



Fact Check of Salmon Tasmania's report – *The Tasmanian Salmon industry: a vital social and economic contributor.*

This report by the Tasmanian Independent Science Council assesses Salmon Tasmania's recent publication on the social and economic impact of the Tasmanian salmon aquaculture industry. It draws on the underlying report to Salmon Tasmania by Deloitte, and the preceding background report 'Salmonid Aquaculture Production' published by the Institute for Marine and Antarctic Studies.

Dr Graeme Wells
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ABOUT THE TASMANIAN INDEPENDENT SCIENCE COUNCIL

The Tasmanian Independent Science Council is dedicated to science-based policy reform to ensure the long-term health of Tasmania's environment. The Council includes scientists and related professionals who provide independent, non-government advice, focusing on policy reforms of significant State interest. We seek to inform public debate and influence legislative reform to improve outcomes for terrestrial, freshwater and marine ecosystems.

SUMMARY

The Tasmanian Salmon industry: a vital social and economic contributor (hereafter “the Salmon Tasmania report”), published by Salmon Tasmania, provides “the first combined, comprehensive and independent analysis of the industry’s economic and social contribution to the Tasmanian community”.¹ However, the Salmon Tasmania report makes a number of overestimations and misrepresentations of economic and social benefits provided by the Tasmanian salmon industry. The Tasmanian Independent Science Council has conducted a fact check of Salmon Tasmania’s report, drawing on evidence from the Deloitte² and the Institute for Marine and Antarctic Studies (IMAS) reports that provided the basis for Salmon Tasmania’s economic and social benefit calculations.³

Key findings

1. Salmon Tasmania’s claim that the salmon industry represents one-fifth of the entire agriculture, forestry and fishing industry is grossly exaggerated. When measured on a like-for-like basis, the figure is likely to be around 6-7%.
2. Output (as measured by Gross Value Added) in the three salmon producers – Tassal, Huon Aquaculture and Petuna – has increased significantly, reflecting the overall growth, automation and temporary build-up of biomass that was accelerated by the COVID pandemic.
3. The Salmon Tasmania report is based on an economic impact assessment, rather than a cost-benefit-analysis. This means that it does not account for the social or environmental impacts of the industry, and also means that some results in the Salmon Tasmania report are not directly comparable with the 2018-19 IMAS report.
4. Salmon Tasmania claims that industry jobs pay 56% more than the average Tasmanian job. Although it is difficult to directly compare wage data, it is likely that wages in the broader salmon industry are *almost the same* as the average Tasmanian wage if both direct and indirect employment by the industry is considered. If the comparator is only the wage paid directly by the three salmon producers, then wages are higher than the average wage in Tasmania; however, on a like-for-like basis, this difference is likely to be significantly less than 56%.

¹ Salmon Tasmania (2023) *The Tasmanian Salmon industry: a vital social and economic contributor*, https://salmontasmania.au/wp-content/uploads/2023/06/Economic-and-Social-Contribution-Report-Final_lo_res.pdf.

² Deloitte Economic Analysis (2023), *Socio-economic Contribution of the Tasmanian Salmon Industry: Salmon Tasmania*, April.

³ Institute for Marine and Antarctic Studies (2021) *Tasmanian Fisheries and Aquaculture Industry 2018/19: Economic contributions – key sectors* p 6-11, https://www.imas.utas.edu.au/__data/assets/pdf_file/0007/1471381/Economic-ContributionTasmanian-Key-Sectors-2018-2019-SNAPSHOT.pdf

1. IMPACT ASSESSMENT IS NOT A COST BENEFIT ANALYSIS

The Deloitte study that underpins the Salmon Tasmania report is an economic impact assessment (EIA). An EIA is conceptually different to a cost benefit analysis (CBA). An EIA reports the effect of an industry on economic activity and employment. A CBA asks whether the activity under question is socially desirable. A CBA would take into account environmental costs, the opportunity costs of resources used, and so on. As the economist Keynes famously remarked, digging holes and paying people to refill them has a significant impact on economic activity and employment. But in an economy close to full employment, there are surely more socially desirable investments available.

Salmon Tasmania's report is somewhat misleading in that it dresses up an EIS with extraneous material to make it look a bit more like a CBA, but in no way should it be interpreted as such. It makes no mention of environmental costs, loss of amenity, correctly defined, or subsidies paid by governments.

The approach taken by Deloitte differs from the most recent assessment of the Tasmanian salmon industry by the Institute for Marine and Antarctic Studies (IMAS). The IMAS report draws on a computable general equilibrium model (CGE), which is a standard tool for an EIA. Maintaining one of these models is an expensive exercise, which is why it is the preserve of large consultancies.

Economists debate the structure of CGE models, but it is standard for consulting firms. Importantly, results from CGE models and other EIA approaches are always presented ignoring the width of the confidence bands which measure the uncertainty around the reported estimates. When it gets down to highly disaggregated results at the Local Government Area (LGA) level, confidence bands must be very wide indeed. This matters when, as in this report, model estimates are compared to data from other sources.

2. ESTIMATING GROSS VALUE ADDED

Gross value added (GVA) measures the difference between the sales value of output minus the cost of inputs purchased from other entities. GVA is the sum of the return to the labour hired by the firm, and gross profits to its owner⁴. The sum of GVA for all entities in Tasmania is Gross State Product (or GDP if it were referring to the Australia – wide measure). GVA is the preferred measure when comparing the 'contribution' of various industries to the State economy because different industries vary in their dependence on purchased inputs. The Bell Bay aluminium smelter, for instance, has a large input cost (imported alumina and electricity) but value added is relatively small when compared to total output.

⁴ This measure of 'Gross Profits' is inclusive of depreciation, interest payments and taxes. Deducting these and other minor items from 'Gross Operating Surplus' gives the amount available for distribution to owners.

The economic impact of the Tasmanian salmon industry can be decomposed into direct and indirect effects. The direct effect measures just the activities of the three salmon producers. In a standard CGE approach, the indirect component of GVA arises when:

- a. Suppliers to the salmon producers generate value added on their own account and so on through the production chain, and
- b. Households (who now have higher incomes because of increased employment) spend their higher incomes, generating even more value added as these effects work through the economy.

As mentioned earlier, the Deloitte report is an ‘contributions analysis’, rather than a the CGE approach often used for an impact assessment.. Instead, the indirect effect is analysed by means of a survey of suppliers to the three producing firms, generating data for the indirect effect (a). Details of the survey instrument or response rate are not provided. The underlying Deloitte report, however, does give a two-stage breakdown with the indirect component limited to point (a) above.⁵

Direct GVA for the Tasmanian salmon industry is listed as \$426.9m, and indirect GVA as \$343.1m. Bearing in mind that the IMAS employment data are for persons employed, while Deloitte’s are for FTE, employment data are not strictly comparable. However, the increase in overall employment is consistent with the overall increase in GVA.

Table 1 shows data where indirect effects are, for comparability, limited to first-round impacts as described above. Direct GVA from the three producers has grown rapidly, partly reflecting inventory accumulation during the Covid-19 period⁶. The employment and labour productivity data are puzzling.⁷ Direct employment by the three producers has risen by just 16.7%, implying an increase in labour productivity of 59%. In addition to inventory accumulation, increasing automation has limited direct employment growth. On the other hand, labour productivity in industry supplying the producers has actually *fallen* by nearly 20%. This result is consistent with the ‘indirect’ low wage reported in Table 2.

If the trend in these data (that output is growing much faster than direct employment) continues, salmon producers are unlikely to be a regional employment ‘growth engine’. Conversely, falling labour productivity in firms supplying the industry holds out little prospect for higher wages for their employees.

⁵ Deloitte Economic Analysis (2023), *Socio-economic Contribution of the Tasmanian Salmon Industry: Salmon Tasmania*, Table 3.1.

⁶ Note that no adjustment has been made for inflation in comparing GVA in the two periods.

⁷ IMAS employment data are for persons, while Deloitte’s are for FTE. However, this difference is, if anything, likely to understate the measured decline in labour productivity.

Table 1: Salmon Industry 2018-19 and 2021-22. Source: Deloitte 2023 and IMAS 2021.

	Gross Value Added (GVA) (\$m)		Full Time Equivalent (FTE)		GVA/FTE (\$'000)	
	Direct	Indirect	Direct	Indirect	Direct	Indirect
2018-2019	230.3	232.2	1812	1619	127.15	143.42
2021-2022	426.9	343.1	2115	2988	201.84	114.83
%Change	85.3%	47.8%	16.7%	84.6%	58.8%	-19.9%

3. ECONOMIC CONTRIBUTION IS DIFFERENT TO VALUE ADDED

Economic contribution is conceptually different to value added. Economic contribution refers to the monetary value of the final output of the salmon industry. By construction it is a much larger number than GVA (as it ignores the cost of inputs) which is why industries are keen to emphasise this measure. To come back to the example of the Bell Bay smelter, its economic contribution is large but after subtracting the cost of electricity and imported alumina, its GVA is relatively small.

The Salmon Tasmania report states:

This economic contribution does not consider the auxiliary jobs figures supported by the industry – for example people working in the service industries, local health and education facilities needed to support salmon workers and their families.⁸

It also notes:

The economic benefits generated for other businesses in the region are in addition to the *direct and indirect* benefits included in the report (*italics added*).⁹

These statements reflect the fact that only the first-round indirect effects are included in the Deloitte analysis, unlike the IMAS report which also included second round indirect effects under (b) above.

⁸ Salmon Tasmania (2023) p 3.

⁹ Salmon Tasmania (2023) p 5.

4. IRRELEVANT COMPARISONS WITH OTHER INDUSTRIES

Comparisons with other Tasmanian industries, of the sort provided in the report, are not particularly meaningful. They don't compare like-with-like in terms of stages of production. For example, the appropriate comparator for red meat processing is salmon processing, not the whole salmon industry. Or if one wanted to include the whole salmon industry, one could compare it with red meat production *and* processing. Even so, it is not clear why such a comparison tells us anything about the social value of the industry.

In any event, the claim that '[t]he salmon industry represents one-fifth of the entire agriculture, forestry and fishing industry' is grossly exaggerated. When measured on a like-for-like basis, the figure is likely to be around 6-7%.

Understanding the ABS industry classification is important. To quote the ANZSIC industry classification used by the ABS:

The Agriculture, Forestry and Fishing Division (A) includes units mainly engaged in growing crops, raising animals, growing and harvesting timber, and harvesting fish and other animals from farms or their natural habitats.¹⁰

To quote the ANZIC classification again,

The Manufacturing Division includes units mainly engaged in the physical or chemical transformation of materials, substances or components into new products (except agriculture and construction). The materials, substances or components transformed by units in this division are raw materials that are products of agriculture, forestry, fishing and mining, or products of other manufacturing units. *Included is fresh fish packaging* (italics added).

According to ABS data for 2020-21¹¹, GVA in the agriculture, forestry and fishing (AFF) industry is \$4710m. Direct GVA in the salmon industry is \$426.9. A direct comparison of these two figures suggests that the salmon industry's share of AFF is 9%, not 20% as claimed by Salmon Tasmania¹². Even that overstates the case, as the 'salmon industry defined as the three producers' includes fish processing which would be included in the ABS manufacturing industry. On a like-for-like basis, the salmon industry probably accounts for around 6-7% of the Tasmanian AFF industry, not 20%.

¹⁰ Australian Bureau of Statistics (2006) *Agriculture, Fishing and Forestry*, <https://www.abs.gov.au/statistics/classifications/australian-and-new-zealand-standard-industrial-classification-anzsic/2006-revision-2-0/detailed-classification/a>.

¹¹ The ABS data referred to is 'total factor incomes' which understates GVA in each industry as it excludes taxes on inputs minus subsidies. For agriculture, forestry and fishing, this means that 'total factor incomes' understates GVA slightly.

ABS Cat no. 5220.0 *Australian National Accounts: State Accounts, Table 7. Expenditure, Income and Industry Components of Gross State Product, Tasmania*.

¹² In support of its claim, Salmon Tasmania refers to a report on the red meat processing industry. The relevance of this reference is unclear.

5. INFLATED INCOME CLAIMS

It is difficult to evaluate Salmon Tasmania’s claims that jobs in salmon industry “pay up to 73.9% more than the average job in [regional Tasmania]”,¹³ and “56% more than the average Tasmanian job”.^{14,15}

The Deloitte report provides some context for the latter claim. Data in the first three columns of the table below are extracted from Table 3.1 of the Deloitte report. The last column provides an estimate of average wages in Tasmania obtained from ABS data. When measured in terms of full-time jobs for the salmon industry as a whole, wages are **roughly the same** as the average Tasmania job. From the first column appears that the average wage in the three salmon companies is higher than the Tasmanian average, reflecting higher labour productivity there. Even then the inclusion of ‘add-ons’ in the former figure (as detailed in the footnote below) may overstate the difference between direct industry wages and the state-wide average.

Table 2: Comparison of income between salmon industry and average Tasmanian income

	Direct employment salmon industry	Indirect employment salmon industry	Total employment salmon industry	Average Tasmanian income/FTE
Income (\$m)	238.1	181.9	420	
FTE	2115	2988	5103	
Income/FTE job	\$112,576	\$60,877	\$82,305	\$82,529 ¹⁶

6. OTHER ITEMS

Gross Operating Surplus

The Deloitte report estimates Gross Operating Surplus (GOS) for 2021-22 to be \$185.7m for the three salmon companies, and \$161.1m for indirect entities.¹⁷ As noted earlier, this should not be interpreted as profit available for distribution the shareholders, or as company income liable for tax.

¹³ Salmon Tasmania (2023) p 4.

¹⁴ Salmon Tasmania (2023) p 3.

¹⁵ Salmon Tasmania cite the ABS Labour Force publication (which supplies statistics on employment, not incomes), and the Department of Premier and Cabinet.

¹⁶ Calculated as weekly Full Time, Adult, Ordinary time earnings multiplied by 52. *Australian Bureau of Statistics, Cat no. 6302.0 Average Weekly Earnings, Australia, TABLE 11F. Average Weekly Earnings, Tasmania (Dollars) – Trend.* Note that the concept of labour income used in Deloitte’s model corresponds to ‘compensation of employees’ as defined in the Australian National Accounts. As such, it includes employer contributions to superannuation, holiday pay and other worker benefits. By contrast, the ABS average weekly earnings figures do not include these add-ons, so that figures are not directly comparable.

¹⁷ Deloitte (2023).

Taxes and government payments

It is not clear whether this refers to just the three salmon producers, or to the broader industry including indirect activity – however it is more likely to be the former (Table 3).¹⁸

Table 3: Government payments (\$m)

Corporate Income Tax	20.7
Payroll Tax	13.2
Marine licence levies and fees	3.1
Rates & taxes	0.3
Other government fees and levies	1.2

Unverified investment claims

Many other claims by the Salmon Tasmania or Deloitte reports (for example, that the industry invested over \$75 million into research and development in 2022¹⁹) cannot be independently verified. Important considerations such as the scope of the industry or source of the funds are not detailed. However, it is likely that much of the claimed \$75m includes research funded by taxpayers through government agencies such as CSIRO and the Fisheries Research and Development Corporation (FRDC), or independent research bodies such as IMAS. As such, these amounts should be considered a direct industry subsidy.

Investment in staff training

Similarly, the 55,000 hours of staff training should be viewed in relation to the 5103 FTE employees; on average, around 11 hours per employee per annum, which is not particularly large given the hazards involved with many of the on-water jobs.

Independent Review of Lease and Fees Structures

As part of the development of its Tasmanian Salmon Industry Plan, the state government has initiated a review ensuring that the industry delivers ‘broader benefits to the Tasmanian community and economy, including through manufacturing and other value-adding activities, full cost recovery of Government services and an appropriate return to the Tasmanian community’.²⁰ This review is currently underway with the Treasury and other government departments.

The Tasmanian Independent Science Council has also recently called for an independent expert review of costs and benefits of the Tasmanian salmon industry and how this can be optimised for the benefit of the state and affected local communities.²¹

¹⁸ Deloitte (2023), p.11.

¹⁹ Salmon Tasmania (2023), p 6.

²⁰ *Tasmanian Salmon Industry Plan 2023*, Department of Natural Resources and Environment Tasmania.

²¹ Tasmanian Independent Science Council (2023) *Plan B; An Alternative Vision for Salmon Aquaculture in Tasmania*, www.tassciencouncil.org.

Fees currently paid by the industry (\$3.1m) are poorly designed and do not reflect costs borne by taxpayers, or costs to the Tasmanian environment. The degree of taxpayer support through the various research agencies is also not clearly identified. An independent and comprehensive review which identifies an appropriate return to the Tasmanian community requires a much broader scope than that provided by Salmon Tasmania.

CONCLUSION

Salmon Tasmania's report *The Tasmanian Salmon industry: a vital social and economic contributor* makes several overestimations and misrepresentations of the benefits the industry brings to the Tasmanian economy and wider community. This fact check has found that the report's claims to wages and the relative importance of the industry are overstated. Other claims, such as investment in research and development, are difficult to verify.

Increased output from the salmon producers has not led to a commensurate increase in employment, a trend that is likely to continue as automation of the industry continues to advance. Importantly, the Salmon Tasmania report is based on an economic impact assessment, rather than a cost benefit analysis, which means that it does not account for the social or environmental impacts of the industry. It does not take into consideration the environmental costs, loss of amenity, subsidies paid by governments, or appropriate return to local communities for the use of public waters, as required by a full cost benefit analysis.