a better price on the services offered. It has also led to solid growth in the second company with all of the associated benefits.

"It spurs others on. It shows it can be done. Saffron might be next."

NZ King Salmon has supported substantial innovation in technology...

One supplier business described NZ King Salmon as highly innovative and that the work requested by NZ King Salmon was often at the forefront of technology for the industry. In an environment such as Nelson-Marlborough with such a large seafood sector, the innovation is also then able to be applied in other settings.

"NZ King Salmon is incredibly innovative. They're often a test bed for new technology, and then we deploy elsewhere."

... and fostered collaborations with scientific institutes...

Two other suppliers (Cawthron Institute and NIWA) demonstrate the valuable role NZ King Salmon had in fostering science collaborations. Both organisations described substantial support from NZ King Salmon, and described how NZ King Salmon asked difficult questions and expected novel answers and innovative solutions.

...which are long standing and contribute to important outcomes. These include growth in jobs, ...

Cawthron Institute has a 30-year history of working with NZ King Salmon, and with both being based in Nelson they have grown their work together to the point NZ King Salmon are Cawthron's biggest aquaculture client. Previously Cawthron had a strong focus on shellfish but it's been progressively expanding to finfish at their main site on Halifax street (Nelson City) and at the Glen Aquaculture Park (15-minute drive from Nelson). The outcomes are threefold – growth (together) in jobs; growth in knowledge; and the ability to apply innovative solutions to long standing issues.

"NZKS have a lot of problems to solve and they do well to encourage thinking about how to solve them".

... and growth in knowledge. In particular, world leading research with spin-offs for New Zealand (services to sell), ...

"They have a commitment to understand, probably because they have the most to gain, and also the most to lose."

"They don't just contract us for one-off jobs. They can just pop in and we try to make it easy to do business with us. Being co-located certainly helps."

There are many examples of knowledge exchange arising from collaborative research and innovation. One is world-leading research in aquaculture concerned with seabed remediation and another is how seabed health might be monitored through tests for bio-marker organisms (instead of measuring multiple different aspects of water quality, sediment etc). This developing technology is proving useful to New Zealand regional councils for enrichment stage mapping. It is not just applicable to salmon, but to all finfish. It is also applicable to oil and gas platforms providing Cawthron with another revenue stream. Monitoring seabed health can now be done for a substantially lower cost and is more "understandable" than in the past.

"NZ King Salmon box above their weight for research in the industry."

... research to improve company outcomes (such as efficiency and quality), and also research to deliver potential benefits to environmental stakeholders.

"Many of their staff have a scientific understanding of fisheries – they know what questions to ask and they want to know the answers."

"NZ King Salmon's growth is backed with science and understanding."

A third example is a four-year research project supported by Seafood Innovations Ltd on king salmon's diet (and part-funded by NZ King Salmon). All previous world-wide diet research has been on Atlantic salmon (a different genus). The collaboration is hoping to improve feed conversion rates along with fish quality. A stated outcome of the research is environmental outcomes, with the hope that this will ease tension with some stakeholders.

"Hopefully the reduced waste will also contribute to a better environmental story, further contributing to a social licence to operate."

The knowledge growth is supporting the development of the next generation of New Zealand's scientists and ...

A fourth example of knowledge growth is research funded by Kiwinet, Sanford and NZ King Salmon. Students from the Nelson Marlborough Institute of Technology are also involved in this work. The research is focusing on naturally occurring animals called isopods. Unfortunately, the isopods look like a food pellet so the fish eat it, and the isopod burrows out of the fish contributing to 5 percent of deaths (the single highest cause). Cawthron is investigating how to attract the isopod away from the salmon (via light, vibration, food, etc). This work brings the entire industry together, and provides a real-life practice example for students to learn scientific techniques.

... helps to answer the questions posed by the community about the commercial use of the Marlborough Sounds.

A fifth example in knowledge growth outlines the role the community and council have in driving the science (and funding/ participation from NZ King Salmon). Like Cawthron, NIWA undertakes research projects and also ongoing monitoring of the Marlborough Sounds. Interviewee's described how the science is driven (in part) by the demand from the community to "know what is going on with the Sounds". There is a strong community interest in the wellbeing of the Sounds, and consequently the community demands the Marlborough District Council and other stakeholders to better develop their understanding. Tied in with the desire for growth of the aquaculture industry by Government, it allows NIWA and Cawthron to access "funding pots" that might otherwise not be easily accessible. This drives additional growth in knowledge, in turn allowing innovative practices to be developed for managing the growth

of aquaculture in the Marlborough Sounds (see below).

In turn, this growth in knowledge underpins the ability to apply innovative solutions such as the Guidelines for salmon farm monitoring and management.

The above examples of growth in knowledge underpin a substantial outcome: the ability to apply innovative solutions to long-standing issues. NZ King Salmon have been a key player in the Guidelines for managing and monitoring salmon farms. Led by the Marlborough District Council, a working group of industry, community and scientists developed guidelines to hold operators and regulators to account. Previously, the evolution of resource consents meant there were inconsistent conditions across sites leaving issues open to interpretation, and council and industry open to litigation. Cawthron and NIWA provided the science along the way (via seabed remediation, environmental monitoring and enrichment stage mapping). Importantly, NZ King Salmon will adopt these best management practices voluntarily and there is a chance they may be adopted nationally.

The guidelines have reduced stakeholder tensions around a recent resource consent application.

The social effects of this inclusive process (rather than the combative RMA process) are already being felt. In a recent application for a change in consent conditions, only three submissions were received and these were later withdrawn. This compared to previous examples where 10 or so submissions might have been lodged in opposition. The interviewees commented that the tension surrounding the process was far diminished for all stakeholders.

"The process has been open and transparent with a lot of stakeholder engagement."

3.323 Corporate social responsibility in Nelson and Richmond

NZ King Salmon has a low profile regarding corporate social responsibility in Nelson and Richmond.

NZ King Salmon has a low profile regarding their corporate social responsibility in Nelson and Richmond. This reflects a company decision to undertake the majority of its corporate social responsibility in Picton/Sounds and Blenheim/Marlborough (where the salmon farming occurs) instead of in Nelson (where the social benefits of employment are greatest).

"I'm not personally aware of any sponsorship or the like."

However, their donation to the Fifeshire Foundation is substantial.

Having said that, NZ King Salmon makes one substantial donation to the Fifeshire Foundation – a charity which assists people in financial hardship and domestic crisis in Nelson-Tasman. NZ King Salmon's donation is the largest single donation the foundation receives and it is used to pay a proportion of the administrator's wages. Such a payment is critical to allow the foundation to function efficiently, especially since NZ King Salmon have assured the foundation that the sponsorship is there for as long as they need it. This provides certainty in what is typically a financially precarious sector.

It provides certainty to the foundation's activities which in turn ...

"The administration-side of giving is not very sexy. Most people want to donate to actually give something out. But luckily King Salmon realise that paying the administrators wage is a very practical way to help."

"King Salmon are easy to work with – it's an easy relationship that can evolve. They've said the door is always open for further discussions if we identify we need more assistance – we really appreciate that in a small town like Nelson. It certainly shows they're involved in our community."

... supports many local

The foundation's work reaches into many homes in the area. In 2014 they helped 351 families, allocated over \$125,000 and provided substantial

families experiencing severe hardship.	amounts of useful items such as firewood, washing machines, and lawnmowers. The work has a strong social focus in supporting families in severe hardship.
NMIT has its own substantial programme of activities, including ...	Of their own right, NMIT has a licence to rear salmon. These licences underpin aspects of their tertiary level aquaculture course and their Salmon in Schools programme.
...tertiary level courses	The tertiary aquaculture courses have between 10 and 18 students enrolled each year. The courses include a Diploma in Aquaculture; a Bachelor of Aquaculture and Marine Conservation; and a Postgraduate Diploma in Sustainable Aquaculture.
	<i>“NZ King Salmon are a major partner for us.”</i>
... and a Salmon in Schools programme in 11 Nelson, Marlborough and Golden Bay schools.	<p>The Salmon in Schools programme operates in 11 schools, spanning primary, intermediate and secondary. It operates in Nelson, Tasman and Marlborough:</p> <ul style="list-style-type: none"> • Nelson Intermediate (Nelson) • St Joseph’s Primary School (Nelson) • Nayland College (Stoke, Nelson) • Waimea College (Richmond, Nelson) • Nelson College for Girls (Nelson) • Victory Primary school (Nelson) • Garin College (Nelson) • Nelson Boys College (Nelson) • Motueka High School (Golden Bay) • Parklands Primary (Golden Bay) • Marlborough Boys College (Marlborough) <p>The schools are supplied with all of the equipment needed to hatch salmon eggs and rear the salmon to smolt size before releasing into a local waterway. Lecturers and students from NMIT’s Diploma in Aquaculture programme act as mentors to the schools and oversee the fish rearing. NMIT also offer technical talks to secondary schools. For example, talking to the students taking the NZQA unit standard on Selective Breeding and Manipulation of Genetic Material; Year 12 and 13 Biology students; and Year 12 and 13 Marine Science Course.</p>
The Top of the South Trades Academy completes the suite with a National Certificate in Aquaculture and Marine (for Year 11, 12 and 13s).	Finally, the Top of the South Trades Academy is run by NMIT in conjunction with the secondary schools in Nelson and Marlborough. It provides Years 11, 12 and 13 students the chance to earn a National Certificate, while also staying in school four days a week to complete NCEA. The Trades Academy offers 15 courses, one of which is Aquaculture and Maritime.
NMIT’s programmes are supported by NZ King Salmon and others in the aquaculture industry.	<p>NMIT is supported by NZ King Salmon through:</p> <ul style="list-style-type: none"> • supply of salmon eggs • three hatchery visits per year for students • work experience for tertiary students (over half will work at King Salmon each year, and by the end of the course nearly all students will have worked at a King Salmon workplace) • three NMIT scholarships per year (paying tuition fees – the third-year scholarship also includes an opportunity for a placement with NZ King Salmon at the end of the course for additional work experience)

- funding for one of the 10 Salmon in Schools equipment set-ups (such as tanks, temperature monitors, flow systems, filtration system, current, water monitoring equipment, and feed).

“The children have to test the water quality four to five times a day; and when the salmon are young they need to be fed every two hours.”

The education outcomes for the tertiary students are substantial as it grounds their studies in the real world and...

... ultimately teaches the students the skills desired by employers.

The education outcomes from NMIT’s activities are substantial. For the tertiary students, they have the opportunity to undertake project-based learning. For example, seeing the difference between the growth rates of salmon reared from King Salmon eggs versus salmon grown from wild eggs is far more compelling than just being told about it. The visits to the sites also reinforce the classroom-based teaching, gives currency to their studies, and the work experience means the students are work-ready when they graduate. Students are also encouraged in their learning when they see a major employer such as NZ King Salmon is involved in their study and supporting them.

“Project based learning is so much more engaging.”

“What gets them a job is the work experience. When they leave us they already understand what’s expected of them in a real-life setting. All of the Diploma Graduates got a job last year.”

“I can tell them something in the class. But if they see it in action on a visit and if it also comes out of the mouth of the farm manager it sticks really well.”

The Salmon in Schools programme gives the tertiary students the chance to develop their management and communication skills, while ...

...for the school students it reinforces the curricula learning across several subject areas. Also, the reach is substantial with several thousand students engaged each year.

The teachers are highly engaged with Salmon in Schools due to the benefits of the teaching approach and the engagement of students.

The benefits include student engagement, consolidation of learning, responsibility, and helping to keep children in school for longer.

The Salmon in Schools programme creates a dual-learning situation where the NMIT students develop management, problem-solving and communication skills in a real life setting. They are held responsible for the successful hatching and rearing of the eggs in the school setting.

“The students have to work out how to explain a salmon life cycle to children, answer their questions in an understandable way, all the while managing the set-up. It’s a great challenge to their communication and management skills.”

Whereas for the school students, the salmon rearing is integrated directly into their curriculum learning. This includes biology, specialist unit standards and environmental studies. The salmon are housed in the classrooms meaning the reach to students was high. In one secondary school, the biology classroom had 125 students using the class across the five periods of the day, five days a week. The teacher estimated about 250 children (about half the school roll) were exposed each week. Over the course of two years, the whole school roll (about 450 children) would be engaged with the project. Some secondary schools have nearly 1000 students on the roll.

The teachers involved are highly engaged with Salmon in Schools (and associate lectures from NMIT staff) because it offers many benefits to their teaching approach and to the students:

- Schools are able to offer new unit standards which would otherwise be too difficult to find/prepare content for. It offers students more opportunities.
- NMIT staff deliver more detailed and accurate content than the teacher could do themselves, or to which the students could ever find online. It stretches the students understanding.
- Provides current and ground-breaking Nelson/Marlborough/Golden Bay information, instead of Canadian information (the predominate web information on salmon). It keeps students engaged.

- It links biology theory (book work) to practice. It helps them consolidate their learning.
- It gives the children responsibility through having to look after the salmon each day.
- The students in one school evaluated their courses, rating the visiting speakers as “highlights of the year”. It keeps students engaged.
- The Salmon in Schools relates to children’s different interests. Some are more interested in water quality, others growth, others biology, others lifecycle stages. The diversity of topics keeps students engaged.
- For the children engaged in the Trades Academy, they become the more knowledgeable children in the class about how to care for the salmon. This supports their confidence in an academic setting and helps to keep them in school.

Teachers want to be involved in this program which is a strong endorsement by them as they are dealing with a full curriculum in a busy year.

“When the standard first came out I didn’t use it. I couldn’t see how I could. This year NMIT together with other speakers have made it possible for our school to run this standard.”

“This material isn’t in textbooks. Finding material online is hard and it’s dry. And then when the kids do find online material, it’s Canadian.”

“I can deliver the achievement standard at a much higher level.”

Finally, Salmon in Schools allows students to study aquaculture in primary school through to tertiary level. Ultimately the students can work in the industry when they become adults, all within their home region. Such a connected education/skills pathway is most likely unique in New Zealand.

“The kids really respond to the fact it’s happening here. And it’s ground-breaking work. They read about it in the papers. They hear about it at home. It all reinforces the learning.”

“They NMIT staff have been amazing.”

“The trades kids sometimes struggle academically. But the academy gives them a reason to stay in school through Year 12. It gives them a focus.”

“In a biology lab you need to have something alive, but isn’t cruel.”

The project provides a direct path to students throughout their education (from primary, secondary, trades and tertiary study) all within their own region. In 2014, four students from schools with Salmon in Schools enrolled in aquaculture courses at NMIT. This means students do not have to leave their home region for tertiary study and offers an opportunity for work in their home region as well. Such a clear and connected education pathway between primary schools and a career is uncommon within New Zealand, and especially so in regional centres.

3.324 Level of civic engagement by salmon operation employees

NZ King Salmon is well regarded by the interviewees, ...

The majority of interviewees described the presence of NZ King Salmon in a positive manner regarding the relationship between the company and the local communities. There were no negative comments from interviewees.

...but not by all individuals who the staff interact with.

“They have a good public image, especially compared with others.”

“I’m not aware of any negativity, it’s a positive association.”

“They’re very good to their staff. A measure of that was when one of their staff

died recently. They supported him and his family through it all."

A small number in the staff survey (4) commented they had been on the receiving end of negative comments about the environment while in social situations. Two described these people as being *'ill informed'* while one acknowledged such discussions could make social situations *"uncomfortable and intimidating"*.

About one-third of staff contribute to their community via involvement in community organisations, as are their partners.

About one-third of staff participate in community organisations (31 percent). The types of organisations staff participate in include community services (for example, volunteer fire brigade, Coastguard, Fifeshire Foundation, Women's Refuge, and Rotary), sporting (for example, tennis, rugby, and hockey), education (for example, schools and early childhood centres), environment (for example, Project Jonah) and cultural (for example, kapa haka, car club, and church). About the same proportion (28 percent) have partners who also participate in local organisations.

Similarly, their children have typically attended local schools and supported community organisations through their membership.

"He brings his financial nous to the decision-making. He has to come prepared too, having read over 40 applications a month. It's a big commitment and we appreciate it" (Fifeshire Foundation)

The types of roles varied from chairperson to coach to member. Of staff with children, over 90 percent have sent their children to local schools either now or in the past and over two-thirds of the children have been involved in local community organisations as well.

Regardless, a large proportion of staff (30 percent) cannot name any social contribution of NZ King Salmon to their community (beyond jobs and income). This underlines the low level of awareness of social impacts from this industry.

Beyond jobs and income, 30 percent of staff were unable to name any social benefits to their community from the activities of the salmon operations and their staff. This underscores the purpose of this research when even many of the company's staff do not know the social contribution of the company, nor of themselves.

3.325 Contribution to local community identity

Most interview participants did not believe NZ King Salmon contributed to local identity, and...

Interviewees described NZ King Salmon as a company. Participants described NZ King Salmon as an important company in Nelson, but not in any way that related the company to local community identity. For example, a company might be a social hub for a community, or company activities might be directly linked to the historical siting/purpose of the community, nothing like that was said about NZ King Salmon in Nelson/Richmond. This is not surprising given the relative size of Nelson/Richmond to the size of the company and the lack of current promotions locally. In the past, NZ King Salmon has sponsored the local football team and the local food festival. Both of these sponsorships have ceased.

... this is further reflected by the lack of social divisions in Nelson during the past resource consent applications (unlike in

This lack of association with the local area is further reinforced by several participants noting that when the resource consent process was occurring, while it was big news in Nelson, it created little controversy between locals.

"It was big news when King Salmon were pitching for the extra farm space."

the Marlborough Sounds).

There were people on both sides of the argument in Marlborough. But it didn't cause many social problems here in Nelson."

Neither was the product itself (salmon) seen as a local product.

Moreover, only one interviewee associated NZ King Salmon products with the local area. The majority of participants either made no association, or linked the salmon products back to Marlborough. All interviewees who commented on the product described it as very high quality. Participants were more likely to describe products such as Nelson scallops or wine as being from Nelson. Similarly, the local restaurants extolled the excellent quality of the products and were also pleased to be able to offer diners a "local" product. However, provenance (and "local") related to where it was grown (Marlborough Sounds), rather than where it was processed (Nelson factory).

"Salmon is not synonymous with the area yet. I'd ask the question – what would it take to make salmon synonymous with this area, the same way wine is?"

"We want to work with the best quality product we can get and Ora King gives us that."

"From a promotional point of view it gives us the opportunity to tell our customers where the product comes from, how it's raised – the purity of the product is excellent."

"It's a beautiful product, but there is a social divide between people from Nelson and people from over the hill. A real them and us mentality."

While the role of NZ King Salmon as a business and environmental case study is likely deserved, the local awareness of the company's achievements is low.

One interviewee commented on the role of NZ King Salmon as a business leader locally and nationally. The interviewee described their product development of Ora King Salmon as outstanding. The subsequent international focus on selling a premium product (instead of a bulk product) was said to be an example other primary industries should emulate. Similarly, their focus on developing high-quality products for the domestic market was also praised. The fact that such work is of excellent quality is undeniable. However, the Nelson and Richmond communities are largely unaware of this. The same is true of the green environmental rating from Seafood Watch, where NZ Salmon farms are the only farms in the world with such a rating. Again only one participant knew of this achievement.

Much of NZ King Salmon's social and environmental work is unknown, even by supplier businesses.

Similarly, while several supplier business interviewees could describe the workings of NZ King Salmon in intimate detail and describe the goals of the company. Just as many had little or no idea about the broader goal or operations of NZ King Salmon. They were fully aware of the specific piece of the puzzle they provided as a supplier business, but nothing beyond that. This was true even of some of the businesses where a substantial amount of work was supplied to NZ King Salmon. This reflects poorly on those supplier businesses, but it also demonstrates how "below the radar" much of NZ King Salmon's social contribution is, even with its own supplier businesses, let alone the local community.

The above findings mirror how a sizeable fraction of NZ King Salmon employees could not identify any social contribution to their community from the operation of the business and the presence of staff (beyond jobs and income).

3.4 *Blenheim and the Marlborough region*

3.41 Social findings for individuals and households in Blenheim and the Marlborough region

3.411 Direct jobs

Of the 74 staff employed in its Marlborough salmon-farming operation, 53 live in the Marlborough region.

As at June 2015, NZ King Salmon employed 74 aquaculture staff in its Marlborough salmon-farming operations. These included farm staff, farm managers, harvest crew and other support staff at the Picton aquaculture base. Twenty-one of these 74 aquaculture employees live outside Marlborough and 53 live somewhere in the Marlborough region.

Over the past five years, the numbers employed in all NZ King Salmon' aquaculture operations³⁸ has declined by about 11 percent.

3.412 Income from jobs

All Marlborough-resident salmon-farming employees are earning above the regional median income.

Current levels of gross income are spread across a wide range. The employee survey responses indicate that all Marlborough-resident salmon-farming employees are earning above the median income when compared with the following 2013 census data for the Marlborough region (See Table 22, below).

Table 22. Census income data for Marlborough region

Income descriptor	Income level
36 percent of Marlborough residents 15+years	Less than \$20,000
Median, for people aged 15 years and over	\$27,900
23 percent of Marlborough residents 15+years	More than \$50,000

Even though the proportion earning more than \$50,000 annually is more than twice the regional average, more employees took a decrease in annual earnings than gained an increase compared with their previous employment.

The proportion of Marlborough-resident salmon-farming employees earning more than \$50,000 annually, at 58 percent, is two-and-a-half times the regional average of 23 percent. A majority (71 percent) of Marlborough-resident salmon-farming employees came from previous full-time employment in other jobs, 6 percent came from part-time work, and 16 percent were previously engaged in seasonal or casual work. Three percent came from a previous situation of unemployment.

Although overall they are earning well above the median income, fewer than half (45 percent) experienced an increase in annual income over their previous employment, while 48 percent reported a decrease.

This situation is further reflected in survey responses describing secondary paid employment, other contributors to household income and the adequacy of household income. Sixteen percent of Marlborough-resident salmon-farming employees reported engaging in other paid work, mostly out of

³⁸ From 117 aquaculture staff in June 2010 to 104 in June 2015. In 2015, 74 of the total aquaculture staff worked in Marlborough, while 30 worked at the three hatcheries. Source: NZ King Salmon.

financial necessity. With 77 percent also reporting other household members contributing to household income, 10 percent report *“not enough money to meet everyday needs”*, 32 percent report *“only just enough”*, 55 percent *“enough”* and 3 percent *“more than enough”*.

3.42 Social findings for the Blenheim and Marlborough community

3.421 Social outcomes from jobs

A high proportion of employees living in the region see themselves as more employable because of the skills gained in their salmon-farming work.

A high proportion (87 percent) of salmon-farming employees living in the Marlborough region now see themselves as being more employable, mainly because they have gained new skills on the job (94 percent) but also because the company has sent them to training courses (84 percent) or provided workplace training (74 percent). This is most likely to happen for those working directly in the farming and harvesting operations. In addition to this, 26 percent of employees have put themselves through a training course of some kind.

In the regional context, workers in salmon-farming and harvesting are much more likely to report accidents than those working in the Aquaculture Office in Picton.

It is clear from the survey responses that those employees working full-time in the industrial operations – hatchery, salmon farm operations, harvesting and processing – are most exposed to the risk of accident or injury. Between 75 and 80 percent of respondents told of reporting an accident or injury to their employer. In the Marlborough setting, 78 percent of those working in salmon-farming and harvesting reported accidents, compared with 33 percent in the company’s Aquaculture Office in Picton.

The personal health effects experienced as a result of work-style appear more mixed than for those employees living in the Sounds communities. There are similarly small differences in other work-style effects on personal wellbeing.

The effects of work-style on an individual’s physical health appear to have been mixed for all of Marlborough-resident employees. Sixty-five percent reported that their physical health has been unaffected by their salmon-farming work-style, but 16 percent reported a decline, while 19 percent reported an improvement. There is a similar mixed response for effects on mental health (56 percent, 22 percent and 22 percent, respectively). While many staff feel positive about their company’s position in the community – *“the company does back a lot of local events and various groups in many ways”*; *“there are more people in the community creating a better community spirit”*; *“I believe the local economy is healthier and the staff are able to contribute to coaching sports teams”*; *“it’s a great supporter and sponsor of local concerns”* – some evidently have experienced hostility – *“the company is not well liked in the community”*. Almost all regional survey respondents reported that their number of social contacts had either not changed (61 percent) as a result of work-style since they began working in salmon farming or had increased (26 percent), that their sense of self-respect had either remained the same (61 percent) or improved (32 percent), and that their sense of life satisfaction had either remained the same (58 percent) or improved (36 percent). The small differences in these responses between regional residents and those living in Picton and the Sounds communities may be attributable to a greater sense of cohesion between workplace and residence in the latter, and also the cumulative effects of less time spent travelling to and from work.

3.422 Civic engagement by salmon-farming employees

Employees living in and around Blenheim are much more likely than not to be actively involved in community organisations and unpaid voluntary work, and much more likely than their counterparts living in the Sounds communities.

In contrast to those living in Picton and the Sounds, employees living in and around Blenheim are more likely (65 percent) than not to be actively involved in community organisations and unpaid voluntary work. These community contributions reach into many aspects of community life. Fifty-seven percent of employees reported involvements across a wide range of sports clubs – hunting, football, hockey, squash, swimming, rugby, diving, jujitsu, orienteering, basketball, harriers, and volleyball. At least four schools benefit from the voluntary efforts of these staff, as do youth groups, as well as several emergency services – Volunteer Fire Brigade, Search and Rescue Marlborough, St John Ambulance and the SPCA.

Equally significant (47 percent) are the contributions of employees' partners to local community organisations and voluntary work. At least one-third of partners are involved in sports clubs – netball, hockey, masters swimming, water polo, touch, football, rugby. Others are involved in helping at school, youth and church groups, and organisations such as Plunket and Surf Life Saving.

In all employee households with dependent children (currently 46 percent), these children have invariably attended local pre-schools and schools.

3.421 Salmon farming spend on supply-chain businesses in Blenheim and the Marlborough region

Businesses in Blenheim and the wider Marlborough region, which supply goods or services to the salmon-farming industry tend to have much lower levels of dependence on such business activity than their counterparts closer to the Marlborough Sounds.

For this case study, five businesses operating in Blenheim were interviewed, representing material inputs to salmon-farming operations (1), marine transport (1), land transport (1), engineering services (1) and other professional services (1). All these businesses have commercial dealings with NZ King Salmon and all are staffed by people who live in or near Blenheim. Collectively, they are currently staffed by 139 full-time, 9 part-time and 12 casual workers.

The degree of business dependence on the salmon-farming industry, as represented by the percent of current annual business revenue earned from NZ King Salmon is summarised in the following table.

Table 23. Significance of salmon farming supply-chain revenue³⁹

Percent current revenue from supplying goods or services to salmon farming	Number of businesses
>50%	–
25–49%	–

³⁹ Based on most recent financial year.

10-24%	1
0-9%	3
unspecified	1

Of the five businesses, two have experienced a steady and consistent level of revenue from their salmon farming-related business activities over the past five years; two have experienced significantly variable levels of revenue, and one has experienced some growth.

As the following comments illustrate, the nature and degree of dependence on the salmon-farming industry varies from company to company:

Nevertheless, the association with salmon farming as a strong regional brand is clearly important

- *“Our work for NZ King Salmon has led to lots of work in the Tasmanian aquaculture sector.”*
- *“Has allowed us to develop a particular skill set.”*
- *“It is part of a diversified customer base.”*
- *“Our mainstream line of business is tourist-oriented, which is highly seasonal, so this helps us to maintain our cash flow over the year. It’s also been very good for our brand and company reputation.”*
- *“We’re proud to be identified with the high-quality product; see it as an important business partnership. We use NZ King Salmon references and advertising for getting new clients.”*

Accounting for 8 full-time jobs, the level of indirect employment in these Blenheim businesses is 6 percent of their total workforce, compared with 23 percent for the corresponding businesses in the Marlborough Sounds themselves.

The current level of indirect employment for these five companies, which they relate to NZ King Salmon’s spending on supplies of their goods and services is estimated to be eight full-time positions. This indirect employment is spread across all five of the businesses interviewed. It is evident from comparing these data with data for the 15 companies based in the Marlborough Sounds that the degree of business and revenue dependency on the salmon-farming industry diminishes markedly with distance from the salmon-farming operations. Comparing full-time employees in the supply-chain companies, for Picton, Waikawa and Havelock, 23 percent are currently dependent on their salmon-farming business relationship, whilst for Blenheim the corresponding figure is 6 percent, for an overall regional figure of 12 percent.

3.422 Corporate Social Responsibility in Blenheim and the Marlborough region

In the current financial year, some 37 percent of all the salmon-farming industry’s financial contributions to community organisations have been targeted towards Blenheim – to organisations involved in local business promotion, sport and tourism development.

As noted previously, 74 percent of NZ King Salmon’s current financial contributions are directed towards communities in Marlborough, and slightly less than half of this (44 percent in the most recent year) to the Blenheim and regional community (excluding Picton, Waikawa, Havelock and the Sounds).

In several instances, although not in every case, NZ King Salmon is the single largest private-sector sponsor, and several sponsorships have been multi-year in duration. Sponsorships and donations go to organisations involved in local business promotion, sport and tourism development.

Destination Marlborough

As the regional tourism organisation, Destination Marlborough is focused on marketing Marlborough as a visitor destination – direct marketing to consumers and international trade education. NZ King Salmon is currently the only a “food” partner in Destination Marlborough’s Strategic Partnership – the Food & Beverage Marketing Collective. It is also the largest single financial contributor to Destination Marlborough’s partnerships programme. Its two-year support of this Strategic Partnership has allowed Destination Marlborough to do some co-branding through an on-pack promotional campaign; in effect, leveraging regional promotion off NZ King Salmon’s marketing efforts and brand.

“NZ King Salmon has done much to market their world-class product, bringing international chefs to events. This makes Marlborough a destination as well as a source of product.”

Marlborough Chamber of Commerce

The role of the Chamber of Commerce is to support businesses in the region to grow. NZ King Salmon is a member of the Chamber of Commerce. While 80 percent of its income is from members’ subscriptions, sponsorships underpin the annual Business Awards, and are *“vital to be able to run the premier business event of the year.”* NZ King Salmon is described as an ongoing, second-tier sponsor. Without its sponsorship the event would still occur, but at a reduced level – *“less prestigious”*. NZ King Salmon also provides free product for the Business Awards Dinner.

Marlborough Boys College 1st XV

The Marlborough Boys College 1st XV takes part in the Crusader’s secondary schools competition, involving schools from throughout the Crusader’s franchise area. Participation involves lengthy and costly travel for the Marlborough Boys College team every two weeks⁴⁰. Costs are split equally between sponsorships (33 percent), grants (33 percent) and fundraising and player contributions (33 percent) with individual players contributing \$300 each. *“Without sponsorship, the talent pool of boys would shrink considerably if the players had to pay substantially more out of their own pockets.”* NZ King Salmon is currently the single biggest sponsor and consequently has naming rights on the players’ apparel.

⁴⁰ Alternating “home” and “away” games. Travel distances and costs are typically much higher for teams from Blenheim and Nelson than for teams in Christchurch and Canterbury.

3.423 The salmon-farming industry from a regional perspective

The Plan Change process in 2011/12 had a strong polarising effect on the regional community, which manifested itself from top to bottom – that is, from the Council down to individual families.

Tensions within the regional community

It is evident from the range of interviews conducted in Marlborough for this case study that there are divergent views within the regional community as to the most important social effects of salmon farming. There is no doubt that the Plan Change process⁴¹ associated with NZ King Salmon's proposal in 2011 to expand its operations in the Marlborough Sounds with additional salmon farm sites created significant tensions within the regional community, as the following interview extracts attest:

"The experience of the EPA Plan Change process was 'a horrible, antagonistic time' when there was no trust between parties such as Friends of Nelson Haven, the district council, the Guardians of the Sounds, and NZ King Salmon."

"A major impact of the NZ King Salmon Plan Change was a feeling of distrust; NZ King Salmon was seen as not forthcoming with information, overstepping their consent conditions; there was also a lack of confidence in the district council's monitoring."

"Through the EPA process, the operations and potential expansion of salmon farming did create a 'them and us' situation, which caught a lot of people; created tensions within the iwi family - even between brothers and sisters; ... the Trust Board found itself in opposition to some in the Waikawa marae."

"The corporate strategy during the hearing process was seen as very adversarial."

"During the EPA process the relationship between NZ King Salmon and the district council was somewhat adversarial."

The tensions were often triggered by concerns over the acceptability or otherwise of the environmental effects of salmon farm operations, particularly effects on water quality and the seabed ecology beneath the farm structures. For others, the tensions were triggered by concerns over risks to the enjoyment of environmental amenity values and the future of tourism and recreational activities in the Sounds. In contrast to these concerns, others in the local and regional business community highlight the positive regional branding for both food and tourism sectors to which farmed salmon is already making a strong contribution, and community organisations have acknowledged the efforts which the industry has made in recent years to give effect to its corporate social responsibility⁴².

The tensions were partly due to focusing on different social effects – *"There are two sides to the salmon farming story in the Sounds. Protagonists*

⁴¹ Refer to section 4.15 of this report for further explanation of the Plan Change process.

⁴² Discussed above in sections 3.224 and 3.412.

generally choose to focus on one or the other” – and partly due to the absence of evidence to support competing claims – “the jury is still out and insufficient funds are devoted to studying the nitrogen links between salmon farming to algal blooms.”

To some extent, these tensions arose because protagonists chose to focus on different effects – ecological and environmental effects or effects associated with business development and community support.

The more recent collaborative development of *Best Management Practice guidelines for salmon farming in the Marlborough Sounds* is one response to this absence of evidence⁴³ and to the polarisation of attitudes which had occurred. The collaboration involved – *“There has been a lot of science input and a lot of public consultation, resulting in an agreed set of standards and thresholds”* – is seen by some as evidence that the antagonism and mistrust which arose and existed throughout the Plan Change hearing in 2012 has moderated somewhat since then:

“There has been more willingness to communicate and indeed various parties have collaborated in producing the guidelines.”

Some acknowledge that the extent of community polarisation has moderated somewhat since the EPA process. A more recent resource consent application attracted far less adversarial public submission and did not even go to a hearing.

“We’re in a much better place now than we’ve ever been.”

“I’ve observed some reconciliation amongst the parties.”

“People have moved on.”

This case study research can be seen as another response to the absence of evidence – an attempt to lay out the full range of social and community effects of the salmon-farming industry’s activities.

As further evidence of diminished antagonism, the EPA hearing elicited ~1200 submissions (both for and against the proposal) and many submitters attended the hearing in person, whilst the recent re-consenting of the Te Pangu salmon farm attracted four submissions⁴⁴ under limited notification and is proceeding without a hearing at all.

As representatives of manawhenua, the Te Ātiawa Trust sees NZ King Salmon as contributing to the wellbeing of their community in a number of ways, including an effect on their mana. Some see this as a positive effect – enabling Te Ātiawa to have a say in the development of their marine resources and being involved in an activity that has long-standing tradition with the iwi. Others see it as a negative effect, associated with degradation of the benthic environment. But Te Ātiawa’s *“reputation is important to us – it is important to be actively involved in addressing issues of environmental management.”* The Trust originally opposed the NZ King Salmon Plan Change proposal; they needed more time to consider it properly. However, once the Trust had identified the environmental conditions it thought necessary, and NZ King

⁴³. Refer to section 4.16 of this report for further explanation of the Best Practice guidelines process.

⁴⁴. There were four submissions of which two were opposed and two were neutral. Neutral submissions were received from PauaMac7 Industry Association and Te Ātiawa o Te Waka -a-Maui Trust. Opposing submissions were received from Queen Charlotte Sound Residents Association and Friends of Nelson Haven and Tasman Bay Inc. Pers. Comm. MDC Consents Officer, 7 August 2015.

Salmon had agreed, they withdrew their objection. *“The experience has demonstrated the strength of The Te Ātiawa Trust Board, promoting openness and integrity of process. It would have been easy simply to object, but our process has been much more constructive for our future; not just having things done to us by others.”*

There is no researched evidence that the existing salmon farms have had any effects on the level of recreational boating in the Marlborough Sounds.

Trends in recreational activities in the Marlborough Sounds

In terms of other evidence of regional social effects of salmon farming in the Marlborough Sounds, no data sets were discovered on trends in recreational activities in the Sounds over the past two decades, which would provide evidence of changed social behaviours. However, a recent recreational assessment⁴⁵ of demand for marina berths in Waikawa Marina for recreational boats concluded that *“it would be safe to say that total number of participants in marine fishing is reasonably stable, although it may have dropped as a proportion of the population”* between 2001 and 2008. The assessment went on to predict increasing demands for marina berths in Waikawa in 2010 and beyond, implying expectations at that time for increasing levels of recreational boating activity in the Marlborough Sounds.

Comparing the results of two national surveys on social perceptions of the Marlborough Sounds (2001 and 2012), commissioned by the Marlborough District Council, indicates that salmon farming has not had any noticeable adverse effects on the most valued qualities of the Sounds.

Trends in social perceptions of the Marlborough Sounds

Some data were found in two surveys of social perceptions, carried out in 2001 and 2012 respectively for the Marlborough District Council⁴⁶. The 2001 survey was based on a national sample of people who had visited the Marlborough Sounds, whilst the 2012 survey supplemented the national sample with a Marlborough regional sample.

Several observations are pertinent to interpreting these results. Firstly, by 2012, marine farming included mussel farming, salmon farming and oyster farming. These survey results do not distinguish between the different types of marine farming. Secondly, in terms of marine farming activities, the surveys focus just on the sea-based structures and activities which include growing and harvesting, and ignore the land-based activities. In the case of salmon farming, such land-based activities are much less visible (for example, engineering support) or take place outside the region (for example, processing).

One question asked respondents about qualities of the Marlborough Sounds that they valued⁴⁷. The results are summarised in Table 24 below.

Table 24. Qualities of the Sounds that are valued

Quality	NZ 2001	NZ 2012	Marlborough 2012
Scenic beauty	43%	60%	49%

⁴⁵. Rob Greenaway & Associates, 2010. p.9.

⁴⁶. Corydon Consultants Ltd, 2001 and Corydon Consultants Ltd, 2012.

⁴⁷. See Table 15 in the 2001 survey and Table 3.7 in the 2012 survey.

Peace/tranquility	27%	39%	42%
Restfulness, retreat, holiday	6%	39%	42%
Wilderness, natural character	17%	38%	34%
Remoteness	13%	13%	8%
High water quality	9%	29%	26%
Native bush	6%	19%	17%
Bush-based recreation	3%	11%	15%

With the exception of “remoteness”, all other qualities were increasingly valued by survey respondents in 2012, compared with survey respondents in 2001. This was a period during which the fifth NZ King Salmon-operated salmon farm was commissioned at Clay Point. The results suggest that the growth in marine farming activities (including salmon farming) was not seen by national and regional visitors as having had a deleterious effect on the valued qualities of the Marlborough Sounds over this period.

Another question asked respondents if they were concerned if there were any activities that could damage particularly valued aspects⁴⁸. Responses indicated that the overall level of concern in 2012 about damaging valued aspects had declined over the preceding decade from 81 percent in 2001 to 72 percent in 2012⁴⁹.

Furthermore, the surveys indicate that public concern over potentially damaging activities declined between 2001 and 2012.

Another question asked respondents which activities they thought could have an adverse effect on the qualities they valued in the Marlborough Sounds⁵⁰. No tabulated survey results were provided in the report on the 2001 survey. However, the tabulated 2012 survey results are shown in Table 25 below, distinguishing responses from the national sample from those of the Marlborough regional sample.

Table 25. Activities perceived as having an adverse effect on the qualities of the Sounds that are valued

Activities	NZ2012	Marlborough 2012
Residential subdivision	55%	44%
Marine farming	22%	39%
Forestry	53%	55%

⁴⁸ See section 3.5.1 in the 2001 survey (although no tabulated results) and Table 3.8 in the 2012 survey.

⁴⁹ The level of concern amongst the Marlborough sample in 2012 was marginally higher at 74%, but still lower than the 2001 national response.

⁵⁰ See Qu.16 in the 2001 survey (although no tabulated results were provided in the report) and Tables 3.9 and 3.10 in the 2012 survey.

Motorised recreational boating	30%	24%
Port activities	39%	34%
Resort development	43%	31%
Bush clearance	71%	61%
Ferry operations	32%	34%
Moorings/jetties	17%	17%
Wind farms	35%	31%
Wave turbines	26%	21%

In 2012, both national and regional survey respondents expressed substantially higher levels of concern about the adverse effects of bush clearance, residential subdivision and forestry compared with marine farming. Furthermore, the 2012 regional survey responses clearly reflect the degree of polarization in the regional community that had occurred by that time.

In terms of the responses from the national sample, marine farming was ranked tenth as a threat to valued qualities, while the Marlborough respondents ranked marine farming fourth as a threat to valued qualities. For both samples, respondents expressed substantially higher levels of concern about the adverse effects of bush clearance, residential subdivision and forestry compared with marine farming. With the sole exception of marine farming, the Marlborough respondents expressed either very similar or lower levels of concern about all the activities that could have adverse effects on valued qualities in the Marlborough Sounds. For marine farming, the level of concern expressed by the Marlborough sample in 2012 about marine farming was twice that of the national sample, reflecting the degree of polarisation in regional attitudes that had arisen by that time.

Finally, a question asked respondents what detrimental impacts could arise due to residential subdivision, marine farming or forestry⁵¹. The responses in respect of marine farming are shown in Table 26 below.

Table 26. Perceptions of detrimental impacts from marine farming

Detrimental impact	NZ 2001	NZ 2012	Marlborough 2012
Interfere with boat movement	10%	8%	11%
Reduced boating safety	2%	3%	2%
Reduced options for storm shelter	–	0%	0%
Interfere with swimming	0%	3%	1%
Interfere with fishing	6%	7%	5%
Interfere with diving/snorkelling	–	4%	3%

⁵¹. See Table 24 in the 2001 survey and Tables 3.15, 3.17 and 3.19 in the 2012 survey.

Adverse visual impact	33%	20%	17%
Adverse water quality effect	10%	28%	36%
Discourage bird life	0%	2%	1%
Adverse effect on marine ecosystem	44%	34%	40%
Adverse noise impacts	8%	2%	1%
Coastal erosion	2%	3%	1%
Make Sounds less accessible	23%	15%	18%

Three detrimental impacts from marine farming stand out in these results – adverse visual impacts, adverse water quality effects and adverse effects on the marine ecosystem. Not surprisingly, these concerns are amongst the leading triggers for the polarisation of attitudes acknowledged above. The level of concern about other detrimental effects – amongst both national and regional respondents – reinforces the proposition that where such effects are experienced, they are very localised in extent.

When compared with the results of the site-specific effects assessments and boatie survey reported elsewhere in this report, there is considerable consistency evident.

4 The settings for this research

4.1 Salmon farming in the top of the South Island

4.11 A brief history

Salmon farming itself

The first licence to farm salmon in New Zealand was granted in Golden Bay in 1978 to licence⁵², what is now, NZ King Salmon's Takaka Hatchery. Initially the "Bubbling Springs" site in Pupu Valley Takaka was intended to be the base for a sea-run salmon industry combined with rearing pan-sized salmon for sale⁵³. After several years of battling, selling pan-sized salmon became the business model. A brief foray into sea pens began in 1980 but was abandoned in 1981 in Golden Bay (after being destroyed by storms). At about the same time, the first sea pens were constructed in Big Glory Bay, Stewart Island in 1981 (Howarth, 2010, p.88). Interest in developing commercial salmon farming in the Marlborough Sounds arose in part for its potential to be *"a more profitable use of water space in the Marlborough Sounds than mussel farming"* although others had concerns *"that the summer water temperature, which could rise as high as 19°C, was too hot for salmon to grow well."*⁵⁴.

The first experimental sea-pen farm for salmon in the Marlborough Sounds began in 1984, initially at Elie Bay, but subsequently moved to Ruakaka Bay⁵⁵. Crail Bay was another early experimental salmon farm location. In 1985, another pilot sea-pen operation was established in Hallam Cove⁵⁶ and subsequently towed to Waihinu Bay in 1990⁵⁷.

In 1986, Regal Salmon Ltd was formed and floated on the New Zealand stock market, with salmon farms in both Big Glory Bay (Stewart Island) and Ruakaka Bay, and a salmon hatchery built at Spring Creek near Blenheim⁵⁸. By 1989, as many as four companies were farming salmon in Marlborough, primarily for the export market, taking advantage of the northern hemisphere off-season. *"The 1987 Regal Salmon report said that the company had positioned its salmon so that it was not seen as a commodity, rather as a gourmet item particularly in the American and Japanese markets."*⁵⁹ However, the New Zealand salmon-farming industry faced several major challenges in the early 1990s, including the heterosigma algae attack and a global glut in farmed salmon production⁶⁰. Nevertheless, by 1992, Regal Salmon had acquired ownership of a processing plant in Queen Charlotte Drive, Picton, employing an estimated 100 to 150 staff solely for salmon processing⁶¹ and by 1994, Regal Salmon owned five sea-pen sites – Ruakaka Bay and East Bay (Otanerau) in Queen Charlotte Sound, Te Pangu Bay in Tory Channel⁶², and two sites in Big Glory Bay, Stewart Island⁶³. At this time, Regal Salmon had built storage and other facilities (such as a wet loft) at the Picton site,

52. Though the site had salmon from as early as 1974.

53. Howarth, 2010. p.48

54. Howarth, 2010. p.112.

55. Ibid., p.113.

56. Ibid., p.118.

57. Ibid., p.120.

58. Ibid., p.117.

59. Ibid., p.121.

60. Ibid., p.186.

61. Marine Farming Association interview.

62. The three farms employed an estimated 20–25 staff at this time. Ibid.

63. Howarth, 2010. pp.190-191.

and was processing about 3000T of salmon/year from the Ruakaka, Otanerau and Te Pangu farms⁶⁴. On a similar scale in commercial activity at that time was Southern Ocean Seafoods, which subsequently merged with Regal Salmon.

Supporting industries

Of relevance to the salmon-farming industry were the substantial aquaculture and science industries also co-located in the top of the South Island. Over the decades the aquaculture industry grew substantially in the Marlborough Sounds and in Golden Bay, predominantly farming green lipped mussels. Complementing this large mussel farming industry, Nelson has been a base for several large fishing companies (Sealord and Talleys). To round out this “fishing hub”, the Cawthron Institute is based in Nelson. Its role is to assist primary industries in the top of the South Island to grow their industry based on science and evidence. The Nelson Marlborough Institute of Technology has also developed alongside this industry hub by offering courses directly related to aquaculture. Salmon farming therefore is just one aspect of a larger aquaculture, fishing and educational presence in the top of the South Island.

4.12 The salmon farming companies involved at present

New Zealand King Salmon

After several years of struggling with poor profit margins and low returns, several of the companies originally involved in salmon farming, Regal Salmon and Southern Ocean Seafoods, were merged in 1996 into one company – the New Zealand King Salmon Company Limited (hereafter NZ King Salmon). The Tiong Group of Malaysia had shares in Regal and Southern Oceans, and continued their commitment to the industry by investing in the newly formed NZ King Salmon. The purchase provided a vertically integrated company⁶⁵ which also attracted investment from numerous New Zealand shareholders. The new owners invested in new equipment and research into selective breeding, feed conversion and year-round harvesting. *“The Tiong Family of brothers have been called the white knights of the salmon industry, investing at a time when the industry faced certain collapse in the mid-1990s and then supplying the resources needed for NZ King Salmon to grow”*⁶⁶.

The focus on ‘salmon only’ and selling off the Stewart Island aspects of the newly merged business meant NZ King Salmon was able to focus on its key challenges of producing year-round high-quality fish. A significant challenge was identifying the right feedstock for the salmon. After extensive research, feedstock was eventually purchased from Tasmania in 2002. Keeping out predators (seals) was finally achieved after many attempts, and NZ King Salmon continuously improved feeding machinery/technology to increase efficiency. Again, the Tiong brothers long-term commitment (and continual investment) was crucial to seeing NZ King Salmon through this phase.

Over the years, the marketing of NZ King Salmon has progressed to promoting the salmon as a high-quality product, rather than a whole-fish commodity. Chinook Salmon (the species of salmon farmed in New Zealand) makes up less than one-half of a percent of the world farmed salmon market. Chinook salmon has a deeper colour, has higher omega-3 fatty acid content and is arguably a tastier product than the predominant Atlantic salmon. This allows NZ King Salmon to market their salmon as

64. Marine Farming Association interview.

65. Fertilising of eggs and growing smolt in hatcheries, rearing salmon in sea-pens, processing the salmon in factories, and sales/ marketing under the brands Regal, Seasmoke and Southern Ocean.

66. Howarth, 2010. p201.

a premium product. On top of this, NZ King Salmon ‘value-add’ as much as possible to the product before sale, producing a wide range of premium salmon products⁶⁷.

In a 2008 report, the Marlborough District Council⁶⁸ summarised the overall aquaculture situation as follows:

“There are 522 operating or consented marine farms in the Marlborough Sounds, covering a total of just over 3000 hectares of coastal space. Most farms are located in Pelorus Sound and the outer Marlborough Sounds, with some also in Croisilles Harbour, Port Underwood and outer Queen Charlotte Sound. Green lipped mussels are the main shellfish species grown, although some alternative shellfish and fish species (e.g. pāua, oysters, salmon, kingfish) are also farmed.”

It is evident from this summary that, in terms of marine farm numbers and occupied surface water space, the existing salmon farming activities of NZ King Salmon account for just over 1 percent of marine farms and about 0.2 percent of the occupied surface water space. Further information in the same document⁶⁹ indicates that, in 2006, salmon farming generated 20 percent of the export earnings from marine farming in the Marlborough Sounds.

Anatoki Salmon

Anatoki Salmon is a small locally owned company, located near Takaka in Golden Bay. It is a tourist attraction where people can catch a salmon and have it prepared to eat on the spot (or take home). There is a fully licenced café and Anatoki Salmon also supply salmon to cafes, the local retail market and an online shop.

From 2005–2010, Anatoki Salmon grew steadily, while growth plateaued between 2010 and 2013. In 2013 Anatoki Salmon had a setback as a major flood in the feeder-stream caused a landslip into the site and the death/escape of nearly all the salmon. The site was closed for three months. New salmon smolt had to be purchased and grown to catchable size (affecting 2014 as well). After much hard work the business is back up to 2013 levels (in 2015). This growth is best reflected in staffing, where in 2005 there was one full-time equivalent. By 2015 this has grown to three full-time equivalents plus one part-timer. An additional five part-timers work over the summer season (Boxing Day to Easter).

Nelson Marlborough Institute of Technology

During the course of this case study research it became apparent that licences to grow salmon were not held only by NZ King Salmon and Anatoki Salmon, but also by NMIT. They hold a licence as part of their aquaculture courses. Independently of NZ King Salmon, NMIT has developed aquaculture qualifications at diploma, degree and postgraduate level. They are the Postgraduate Diploma in Sustainable Aquaculture; Bachelor of Aquaculture and Marine Conservation; and Diploma in Aquaculture (Fish Farming and Fishery Management). The courses are offered at NMIT’s Nelson Campus and at the Cawthron Institute’s facilities at the Glen Aquaculture Park. NMITs’ activities extend well beyond their campus via the Salmon in Schools project and their contribution to aquaculture research.

67. Hot and cold smoked salmon; fresh chilled fillets, steaks and kebabs.

68. MDC, 2008a, p.238.

69. MDC, 2008a, p246. In 2006, mussel exports from NZ earned \$182m, of which 69% came from Marlborough, and salmon exports from NZ earned \$42m, of which 75% came from Marlborough.

4.13 Salmon hatcheries and salmon-farming operations

Golden Bay and Takaka

Existing hatcheries

NZ King Salmon operates three hatcheries, one of which is located near Takaka in Golden Bay, and produces broodstock. The other two are located at Tentburn (Rakaia, Canterbury), producing smolt (very young salmon ready for release into marine farms) and at Waiau (North Canterbury), producing broodstock and smolt.

Smolt are transported from the Tentburn hatchery to seawater farms during spring (October to December, to cooler sites in Tory Channel) and autumn (April to June, to warmer sites). Transport is by truck-and-trailer unit, which are loaded onto a barge and delivered to the farms, where the fish are released into the pens. The selective breeding programmes at the hatcheries are critical to producing high-quality salmon.

Being outside the case study region, further details on the Tentburn and Waiau hatcheries have not been analysed.

Marlborough Sounds and Picton

Existing salmon farms

NZ King Salmon currently operates five marine salmon farms, the first established in 1985 and the latest in 2007, with two more existing farms purchased in 2011 from Pacifica Salmon, but currently fallowed (that is, not being used for production):

- Ruakaka (Queen Charlotte Sound) Nelson Marlborough Institute of Technology – established 1985,
- Waihinu Bay (Outer Pelorus) – established 1989;
- Otanerau⁷⁰ (East Bay, Outer Queen Charlotte) – established 1990;
- Te Pangu (Tory Channel) – established 1992;
- Forsyth Bay – established 1994 (alternates⁷¹ with Waihinu Bay);
- Clay Point (Tory Channel) – established 2007,
- Crail Bay – two existing farms purchased in 2011 (now fallowed).

The farms which have been under NZ King Salmon management for some time currently produce approximately 6000 metric tonnes of fish per annum, representing 50 percent of total New Zealand production.

The Clay Point farm has a shared marine farm licence with the local iwi, Te Ātiawa Manawhenua Ki Te Tau Ihu Trust. This was the iwi's first direct involvement in salmon farming. Being the newest farm it has many innovations such as in-water net cleaning and computer/camera assisted feeding; improved accommodation; and improved mooring design, which have all contributed to improved management practices, from the company's perspective.

Other facilities

The company's Aquaculture Office is located in Picton and provides for engineering research and

70. Due to relatively warm water temperatures, the salmon farm at Otanerau Bay operates only nine months of the year. During January-March, the Otanerau Bay salmon farm is not farmed.

71. The salmon farm occupied the Waihinu Bay site from 1989 to 1997; from 2001 to 2009; from November 2011 to November 2012; from October 2013 to April 2015.

development, harvesting and net-making facilities, and livestock transport, collectively currently involving 27 staff.

Existing salmon farm operations

Each farm has a base number of up to four people⁷² on each shift, living and working seven-days-on and seven-days-off⁷³. Day workers are employed on some farms and other teams provide services to the farms such as diving, repairs and maintenance, harvesting and stock assessments. Additionally, the farm manager works a five-day week in each region (Queen Charlotte, Tory Channel and Pelorus). Farm staff are predominantly male (though not exclusively) across a wide range of ages. The level of skills required is reflected in the significant proportion of tertiary graduates (20 percent) in the Marlborough-based aquaculture team of approximately 74 people.

Each farm has its own accommodation barge⁷⁴ alongside the pens. All staff have individual bedrooms, a common lounge and kitchen and other shared facilities⁷⁵. On average, shift workers stay for close to eight years (7.85 years current average) with NZ King Salmon. Much of the work on the salmon farms is manual in nature. All staff members are trained in first aid and a wide range of unit standards including oil-spill and marine mammal training.

Salmon farm work includes lifting nets, cleaning and maintenance work and fish husbandry, involving feeding, grading and assessment of fish health condition. Pneumatic feed distribution systems are used at Clay Point, Te Pangu and Forsyth Bay farms, while other farms used motorised trolleys to deliver feed to various pens. Fish feeding remains confined to the hours of daylight.

The most noticeable noise sources are associated with the generator and with petrol-driven winches and water blasters. The diesel generator may operate 24 hours a day when underwater lights are employed. Typically, the other noise-generating activities are limited to operations between 8.00am and 5.00pm, except when harvesting occurs, when daily operations begin at 7.00am.

All potable water and fuel supplies are delivered to the salmon farms by barge, and sewage (blackwater) is taken away for treatment on land. Small amounts of greywater are discharged into the sea.

Harvesting from the salmon farms is a year-round activity for one harvesting crew of up to nine staff, working Sunday to Thursday, who rotate between the farms as harvesting is required. Salmon are harvested each day and packed in an ice slurry in large containers, including bulk road tankers, that are transferred to port by barge, and then to Nelson by truck for processing. In line with the five-day working week for the harvesting activity, the harvesting crew are all residents of Marlborough. Amongst the current harvesting crew, the average tenure is close to six (5.95) years, while the most recent recruit joined in April 2012. All crew members are trained to undertake all the various roles in the harvesting process to allow for job rotation.

Commuter vessels transport staff to each farm daily (Monday to Friday) and deliver and collect the

72. One supervisor and three shift workers.

73. Seven-day shifts mean that not all shift workers come from Marlborough, although 88 percent do.

74. The first NZ King Salmon salmon farm at Ruakaka was designed with a single-storey barge, housing staff accommodation facilities as well as covered working space and storage space. All subsequent NZ King Salmon salmon farms have been designed with two-storey barges, providing staff quarters above and working and storage space below.

75. Toilet, shower, laundry, BBQ on an outdoor verandah.

regional farm manager. Barges are used to transport feed and general freight to each farm. During harvest, the harvest vessel and harvest crew make daily trips Sunday to Thursday, while an additional harvest barge⁷⁶ remains alongside the farm for the duration of the harvest.

Larger vessels are required to move pens when re-locating fish stocks from one farm to another towing at speeds of approximately 1 knot. Such transfers require planning and coordination with the harbour master to avoid disrupting the passage of other large vessels, and typically occur once or twice per year.

Barge companies based in Picton and Havelock are contracted for servicing the salmon farms. NZ King Salmon owns several small vessels, however; the services of other vessels including water taxi companies, are also contracted on a regular basis⁷⁷.

Road transport services for transferring smolt and fish feed is contracted to TNL, and harvest fish is contracted to KAM transport based in Picton. Other service providers for electrical and mechanical services are carried out in-house, or contracted out to local companies.

4.14 Salmon processing

Nelson

Existing processing facilities

NZ King Salmon has three processing factories located in Tahunanui, Nelson currently employing 212 staff. At the present time, all harvested salmon are processed in these Nelson factories, requiring up to two hours of road travel once the salmon are landed at Picton or Havelock.

Offices and other facilities

NZ King Salmon's head office, with approximately 60 staff, is also located in Tahunanui, Nelson.

4.15 The Plan Change in 2011/12

In 2011, NZ King Salmon lodged with the Environmental Protection Authority concurrent applications for private plan changes⁷⁸ and resource consents for 8 new salmon-farming sites in the Marlborough Sounds. A resource consent was applied for one additional site. The application attracted some 1200 submissions, approximately two-thirds in opposition and one-third in support, and was heard by an independent Board of Inquiry in a hearing which lasted some seven weeks in 2012.

The Board of Inquiry granted the application in respect of four sites – Tory Channel (1), Port Gore (1), and Waitata Reach (2). The decision was appealed to the High Court by the Environmental Defence Society and Sustain Our Sounds. The High Court dismissed the appeal, resulting in a further appeal to the Supreme Court, which upheld the Environmental Defence Society appeal in respect of the Port Gore site.

76. Referred to as a Dumb Barge, this barge provides open working space for the harvesting crew alongside the sea-pens.

77. For example, for transferring harvest crews to and from the farms.

78. Each proposed plan change applied to an area coincident with a salmon farm footprint, and not to a more generalised location.

4.16 Best Management Practice guidelines for salmon farms in the Marlborough Sounds

The Board of Inquiry process summarised in the previous section highlighted, amongst other matters, that in respect of the operating resource management regime for the existing salmon farms, *“the environmental standards and associated monitoring are not consistent between farms. This is because the farms were consented at different times over the last 15 years. Over that time, scientific understanding of seabed enrichment effects from fish farming in the Marlborough Sounds has evolved, but consent conditions have remained relatively static.”*⁷⁹

As a result, the Marlborough District Council initiated with NZ King Salmon and other stakeholders a collaborative process to develop *Best Management Practice Guidelines for salmon farms in the Marlborough Sounds*⁸⁰. Other outcomes from this collaborative process included the development of *Best Management Practice guidelines for salmon farms in the Marlborough Sounds: Operations* (published November 2015). Following a successful boat trip and workshop in December 2013, two working groups were formed to develop standards and monitoring guidelines for seabed health and farming/operations⁸¹. The Benthic Working Group comprised representatives from the Sounds Advisory Group, the Marlborough District Council, the Ministry for Primary Industries, the Cawthron Institute, NIWA and NZ King Salmon⁸². The Marlborough District Council engaged experts (Professor Kenny Black of the Scottish Association for Marine Sciences and Dr Catriona McLeod from the University of Tasmania) to peer review the draft guidelines produced by the working groups. Consensus was achieved on almost all of the benthic guidance, with one dissenting view related to the values for seabed enrichment stage which would trigger fallowing of a salmon farm (5.1 instead of 5.6 – on a scale of 0–6)⁸³.

The successful implementation of the best practice guidelines is intended to lead to greater certainty around consent compliance. The guidelines will be applied to the eight existing farms over time, in such a way that production is not significantly impacted, as the three new farms have more stringent consent conditions.

79. Marlborough District Council, 2014a. p.1.

80. Marlborough District Council 2014

81. Ibid. Cover page.

82. Marlborough District Council, 2014.

83. Ibid. Appendix A, p.37.

4.2 The social setting

4.21 Golden Bay and Takaka

Setting

Golden Bay (the Bay) is one of New Zealand's most historic sites. One hundred and twenty years before James Cook arrived in New Zealand, Abel Janszoon Tasman first anchorage in New Zealand was at Mohua (Golden Bay). He was met by Ngāti Tumata Kokiri and a deadly skirmish took place. Tasman sailed away immediately to the North Island before departing New Zealand. There is no earlier written record; no earlier known meeting (The Prow, 2015).

Today, the iwi of Golden Bay are Manawhenua Ki Mohua, Ngāti Tama, Ngāti Rārua and Te Ātiawa. Long before the arrival of European immigrants Mohua witnessed waves of Māori invasion and settlement. Ngāti Tumata Kokiri were thought to have been in Mohua for several hundred years before being displaced by Ngāti Apa. Evidence of Māori habitation exists on almost every headland and promontory through the Bay from Separation Point to Puponga and down the western coastline. In the late 1820s the migration of North Island iwi to the South Island took place (Golden Bay Promotion Association, 2015).

When the New Zealand Company arrived in Nelson in 1840, Golden Bay was considered too remote for Europeans. It wasn't until 1854/55 when pioneers first arrived at Waitapu and Collingwood. The discovery of gold and industrial enterprise in coal, timber, flax and dairy products fueled the development of Golden Bay. Today the primary industry remains dairy farming (Golden Bay Promotions, 2015).

Golden Bay is made up of fertile river plains, valleys and stunning beaches. The Bay is encircled in the west by Farewell Spit and to the east by arguably one of the most beautiful places in New Zealand, the Abel Tasman National Park. Golden Bay sits on the South Island's north-west corner. A chain of steep and rugged mountains divides Golden Bay from the rest of the South Island. Almost 70 percent of the land area of Golden Bay is managed by Department of Conservation (Abel Tasman and Kahurangi national parks).

Resident population

The main township in Golden Bay is Takaka, with significant settlements at Collingwood and Pohara. The population in Golden Bay is growing with inter-census increases of 4.2 percent, 2.7 percent and 2.9 percent (and a cumulative increase of 10.2 percent over 18 years). Whereas growth in Takaka is relatively flat across the four censuses.

Table 27. Estimated resident population as at 30 June 1996, 2001, 2006, 2013 (Statistics NZ, 2015)

	1996	2001	2006	2013
Tasman District	38,800	42,400	45,800	48,800
Golden Bay	3540	3690	3790	3900
Takaka	1250	1220	1170	1280

4.22 Marlborough Sounds and Marlborough region

Increasing economic diversification in the Marlborough Sounds

People living and working in the Marlborough Sounds at the present time are engaged in a much broader range of activities than was the case several decades ago. For most of the twentieth century, the Marlborough Sounds was synonymous with pastoral farming and summer recreation on land, and a mix of commercial and recreational fishing on the water. As late as the 1950s and 1960s, much of the land supported significant numbers of sheep and cattle. In most of the Marlborough Sounds, this pastoral farming has receded in the face of diminishing export opportunities, falling returns and rising costs⁸⁴.

Diversification of the Marlborough Sounds economy since the mid-1970s has embraced commercial tourism, forestry and marine farming, predominantly farming of green-lipped mussels. These developments have been associated with substantial investments in new infrastructure by Port Marlborough, including the wharf and storage facilities at Shakespeare Bay which cater for log exports, the extended harbour basin and wider channel at Havelock, and extensive marina developments at Havelock, Picton and Waikawa⁸⁵. Considerable investment has also occurred in waterfront and town centre re-development in both Havelock and Picton. Thus, the mix of activities in the more diverse economy of the Sounds has been facilitated by corresponding investment in the principal port townships.

Dwellings and occupancy patterns in the immediate vicinity of existing salmon farms

The following summary is based on data collected in 2011⁸⁶ and updated by interviews in 2015. The locations of existing salmon farms currently operated⁸⁷ by NZ King Salmon are shown on Figure 1.

Ruakaka Bay

The salmon farm was established near the entrance to Ruakaka Bay in 1985. A single dwelling exists in the immediate embayment, with direct line of sight to the salmon farm at a distance of 500 metres to the staff accommodation barge⁸⁸. Interviews and observations indicate that the dwelling is a holiday home of relatively recent construction or alteration. The salmon farm manager reported observing a pattern of very occasional occupation.

A cluster of some sixteen dwellings exists in the next embayment – Pirapu Bay – to the northwest of the salmon farm, at distances between 600 metres and 1050 metres. However, all these dwellings are separated from the salmon farm by the intervening headland and none have direct line of sight. A few of these dwellings are reported as being occupied on a permanent basis, although precise details of occupancy patterns have not been established. Numerous other dwellings are located at the head of Ruakaka Bay, further to the northwest of the salmon farm, but none have direct line of sight to the farm. There is a single dwelling and jetty on the opposite (western) side of Ruakaka Bay, within the first small embayment, Wairakau Bay, and at a distance of some 1.6 kilometres from the salmon farm. However, it would appear not to have direct line of sight due to intervening topography. The only other dwellings capable of direct line of sight of the salmon farm are located on the southern side of Queen

84. Taylor Baines, 2001, p.3.

85. Taylor Baines, 2001, p.8.

86. As reported in Taylor Baines, 2012 at Section 4.7 and Appendix 6.

87. Excluding farms currently fallowed.

88. The salmon farm is oriented along the central axis of the embayment and has a length of some 320m. Therefore, the straight-line distance from the dwelling to the nearest point on the farm structure is approximately 360m.

Charlotte Sound in East Bay, at distances of 2.8 to 3.2 kilometres. In the embayment occupied by the salmon farm, all the land on the eastern headland is part of the Ruakaka Bay Scenic Reserve. The land on the western headland is covered in similar native vegetation.



Figure 1: Locations of NZ King Salmon farms – active and fallowed.

Local residents reported no new dwellings in Pirapu Bay in the past five years⁸⁹.

89. Interviews in July 2015.

Te Pangu Bay and Clay Point

The salmon farm in Te Pangu Bay was established in 1992, while the Clay Point salmon farm in Malcolms Bay on the opposite (northern) side of Tory Channel was established only recently in 2007. While no dwellings exist on the northern side of the Tory Channel at this point, three dwellings and a jetty exist in the western embayment of Te Pangu Bay. The dwellings are 350 metres from the nearest salmon sea-pens, and some 570 metres from the staff accommodation barge. The distance to the Clay Point salmon farm is approximately 1660 metres. One of these dwellings is occupied permanently, while the other two are used on a more occasional basis. There are no dwellings in the eastern embayment of Te Pangu Bay.

On the northern side of Tory Channel, in Ngaruru Bay, are three dwellings. Interviews suggest that none of these dwellings are permanently occupied. None are in direct line of sight of either salmon farm and all three are between 2.3 and 3.0 kilometres from the Te Pangu Salmon farm. One dwelling⁹⁰ has a mussel farm located immediately in front of it in the bay. On the southern side of Tory Channel, there are two holiday homes in the western end of Te WeuWeu Bay (which lies immediately west of Te Pangu Bay) which have direct line of sight of the Clay Point salmon farm, at a distance of some 2.25 kilometres. Also in the centre of Te WeuWeu Bay is a cluster of four or five holiday homes, none of which are in direct line of sight of the Clay Point salmon farm. Oyster Bay (which lies immediately east of Te Pangu Bay), has six mussel farms established at various points in the coastal zone. One permanently occupied dwelling is at the southern-most tip of Oyster Bay, and has no direct line of sight of any salmon farm. Several holiday homes are located further east in Oyster Bay, and would have long-distance views of the Clay Point salmon farm (at a distance of 2.6 kilometres) with five mussel farms in the intervening seascape⁹¹. Just above the shoreline between Oyster Bay and Te Rua Bay, one holiday home has a direct view of the Clay Point salmon farm across Tory Channel at a distance of 1850 metres.

Much of the land on both sides of Tory Channel where the two salmon farms are located is in forestry, and none is actively farmed now.

Local residents reported no new dwellings in Te Pangu Bay in the past five years.

Otanerau

The salmon farm in Otanerau Bay was established in 1990 on the western side of the bay. This farm operates for about eight to nine months each year.

The nearest dwelling, a holiday home, is located in Puriri Bay at a distance of about 900 metres within direct line of sight. Owned by a trust, this dwelling is used from time to time by various shareholders. The only permanently occupied dwelling is situated some 1.8 kilometres away in Te Aroha Bay, although direct views to the salmon farm from the dwelling itself are masked by land on the southern shore of the bay. Four other holiday homes are situated at the head of Te Aroha Bay, in direct line of sight of the salmon farm, one at a distance of 1.8 kilometres and the other three at about 2.1 kilometres. One of these is occupied on most weekends while the others have more occasional use. Land along the western shores of Otanerau Bay is covered in established exotic forest, while the remaining land around the southern shores of Puriri Bay and around Te Aroha Bay is covered in bush and scrub.

90. The dwelling is located half way along the eastern shore of Ngaruru Bay.

91. The closest being some 400m and 700m distant.

Interviewing in 2015 confirmed that the Te Aroha Bay dwelling continues to be the only permanently occupied dwelling in the vicinity of the Otanerau salmon farm. Indeed, there has been a substantial reduction in the resident population on this western side of Arapawa Island during the past 10 years. Compared with a population high of 20 residents 10 years ago, there are now four permanent residents: two in Te Aroha Bay and two at the northern end of East Bay. This decline in resident population has been due to changes in residents' employment circumstances, children growing up and leaving home and some older residents dying.

Waihinau Bay and Forsyth Bay

The salmon farm in Waihinau Bay was first established 1989. This salmon farm operation has alternated between Waihinau Bay and Forsyth Bay.

The nearest dwelling is a holiday house situated in Camp Bay, at a distance of some 300 metres. Further along the shoreline, a small cluster of buildings includes a lodge and three holiday homes at between 400 metres and 500 metres from the salmon farm site. In 2011, the lodge was being renovated for use in accommodating visitors for an eco-tourism enterprise. A network of walking tracks exists on the peninsula on the south side of Waihinau Bay and was already in use. At the head of Waihinau Bay is a larger cluster of about eight dwellings and cabins at distances of between 700 metres and 900 metres from the salmon farm site, including two permanently occupied dwellings and others for rental accommodation.

Across the bay on its northern side is another single dwelling on an elevated site at a distance of 1.5 kilometres. Much of the land around the bay is covered in low-lying scrub. However, more mature native bush fills the watershed at the head of the bay.

Interviewing in 2015 revealed a reduction in the number of permanent residents resulting from children having grown up and left home and failure of the Wildlife Lodge to become established, resulting in its sale. The principal cause of reduced visitor numbers to the rental accommodation was the imposition of the cod bans and other cod fishing controls – *"a huge effect on our tourism numbers, between September and December when there is a total ban in this part of the Sounds."*

The salmon farm in Forsyth Bay was first established in 1994. In 2011, the closest dwelling was a small holiday crib in a south-facing embayment, southwest of the farm site. However, this building had not been used for some time. While the dwelling was 550 metres in direct distance from the salmon farm, it has no direct visual connection. The only other dwellings in Forsyth Bay were in Garden Bay, a small embayment in the southwest corner of Forsyth Bay where a dwelling belonging to the owner of Pohuenui Station is located at a distance of 3.1 kilometres from the salmon farm, but does not have a direct line of sight, and on the far eastern shores of the bay. Here, a property manager's home is situated in Sunday Bay, at a distance of 3.2 kilometres from the salmon farm, while a lodge is situated at an elevated site on a promontory further north on Forsyth Island, at a distance of 3.7 kilometres.

In 2011, Pohuenui station, still carried 2200 head of sheep, remaining a working farm, and occupying all the land around the southwestern shores of Forsyth Bay. The land immediately adjacent to the salmon farm site has a covering of reverting bush. All access is via boat and barges are used to transfer stock and wool, or farm vehicles for maintenance. Farm managers also operated an accommodation lodge in Richmond Bay, frequented by people interested in pig hunting, fishing, walking and cycling and enjoying the relatively remote environment. The farm has a network of some 80 kilometres of tracks suitable for driving, walking or cycling.

Most of Forsyth Island, on the eastern side of the bay, has not been farmed for more than a decade, although a small flock of sheep is kept behind Sunday Bay. Visitors come to the island mainly in the summer months to enjoy the 60 kilometres of tracks on the property.

The following table provides a summary⁹² of separation distances between existing salmon farms and dwellings which have direct line of sight or are in the adjacent embayment. They cover the locations of all the neighbouring residents interviewed in 2015.

Table 28. Separation distances between salmon farm sites and neighbouring dwellings

Salmon farm site	Separation distances to nearest part	Comments – dwellings with direct line of sight or in adjacent embayment
Existing salmon farms/sites		
Ruakaka (1985)	360m 600–1050m 1.6km 2.8–3.2km 3.4km	No permanently occupied dwellings; 1 holiday house in immediate embayment 16 dwellings in adjacent embayment (Three occupied permanently or semi-permanently) (No line of sight) (No line of sight) 4 holiday homes in East Bay 1 lodge in East Bay
Te Pangu (1992) Clay Point (2007)	350m to TP 1.65km to CP 1.85km to CP 2.25km to CP 2.6km to CP	1 permanently occupied; 2 holiday homes in Te Pangu Bay 1 permanently occupied; 2 holiday homes in Te Pangu Bay 1 holiday home between Oyster Bay and Te Rua Bay 2 holiday homes in Te WeuWeu Bay Several holiday homes in Oyster Bay
Otanerau (1990)	900m 1.8km 2.1km	1 holiday home in Puriri Bay 1 permanently occupied; 1 holiday home in Te Aroha Bay (no line of sight) 3 holiday homes in Te Aroha Bay
Waihinu Bay (1989)	300m 400m 500m 750–900m 1.5km	1 holiday home in Camp Bay 1 lodge and 2 holiday homes in Waihinu Bay 1 holiday home in Waihinu Bay 4 dwellings – 1 permanent and 3 holiday homes at head of Waihinu Bay 1 dwelling on north side of Waihinu Bay

Trends in permanently resident population

The urban part of the sounds is represented by Picton, Waikawa and Havelock, where the usually resident populations have changed very little over the past decade and a half. The combined population of Picton and Waikawa grew by 2 percent between 2001 and 2006⁹³, but has since declined slightly (by 1 percent) to 2013, while the population of Havelock grew by 3 percent between 2001 and 2006⁹⁴, a level that has persisted since then. In the non-urban parts of the Sounds, the usually resident population has fluctuated over the past decade and a half, but with an overall downward trend, falling 18 percent between 1996 and 2013. However, the pattern was not uniform throughout. In the Outer Sounds, the resident population declined by 33 percent over this period⁹⁵,

92. See Taylor Baines, 2012, Appendix 6, p.80.

93. 3987 in 2001; 4086 in 2006; 4053 in 2013. Source: Statistics NZ, Census of Population and Dwellings, 2013.

94. 471 in 2001; 486 in 2006; 486 in 2013. Source: Ibid.

95. From 273 in 1996 to 183 in 2013. Source: Ibid.

while in Inner Sounds the resident population declined by 11 percent over the same period⁹⁶. A point of difference in permanent population trends has emerged in the Inner Sounds, between Queen Charlotte Sound (8 percent increase between 1996 and 2013 from 336 to 363) and Pelorus, Mahau and Kenepuru Sounds (23 percent decrease between 1996 and 2013, from 546 to 420). The growth in Queen Charlotte Sound is likely to have been associated with servicing increased visitor numbers to the Queen Charlotte Track.

Another potential indicator of recent trends in resident population is school roll data⁹⁷. Picton/Waikawa itself has one combined intermediate and secondary school, Queen Charlotte College. During the period 2001 to 2009, its roll grew steadily from 290 to 399, an increase of 38 percent, but has since declined 7 percent to 373 in 2014. In contrast, the combined rolls of the three contributing primary schools in Picton declined steadily from 311 to 229 over the period 2001 to 2009 and then recovered to 305 by 2014. Havelock School's roll was reasonably steady in the early years (between 84 and 98 students, 2001-2007), and then declined steadily to as low as 45 in 2013 before recovering to 55 in 2014.

The rural primary school located in the central Sounds, Waitaria Bay School, experienced fluctuating rolls (between 12 and 24 pupils) from 2001 to 2011. Its roll has subsequently declined to 11 in 2014, reflecting in part the decline in resident population in the Outer Sounds in recent years. The other rural school in the Sounds, Linkwater School, had a constant roll in the early years (2001-2006), but has since experienced a decline to almost half that size in 2014 (roll of 30). In summary, the aggregate primary school roll of the Marlborough Sounds began at a high of 471 in 2001, declined to a low of 349 in 2009, before recovering partially to 401 in 2014.

Employment trends

The primary focus of employment in the Marlborough Sounds is in Picton, Waikawa and Havelock⁹⁸. Employment trends⁹⁹ between 2006 and 2013 are summarised in Table 29 (below).

Table 29. Total employment 2006 to 2013

	2006	2013	Percent change 2006–2013
Picton	1443	1311	-9%
Waikawa	615	648	5%
Havelock	267	246	-8%
Total	2325	2205	-5%

The principal sectors of employment have been accommodation and food, manufacturing, transport, retailing, construction, agriculture/forestry/fishing and health services. Of these sectors, agriculture/forestry/fishing, manufacturing and transport are particularly relevant to the salmon-farming industry. Trends in total employment in these industry sectors are summarised in Table 30 (below).

96. From 882 in 1996 to 783 in 2013. Source: Ibid.

97. Ministry of Education, July funding rolls, 2000–2014.

98. These names denote Census Area Units as well as communities.

99. Source: Statistics NZ, Census of Population and Dwellings, 2006 and 2013.

Table 30. Total employment¹⁰⁰ in seven principal sectors, 2006 to 2013

	2006	2013	Percent change 2006–2013
Accommodation & Food	306	297	-3%
Manufacturing	282	270	-4%
Transport	228	246	8%
Retailing	207	222	7%
Construction	213	171	-20%
Agriculture/Forestry/Fishing	183	159	-13%
Health Services	123	147	20%

Iwi involvement in salmon farming

Te Ātiawa o Te Waka-a-Maui Trust (Te Ātiawa Trust) is autonomous for Te Tau Ihu (the top of the South Island). Four marae exist across Te Tau Ihu, but Waikawa Marae is the only marae solely for Te Ātiawa; other marae are shared with other iwi. Waikawa marae use Te Ātiawa tikanga and kawa and have their own group of trustees. Te Ātiawa Trust represents the interests of Te Ātiawa people who whakapapa to Te Tau Ihu.

Te Ātiawa consider themselves a maritime people. Traditionally they have harvested kai from the sea throughout the Sounds and, if necessary, transferred kai moana from bay to bay, if not already established.

Te Ātiawa achieved settlement with the Crown in 2012. Prior to that the Te Ātiawa Trust had fishing interests as well as aquacultural interests in the Sounds¹⁰¹. The Te Ātiawa Trust had a part share in the water-space licence for the Clay Point salmon farm, which preceded the establishment of the farm itself. Joint ownership with NZ King Salmon was negotiated around the time the site was converted from a mussel site to a salmon-farming site. NZ King Salmon pays the Te Ātiawa Trust for its share of the farm space. The Te Ātiawa Trust also has licensed water space in Oyster Bay for aquaculture.

Whilst other iwi have licences for other aquacultural activities in the Sounds, mainly mussel farms, no other iwi presently hold licences to farm salmon in the Sounds.

4.23 Nelson, Richmond and surrounds**Setting**

The northern end of the South Island is known by Maori as Te Tau Ihu (the prow) of the Māui's canoe. Nelson's Māori history is marked by a series of tribes arriving and ousting those already there, and so on. In 1828 paramount chief Te Rauparaha's confederation (Ngāti Tama and Te Āti Awa from Taranaki, and Tainui tribes Ngāti Toa, Ngāti Koata and Ngāti Rārua) gained control of the area. In 1841 The New Zealand Company arrived at Whakatu and renamed it Nelson. It was the second settlement by the New Zealand Company after Wellington (*The Encyclopaedia of NZ*, 2015).

100. i.e. in Picton, Waikawa and Havelock combined.

101. Mussels in Beatrix Bay and Kenepuru Sound and also in Golden Bay.

Pastoral production in the Nelson region was originally based on sheep and beef farming, with less land used for dairying (unlike now). Forestry, hops, horticulture and viticulture were important early industries and remain so. Tobacco grown in the region provided 90 percent of the New Zealand crop in the past, but all production has now ceased (*The Encyclopaedia of NZ*, 2015).

Nelson's central location close to many fishing grounds encouraged a massive expansion in deep sea fishing in the 1980s. In 2010 Talley's and Sealord, two of New Zealand's largest deep-water fishing companies, were based in Nelson. Talley's had their head office at Port Motueka. In the 2010s Nelson was the largest fishing port in Australasia. Seafood industries and aquaculture employed almost 2,200 workers, 5 percent of the employed population (*The Encyclopaedia of NZ*, 2015). This agglomeration has been complemented by a very large mussel industry and the presence of the Cawthron Institute. Cawthron is New Zealand's largest independent science organisation, offering a broad spectrum of services to help protect the environment and support sustainable development of primary industries, including finfish.

Resident population

The main city is Nelson, but the population of Nelson is further bolstered by the township of Richmond and settlement of Hope. Nelson City and Richmond in particular have shown strong percentage growth each census, with growth levels higher than many other cities and areas in New Zealand.

Table 31. Estimated resident population as at 30 June 1996, 2001, 2006, 2013 (Statistics NZ, 2015)

	1996	2001	2006	2013
Nelson City	41,200	42,900	44,300	48,700
Richmond	9060	10,850	12,000	12,720
Hope	1090	1140	1210	1190
Total	51,350	54,890	57,510	62,610

Similar to the rest of South Island, the Nelson region is not ethnically diverse, with over 90 percent of the population identifying as European. Like the rest of New Zealand, Nelson has an ageing population. This trend is stronger however because younger people move away for tertiary education and work and older people retire in the region. The economy is reliant on primary processing and tourism, meaning many of the jobs are lower paid.

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Appendix 1: Approach and methods

The researchers adopted a multi-method approach to gathering information for this case study, including:

- accessing official statistics, particularly data from various census of population and dwellings (1986-2013);
- previous research documents (see reference section);
- systematic structured interviewing of Picton/Sounds; Blenheim/Marlborough; Nelson and surrounds; and Golden Bay representatives from:
 - salmon farming and rearing companies/educational institutions;
 - companies that supply goods or services to salmon operations, and companies dependent on materials from salmon operations
 - service providers and community organisations operating in the top of the South Island
 - local and regional government representatives.
- a survey of NZ King Salmon company employees.

Overall, this research has engaged with 88 organisations (predominantly via face to face interviews with a key individual) in these communities, without whose assistance and willing co-operation the research would not have been possible. The survey of 360 aquaculture workers had 137 responses (38 percent response rate – a reasonable response for a postal survey).

As noted in the Introduction, the collection of information in the interviews and the employee survey was guided¹⁰² by the conceptual framework described in the report 'The social value of a job'. Furthermore, the interviews were coded into themes based on the same conceptual framework, and new themes were added as required.

¹⁰² Reference to that conceptual framework indicates that this case study provided an opportunity to gather empirical data on some of the social effects identified. Data for other aspects would generally require long-term, population-based epidemiological studies, and therefore be well beyond the scope of this case study research.

Appendix 2: Organisations interviewed for this assessment

2.1 Golden Bay and Takaka

Anatoki Salmon
Brigand Café
Department of Conservation Golden Bay Area Office
Farming neighbor to NZ King Salmon Hatchery
Fuse Electrical
Golden Bay Plumbing
Golden Bay Promotions
Golden Bay Refrigeration
Hammer Hardware (Takaka)
iSite (Takaka)
Kevin Hebbard Motorcycles
Mobile mechanical
NZ King Salmon Hatchery
Waitapu Engineering
ITM (Takaka)
Pipeworx
Takaka Spring Water
TLC Nurseries

2.2 Nelson and Richmond

Air New Zealand
Aquaculture New Zealand
Cawthron Institute (two interviews)
CGW Consulting Engineers
Datacom
EnviroLink Ltd
Fifeshire Foundation
Garin College
Hope Moulded Polystyrene
Hopgoods Restaurant
Mint Dining Room
National Institute of Water and Atmospheric Research (NIWA)
Nelson City Council
Nelson Girls College
Nelson Marlborough Institute of Technology
NPD Ltd
NZ King Salmon Head Office
Orbit Travel Ltd
Printhouse Ltd
Reliance Engineering
Stationery and packaging supply business
Tasman Coldstores Ltd
TNL Ltd

2.3 Marlborough Sounds, Picton and Marlborough region

O'Donnell Park Barging Ltd
Beachcomber Cruises
Boating Marlborough Ltd
Waikawa Dive Centre
Picton Manufacturing Ltd
Picton Hire & Haulage
Fairhall Holdings
Gregory Engineering
Kaipupu Point Wildlife Sanctuary
Coastguard Marlborough
Queen Charlotte College Aquaculture Academy
Picton Maritime Festival
Endeavour Park Pavilion Trust
St John Ambulance
Beach Road Marine
N-Viron
Marlborough Boys College 1st XV
Life Education Trust Marlborough
Cuddon Ltd
Gascoigne Wicks
Foundation for Youth Development
Destination Marlborough
Marlborough Boys College
Marlborough Chamber of Commerce
Marlborough Sounds Restoration Trust
KAM Transport Ltd
Pelorus Boating Club
Picton Provedoring
Two residents of Ruakaka Bay
Marlborough District Council, Consents
Te Ātiawa o Te Waka-a-Maui Trust
Picton School
Johnsons Barge Services Ltd
Dept of Conservation, Picton
Havelock Mussel Festival
Marine Farming Association
Guardians of the Sounds
Marlborough Tour Company
Kennys Barging Ltd
Commercial Diving Consultants Ltd
Big Chill Ltd
Dominion Salt Ltd
Four resident neighbours of salmon farms – Ruakaka, Te Pangu, Otanerau, Waihinu Bay
Marlborough Harbourmaster