

## Salmon prices likely to remain strong due to low supply growth

### ANALYSTS

Geir Kristiansen  
+4790784593  
geir.kristiansen@nordiccreditrating.com

Gustav Nilsson  
+46735420446  
gustav.nilsson@nordiccreditrating.com

Nordic Credit Rating (NCR) expects salmon prices to remain strong for the next three years, driven by low supply growth. The Russian invasion of Ukraine has had only a moderate impact on demand, but has driven increased feed costs. Importantly, we believe that any increase in production costs will mostly be passed on to the end-customer.

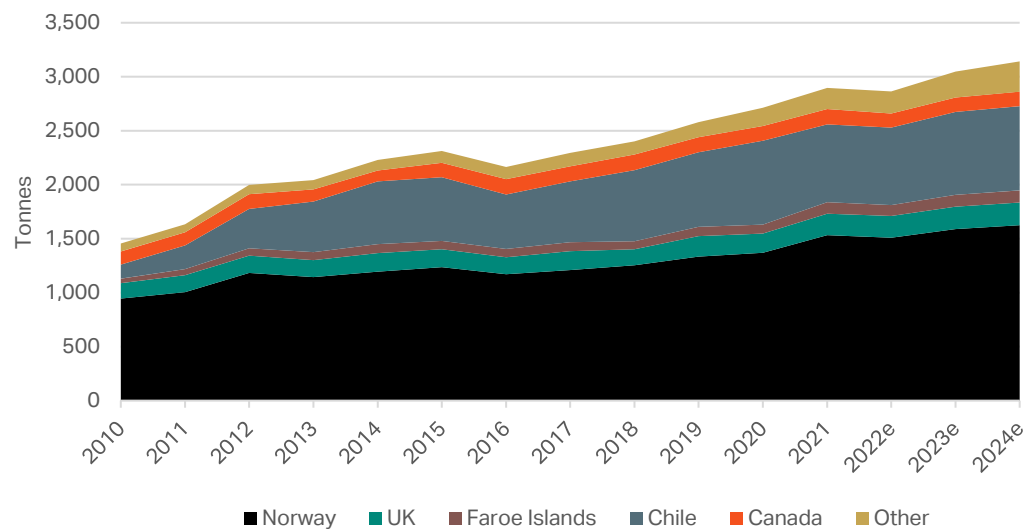
Our regression model, based on projected changes in global supply and international economic conditions, points to an average salmon price of NOK 101 per kg for 2023, NOK 18 per kg higher than in 2022. It also points to higher prices in 2024 and 2025. We believe that increased demand and higher production costs will support global salmon prices and more than compensate producers for any negative effect from a European recession. However, significant uncertainty remains, and our base-case scenario is that salmon prices will average NOK 90 per kg over the next three years. We expect, though, that the realised prices for salmon farmers will be somewhat lower, due to early harvesting related to disease issues, harvesting timing and contract prices.

We take a through-the-cycle perspective and normalise margins when we assesses salmon farmers' creditworthiness. Higher salmon 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. For this reason, the net effect on net interest-bearing debt is currently unclear, and a proposal by the Norwegian government to impose a "resource rent tax" on fish farmers adds to the uncertainty.

### SUPPLY DRIVES PRICE CYCLICALITY

The supply of farmed Atlantic salmon grew by an annual average of 8% between 1995 and 2022 and 6% over the past 10 years. Just over half of the global salmon supply is farmed in Norway, while Chile is the second-largest producer (26% in 2022). Chile has seen the strongest average annual growth in output volumes over the past 10 years at 8%, compared with Norway's 2.5%. Although Chile has more optimal salmonid growth temperatures and shorter production cycles, it suffers 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% globally through 2025.

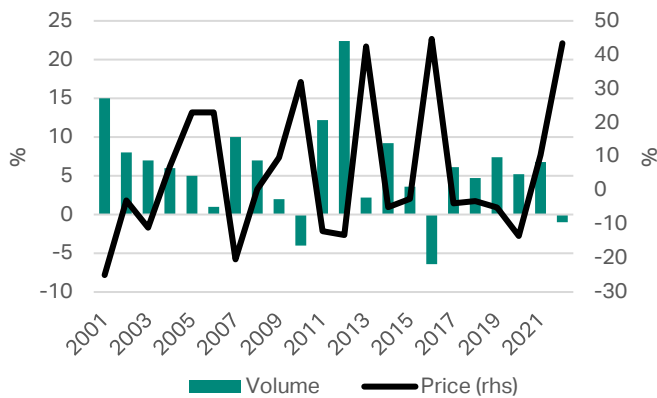
Figure 1. Global salmon harvest (wild fish equivalents), 2010-2024e



The price of Atlantic salmon has historically been volatile, driven mainly by changes in supply (see Figure 2). Linear regression of supply changes against price produces highly significant results. Our

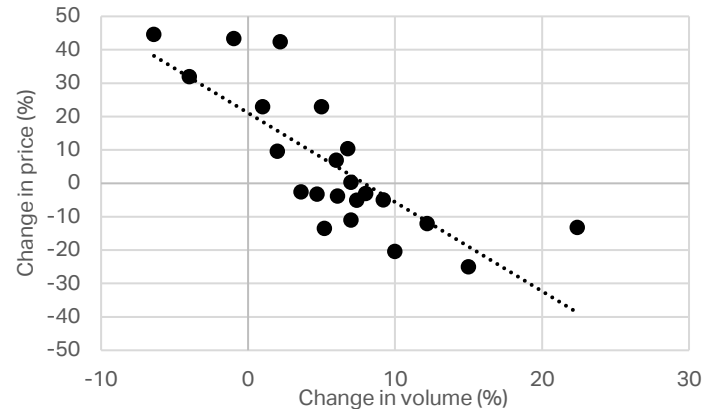
salmon price model (see [Low supply growth and strong demand drive salmon prices, 15 Jun. 2021](#)) has been updated with salmon prices for 2021 and 2022 (see Figure 3).

Figure 2. Atlantic salmon supply and prices, 2001–2022



Based on data from Mowi and Fishpool.

Figure 3. Regression changes in global salmon volumes and prices, 2001–2022



Based on data from Mowi and Fishpool. FCA-Free carrier.

Although the average salmon price was above NOK 100 per kg at the time of writing, we believe that seasonal effects from warmer sea water temperatures, causing faster growth, will increase supply and most likely result in lower prices in the second half-year of 2023.

**LIKELY EFFECT OF PROPOSED "RESOURCE RENT TAX" ON SUPPLY**

The Norwegian government has proposed a 40% "resource rent tax" on the sea-phase production of salmon and trout, to take effect retroactively from 1 Jan. 2023. A finalised version of the proposal will be presented for the parliament in March 2023 and we expect some material changes from the initial consultation draft.

Norway's salmon farms typically have large, private owners. Including corporate tax and domestic wealth tax, the total tax burden on such owners will amount to about 80% after implementation of the new tax. Such high levels of taxation are likely to reduce their ability to invest in new capacity. We also believe that investments in aquaculture will become less attractive (despite tax deductibility for investment in production facilities), and that fewer projects will meet the required rate of return. Over time, this will most likely lead to lower production and/or higher salmon prices.

European retail chains generally seek long-term contracts with suppliers, but this could prove difficult for Norwegian salmon farmers if a proposal to use spot prices instead of realised prices to calculate the taxable income is adopted. One outcome could be lower demand from retailers, which could partly offset upward pressure on prices. We will publish a more thorough comment on the proposed tax once a final proposal is released, probably in March.

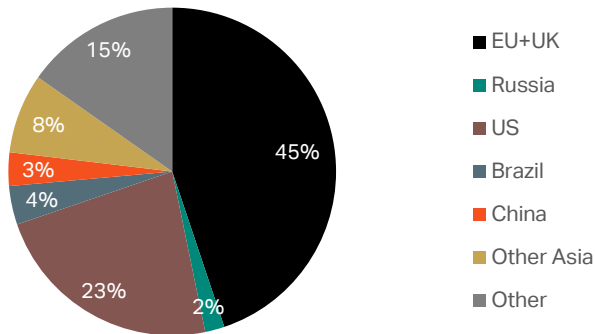
**DEMAND BENEFITS FROM CHANGING CONSUMPTION PATTERNS**

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 exogenous shock could have a significant impact. We believe that the currently strong international salmon market is not only due to low supply growth but is also an effect of normalisation of demand due to reopening of hotels and restaurants globally. On the basis of strong prices over the past two years, the war in Ukraine cannot be counted as an exogenous shock to the salmon market. Russia has boycotted Norwegian salmon farmers as part of a trade war since 2012. Some of the resulting gap in supply has been met by Norwegian exports via third countries and some by increased imports of salmon from Chile and the Faroe Islands.

Elsewhere, 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. In 2022, the market for

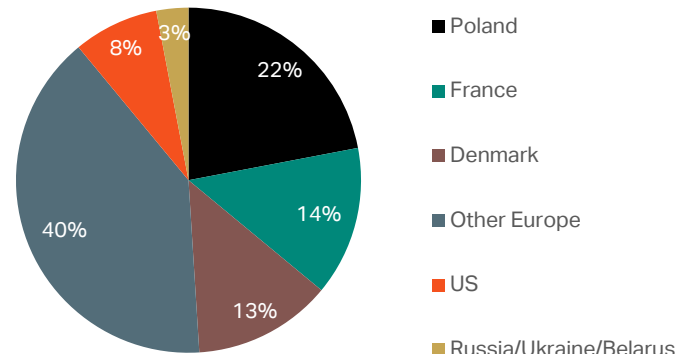
Atlantic salmon was particularly strong in the US, boosted by a strong dollar. Europe, however, remains the main market for Norwegian salmon.

Figure 4. Global salmon demand, 2022



Source: Mowi.

Figure 5. Norwegian salmon exports, 2022



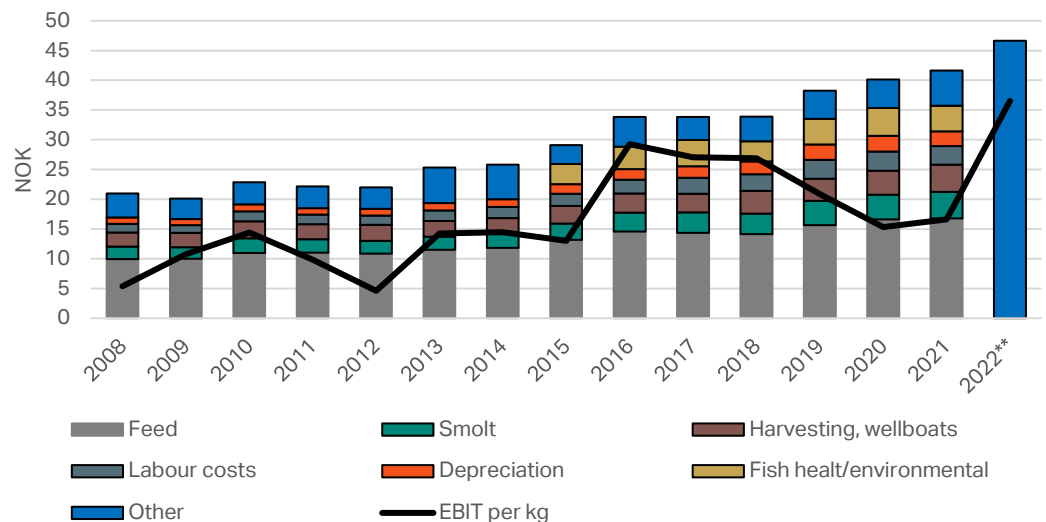
Source: Mowi.

### COST INFLATION BORNE BY CUSTOMERS

Industry operating costs per kg of harvested salmon have increased by an average of about 7% annually over the past decade. Feed prices have increased significantly over the past two years, mainly due to higher prices for vegetable-based ingredients (70% of raw material input) since the outbreak of the war in Ukraine. We believe that operating costs increased by NOK 5 per kg of salmon (about 12%) in 2022. However, salmon farmers indicate that input costs appear to have peaked.

Positively, we note that salmon farming is likely to be much 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 bear the burden of higher salmon production costs in the form of higher prices.

Figure 6. Norway salmon operating costs and normalised EBIT\* per kg, 2008-2022



Source: Directorate of Fisheries. \*Realised EBIT will be impacted by price realisations and incidents, among other factors. \*\*NCR estimates.

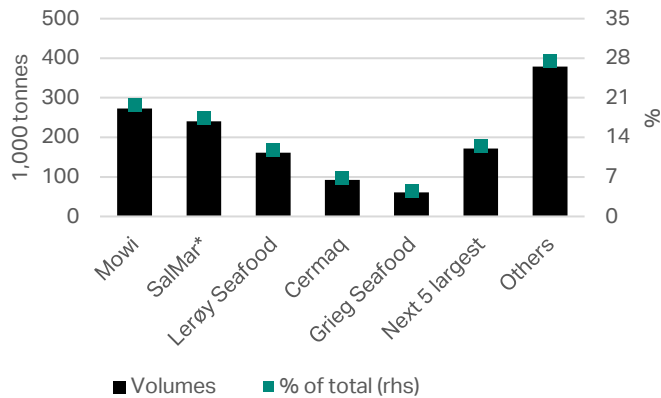
In addition to volatile product prices, the main risk facing salmon farmers is biological, primarily in the form of disease and sea lice. In Norway, disease outbreaks often lead to premature culling of salmon stocks, entailing lost revenues. Sea lice treatment is a significant cost factor, not least because it stresses the fish. Antibiotics are rarely used in Norwegian salmon farming due to extensive vaccination programs for treatable diseases.

### 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

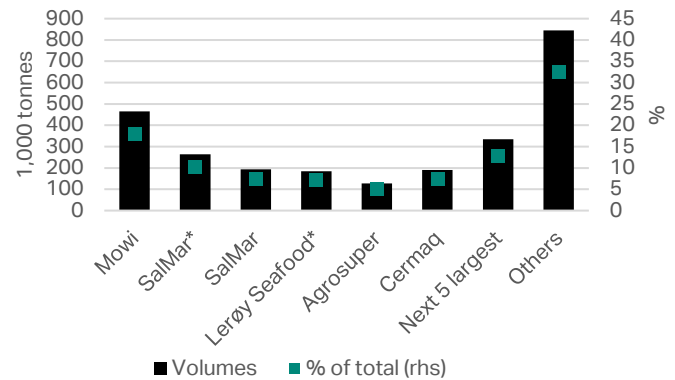
investments are required to scale up production, while positive cash flows usually take about three years to emerge. These barriers, partly biological, partly regulatory, and partly financial, explain the sector's high profitability. We believe that the increasing costs and investments needed to satisfy environmental requirements and improve salmon welfare (the sea lice problem in particular) will lead to increasing consolidation in the sector.

Figure 7. Norway's largest salmon farmers, 2021



Source: Mowi (Salmon Farming Industry Handbook 2022). \*Including NTS and NRS.

Figure 8. Largest global salmon farmers, 2021



Source: Mowi (Salmon Farming Industry Handbook 2022). \*Includes 50% of Scottish Seafood, NTS and NRS.

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. The impact, however, appears somewhat limited due to restricted supply. 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 this to lead to 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 a 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 9. NCR ratings on Norwegian salmon farmers

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

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

## DISCLAIMER

Disclaimer © 2023 Nordic Credit Rating AS (NCR, the agency). All rights reserved. All information and data used by NCR in its analytical activities come from sources the agency considers accurate and reliable. All material relating to NCR's analytical activities is provided on an "as is" basis. The agency does not conduct audits or similar warranty validations of any information used in its analytical activities and related material. NCR advises all users of its services to carry out individual assessments for their own specific use or purpose when using any information or material provided by the agency. Analytical material provided by NCR constitutes only an opinion on relative credit risk and does not address other forms of risk such as volatility or market risk and should not be considered to contain facts of any kind for the purpose of assessing an issuer's or an issue's historical, current or future performance. Analytical material provided by NCR may include certain forward-looking statements relating to the business, financial performance and results of an entity and/or the industry in which it operates. Forward-looking statements concern future circumstances and results and other statements that are not historical facts, sometimes identified by the words "believes", "expects", "predicts", "intends", "projects", "plans", "estimates", "aims", "foresees", "anticipates", "targets", and similar expressions. Forward-looking statements contained in any analytical material provided by NCR, including assumptions, opinions and views either of the agency or cited from third-party sources are solely opinions and forecasts which are subject to risk, uncertainty and other factors that could cause actual events to differ materially from anticipated events. NCR and its personnel and any related third parties provide no assurance that the assumptions underlying any statements in analytical material provided by the agency are free from error, nor are they liable to any party, either directly or indirectly, for any damages, losses or similar, arising from use of NCR's analytical material or the agency's analytical activities. No representation or warranty (express or implied) is made as to, and no reliance should be placed upon, any information, including projections, estimates, targets and opinions, contained in any analytical material provided by NCR, and no liability whatsoever is accepted as to any errors, omissions or misstatements contained in any analytical material provided by the agency. Users of analytical material provided by NCR are solely responsible for making their own assessment of the market and the market position of any relevant entity, conducting their own investigations and analysis, and forming their own view of the future performance of any relevant entity's business and current and future financial situation. NCR is independent of any third party, and any information and/or material resulting from the agency's analytical activities should not be considered as marketing or a recommendation to buy, sell, or hold any financial instruments or similar. Relating to NCR's analytical activities, historical development and past performance does not safeguard or guarantee any future results or outcome. All information herein is the sole property of NCR and is protected by copyright and applicable laws. The information herein, and any other information provided by NCR, may not be reproduced, copied, stored, sold, or distributed without NCR's written permission.

## NORDIC CREDIT RATING AS

[nordiccreditrating.com](https://nordiccreditrating.com)