Rural Affairs and Islands Committee: Scottish Salmon Inquiry

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Executive summary

- Instead of relying on GDP and GVA to measure the contribution of Scotland's salmon sector to the local, regional and Scottish economies, this submission proposes that alternative instruments would give better indicators of the real net economic effects. This approach would complement a proper social cost benefit analysis, taking into account all the costs and benefits to Scotland's economy, society and environment. After all, why should such sectors lie outwith the Scottish Government's pursuit of a wellbeing economy?
- The 'Scottish' salmon industry is owned and controlled by a very few enterprises, all ultimately based outwith Scotland and the UK. The dominance of these companies is based on monopoly powers derived from significant economies of scale, but significantly not from economies of scope, making it difficult both for new Scottish companies to enter the sector and for less intensive production processes to be able to compete.
- If the true full costs generated by the existing means of producing farmed salmon in Scotland were to be estimated - quantifying all the human, environmental and animal welfare impacts, then compared against the true benefits - including wages, direct GNI generated in processing and supply chains - a better and truer picture would become apparent of the value of the sector to Scotland's economy, people and environment.
- Until that is carried out, I would recommend a pause to the industry's expansion.

Introduction and background

I am making this submission as a professional economist, Professor Emeritus of Enterprise Policy at Heriot-Watt University and a visiting Professor of Economics at the Centre for Energy Policy at the University of Strathclyde. I have been an invited member of the Scottish Government's Just Transition Commission and Legal Aid Payment Advisory Panel, and the Scottish Government/Scottish Parliament's Budget Process Review Group. I have researched and written on a wide range of economic development, poverty and policy issues, and advised local, national and international governments, agencies and other organisations for over 50 years. With 17 books, over 300 papers and official reports, I am a well-known commentator on a diverse range of themes including community resilience, the economic impact of minority languages,

microbreweries, early onset dementia, rural and peripheral Europe. I am currently Chair of Basic Income Network Scotland, Vice Chair of the Jimmy Reid Foundation, Chair of Strathnairn Development Company, Vice Chair of Strathnairn Heritage Association, Vice Chair of Community Renewal Trust, and Board member of DTAS, Societi, Rom Romeha and CFA/Funerals.scot.

I was prompted to submit this briefing to the Committee as a Scottish-based expert who wishes to tackle any misconceptions around what it is to be 'pro-industry', that I believe sustainable industry growth is feasible but only with the right measures in place, and that based on my evaluation my expert and informed belief is that the best approach at this stage would be a pause on expansion.

As with other key industries of the Scottish economy, Scotland's salmon sector records significant contributions to GDP (Gross Domestic Product), GVA (Gross Value Added) and employment, often in fragile rural and coastal areas:

> *The strong consumer demand for Scottish salmon translates directly into significant value for Scotland's economy. The sector contributes over £760 million in Gross Value Added (GVA) annually and directly employs over 2,500 people in salmon production.*[1]

The output measures applied to support this, however, are flawed as indicators of incomes of workers and residents in Scotland and, it will be argued that, although GDP and GVA are standard measures across several key sectors, they are not fit for purpose when there are high levels of overseas ownership. The analyses of this position are relevant as a comprehensive cost-benefit analysis would reveal that there is an imbalance in such sectors as to who bears the costs and who benefits due to the structure and ownership of the companies dominating Scotland's salmon sector. Consideration of the structure and evolution of the salmon sector in Scotland will demonstrate that, again like other key sectors now and in the recent past, monopoly ownership and so control has created an industry that offers sub-optimal outcomes for the economy, environment and communities. Applying lessons from the Scotch whisky and spirits sector, community buyouts of landed estates and the renewable energy sector will suggest an alternative more democratic and community-based salmon sector would support local enterprise, employment and income generation as well as improve the welfare of the salmon, biodiversity and the environment generally.

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[1] Letter from Tavish Scott, CEO Salmon Scotland to Finlay Carson MSP, Convener Rural Affairs and Islands Committee, 29th September 2025: https://www.parliament.scot/-/media/files/committees/rural-affairs-and-islands-committee/correspondence/2025/salmon-farming-salmon-scotland-29-september-2025.pdf

GDP, GVA and ownership - Selecting appropriate performance indicators

There are many articles in the Regional Science literature on why GVA is a poor measure for small open economies such as Ireland and Scotland, this applies even more forcibly for a regional or local economy. GDP is a likewise poor indicator for such analyses of impact. Nevertheless, many commentators, policymakers, and others use it unthinkingly or without understanding what GVA and GDP are actually measuring and their respective limitations[2]. Using these 'performance indicators' measures the contribution to national output or value added but not to national (or other geographies') incomes and wellbeing. For instance, as almost all the jobs for proposed wind farm developments will need to bring workers in from outwith the 'local' area, Highlands and indeed Scotland, so the labour component of GVA will flow out of these respective economies. As most of the value added in situ at fish farms does not accrue to the on-site workers, we need to consider the forward and backward linkages and flows of expenditure and profits to identify where the rest of the value of production goes.

The respected Fraser of Allander Institute (FAI) offers a simple guide to GDP, GVA and the need for caution when these are used unthinkingly by non-economists or by vested interests (https://pureportal.strath.ac.uk/en/publications/a-guide-to-scottish-gdp). In particular, they demonstrate why: "Looking at economic data of such relatively small areas contains a larger risk of statistical error", despite the often uncritical dissemination of estimates accompanying performance reports, investment proposals and planning applications. FAI emphasises that a "major issue with this is that GDP [same applies for GVA] is not necessarily a good indicator of the income/wealth of people in an economy". Using an alternative measure of the contribution of this and other sectors to the local, regional and Scottish economies would give a better indicator of the real net economic effects to complement a proper social cost benefit analysis; after all, why should such sectors lie outwith the Scottish Government's pursuit of a wellbeing economy?

Structure-Conduct-Performance of Scotland's Salmon Sector

The significance of the salmon sector to the aquaculture sector as whole is confirmed in the Scottish Government's *Scotland's Marine Economic Statistics 2023*

[2] Both appear in every planning application for renewable energy developments, despite almost all the benefits flowing out of the immediate community and UK. Some have confused 'GDP' with 'benefits to the community'; see, for example, 'The EIA details the development would provide five permanent jobs with estimated **direct economic benefits** of £606k annually', emphasis added, https://www.msn.com/en-gb/news/world/fish-farm-would-be-biggest-ever-loss-to-fishing-industry/ar-AA1Rnw9u.

https://www.gov.scot/publications/scotlands-marine-economic-statistics-2023/. As Salmon Scotland report:

> *Scottish salmon, which makes up 95 per cent of the aquaculture sector. The report shows that GVA (gross value added) rose by 30 per cent from £361 million to £468 million between 2022 and 2023. Over the longer term, aquaculture's GVA increased by 37 per cent between 2014 and 2023, while employment increased by 3 per cent. The figures also show that aquaculture is one of the most productive parts of the marine economy, with more than £212,545 GVA generated per employee. Turnover accounted for £1.2 billion, almost 10 per cent of the total.*

However, over the longer period, 2014-2023, after accounting for inflation[3] although the figures show GVA increased by 37.2 per cent, turnover grew by 24.5 per cent, and full-time equivalent jobs fell by 5 per cent, while productivity rose by 44.5 per cent from an approximate GVA of £170,500 per fte to £246,316 per fte. Interpreting these data suggests that wages+profits were rising significantly over this period with a move to more part-time workers being employed. Using head count rather than fte figures therefore offers a different picture with workers' share of GVA, and so of GDP, declining over time despite their much-improved productivity. Who are the fish farm enterprises and who owns them is therefore is important in determining who benefits from Scotland's salmon sector and where the profits go.

In the early 1970s, Scotland had a small but enterprising electronics sector before the massive and sustained expansion over the following two decades. An important feature of that development was that, despite the creation of the globally significant Silicon Glen, the number of Scottish owned enterprises actually declined as foreign direct investment dominated the growth of the industry. Within a few years at the end of the 1980s, the sector declined rapidly in terms of companies, output and jobs. Looking at the Scottish Government's *Scottish Fish Farm Production Survey 2024* (https://www.gov.scot/publications/scottish-fish-farm-production-survey-2024/), a similar path of development becomes apparent. The number of companies involved in the production of Smolts declined from 86 in 1990 to 14 in 2024 with the number of sites declining from 152 to 64, full-time staff declined over this period from 285 to 259 and part-time from 93 to 21. Tables 34 and 36 of that publication show similar consolidation with 166 companies in 1989 involved in Atlantic salmon, dropping to 22 in 2012 and halving to 11 in 2024, almost all of this decline being focused on those producing under 10,000 tonnes per annum, falling from 17 to 7, with active sites declining from a maximum 298 to 119. Overall, production became dominated by four

[3] 'Values have been adjusted for inflation based on 2023 price estimates', Note 1, *Supporting tables for Scotland's Marine Economic Statistics 2023*.

companies by 2024 which between them accounted for 96% of Scotland's farmed Atlantic salmon production (Table 34).

This is a similar pattern to the evolution of the electronics[4] and to the spirits sector[5] in the past with consolidation and concentration into the hands of a limited number of large companies, overwhelmingly dominated by overseas companies. The Norwegian company, Mowi, is the largest player with 30 per cent of the market share[6] according to their annual accounts. Similarly, the major player, the Faroese company Bakkafrost, is a wholly owned subsidiary of the parent company located furth of Scotland. Scottish Sea Farms is the other significant producer with farms across Scotland, listed among the top businesses by Scottish Salmon and again ultimately owned by parent companies in Norway. A further significant player is Cooke Aquaculture Scotland, ultimately owned in Canada, while Loch Duart, which farms in Sutherland and the Outer Hebrides, is owned by a fund managed by Vision Ridge Partners, a sustainability-focused investment firm based in Colorado and New York. Finally, https://www.fishfarmingexpert.com/ reported in March 2025 that Mowi Scotland has purchased all fish that were being grown by Skye salmon farmer Organic Sea Harvest (OSH), after it announced that it was fallowing both of its existing farms and making staff redundant after running out of money. Scottish Salmon had recently broadcast that *Organic Sea Harvest is the first new, independently owned and operated salmon farm in Scotland for many decades, uniquely going against the trend by focusing solely on raising organic salmon*.

The number of staff in the production of Atlantic salmon increased from 1165 in 1990 to 1330 in 2024 according to this survey while numbers of part-time workers fell from 326 to 32. The instability in employment for the workforce locally is revealed in fluctuations across this time period in full-time posts from 662 to 203 in the North West region, 178 to 35 in Orkney, 258 to 162 in Shetland, 375 to 108 in the South West, and from 288 to 134 in the Western Isles; as the sector emphases how it sustains *many of those employees, around 1,500, [living] in remote areas where they form the mainstays of local communities* (https://www.salmonscotland.co.uk/facts/business-economy/salmon-sector-supports-thousand-of-scottish-families these levels of insecurity and, at best having to move great distances to keep employment, questions the extent to which the sector '*people an opportunity to work in the area they grew up in*' without disruption and additional family costs.

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[4] Henderson, J. (1987) 'Semiconductors, Scotland and the international division of labour', *Urban Studies*, 24(5), 389-408. https://doi.org/10.1080/00420988720080611.

[5] https://publications.parliament.uk/pa/cm200102/cmselect/cmscotaf/324/32405.htm Appendices 1 and 27; Whittam, G. and Danson, M. (2001) 'Power and the spirit of clustering', *European Planning Studies*, 9(8), 949–963. https://doi.org/10.1080/09654310120093287.

[6] https://find-and-update.company-information.service.gov.uk/company/SC138843/filing-history

In summary, the Scottish salmon industry is owned and controlled by a very few enterprises all ultimately based outwith Scotland and the UK. The dominance of these companies is based on monopoly powers derived from significant economies of scale, but significantly not from economies of scope, making it difficult for new players to enter the sector and for less intensive production processes to compete.

Costs and Benefits of the Scottish Salmon Sector

As acknowledged in the study by Biggar Economics for Scottish Government, *Aquaculture sector - wider economic impacts: estimates* (https://www.gov.scot/publications/estimation-wider-economic-impacts-aquaculture-sector-scotland/pages/4/):

> *It should be acknowledged that the Gross Value Added (GVA), which is estimated in this study is different from the Gross National Income (GNI). The latter considers the value of production that is generated by companies and workers from Scotland. This is worth mentioning since some of the largest companies within the aquaculture sector are owned outside Scotland. When there is foreign ownership of an activity, the difference between the two measures is mostly dependent on the relative split of direct GVA between staff costs (mostly taking place in Scotland) and the returns accruing to capital (going abroad to the owners of this capital).*
>
> *The economic impact of sectors and organisations are typically measured in terms of Gross Value Added, rather than Gross National Income, and therefore the GVA approach was used in this study.*

As with economic impacts assessments of renewable energy developments, for example, there seems little justification for applying a measure which includes highly substantial ouflows from Scotland to the Nordic countries and North America. As the above study estimates: *The share of staff costs as a proportion of Direct GVA ranged from 31% in salmon production to 72% in shellfish production*., and so up to 69 percent of direct GVA goes abroad to the owners of the capital. Notably, although shellfish production has a higher per cent of staff costs in direct GVA, the main players in this subsector are also ultimately owned outwith Scotland and the UK, including the British Virgin Islands.

This difference between the performance indicators, GVA and GDP, favoured by the very large foreign multinational enterprises in Scotland's salmon[7], Scotch whisky[8] and renewable[9] sectors rather than GNI or other alternative measures of the benefits to the people, communities and companies of Scotland gives an impression of these branch plant sectors which maximises their apparent contributions to the economy and wellbeing. This distinction is particularly relevant where net economic impacts of a sector, development or activity are being considered, that is where 'Net' implies that costs and benefits have each been taken into account on an equivalent basis. We would expect any such analysis to follow the standard Social Cost Benefit Analysis methods of the last 35 years: such approaches to appraising large infrastructure projects and sector impact studies are routinely applied by, *inter alia*, the European Commission, Treasury Green Book and many competent economic consultants. So, in considering the overall net economic benefit of Scotland's salmon sector, *The principles which underpin the economic assessment of activities from the viewpoint of the public sector are set out in HM Treasury's "The Green Book: appraisal and evaluation in central government", which this advice draws from*[10], and the Green Book reference is available at *https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-centralgovernent. Chapter 5, "Appraising the options", and the Appendices are the sections which will be of most use)*.

In addressing the particular issues of this *Scottish Salmon Inquiry* by the Rural Affairs and Islands Committee, there should be recognition that all economic costs and benefits affecting society (undertaken through a dedicated social cost benefit analysis) and therefore based on economic benefits to Scotland and its economy and not by applying the same partial practices and measures that many impact analyses adopt. With the vast majority of GVA accruing to businesses and owners resident outwith Scotland the benefits cannot be appreciated in this context by GVA or GDP.

Turning to the costs side of the sector, a recent submission to the Rural Affairs and Islands Committee (https://www.parliament.scot/-/media/files/committees/rural-affairs-and-islands-committee/correspondence/2026/salmon-farming-animal-

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[7] : https://www.parliament.scot/-/media/files/committees/rural-affairs-and-islands-committee/correspondence/2025/salmon-farming-salmon-scotland-29-september-2025.pdf and https://www.gov.scot/publications/estimation-wider-economic-impacts-aquaculture-sector-scotland/pages/4/

[8] https://www.scotch-whisky.org.uk/industry-insights/facts-figures/scotch-whisky-economic-impact-report-2024/

[9] https://fraserofallander.org/publications/the-economic-impact-of-scotlands-renewable-energy-sector-2025-update/

[10] https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2016/03/draft-advice-on-net-economic-benefit-and-planning/documents/draft-advice-net-economic-benefit-planning-pdf/draft-advice-net-economic-benefit-planning-pdf/govscot%3Adocument/Draft%2BAdvice%2Bon%2BNet%2BEconomic%2BBenefit%2Band%2BPlanning.pdf, pp4-5

equality-12-january.pdf) captures a range of concerns raised by different groups regarding activities, practices and adverse impacts. Whether the Committee accepts any or all of these opinions and concerns, they do illustrate that there are possibilities of identifiable costs which should be considered in any evaluation of the costs/negative impacts of the sector. No attempt has been made to quantify or monetise the costs of these concerns but in a rounded comprehensive analysis of the full impacts of the sector, there should and could be such estimates made. Economic techniques, such as willingness-to-pay and willingness-to-accept compensation[11], and respecting the approaches in the Scottish Government's *Natural capital - importance to the Scottish economy: research*[12], would offer techniques to understand the relative economic impacts of the sector better than merely looking at GVA, GDP and employment numbers.

If the true full costs generated by the existing means of production in the salmon sector in Scotland were to be estimated, quantifying all the human, environmental and animal welfare impacts, then compared against the true benefits including wages, direct GNI generated in processing and supply chains, then a better idea would become apparent of the value of the sector to Scotland's economy, people and environment.

Considering Alternatives Structures and Approaches to Sustain Scotland's Salmon Sector

Although the establishment of Silicon Glen was welcomed with minimal interventions to ensure the long-term embedding of the industry in Scotland, in the conclusion to the research for the Scotch Whisky Association and trades unions, we argued that:

> *The Scotch Whisky industry forms a critical part of the Scottish economy. More than any other sector, it establishes a coherence to many communities and to the national economy overall. Almost uniquely, it provides employment, incomes and the demand for purchases across Scotland linking many sectors and areas. The production process integrates the distilleries of both the Highlands & Islands and the Central Lowlands with bottling plants and offices in the Glasgow and Edinburgh conurbations. Based on quality and image, it relies upon a skilled and technologically oriented workforce, with all the key ingredients—human as well as natural resources—sourced from within Scotland.*

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[11] As well as the Treasury Green Book and related links above, see, for example, Campbell, H. F. and Brown, R. (2003) *Valuing Traded and Non-Traded Commodities in Benefit–Cost Analysis. Benefit–Cost Analysis: Financial and Economic Appraisal using Spreadsheets*. Cambridge: Cambridge University Press. ISBN 978-0-521-52898-6. Ch. 8 provides a useful discussion of non-market valuation methods for CBA.

[12] https://www.gov.scot/publications/importance-natural-capital-scottish-economy/pages/1/

> *Despite a domination by massive multinational enterprises, therefore, the Scotch Whisky industry should be secure at the heart of the Scottish economy for many years to come.*

Consistent with this analysis, we argued that reopening and establishing community- and privately-owned malt distilleries in rural Scotland with associated cultural tourism facilities would offer opportunities for high value-added jobs, incomes and enterprises where the major players had been disinvesting. This strategy was not accepted by the industry but, 25 years later, that vision has come to pass with whisky and gin distilleries present and successful in many fragile places across the country. Similar prognoses in the craft brewery sector have also suggested that there are alternative development paths for traditional sectors which have become dominated by multinational enterprises domiciled furth of Scotland[13].

Facilitating the analysis of cases where Scotland's natural resources are being exploited in situations of monopoly power has been approached through, first, a review of what economic theory suggests are the issues when one or a very actors control the use and management land, labour or capital[14] and then, second, applying these constructs to assess whether there are lessons from Scotland's community buyouts[15]. Focused on the sorts of fragile, remote rural and coastal communities where salmon fishfarming is located, this research has demonstrated that appropriately sized developments have been very successfully undertaken consistent with establishing new jobs and enterprises, building affordable housing, addressing depopulation, improving biodiversity and protecting land and water-based resources for sustainable development.

Given many of the problems inherent to intensive salmon production can be contrasted with the experiences with small scale naturally-based fish farming then, like the recent developments with locally owned whisky and beer enterprises, a different development path might be envisaged. The present strategy does not seem consistent with building indigenous businesses where GVA is maintained with local economies for re-investing in sustainable communities. The vision the sectoral body promotes omits ownership and outflows of profits, threatening to repeat the decline and fall of the electronics, nationalised and other industries.

> *Our food and drink sector is a major economic contributor, so having a unifying strategy to drive forward a positive vision for the industry is essential. We have the opportunity to cement ourselves as a world leader in sustainability. That's*

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[13] Dodd, S., Wilson, J., Karampela, M., & Danson, M. (2021). Crafting growth together. *Entrepreneurship & Regional Development*, *33*(9–10), 789–815. https://doi.org/10.1080/08985626.2021.1914741

[14] https://www.communitylandscotland.org.uk/resources/scoping-the-classic-effects-of-monopolies-within-concentrated-patterns-of-rural-land-ownership/

[15] https://www.communitylandscotland.org.uk/post-monopoly-rural-land-ownership-four-case-studies/

> *sustainability in the widest possible sense – environmental impacts, societal fairness, and economically sustainable.*[16]

To ensure that Scotland's salmon sector is planning to have *sustainability in the widest possible sense – environmental impacts, societal fairness, and economically sustainable*, it must address the concerns outlined in Table 1 and recognise that overseas ownership of such a key sector cannot guarantee a sustainable future. The Scotland Food and Drink vision:

> *We want Scotland to be the best place in the world to own, operate, and work for a food and drink business. To be renowned as a world leader in sustainable production and responsible growth, where resilient businesses across the entire supply chain can flourish and prosper.*

neglects the critical link between ownership and economic development. Perpetuating a branch plant, externally owned economy risks the environment and sustainability of our rural and coastal areas. A salmon sector within a biodiverse context, as was offered in the period before multinationals came to dominate, would improve animal welfare, retain a higher proportion of GVA and GDP within these places and (re)generate economies of scope while also incorporating economies of scale in the backward supply chain and forward processing, marketing and distribution of salmon.

The Rural Affairs and Islands Committee members' *Scottish Salmon Inquiry* might investigate their current concerns and questions in the light of the above and recommend a strategic reconsideration of the sector accordingly. I would respectfully suggest a pause on expansion while this reconsideration takes place, and offer my consultation throughout the process, if that would be helpful.

[16] Iain Baxter, CEO Scotland Food and Drink, https://foodanddrink.scot/our-industry/industry-strategy/