

Nasdaq Salmon Index



THE NASDAQ SALMON INDEX

Nasdaq is committed to deliver a high quality commodities benchmark for the European salmon market. In cooperation with salmon farmers and exporters, Nasdaq has since 2008 delivered weekly spot prices covering the European salmon market, currently branded The Nasdaq Salmon Index, *NQSALMON*. The index is widely accepted as the best assessment of the spot prices in the market. It is currently used by analysts, academia, journalists and as 85% of the underlying price for the Fish Pool derivatives contracts. It has also become the industry standard as a price reference in the bilateral physical contracts. *NQSALMON* is also the key performance indicator for buyers and sellers and works as a decision making tool for financial investors in the salmon industry. The reported prices to *NQSALMON* is audited by Kontali Analyse AS (Kontali).

NQSALMON reflects the weekly spot price for Fresh Atlantic Superior Salmon, Head on Guttet (HOG) to the European market. *NQSALMON* is calculated based on actual physical transactions and is reported to Nasdaq by a panel of eleven Norwegian salmon exporters. Prices are reported in Norwegian kroner (NOK) and calculated to FCA Oslo. Nasdaq is the administrator responsible for providing IT solutions, validating input data and methodology, calculating and distributing the *NQSALMON* in accordance with the public reporting procedures "Rules for the Construction, Maintenance and Use of the Nasdaq Salmon Index" (*NQSALMON* Rules).

Nasdaq is in a process to ensure compliance of *NQSALMON* with the new EU regulations on financial benchmarks.

Product

- ✓ Fresh Atlantic Superior Salmon, Head On Guttet (HOG)
- ✓ Weight Classes 1-2 kg, 2-3 kg, 3-4 kg, 4-5 kg, 5-6 kg, 6-7 kg, 7-8 kg, 8-9 kg and 9 + kg
- ✓ Transported by truck
- ✓ FCA Oslo, standard transport fees, currencies, export fees and toll

Weekly Benchmarking (Prices in NOK/Kg)

- ✓ The volume weighted average price across weight classes (Index Value)
 - ✓ Volume weighted average price per weight class from 1-2 to 9+
 - ✓ The % weight distribution per weight class
 - ✓ *NQSALMON* weighted average of 3-4kg, 4-5kg and 5-6kg (weighted 30/40/30) - 85% of the FPI (Fish Pool Index TM)
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2017 PERFORMANCE

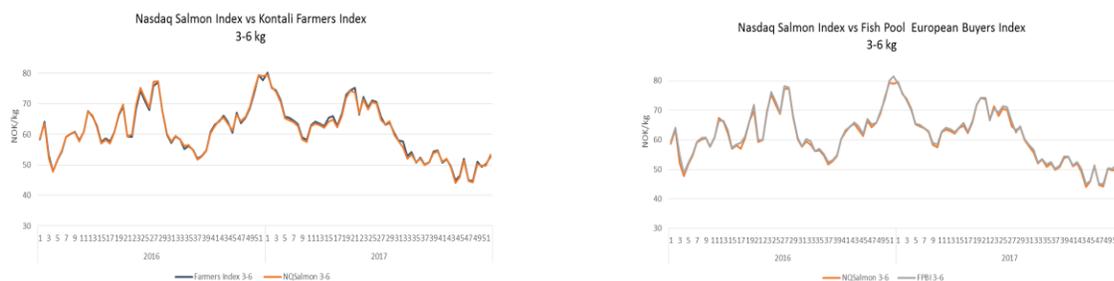
- ✓ Total volume reported: 231 375 tonnes (219 015 in 2016, up 6%).
- ✓ Avg. price per kg all sizes: NOK 59,93/EUR 6,44 (2016: NOK 62,68/EUR 6,75)
- ✓ Contributors: 11 exporters, representing 50-60 % of all Norwegian salmon exports
- ✓ Average standard deviation between panelists per kg 3-6 kg: NOK 0,877/EUR 0,094 (2016: NOK 0,972/ EUR 0,104)

Standard Deviation

In 2017, the average standard deviation between the panelists for 3-6 kg was NOK 0,877, down 10% from 2016. In 64% of the weeks, 2017 showed a lower standard deviation than in 2016. The low figure is an indication that exporters in the panel operate in the same spot market and that *NQSALMON* is a solid spot price representation. The number means that 68% of the reported volume was within plus/minus NOK 0,877 from the average price. The measured standard deviation is a strong indication that the eleven panelists operate in the same market, competing in the same segments, and that *NQSALMON* is a solid representation of the weekly European spot prices for Norwegian salmon. The standard deviation between the panelists typically increase in periods with volatile prices and large intra-week changes. Both in 2016 and 2017, the May-June period was characterized by a volatile spot market with prices moving up and down resulting in timing challenges for the exporters. As expected, in these weeks we registered the largest spread between the prices reported by the different panelists (largest standard deviation).

Correlation with other Indices in the Salmon Market

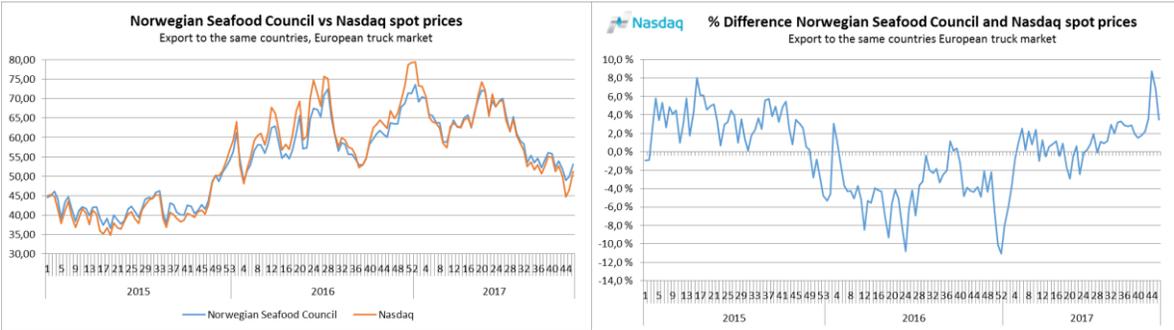
Every year we do an important external quality control by comparing *NQSALMON* with other relevant available salmon prices. As in last year, we have chosen to compare *NQSALMON* 3-6kg with the Kontali Farmers Index, an independent benchmark which reflects the weekly sales prices from Norwegian salmon farmers. We have also compared *NQSALMON* 3-6kg with Fish Pool European Buyers Index collected from large European buyers. The results are shown below:



These two correlation checks mainly represent different sources (companies/panelists), and the result is a strong and powerful indicator that the *NQSALMON* is a good representation of the actual underlying spot market.

The weekly Export statistics from SSB and the Norwegian Seafood Council is another price indicator often used by journalists and analysts. The price is an accurate measure of export volumes and values. However, the price data has characteristics that limits its quality as a precise assessment of the actual spot prices in the market for any given week. The single most important reason is that it includes all export, regardless of quality and when the price has been agreed (contract sales). In periods, a large part of the volume is contract sales done well in advance. According to Kontali, 36% of the salmon export from Norway in 2017 was contract sales (down from

39% in 2016). This leads to the following effects: In a downwards trending market, the SSB price tends to be higher than the actual weekly spot price as expressed in the Nasdaq Salmon Index, and vice versa. As the salmon prices are volatile, the effect will in periods be substantial. Nasdaq has compared the export prices to the same countries as reported in the NQSALMON benchmark. Over the last 3 years, these are the numbers:



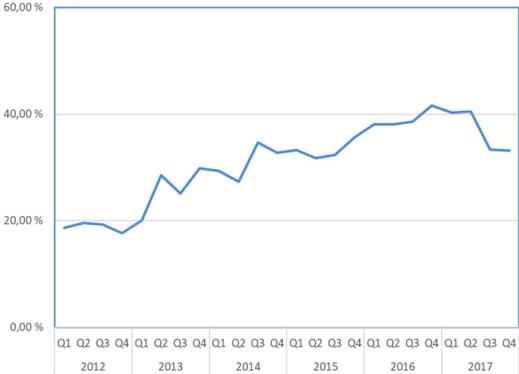
As showed above, the prices are correlated, but the relative price difference is in periods quite high. The export statistics is considered to be a less powerful benchmark for market participants that link their business to spot prices. Hedging based on these prices will include substantial and uncontrollable financial risks.

Representation

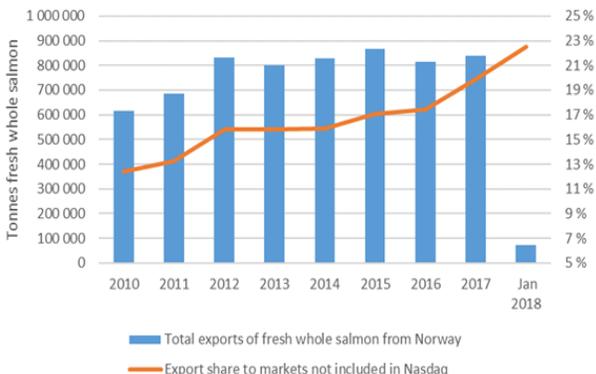
Our eleven panelists represent integrated companies, farmers and pure exporters, which is representative for all segments of Norwegian salmon exporters. Their export volumes represent 50-60% of the total Norwegian export, giving *NQSALMON* a solid statistical basis. The reported volumes has gone up with 6% from 2016. At the same time, the Norwegian export has increased by 3%, contract share has gone down, and the export by plane (not included in *NQSALMON*) has increased. In sum, the reported volume is considered to be stable from last year.

These data from Kontali Analyse illustrates this situation:

Contract share of export



Exports of fresh whole salmon from Norway and air freight share



Nasdaq and Kontali conclude that there are strong indicators that the volumes reported to *NQSALMON* are stable, when compared with the spot maket that *NQSALMON* targets.

Regulatory Compliance

On behalf of all index users and contributors, Nasdaq is committed to assuring compliance of *NQSALMON* with the upcoming EU regulation for benchmarks. We are looking at various aspects of the *NQSALMON* and are prepared to make modifications to the reporting procedures and routines if necessary.

Audit and Controls

Nasdaq has since 2014 contracted Kontali Analyse as our external auditor of the *NQSALMON*. Kontali Analyse is an independent and leading analyst firm for the aquaculture and fishing industry with 20 years of experience in the salmon market. Kontali also has detailed knowledge about the daily operations of salmon exporters. We consider them to be well suited to deliver high quality audits and general assistance in delivering the best possible benchmark to the salmon market. The annual audit is one part of a robust mix of quality control routines administered by Nasdaq which include:

- ✓ Each panelist operates an IT based reporting system, supported by analysts, sales managers and controllers. They enter data into Nasdaq IT-based reporting system after quality controls performed during Monday and Tuesday every week
- ✓ Nasdaq monitors system alarms and performs a detailed QA every week. Weekly quality control of input data is done in close cooperation with panelists. Normally 4-6 panelists are contacted every week for making sure all numbers are correct.
- ✓ External annual audit of Index Contributors, organized by Kontali Analyse:

System Audits	Standard Parameter Audits:	Random Audits
<ul style="list-style-type: none"> • Procedures for identifying and eliminating contract sales • Procedures for identifying sales to integrated companies • Handling of credit notes 	<ul style="list-style-type: none"> • Foreign exchange rates • Deduction/addition of transportation costs • Deduction of customs clearing • Products included in reporting • Weight class categorisation • Destination markets (Delivery address) 	<ul style="list-style-type: none"> • Random control of methods, routines and procedures related to reporting

Audit Results 2017

Kontali concludes in their 2017 report that *NQSALMON* continues to meet the markets' high quality expectations. The general impressions from the audits are very satisfying, no findings had any consequences for the actual prices. After the 2017 audits, all panelists active from the beginning of 2017 have been audited. According to Kontali, the index contributors continue to show solid knowledge of the reporting procedures and demonstrated detailed expertise on internal procedures and systems created to meet the reporting criteria. The quality assurance is considered to be good. The audited panelists all use knowledgeable and experienced personnel for reporting to *NQSALMON*.

System Audit Results

Minor deviation was found related to weight class categorization, with minimal effects on prices reported in *NQSALMON* Nasdaq.

Standard Parameter Audit Results

Minor deviations were found related to standard parameters and new tradable products, with minimal effects on prices reported in *NQSALMON*.

Random Audit Results

A few minor deviations were found related to random audits, with minimal effects on prices reported by Nasdaq.

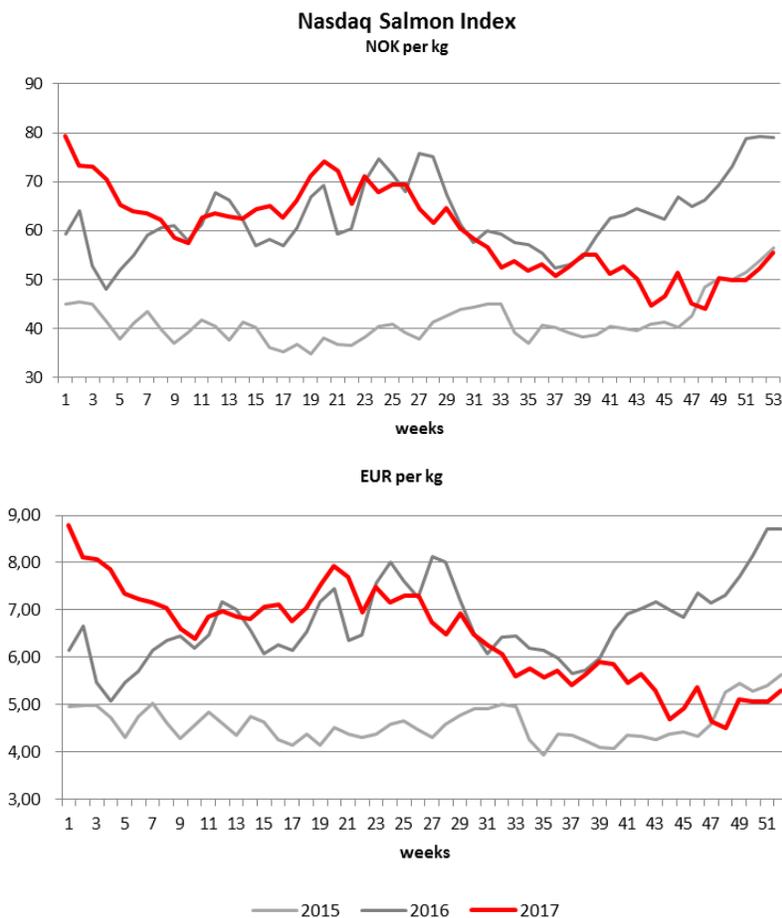
The deviations discovered during audit were all corrected at site. Kontali reports that the deviations only represented an insignificant volume. Calculations done by Kontali show that the deviations had no effect on the *NQSALMON* price.

Conclusion

Nasdaq is committed to produce a high quality benchmark to the European salmon market. We strive to ensure a transparent, reliable and representative *NQSALMON*.

Our commitment is strengthened by our audit agreement with Kontali . They will continue to assist Nasdaq in governing the *NQSALMON* and audit panelists during 2018. Nasdaq will continue preparations to make sure *NQSALMON* will comply with the EU benchmark regulations.

The strong correlation with other price indexes and the positive audits for 2017 confirm that *NQSALMON* is a high quality benchmark. Low standard deviation and solid representativity indicate that the *NQSALMON* gives a correct picture of the European salmon spot price.



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