

Norwegian farmed salmon prices likely to remain strong

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Nordic Credit Rating (NCR) expects Norwegian salmon prices to remain strong for the next three years, driven by low supply growth. Historically, prices have proven resilient to adverse economic conditions (with the notable exception of the COVID-19 pandemic). However, while we expect annual average prices to remain relatively stable in euro terms, any appreciation of the Norwegian krone could have a negative impact on revenues for the country's salmon farmers.

We take a through-the-cycle perspective and normalise margins when we assess salmon farmers' creditworthiness. Higher prices will, all else being equal, lead to stronger cash flows, theoretically allowing a reduction in net interest-bearing debt and improved credit metrics. However, we believe that higher prices could trigger more investment in new farming methods such as offshore and land-based farming, potentially offsetting the benefits of higher profitability.

SUPPLY DRIVES PRICE CYCLICALITY

In forecasting prices, we use a regression model, based on projected changes in global supply, which points to an average salmon price of EUR 9.3 per kg for 2024 and EUR 10.1 per kg for 2025 (NOK 106 and NOK 115, respectively), based on a global Atlantic salmon supply growth of 2.3% this year and 4.3% next. We have chosen not to include economic growth in our model, due to its low impact and significance. While our model has generated satisfactory results historically, its accuracy has declined in recent years. For this reason, we have used average 2023 prices (NOK 94 per kg) in our 2024, 2025 and 2026 forecasts for Norway's salmon farming companies.

In our modelling, we let the Fish Pool Index (FPI) represent the salmon price in our models. Changes in the FPI track changes in both spot and export prices, and are more representative of changes in realised prices for salmon farmers than either of them alone.

Figure 1. Atlantic salmon prices in NOK and EUR, 2006–2026e

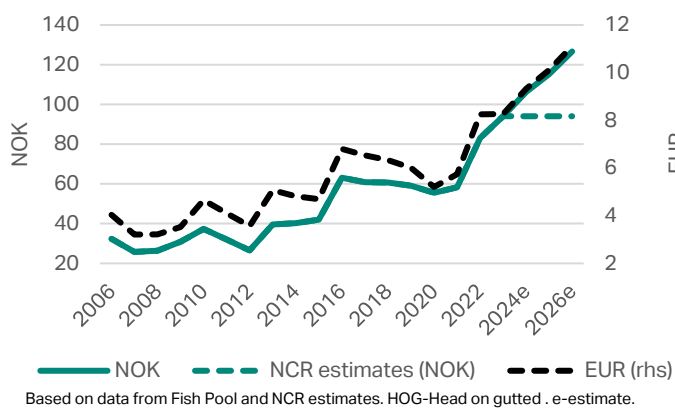
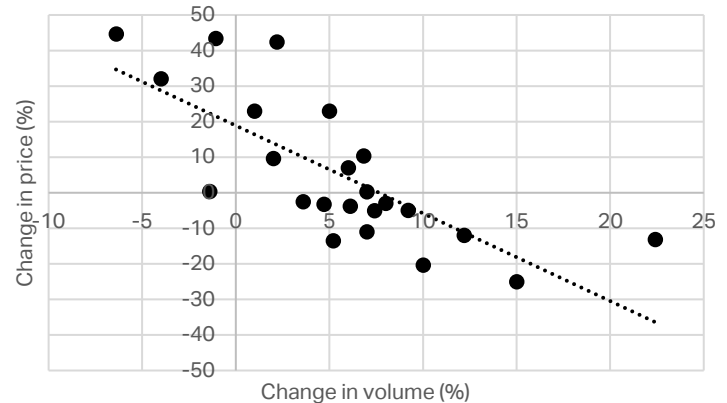


Figure 2. Regression changes in global salmon volumes and prices, 2001–2023

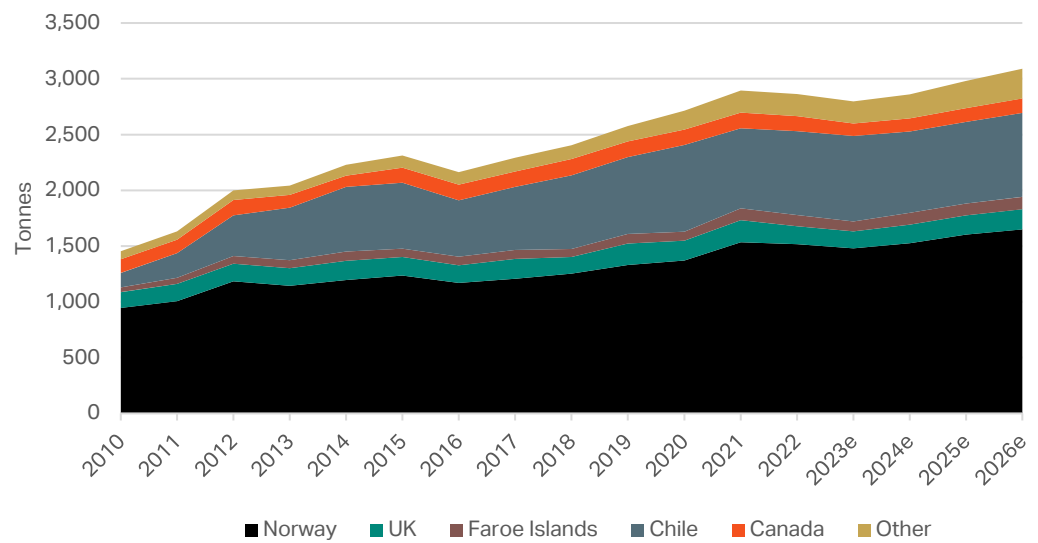


Seasonal effects from warmer sea temperatures, causing faster growth, will increase supply and usually result in lower prices in the second half of any given year. The average salmon price for the two first months of 2024 was NOK 110 per kg, while the forward price for the March-December period is NOK 98 per kg, which should have a positive impact on prices realised by salmon farmers. Realised prices can also be affected by the timing of the harvest, particularly early harvesting due to disease.

The supply of farmed Atlantic salmon grew by an annual average of 7.5% between 1995 and 2023 and 3.2% over the past 10 years. Just over half of the global salmon supply is farmed in Norway, while Chile is the second-largest producer (27% in 2023). Chile has seen the strongest average annual growth in output volumes over the past 10 years, at 5.1%, compared with Norway's 2.6%. Although Chile has more optimal salmonid growth temperatures and shorter production cycles, it has historically suffered

from greater biological challenges than other regions, which has historically led to greater production volatility. On the basis of available estimates, we expect average annual supply growth of 3.7% globally through 2026 (3.7% in Norway and 5.7% in Chile).

Figure 3. Global salmon harvest (wild fish equivalents), 2010-2026e



Based on data from Kontali Analyse, Mowi, and NCR estimates. e-estimate.

HIGHER TAXES HIT SALMON FARMERS ACROSS THE NORDIC REGION

In 2023, Norway implemented a 25% "resource rent tax" on value creation in the sea phase of fish farming. The tax is based on a market-based norm price or a contract price, if applicable. While Mowi has calculated an effective rate of 10% across the value chain in Norway, we believe that the effective tax rate will vary from farmer to farmer depending on the level of vertical integration and diversity of income of the individual producer. We also expect the tax authorities to have views on attributable income.

Mowi and other large salmon farmers have the option to reduce the negative impact of the resource rent tax by investing more in growth in other regions. According to the Norwegian Seafood Federation, the new tax has led to postponed or cancelled investments amounting to NOK 30bn. We believe that the tax will continue to lead to reduced capital investments over the next few years.

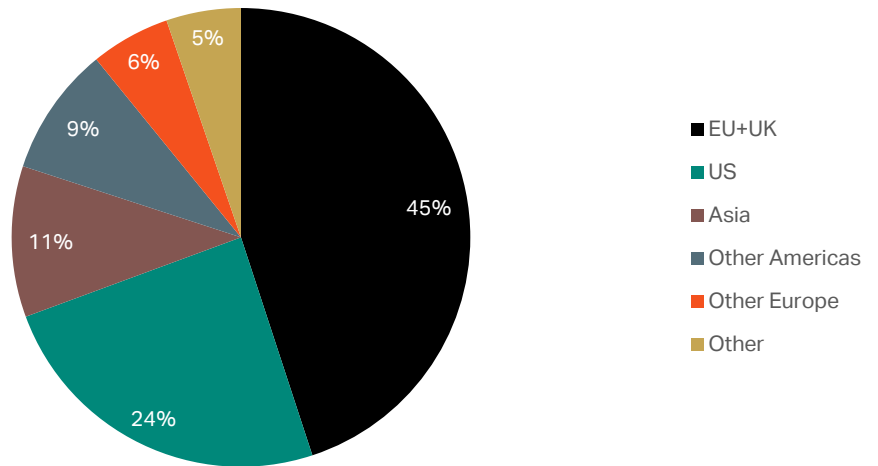
The Faroese salmon revenue tax was adjusted in 2023 to reflect more accurately recent increases in salmon prices and higher production costs for the industry. The tax rate will depend on the difference between FPI prices and the average production cost for the Faroese salmon farming industry. According to Bakkafrost, the revenue tax (which is booked as an operating cost) had a 2.1pp negative impact on its operating margin in 2023. It has also led to cancelled investments in value added processing and lower long-term contract level due to the higher impact if contract prices turn out to be lower than the market based spot prices (FishPool index price) used in the revenue tax calculation. In Iceland, the aquaculture fee (based on a percentage of the price per kilo achieved in Iceland's domestic Fish Pool commodities exchange) has been increased to 4.3% this year from 3.5% previously.

DEMAND BENEFITS FROM CHANGING CONSUMPTION PATTERNS

Global demand for Atlantic salmon has been increasing, supported by growing demand for healthy food and an expanding middle class in developing countries. Global fish consumption has doubled since 1998, and a further 80% increase is projected by 2050. The trend appears to have been bolstered by increased interest in healthy eating triggered by COVID-19. The market for Atlantic salmon has been particularly strong in the US, boosted by a strong dollar. Europe, however, remains the main market for Norwegian salmon.

While we have identified only a low correlation between global economic growth and international salmon prices, low prices during the COVID-19 pandemic suggest that an external shock could have a significant impact.

Figure 4. Global salmon demand, 2022

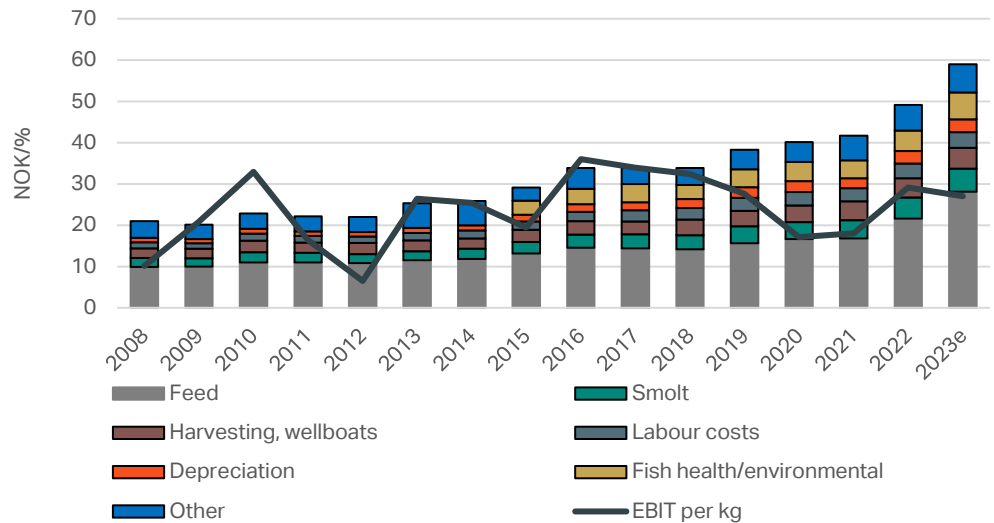


Source: Mowi.

COST INFLATION BORNE BY CUSTOMERS

In addition to volatile product prices, the main risk facing salmon farmers is biological, primarily in the form of disease and sea lice. In Norway, disease outbreaks often lead to premature culling of salmon stocks, entailing lost revenues. Sea lice treatment is a significant cost factor, not least because it stresses the fish. Antibiotics are rarely used in Norwegian salmon farming due to extensive vaccination programmes for treatable diseases. In 2022, salmon farmers incurred higher mortality and loss of revenues due to early harvesting and downgrades due to the largest occurrences of string jellyfish along the Norwegian coast since 2011.

Figure 5. Norway salmon operating costs and normalised EBIT* per kg, 2008-2023e



Based on data from the Norwegian Directorate of Fisheries and NCR estimates. *EBIT will likely be impacted by actual price realisations and incident-related costs, among other factors.

Industry operating costs per kg of harvested salmon increased by an average of about 8% annually over the decade ended 2022. Feed prices have increased significantly over the past three years, mainly due to higher prices for vegetable-based ingredients (70% of raw material input) since the outbreak of the war in Ukraine. For Norwegian salmon farmers in particular, the weakening of the currency against the US dollar and the euro has led to higher feed costs, but has also boosted revenues. We believe that operating costs increased by about NOK 10 per kg of salmon (about 20%) in 2023 due to higher raw material and biological costs. Salmon farmers indicate, however, that feed costs appear to have peaked in 2023.

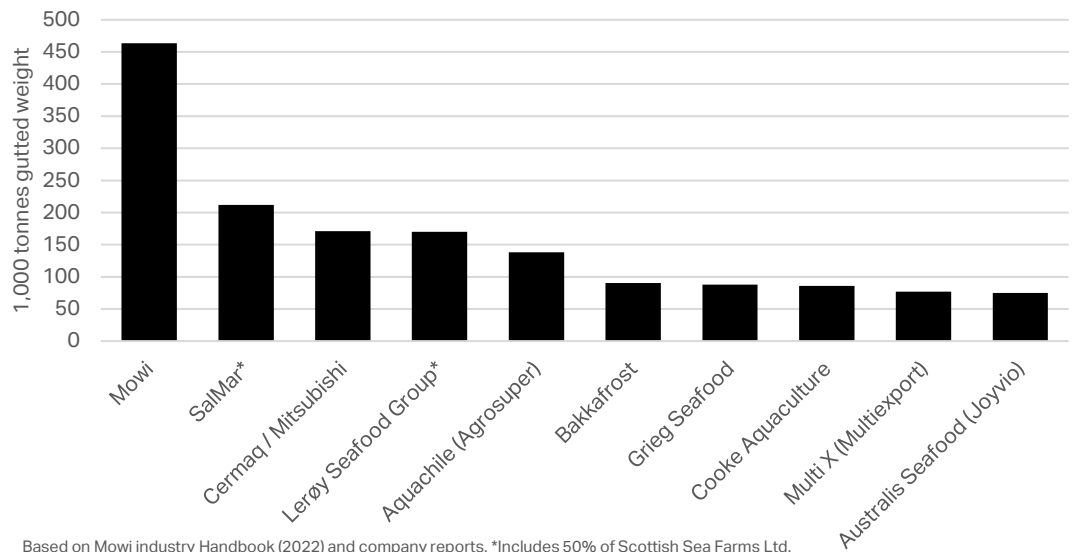
Positively, we note that salmon farming has been less affected by raw material inflation than farmed alternatives due to its higher feed conversion ratio. In salmon farming, one kg of feed yields 0.56 kg of edible flesh, compared with 0.39 kg for poultry, 0.19 kg for pork, and 0.07 kg for beef. However,

increasing food prices in general and low salmon supply growth suggests that the end-customer will have to shoulder the burden of higher salmon production costs in the form of higher prices.

HIGH MARGINS SUSTAINABLE FOR NOW

Barriers to entry are increasing due to restrictions on the number of licences in regions suitable for salmon farming and limits on the maximum biomass permitted per licence. Moreover, large investments are required to scale up production, while positive cash flows usually take about three years to emerge. These barriers, partly biological, partly regulatory, and partly financial, explain the sector's high profitability. We believe that the increasing costs and investments needed to satisfy environmental requirements and improve salmon welfare (the sea lice problem in particular) will lead to increasing consolidation in the sector.

Figure 6. Largest global Atlantic salmon farmers, 2022



Based on Mowi industry Handbook (2022) and company reports. *Includes 50% of Scottish Sea Farms Ltd.

The global salmon market is relatively efficient in that volumes tend to move where prices are higher, and major markets in both Asia and North America can be served by air freight. Transport costs to these destinations from Chile and Norway are broadly similar. However, the Ukraine conflict has resulted in rerouting of air cargo amid shrinking air capacity and higher shipping costs to and from Asia, which could restrict supplies of salmon to the Asian market over the short term. At present, the impact appears somewhat limited due to restricted supply, but any short-term price increase as a result of the conflict is unlikely to have a negative long-term impact on prices as we expect supply to grow only modestly in the years ahead.

Atlantic salmon dominates the global market. Other salmonids, such as rainbow trout and coho, are farmed and other species are caught wild, but cannot compete in terms of volume, quality, and stability of supply. Negative media reports about biological issues (disease and sea lice), pollution and escapes by farmed salmon leading to genetic changes in wild salmon have had a limited effect on demand. However, these issues are leading to regulations and constraints in farmed volumes and are among the drivers for development of new farming methods and technologies aimed at reducing the biological impact on supply. We expect higher volume growth when offshore and land-based farming can compete with traditional salmon farming methods, most likely over a 10-year time frame. This could lead to lower prices, but also lower biological costs.

Most large salmon farmers engage in processing as part of the value chain. Secondary processing (filleting, portioning, slicing, marinating, and coating) adds little value to the bottom line due to the fragmented and competitive nature of the international processing industry but increases flexibility in production and offers some protection against low prices. Moreover, it reduces a producer's environmental footprint by reducing the volumes transported to end-customers by 30-40%. The broad and fragmented customer base of secondary processors, hospitality customers, and retailers means that individual customers generally act as price takers.

Figure 7. NCR ratings on Norwegian seafood companies

Issuer	Primary industry	Long-term issuer rating	Outlook
Lerøy Seafood Group ASA	Salmon farming	BBB+	Stable
SalMar ASA	Salmon farming	BBB+	Stable
Austevoll Seafood ASA	Salmon farming/Pelagic	BBB-	Stable

See NCR's [company reports](#) for details.

RELEVANT RESEARCH

- (i) [Norway salmon farms face sharp tax hike](#), 29 Mar. 2023.
- (ii) [Low supply growth and strong demand drive salmon prices](#), 15 Jun. 2021.

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