Pacific Labour Scheme

PACIFIC LABOUR FACILITY

Detailed Industry Assessment

Aquaculture Addendum on Seafood Processing

March 2021

Executive summary

The detailed industry assessment on aquaculture concluded that "the industry is on a solid growth trajectory and faces a structural labour supply gap that is addressable by Pacific migrant workers without otherwise disrupting the Australian labour market". It went on to summarise that there are 6,000 full-time equivalent (FTE) positions in the industry in Australia and that "the labour supply gap addressable by PLF in the next 1-2 years is estimated at between 200 and 500 FTE workers (3-8% of industry labour), based on DIA findings and industry consultation".

In preparing the aquaculture DIA, it was noted that data from the Australian Bureau of Statistics on aquaculture did not incorporate data pertaining to the downstream seafood processing industry. It was concluded that a separate analysis of this related sub-sector was warranted.

Analysis completed for this addendum has found that seafood processing is a closely allied industry to aquaculture (and wild caught seafood) and demonstrates the same potential demand for PLF labour. Like aquaculture, the seafood processing industry demonstrates unmet demand for unskilled and semi-skilled labour that will match PLF requirements. There are approximately 2,500 workers in the seafood processing industry. The Department of Education, Skills and Employment expects the level of workers demanded to grow at a rate slightly higher than the aquaculture sector. The assessment estimates the addressable labour market gap in the seafood processing industry is in the range of 200-300 FTEs but will be location sensitive and seasonal.

The industry is highly concentrated, with only 3 producers (Tassal, Huon and Simplot), out of 228 registered seafood processing businesses, generating 65% of industry revenue. Many operators co-locate their seafood processing and aquaculture operations, which will aid in recruitment efficiency as well as create welfare benefits by being able to cluster workers. There is also the increasing tendency to locate facilities closer to population centres to reduce the distance to the consumer and improve product freshness. This will reduce placement opportunities as Sydney and Melbourne are currently ineligible locations.

It is important to note that increases in industry value added (IVA) do not necessarily equate to greater employment levels. Price movements and production efficiencies (such as automation) have had positive impacts on the industry without the need for additional inputs of labour. Larger operators have downsized their labour forces over the last decade in a move toward increased automation. This trend is expected to continue, with implications for the demand for labour. The industry has also suffered significant disruptions due to the impacts of COVID-19 and the Australian-Chinese trade dispute. However, the industry has been able to pivot away from a Chinese export focus toward the domestic consumer – albeit at greatly reduced prices.

In terms of worker supply, Papua New Guinea, Fiji, and the Solomon Islands are collectively responsible for more than three quarters of all Pacific processing volume, most of which is finfish. These countries are likely the best place to start sourcing sufficient numbers of workers with industrial-scale seafood processing experience. Seafood processing is an excellent opportunity for women to participate in the PLS with almost half of the 2,500 strong Australian workforce, and an estimated three quarters of the Pacific and Timorese workforce, being women. Skills accrued in Australia in seafood processing, like aquaculture, will have relevance for workers returning to the Pacific.

While the magnitude of the overall workforce is comparatively small, and COVID-19 related headwinds will persist for the short-to-medium term, the potential to engage a high proportion of women and the ability to co-locate workers warrant industry engagement by the PLF.

Industry selection tool

Deal-breaker criteria		
Has a detailed industry assessment for the industry been completed? If yes, does it recommend PLS engagement with the industry?	Yes	- Industry engagement is recommended.
Does the industry exhibit characteristics consistent with PLF's programme goals?	Yes	- There is a current shortage of unskilled and semi-skilled labour in regional Australia that can be suitably filled by Pacific and Timorese workers.
Is a focus on this industry consistent with ambitions for PLF's scalability and sustainability?	Yes	- Once arrangements and connections with employers are established, the relationship with the PLF should be able to shift to a facilitative one over time. - However, total placement numbers are unlikely to have the potential of other industries, such as meat works or disability care.
Does the PLF risk assessment on this industry indicate that risks are manageable/treatable?	Yes	- Generally, the industry is low risk.
Essential criteria		
Are there indications that PLF workers can be placed in this industry with relative efficiency?	Yes	- Yes, the larger aquaculture operators often have onsite processing facilities, creating synergies and adding welfare benefits by clustering workers.
Has evidence of a growth trajectory for this industry been confirmed?	Yes	- Modest medium-term growth is expected post-COVID 19.
Has evidence of an enduring industry labour shortage been confirmed?	Yes	- The PWC-conducted labour market assessment identified a labour shortage in seafood processing.

Does the evidence demonstrate that demand for workers exists in PLF areas of operations or appropriate regional parts of Australia?	Yes	- Many seafood processing operations are co-located with aquaculture operations, which are mostly regional. Although some operations occur in major cities.
Is the industry considered robust and secure and relatively shock proof?	Yes	- Despite the substantial impacts of COVID-19 on trade, the industry has been able to pivot toward the domestic consumer, albeit with reduced profitability.
Does the industry provide opportunities for women or vulnerable groups and is it supportive of Gender, Equality, Disability and Social Inclusion (GEDSI) goals?	Yes	- At 43%, seafood processing has a high proportion of women, behind only cosmetic manufacturing. The Pacific skillset appears a good match.
Is there evidence of an adequate array of potentially suitable approved employers?	Limited	- The industry is highly concentrated with only 3 large players controlling 65% of industry revenue.
Preferential criteria		
Have welfare issues and risks been assessed as manageable?	Yes	- Generally, this is a low hazard industry. - There is also the potential to cluster seafood processing workers with aquaculture workers.
Do PLF workers have, or can they acquire necessary skills and experience required by this industry?	Yes	- Yes, seafood processing worker roles are considered entry level at ANZSCO level 5. - However, seafood processing is concentrated in 3 Pacific countries: PNG, Fiji and the Solomon Islands.
Have any potential worker cultural issues been considered?	Yes	- Given the prevalence of the industry in the Pacific, seafood processing in Australia may be well suited to Pacific and Timorese workers
Is the industry supportive of DFAT's strategic goals for the Pacific and Timor-Leste?	Yes	- There is the potential to upscale the processing industry in the Pacific and in Timor-Leste particularly.
Has some initial industry consultation occurred to help ground truth the DIA conclusions?	Yes	- Aquaculture consultations with peak bodies also involved discussions of seafood processing.

Do repatriated skills to the Pacific and Timor-Leste support greater economic integration with Australia and New Zealand?	Yes	- There is opportunity for skills development and economic development in the Pacific and Timor-Leste.
Does the industry exhibit characteristics that will enable transfers of applicable skills back to PLF countries?	Yes	- The industry provides alignment to industry growth prospects in the Pacific and Timor-Leste.
Have issues and risks related to COVID-19 been considered and is mitigation possible?	Yes	- To date, the industry (particularly rock lobster) has suffered a significant impact due to associated impacts of the COVID-19 pandemic and the trade dispute with China, however the industry has been able to pivot toward domestic consumers to mitigate the impact.
Is the lead-in time to build relationships within the industry and place workers considered reasonable?	Yes	- The PLF is well-positioned and resourced to engage the industry and synergies exist with the aquaculture industry.

Recommendations

The DIA on aquaculture set out a series of recommendations relating to next steps. The recommendations for this addendum on the seafood processing industry are similar. Having determined that appropriate opportunities for placement of Pacific and Timorese workers exist, it is recommended that the PLF should actively engage with aquaculture and seafood processing industry employers to pursue these opportunities.

In addition to the recommendations put forward for aquaculture, it is recommended that the PLF:

- Leverage the synergies with aquaculture operators that have onsite seafood processing facilities. This will achieve efficiency in terms of workers' placement and employer engagement, as well as provide welfare benefits by being able to cluster workers. Consider engaging with appropriate standalone processing facilities in the second instance.
- Engage with industry to identify preferred preparatory training programs, such as food safety. These could potentially be undertaken in-country. The Australia Pacific Training Coalition (APTC) or another training provider should be engaged to investigate this opportunity. Note that formal qualification requirements in the industry are low and many roles are appropriate for school-leavers. Post-school certificates in seafood processing do not appear to be necessary, nor even desirable, by the industry. This should be confirmed during the initial stages of industry engagement.
- Engage the PLF supply and growth team to capitalise on the prevalence of women in the industry. Seafood processing represents an opportunity to place a significant proportion of female workers. Papua New Guinea, Fiji, and the Solomon Islands are ideal candidates to

recruit workers with relevant skills and experience, as well as to maximise employment opportunities upon workers' return home.

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1. Introduction

1.1 Industry assessments program

A preliminary industry assessment and, later, a detailed industry assessment have been completed on the aquaculture sector. Due to the way the Australian Bureau of Statistics (ABS) captures data, these 2 assessments did not extend to conducting an analysis of the downstream seafood processing industry. To address this, we have completed this addendum. It should be considered as an abridged DIA and be read in conjunction with the aquaculture DIA completed in February 2021[1].

The industry assessments program is undertaken using the Australian Bureau of Statistics (ABS) industry classification system. The seafood processing classification is reported by the ABS via Division C of the ABS Industry Classification System (ANZIC) detailed below:

- Division C: Manufacturing
- Subdivision 11: Food Product Manufacturing
- Group 112: Seafood Processing

Sub activities are:

- canned seafood manufacturing
- preserved seafood manufacturing – smoked, dried, or salted
- frozen seafood
- fresh or chilled seafood
- fish and other seafood manufacturing (except units which both catch and process their catch aboard vessels)

1.2 Methodology

This abridged DIA should be read in conjunction with the aquaculture DIA completed in February 2021 which concluded that:

Although aquaculture is (relatively) small and increasingly pursuing automation, it is growing at a rate faster than the wider economy, is regionally focused, is a good match with Pacific island economies, and has unfilled jobs that match Pacific migrant workers' skills, without otherwise disrupting the Australian labour market. This DIA recommends that the PLF pursue industry engagement.

There was no formalised external consultation process undertaken in relation to seafood processing specifically, however, several key stakeholders were consulted to "ground truth" the evidence that was collected and analysed. Consultation participants included the National Aquaculture Council, the Australian Prawn Farmers Association and the Australian Barramundi Farmers Association. We also

[1] We consulted with the ABS directly about their data collection for the seafood processing industry. Their data on this new sub-sector is not strong. Their reply to our queries was: "The ABS … does not currently collect data regarding Seafood Processing. There is data in 4607.0 - Fish Account, Australia, 1997, however the data collected is from 1997 with no future plans for release. The Department of Agriculture released Australian fisheries and aquaculture statistics, 2017."

spoke to the Department of Agriculture, Water and the Environment, as well as the Fisheries Research and Development Corporation.

There was a strong focus on analysis of the data and what it realistically meant for the PLF. The DIA analysis went beyond the assessment of the numerical scope of the labour market shortage to better understand if that labour supply gap was addressable by the PLF and its partners. The DIA has incorporated a risk assessment and provided recommendations on key next steps.

2. Industry overview

Section summary	
Growth in aquaculture will flow through to seafood processing	- Aquaculture and wild-catch fishing both supply the seafood processing industry. The forecast growth in aquaculture will benefit the industry and offset stagnant fishing output.
The longer-term move toward seafood consumptions, both domestic and globally, will be positive for the industry	- Increasing global consumption of seafood will benefit the industry, a trend expected to continue for the foreseeable future.
Automation has reduced the relative demand for labour	- The industry has rapidly automated over the last decade, with larger facilities greatly upscaling. This results in a relatively subdued demand for labour relative to the increased output.

2.1 Current state of seafood processing in Australia

The seafood processing industry sits between the aquaculture and fishing industries, and the wholesale and retail industries. The level of industry activity is largely determined by the level of activity in catching or growing seafood. Positive trends in aquaculture will benefit the industry, whereas the expected trajectory of fishing will be a detriment to the processing industry. Together, the opposite trends in aquaculture and fishing, will result in a low growth, yet relatively stable, outlook for seafood processing.

The seafood processing industry is rapidly automating, with the larger, and more dominant, players upscaling their facilities to become more efficient. While this is beneficial for industry and the consumer, it reduces the demand for unskilled or semi-skilled labour. Over the past decade, the industry has been able to increase its output, while decreasing its demand for labour. However, the sheer magnitude of new aquaculture projects currently under development in Australia will, in absolute terms, be beneficial for seafood processing and its demand for labour.

Beyond the COVID-19 pandemic, growth in Asian consumption and increasing domestic consumption of seafood will benefit the industry over the medium- to long-term.

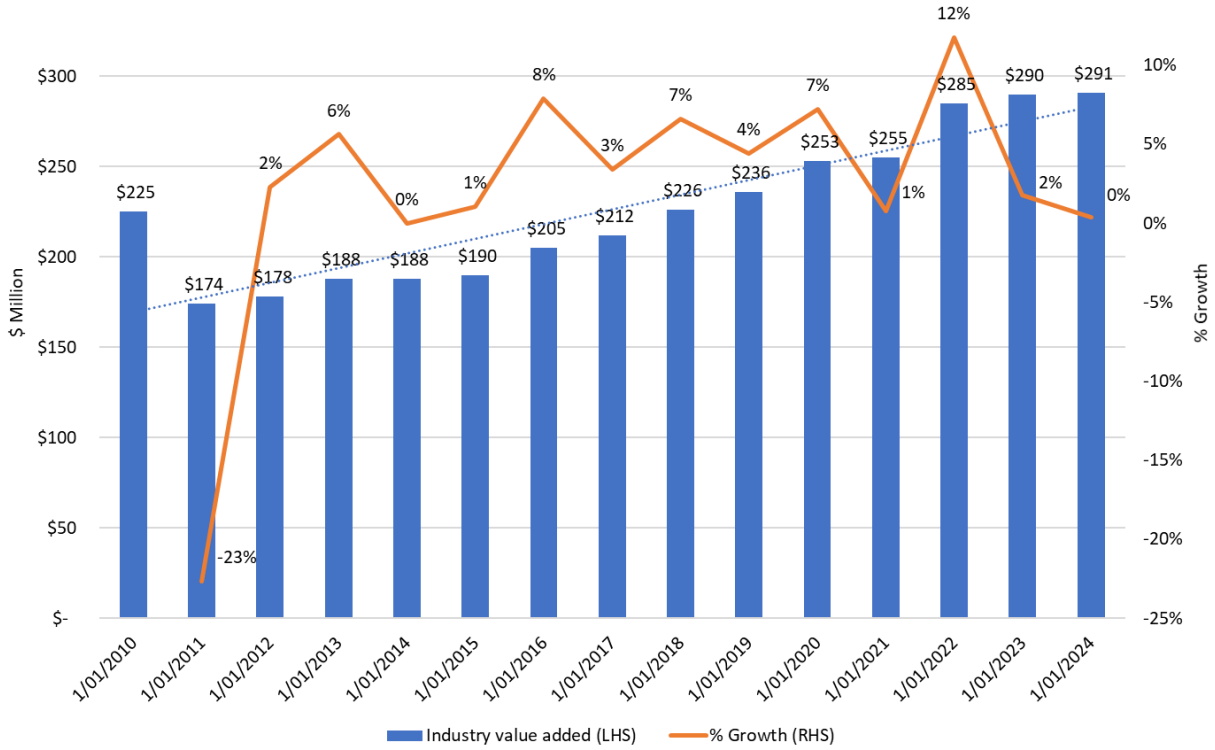
3. Economic assessment

Section summary	
Industry activity has been relatively stable, which is expected to continue for the foreseeable future	- Seafood processing is an intermediate industry, taking products product from the aquaculture and fishing industries, and selling to the wholesale and retail industries. - The industry value added (IVA) grew consistently over the last decade and forecast to continue through to 2024. - Unlike aquaculture, there have been no significant drops in production – apart from the COVID-19 pandemic related disruptions.
Employment has been stable over the past decade and future growth is forecast to be modest	- Employment levels have been relatively stable, with approximately 2,500 workers having been consistently employed over the last decade. - Demand for workers is forecast to be below the national average, yet stable and consistent.
The labour force is dominated by low-skilled workers, many of which are women and part time	- Seafood process workers' salary is approximately $39,200 pa, on par with existing PLS workers. - The occupation is 43% female (compared with 17% in aquaculture) and 53% part time. - The labour force is largely unskilled, with 76% having no post-school qualifications, and most roles are suitable for school-leavers.

3.1 Economic value of activity

The below figure shows that the industry value added (IVA) product from seafood processing experienced modest and stable growth over the past decade, growing from $225m to $253m – a compound annual average of 1.2%, below the national average. The below figure also incorporates IBISWorld forecast growth rates. From 2020 to 2024, the industry is expected to grow at a compound annual rate of 3.56% per year, from $253 m to $291 m.

Figure 1: Seafood processing IVA, 2009-10 to 2023-24



Like aquaculture and fishing, seafood processing is a relatively small component of the Australian economy. Modest growth over the past 10 years has seen this meagre share decrease slightly, as the growth of the national economy has outpaced that of the industry. The small size has obvious implications for the industry's capacity to employ a significant number of PLS workers.

It is important to note that an increased value of production, or in this case, industry value added, does not necessarily equate to greater employment levels. Price increases and increased production efficiencies (such as automation) have had positive impacts on the industry without the need for additional inputs of labour. Larger operators have downsized their labour forces over the last decade in a move toward increased automation. This trend is expected to continue, with implications for the demand for labour (IBISWorld, 2019).

3.2 Business counts

The ABS business counts show the number of registered businesses by state and number of employees as of June every year. It is important to note that this counts business registration, and not the location of the business' primary activities. For example, BHP would be registered in Victoria yet has extensive operations in Western Australia.

Seafood processing

The ABS businesses counts show there were only 228 registered seafood processing businesses at the end of the 2019 financial year, equating to less than 1% of all registered agricultural sector businesses. Over the course of the 2019 financial year, 20 new businesses entered, and 13 exited, with a resulting net movement of 7. This is an encouraging sign and may be indicative of an attractive business opportunity for some operators.

The industry is relatively dispersed and not as clustered as the seafood production – aquaculture and wild-catch fisheries. This is due to many operators establishing processing facilities closer to major population centres to improve reduce the time to market and improve the freshness of their product.

Importantly, there are no registered seafood processing businesses that employed more than 200 people, however there are 43 that employ between 20-199.

Readers will note the contradiction between this section and the following section on major employers. The source of discrepancy is a combination of using contract labour and operators employing individuals across multiple entities under a group banner.

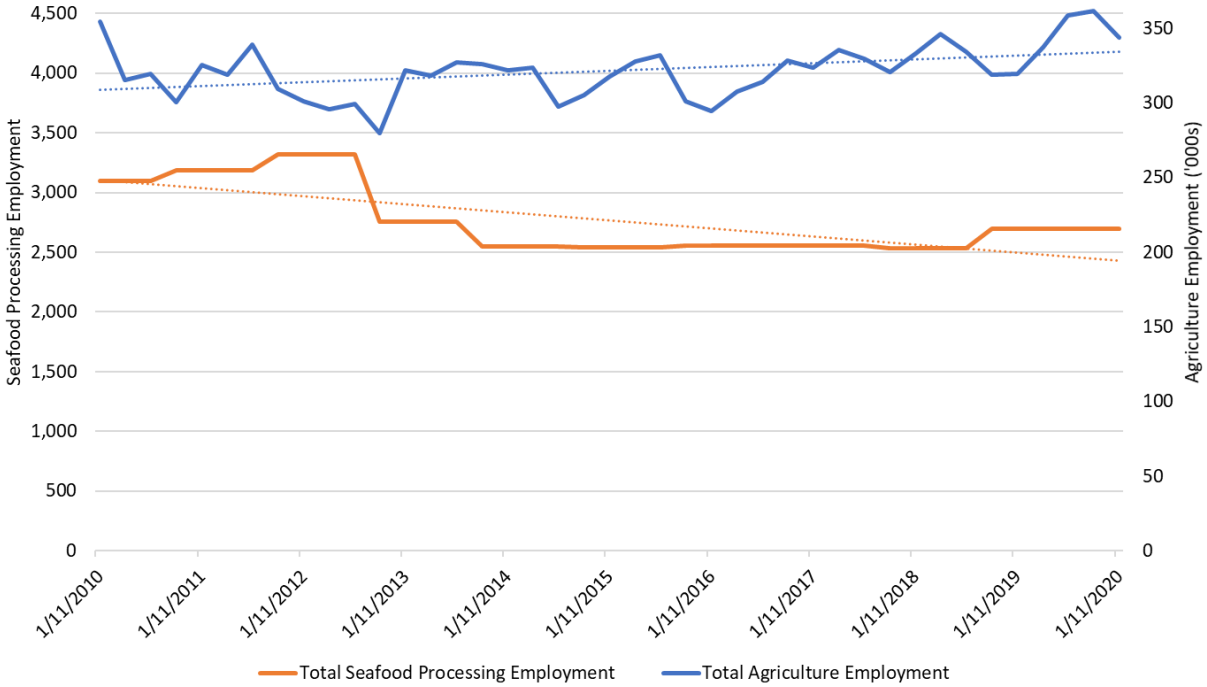
Table 1: Australian Bureau of Statistics business counts, seafood processing, 2018-19

State	Non-employing	1-19 employees	20-199 employees	200+ employees	Total
NSW	20	11	4	0	36
Vic	20	20	5	0	45
Qld	12	22	16	0	48
SA	26	18	4	0	48
WA	9	18	5	0	34
Tas	5	11	10	0	22
NT	0	0	0	0	0
ACT	0	0	0	0	0
Total	**92** **40.4%**	**93** **40.8%**	**43** **18.9%**	**0** **0.0%**	**228** **100%**

3.3 Employment

Estimated labour force figures show that employment levels in seafood processing have been relatively stable over the past 10 years – far more so than aquaculture. Similar to aquaculture and fishing, the magnitude of employment is small, with approximately 3,000 persons employed on an FTE basis. It is one of the smallest employing subsectors within the economy.

Figure 2: Persons employed in aquaculture, 2009-10 to 2019-20



The Australian Government Labour Market Information Portal provides detailed 5-year employment projections from 2019 to 2024, with data from the Department of Employment, Skills, Small and Family Business. Projections of employment growth in aquaculture are neutral from May 2019 to May 2024, at a projected rate of 0.3%.

While these forecasts were made before the COVID-19 pandemic and China trade dispute, updated forecasts from BIS Oxford Economics indicate that the industry is expected to grow at approximately 4% over the medium term. Note, however, that increased value of production does not equate to greater employment levels. Currency movements, increasing prices, increased production efficiencies (such as automation) will positively contribute to an industry without requiring additional inputs of labour.

Table 2: Projected employment growth in seafood processing

Industry	Employment May 2019 ('000)	Projected employment May 2024 ('000)	Projected employment growth over 5 years	Projected employment growth over 5 years (%)
Aquaculture	5.3	5.2	-0.2	-2.9%
Food product manufacturing	205.8	207.5	1.7	0.8%
Seafood processing	**2.1**	**2.1**	**>0.01**	**0.3%**
All industries	12,879.6	13,954.7	1,075.0	8.3%

3.4 Labour force characteristics

Under the current award, a Seafood Processing Attendant level 1 adult is paid $753.80 a week at a rate of $19.84 per hour worked. Excluding overtime, the award rate of $19.84 equates to $39,200, which is within the salary range of existing PLS workers. The role is classified as entry level and formal education of the workforce is modest. As of the 2016 Census, 76% of the workforce had no post-school qualifications.

Approximately half (53%) of workers are employed full-time, well below the national average of 66%. Approximately 43% of workers are female, one of the highest proportions in the manufacturing industry, second behind cosmetics and toiletry preparation manufacturing.

Table 3: Pay rates for processing attendants as of November 2020 for ordinary hours worked

Classification level	Minimum weekly rate	Classification level
Process Attendant Level 1	753.80	19.84
Process Attendant Level 2	764.50	20.12
Process Attendant Level 3	836.40	22.01
Process Attendant Level 4	877.60	23.09

3.5 Risk of displacement of Australian workers

The industry has solid growth prospects over the medium term, particularly given the current pipeline of aquaculture projects - a supplier into the processing industry. This, combined with the existing confirmed shortage of workers, lowers the risk of displacing Australian workers. However, while overall risk may be low, PLF will still need to consider localised displacement risks, as some regions of Australia may be more sensitive to an influx of foreign workers. Use the labour market analysis, and subsequent updates, as a guide to indicate regions with high unemployment, youth unemployment and Indigenous unemployment, before engaging.

4. Australian demand characteristics

Section summary	
Most seafood processing workers are in NSW, Qld, Victoria, WA, and Tasmania	- Workforce distribution approximately follows the population distribution, with an over-representation of states with large fishing operations. - Many operators co-locate their processing facilities with their aquaculture facilities, which will likely provide benefits to the PLS in terms of clustering workers efficiency of worker placement.
The top 3 players in the business control 65% of industry revenue	- Tassal (25%), Huon (20%) and Simplot (20%) together control 65% of industry revenue. The businesses employ 6,000 persons collectively, however not all are classified as seafood process workers.

4.1 State employment analysis

While many operations contain both aquaculture and processing activities in the same place, operators often locate their processing operations closer to population centres. This is to reduce the distance between the processed production and point of consumption, improving freshness of the product. This means many processing facilities, such as those located in Sydney and Melbourne, are ineligible for the PLS. The below table shows the proportion of seafood process workers in each state. Generally, it follows the distribution of the population, with an over-representation of those regions with a high concentration of fisheries, such as Tasmania. Also, we note that many aquaculture companies use different employment arrangements, such as labour hire companies or subsidiaries, for seafood processing operations.

Table 4: State share of employment of seafood processing workers[2]

State	Proportion of Employment
New South Wales	24.1%
Queensland	19.2%
Victoria	18.0%
Western Australia	16.1%
Tasmania	14.6%
South Australia	6.5%
Northern Territory	1.5%
ACT	0.0%

4.2 PWC labour market analysis findings on seafood processing

The below table and graph show the top 16 *eligible* regions (statistical area 2s) in Australia for placing PLS working in aquaculture. These figures have been taken directly from the 2020 PWC labour market analysis. The scores in the below table indicate the likelihood and extend of labour shortages in those regions.

The regions are clustered, with 6 located in Tasmania, and 3 in South Australia and Queensland, and all other states having 2 or fewer.

[2] https://joboutlook.gov.au/occupations/seafood-process-workers?occupationCode=831313

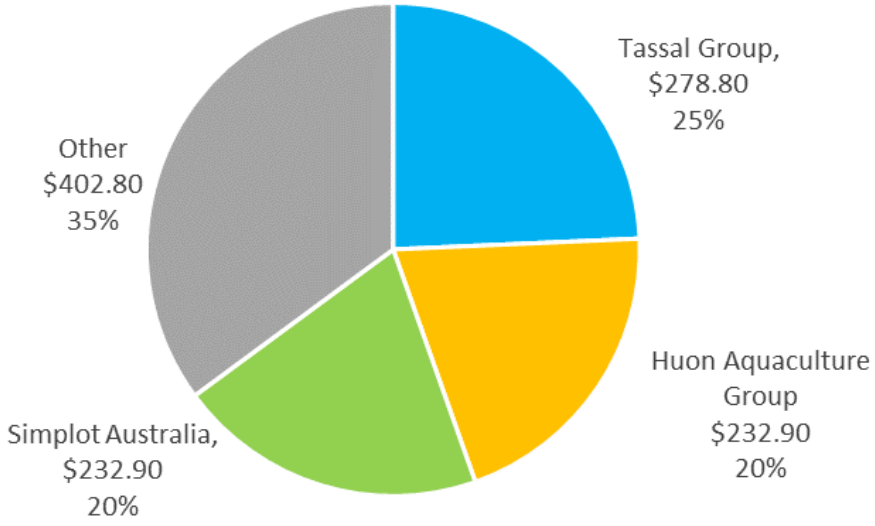
Table 5: Regions identified with high likelihood of labour shortages in seafood processing[3]

Rank	SA2	Score	Rank	SA2	Score
1	Port Lincoln, SA	65	9	Huonville – Franklin, Tas	39
2	Smithton, Tas	59	10	George Town, Tas	38
3	Portland, Vic	47	11	Exmouth, WA	36
4	Mooloolaba – Alexandra Headland, Qld	47	12	Geraldton, WA	36
5	North West, Tas	46	13	Adelaide West, SA	35
6	Hobart, Tas	46	14	West Coast, SA	34
7	East Devonport, Tas	42	15	Westcourt – Bungalow, Qld	34
8	Morton Bay North, Qld	39	16	Taree, NSW	33

4.3 Major players in Australian aquaculture

The seafood industry in Australia is highly concentrated, with the largest 3 players accounting for approximately 65% of industry revenue. See the following figure.

Figure 3: Estimated revenue share of seafood processing businesses, 2019, $m



Beyond this, the industry is highly fragmented, with 80% of businesses employing 19 persons or less. About 40% are non-employing entities, which most, if not all, are not recommended for engagement.

Tassal Group Ltd

Tassal is the largest player in both Australian aquaculture and seafood processing, capturing approximately 1/4 of total revenue. It is a Tasmania-based vertically integrated company with

[3] Source: PwC Labour Market Analysis, 2020

hatchery, aquaculture, processing, and sales operations. Tassal is the largest producer and exporter of Atlantic Salmon in Australia and has made several acquisitions over recent years which have contributed positively to its operations.

Initially selling primarily to export markets, Tassal has refocussed is operations on the Australian market, reducing its export market exposure. The company has multiple operating sites around New South Wales, Queensland, and Tasmania.

Huon Aquaculture Group Ltd

Huon is another Tasmanian-based vertically integrated businesses, with operations in hatcheries, marine farms, and processing. The company also owns processing facility in Sydney and a variety of other facilities, including an experimental facility in Tasmania.

Huon plans to expand into other high value fish species and has conducted successful trials in Queensland and Western Australia on the viability of Yellowtail Kingfish. Huon has recently opened a salmon processing plan in Forrestdale, Western Australia, to better serve local consumers, as well as open export opportunities to Asia. The plant is similar to its new Paramatta Creek facility, which serves east coast consumers.

Simplot Australia Pty Ltd

Simplot Australia is an Australian company wholly owned by United States company J.R. Simplot. The company employs 2,360 people across Australia and New Zealand with 6 processing facilities: 2 in Tasmania, 2 in New South Wales, and 2 in Victoria. The company sells its goods under the Birds Eye and John West brands.

Petuna Aquaculture Pty Ltd

Petuna is a privately owned Australian operator based in Tasmania, employing approximately 180 people. It is 50% owned by Sealord Group Ltd, a global seafood operator.

A Raptis & Sons Pty Ltd

This company has a significant presence in the Northern Territory's Gulf of Carpentaria, Queensland and South Australia and employs 120 people.

4.4 Major projects under development

The major players, including both Huon and Tassal, have recently opened processing facilities closer to population clusters to better serve those markets with fresh product. There are also 2 major projects currently under development, both in Queensland.

Exmoor Station Project and Proserpine Expansion ($257 million combined) - ***Tassal Group***

Two coordinated projects in the Mackay-Whitsunday region, announced August 2020, involve an $85 million expansion of an existing facility near Proserpine; and a $172 million project at Exmoor Station, north west of Mackay. The Exmoor Station Prawn Farm is proposed to be built within the Mackay aquaculture development area. It would deliver the state's largest land-based aquaculture facility with state-of-the-art hatchery, nursery and processing facilities.

Guthalungra Aquaculture Project ($100m) – Pacific Reef Fisheries

This $100m prawn farm is on an 800-hectare site adjacent to Elliot River in Queensland's Whitsunday region. Key features include:

- 259 aquaculture ponds covering 260 hectares
- 370-megalitre seawater storage pond
- 47-hectare discharge remediation area
- intake and discharge water pipelines to Abbot Bay, approximately 5.5 km long
- freshwater storage pond and water reticulation system
- seafood processing facilities.

Once operational, it will provide 220 jobs, and 2,700 tonnes of North Queensland black tiger prawns annually.[4]

5. Workforce skill requirements

Section Summary	
No formal qualifications are required for seafood processing workers	- With 76% of workers having no post-school qualifications, the seafood processing industry has one of the highest proportions of workers classified as low- or semi-skilled,
Seafood process workers (ANZSCO 831313) are ANZSCO Level 5	- Seafood process workers scale, clean, fillet, cut, shell, grade, and package fish. This role requires no formal qualifications or education beyond high school, and is eligible for the PLS.

5.1 Australian employer requirements

The basic technical skills required to work in the seafood process industry as a seafood process worker are relatively modest. No formal qualifications are required, and most of the industry has no qualifications beyond secondary schooling. Seafood processing generally has one of the highest proportion of workers in the manufacturing sector that are classified as low or semi-skilled.

[4] https://www.felix.net/project-news/tassal-groups-257m-aquaculture-projects-to-create-1000-jobs-for-qld

https://www.statedevelopment.qld.gov.au/coordinator-general/assessments-and-approvals/coordinated-projects/completed-projects/guthalungra-aquaculture - last updated July 2020

Figure 4: Education profile of seafood processing workers[5]

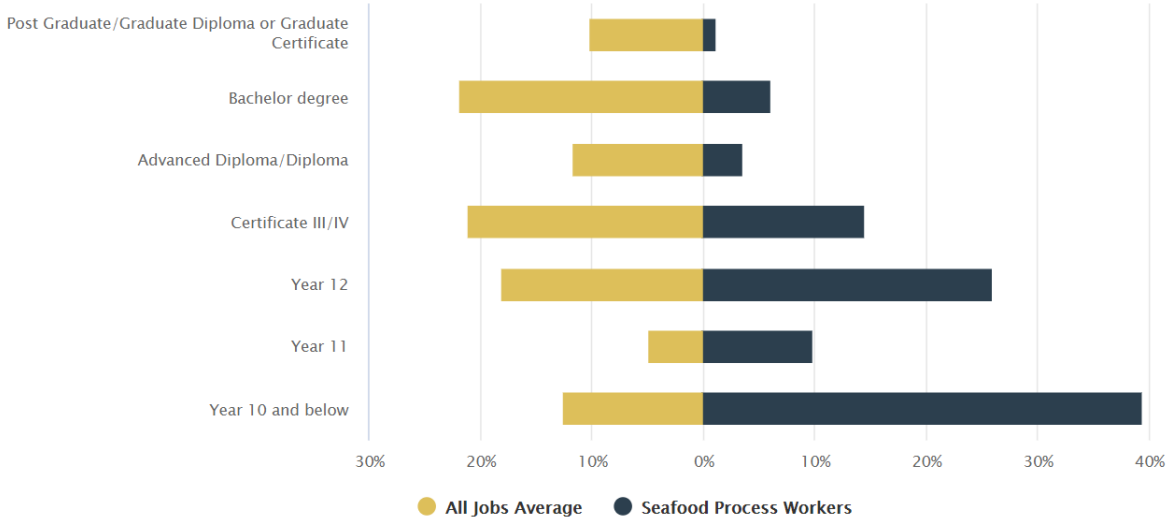


Table 6: Australian employer requirements[6]

Qualifications (not mandatory)	- Cert I in Seafood Processing - Cert II in Seafood Processing - Cert III in Seafood Processing
Certifications (not mandatory)	- Manual handling
Registrations & licenses (not mandatory)	- Forklift operator's certificate - First Aid
Other desirable traits and experience	- Understanding of food safety

5.2 Eligible roles

ANZSCO classification system

ANZSCO 831313 (Seafood Process Workers) is classified as skill level 5. Occupations on a skill level of 5 in Australia and New Zealand have the level of skill obtained by an AQF Certificate I, or compulsory secondary education in Australia. The role is classified as one that can be done without formal qualifications.

The role of seafood process workers is to scale, clean, fillet, cut, shell, grade and package fish and shellfish. Tasks include:

- sorting, inspecting and grading seafood products for size and quality

[5] https://joboutlook.gov.au/occupations/seafood-process-workers?occupationCode=831313

[6] https://joboutlook.gov.au/occupations/seafood-process-workers?occupationCode=831313

- preparing seafood by skinning, trimming, washing, gilling, gutting, filleting, shucking, descaling, cooking, smoking, preserving and canning fish shellfish and molluscs
- operating machines that slice, peel, skin, and crumb seafood
- counting and packing prepared seafood for freezing
- packing frozen seafood blocks into cartons after freezing, to prepare stock for dispatch
- loading seafood products into trucks
- cleaning and sanitising equipment and work areas.

6. Worker supply and sender country considerations

Section Summary	
Seafood processing is limited given the overall size of fishing in the Pacific and Timor Leste	- Due to the prevalence of foreign offshore fishing (approximately 3/4 of fisheries production), only a relatively small component of the Pacific fisheries output is processed onshore in the Pacific. - Likewise, the processing facilities in Timor-Leste are underdeveloped. This is due to a consumer preference for fresh fish as well as underdeveloped commercial fishing operations.

Onshore processing is concentrated in PNG, Fiji, and the Solomon Islands	- 3 countries dominate Pacific seafood processing (most of which is tuna):
	  - Papua New Guinea: 45%
	  - Fiji: 23%
	  - Solomon Islands: 18%

The major of processing workers are women	Throughout the Pacific, men typically crew fishing boats, and women are typically engaged in processing activities. Two reliable workforce proportions that have been found are: - 73% of the 7,500 workers in PNG are female - 80% of the 500 workers at the Solomon Island Soltuna cannery are female

While an improvement upon aquaculture industry data, statistics about employment in seafood processing in Pacific are poor and out of date. Like the Australian data, it is often difficult to disaggregate the data concerning catching and processing operations when they are undertaken in proximity.

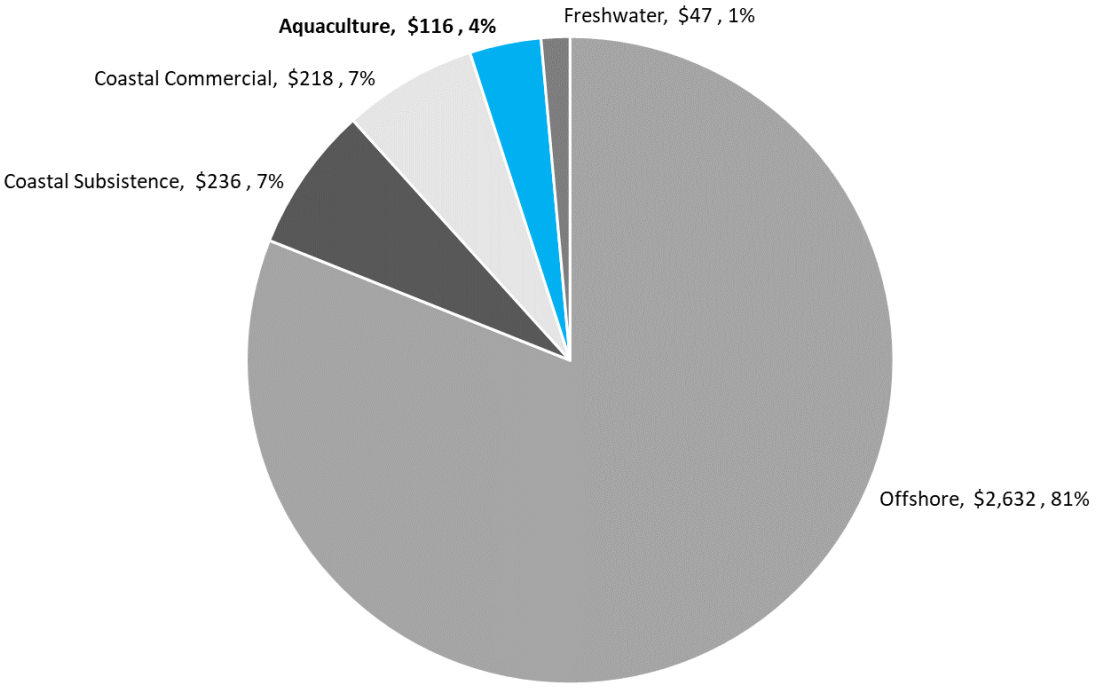
6.1 Supply of Pacific workers

Fishery operations in the Pacific

Fishing represents a considerable component of most Pacific economies. Again, precise estimates are difficult given the increasingly blurring lines between subsistence and commercial operations. The following figure shows an estimate of the extent of fishing operations by type. As of 2014 (the most reliable and recent estimate of fisheries production), total production is perhaps $3.6bn USD.

However, it is worth noting that 3/4 of the value of offshore fishing was captured by foreign-based operators, who don't process their catch locally.

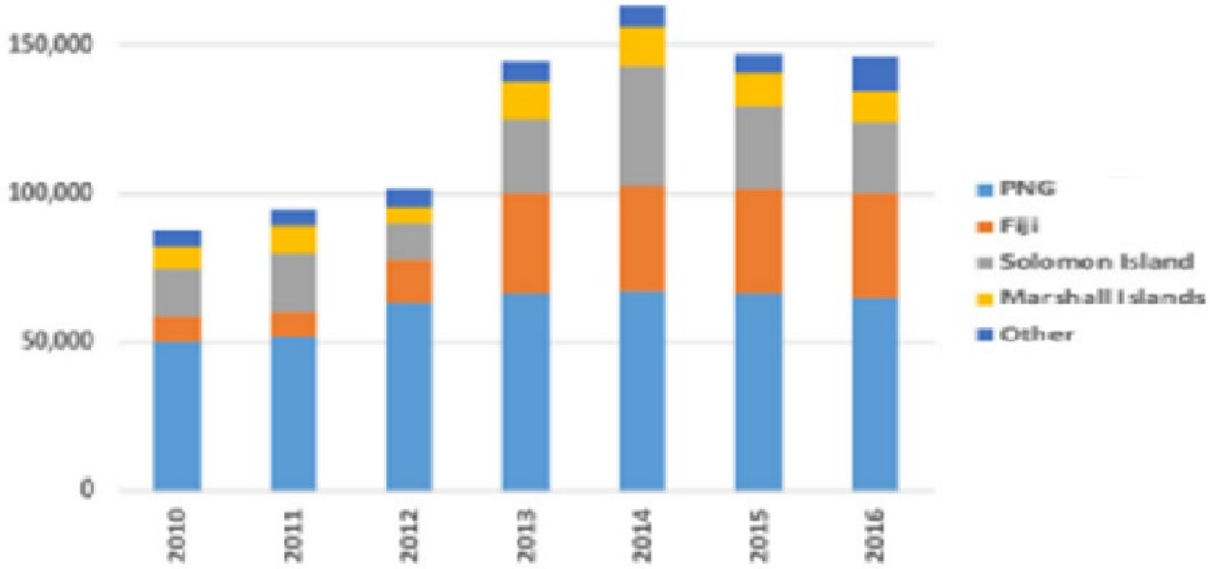
Figure 5: Value of fisheries production in the Pacific, USD$m, 2014



Onshore processing volume and associated employment

The below figure illustrates the estimated volume of onshore processing in the Pacific. Only 4 countries account for 92% of total processing volume in the Pacific: Papua New Guinea (~45%), Fiji (~23%), the Solomon Islands (~18%), and the Marshal Islands (6%) (Pacific Islands Forum Fisheries Agency, 2019).

Figure 6: Pacific Onshore Processing Volumes, tonnes, 2010-2016[7]



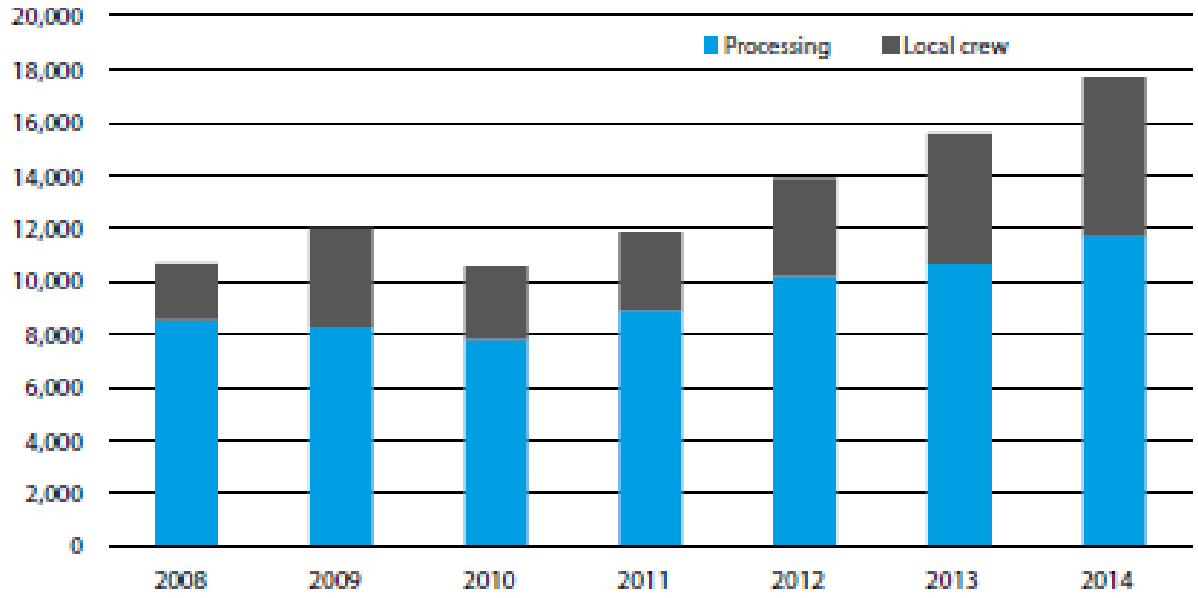
In terms of employment, the following figure shows the estimated number of persons employed in the fisheries by sub-sector. As of 2016, the latest available data, there were 18,000 jobs in fisheries, with an estimated 12,000 in processing and related services. This number had grown strongly over the start of the past decade on the back of increasing throughput – from 8,000 to 12,000 tonnes over 6 years. As shown above, the processing industry is concentrated in Melanesia. Papua New Guinea accounts for 64% of all pacific processing jobs, Fiji 17%, and Solomon Islands 12%.

- Papua New Guinea, 7,500 jobs as of 2014
- Fiji, 2,000 jobs as of 2014
- Solomon Islands, 1,500 jobs as of 2015 (Gillett, Fisheries In The Economies of Pacific Island Countries and Territories, 2016).

The underdeveloped processing facilities in the other PICs typically only employ a few dozen, or less, employees per country. In terms of existing work-ready supply of seafood processing workers, PNG, Fiji and the Solomon Islands are the best candidates to source workers, particularly with regard to recruiting scale and experience of the workers.

[7] Pacific Islands Forum Fisheries Agency, Tuna Fishery Report Card 2018

Figure 7: Pacific fisheries employment by sub-sector, 2010-2016[8]



Pacific women in seafood processing

Women do much of the seafood processing in the Pacific, with men typically working as crew in marine fishing (>90% of crew are male). Noting the difficulties in data collection, we have 2 estimates of the prevalence of women in seafood processing:

- Papua New Guinea: 73% of the 7,500 employed workers are women.
- Solomon Islands: 80% of the 500 workers at the Soltuna canning factory are women (Gillett, Fisheries in the Economies of the Pacific Island Countries and Territories, 2009).

While this report has not been able to locate a reliable estimate, the proportion of women in processing in Fiji is believed to be similar to PNG and the Solomon Islands. That is, a large majority.

The prevalence of women in Pacific processing, along with a relatively equal representation in Australia (43% female workforce), provides an excellent opportunity for Pacific women to engage in Australian seafood processing facilities.

6.2 Seafood processing in Timor Leste

Timor-Leste's National Aquaculture Development Strategy aims to increase aquaculture production to 12,000 t per year, up from the current 80 t per year. This ambitious target will require increased efficiency and new farmers to commence production. On top of this, Timor-Leste has significant wild-catch operations. However, Timor-Leste lacks commercial processing facilities. Most fish is sold fresh and the remainder is put through an artisanal drying process. There is a recognised need for processing facilities in the future, particularly if fishery operations move from artisanal to industrial, however at present, there are no plans to develop the processing industry (USAID, 2016).

[8] Fisheries in the Economies of Pacific Island Countries and Territories, 2016

With consumers preferring fresh fish, commercial processing techniques are undeveloped in Timor-Leste. Apart from artisanal practices, which have not been considered in depth, there is unlikely to be a work ready pool of workers with industrial-scale fish processing experience. Likewise, there is limited opportunity for these workers to apply their skills upon return home.

Timor-Leste should be monitored for any new developments in the seafood processing space. There is a recognised need for processing facilities in the medium-term future and given the government's focus on developing aquaculture, it is a likely next step (López-Angarita, et al., 2019).

7. Risks assessment

Table 7: Risk assessment summary

Risk	Impact	Risk	Treatments
Insufficient number of placement opportunities due to industry size	Reduced size of industry cohort and lower return on PLF resources.	High	200 - 300 FTE workers
Decline in industry demand for workers - temporary	Mass redundancies of workers which will require redeployment and potentially be returned to the Pacific.	Moderate	Given the dependence on the primary industries of fishing and aquaculture, demand for workers is expected to fluctuate.
Decline in industry demand for workers – long term (structural)	Increased production efficiency, such as through automation, reduces the demand for workers permanently	High	While technology is improving efficiency without the increased demand for labour, the overall growth in size of the industry will continue to provide opportunities for low- and semi-skilled workers for the foreseeable future.
Injury of death of worker	Injury of death of worker, plus pecuniary impacts for the worker's family, AE, and PLF.	Low	When standard procedures are followed and training is provided for equipment use, Seafood processing is a low-risk injury industry.

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