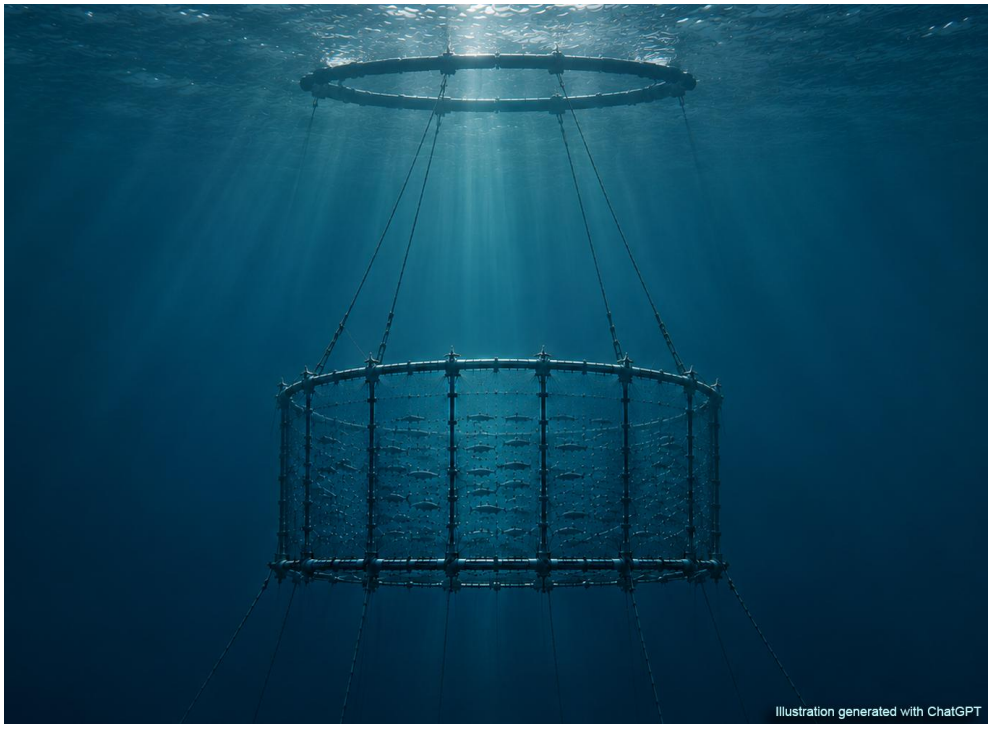
Seafood



InFocus: Rolling in the deep

In our deep dive into 48 identified submerged farming sites, we find clear biological benefits and earnings potential, with feed efficiency and treatment costs determining the payoff. In our main sample of 40 sites, 73% record lower lice levels, 75% have fewer treatment weeks and 58% outperform on both measures. Our model suggests ~6–21% higher EBIT per cycle vs traditional sites and our NPV calculations indicate ~3–10% value uplift, with successful implementation across around one-third of farming sites. Results vary widely, with SalMar showing the strongest absolute performance and Lerøy Seafood showing the biggest EBIT/kg uplift due to a lower starting point.

We have crunched the numbers on Norway's submerged sites. By comparing submerged farms with conventional peers in the same production area and calendar week, at a similar stage of production, we find positive results for most eligible sites. The same sites also perform better than in earlier cycles. Gains are clearest early in production, while lice levels become more similar as the cycle progresses.

But large variation between farms and farmers. Although the average submerged farm performs better than its conventional peers, individual results vary materially. Our research shows good results for SalMar's submerged sites, while Lerøy Seafood has greater variation. Our main sample covers seventeen Lerøy sites, compared with seven for SalMar and four for Mowi. Lerøy has also prioritised historically challenging sites, while SalMar's sites appear to have performed in line with the control group, making direct company comparisons less straightforward.

Upside potential from further rollout. Our scenarios indicate ~NOK2–9/kg EBIT/kg improvement for submerged sites, with successful rollout to one-third of sites potentially lifting group net present values ~3–10%.

Please see the last two pages for important disclosures. This report was completed and disseminated at 17 November 2026, 06:49 CET.
This report was not produced in the US. Analysts employed by non-US affiliates are not registered/qualified research analysts in the United States.

Research analysts:



Alexander Aukner +47 95 75 07 82 alexander.aukner@dnbcarnegie.no
DNB Bank ASA, DNB Carnegie

Alexander joined DNB in 2013. Before that he worked as a portfolio manager and equity analyst for Explora Capital Management, a European long/short small and mid cap equity hedge fund. He holds a Bachelor of Business from University of Western Sydney and a Master of Business Administration from University of Technology Sydney.



Ola Trovatn +47 98 22 35 12 ola.trovatn@dnbcarnegie.no
DNB Bank ASA, DNB Carnegie

Ola joined DNB Markets in the winter of 2022 and covers the seafood sector. Before that he worked as an equity research analyst covering the seafood sector at Carnegie. He holds a MSc in Economics and Business Administration from the Norwegian School of Economics (NHH) and a BSc in Civil Engineering from the Norwegian University of Science and Technology (NTNU). During the studies, he worked as an intern at Carnegie and was both a member of and the head of Børsklubben NHH.



Henrik Andre Larsen +47 97 67 63 25 henrik.andre.larsen@dnbcarnegie.no
DNB Bank ASA, DNB Carnegie

Henrik André Larsen joined DNB in the autumn of 2023 and works at the Seafood team. He holds a MSc in Finance from Norwegian School of Economics (NHH), and a BSc in Business and Administration from NTNU, with an exchange semester at UC Berkeley. Before joining DNB Markets, he worked part-time as business analyst at Prokura – Kearney and as a management consultant intern at Accenture.

Contents

Key report takeaways **4**

Submerged farming in Norway **7**
Technologyerationale 7
Norwegianefootprint 8
Studyedesigneandemethodology 10
Limitations 13

National performance **14**
Fewereliceeinitially,ebuteultimatelyecomparableewithecontroleatecycle-end 14
Firsteliceeeventeandetreatmentehappenelater 14
Cumulativeetreatmentegap 15
However,elargeeearlyegainsedoenoteeliminateelatereliceetailerisk 15
Submerged versus matched controls results also borne out across sample definitions 16
Most submerged sites outperform their Same-PA peers 16

National performance over time **18**
The latest cycle looks better than earlier matched controls cycles 18

Production area differences **20**
The national result is uneven across production areas 20
Controls choice changes the reading of regional lice gaps 20

Operator-level performance **21**
Company averages hide distinct biological outcomes 21
Weekly lice profiles clarify the operator contrast 22
Operator history 23
Mixed lice outcomes against Same-company regional peers 24
SalMar and Sinkaberg retain a combined advantage 25

Treatment burden and strategy **27**
Fewer treatment weeks, with a different treatment mix 27
Treatment frequency and intensity are separate questions 27

Financial implications **29**
Input factors and assumptions 29
Operating EBIT for submerged per generation comes out ~6% higher 31
Back-of-the-envelope calculations 35

Appendix **38**
Production area 38
Operator 39

Disclosures and disclaimers **41**

Key report takeaways

Taking a deeper dive into the technology, we found fewer adult female lice per fish and later treatment needed in submerged salmon farming in Norway (particularly early in the production cycle). Across 40 sites, our analysis showed lice levels were ~18% below for submerged sites vs matched conventional sites, and treatment frequency ~32% lower, with first treatment ~14 weeks later. However, we also found lice levels converged later in the cycle. Within our coverage, SalMar shows the clearest combined benefit, while Lerøy Seafood's advantage is mainly later treatment. We also found financial returns depend heavily on feed efficiency and treatment mix. Our model suggests ~6–21% higher EBIT per cycle vs traditional sites and our NPV calculations indicate ~3–10% value uplift, with successful implementation across around one-third of farming sites. Results vary widely, with SalMar showing the strongest absolute performance and Lerøy Seafood showing the biggest EBIT/kg uplift due to a lower starting point.

Fewer lice initially and treatment starts later

Our analysis points to a clear benefit from submerged cages, specifically in terms of fewer lice for longer and reduced treatments. We identified 48 sites in Norway using submerged technology, with our main comparison covering the 40 latest eligible production cycles. We compare these with conventional sites in the same production areas (PAs) and calendar weeks, at a similar stage in the production cycle. Overall, we found submerged sites have ~18% fewer adult female lice per fish than mean matched controls and ~32% lower treatment frequency. We also found this was true for much of our sample: 73% of sites have fewer lice, 75% have reduced treatment weeks, and 58% outperform on both measures over the 40 cycles. The data also held when we looked at longer reporting histories and/or focused on the most recently reporting sites.

Advantages come early in the cycle

Our research found that during the first 20 weeks of a production cycle, lice levels are ~57% less and treatment frequency ~77% lower in submerged farming than conventional matched controls. The estimated median time to first lice treatment is 26 weeks, compared with 12 weeks for matched controls, giving fish around 14 extra weeks before their first delousing. This leaves a cumulative treatment gap as the production cycle progresses. However, we also found lice levels broadly converge from around weeks 20–25, and the treatment advantage narrows. Submerged farming therefore offers a longer initial period with limited lice pressure, but facing the same challenges later. Fewer sites contribute late in the cycle, making those results less certain.

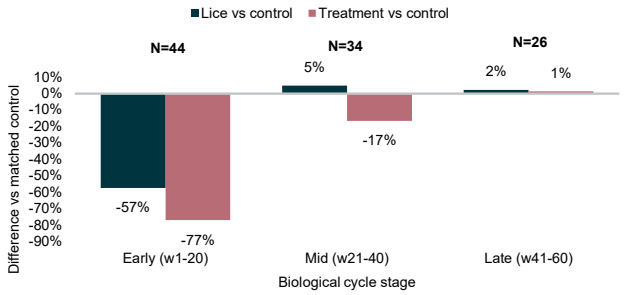
The same sites previously needed more treatment to keep lice in check

The historical comparison strengthens the picture. Looking at 34 sites, earlier cycles had broadly similar lice levels to conventional peers but ~15–28% more frequent treatment. The latest cycle shows fewer lice with reduced treatment weeks. The improvement holds when we compare the same sites over the same number of weeks from the start of each cycle. Lice are ~19% lower and treatment frequency ~32% lower. The latest result therefore appears to reflect more than a favourable selection of sites or shorter observation periods. Exact technology adoption dates are unknown, so this is not a clean comparison before and after conversion.

The benchmark matters

Fewer average lice do not mean submerged sites consistently outperform every conventional farm. We found lice in submerged farming are ~18% below the mean matched controls but ~10% above the median, which is less affected by abnormally high observations. Part of the average advantage therefore reflects high lice levels in the conventional matched controls pool. Regional outcomes also differ, with treatment reductions particularly large in PA7–8, while we found more recorded treatments in PA6 despite lower average lice numbers.

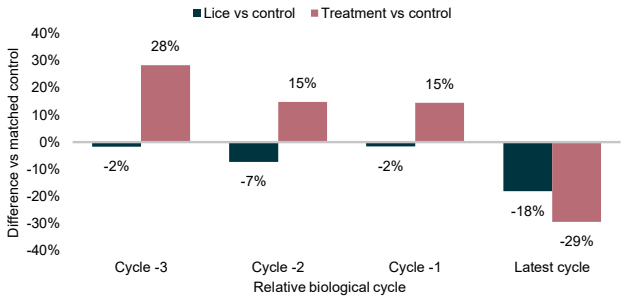
Relative performance by biological cycle stage



Note: N=34 (Balanced = all same submerged sites represented in all cycles)

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Relative performance vs matched controls across biological cycles



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

SalMar stands out, while Lerøy Seafood's benefit is mainly later treatment

Within our coverage, we found SalMar shows the clearest combined result, with ~42% fewer lice and ~54% lower treatment frequency across seven sites. Its lice advantage remains against median controls. We also found Sinkaberg (privately owned) records a large treatment reduction, alongside a smaller lice advantage, while Mowi has fewer treatment weeks but slightly higher average lice. The analysis also showed ~15% fewer lice at Lerøy Seafood, while overall treatment frequency is close to matched controls. Small company samples mean these findings should be treated as indications rather than estimates.

Treatment frequency is only part of the cost story

Detailed records from 2024 onwards show a shift towards partial-site treatment, with whole-locality treatment recorded in just 0.6% of matched weeks versus 4.6% for controls. Freshwater treatment is more common, particularly at Lerøy Seafood, and several methods can be used in the same week. Costs therefore depend on the method, the number of pens and fish size.

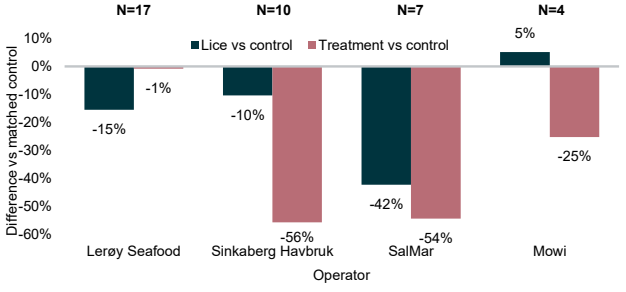
Better biology improves earnings, but extra feed can absorb the savings

Our general operating model indicates ~6% higher EBIT per production cycle, mainly through better survival and larger fish at harvest. Profit per kg changes little because we found higher feed requirements offset much of the benefit. The company calculations show stronger gains for SalMar, Mowi and Sinkaberg (16-21%), while Lerøy Seafood's current treatment pattern and feed assumptions produce a weaker result than conventional controls. A deeper look into Lerøy´s site portfolio shows that there are four sites in mainly region mid driving the soft performance. Using treatment data from its best performing submerged site (PA3) gives results on par with SalMar and Mowi. Feed efficiency is the key factor, with fewer treatments translating into more attractive returns when operators keep the amount of feed needed per kg of growth under control. An extra 0.05kg of feed per kg of fish growth reduces the modelled margin benefit by ~NOK1.2/kg.

Improving the weakest sites offers the largest earnings opportunity, we believe

The largest opportunity is to make challenging sites more productive. Our successful-rollout scenarios indicate potential value creation equivalent to ~3–10% of the current market value, after investment costs. SalMar shows the clearest combined performance. Our simpler calculations give a more cautious picture of group-level upside potential, highlighting the importance of consistent improvements across sites and control of feed and investment costs.

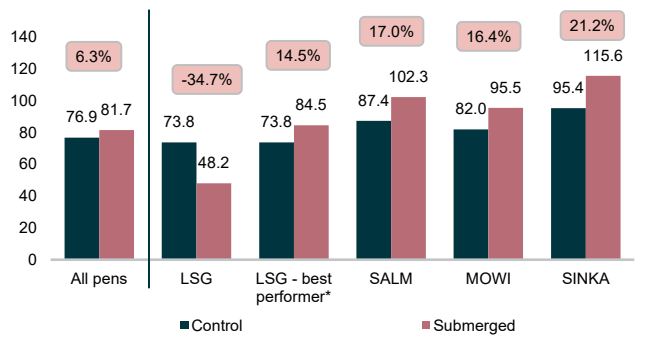
Relative performance vs matched controls by operator



Note: Same-PA comparison, latest cycle.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Operating EBIT per generation (NOKm)



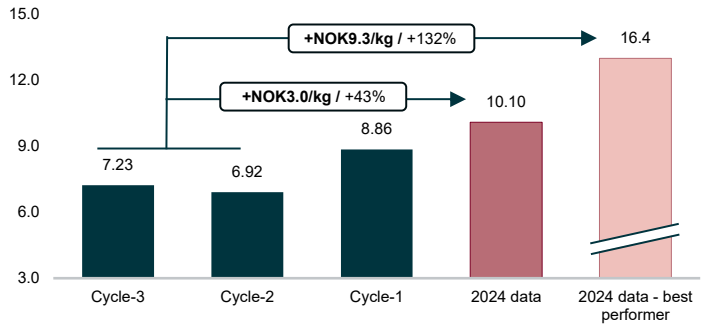
Note: N=34 (Balanced = all same submerged sites represented in all cycles), LSG – best performer is a site in PA3, with ~30 matched weeks.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Lerøy's lower starting point leaves room for large improvements

Lerøy's current average remains weaker than conventional controls, but its low starting point produces the largest modelled margin improvement. Compared with the average of the cycle-3 and -2 scenarios, our model indicates ~NOK3/kg higher EBIT using 2024+ treatment data and ~NOK9/kg with a selected stronger site. This illustrates how challenging sites can become more profitable before they outperform conventional farms. However, some recovery is already expected in consensus forecasts, and our cautious group-level case falls slightly short. Additional upside potential therefore depends on feed efficiency and repeating good results across more sites.

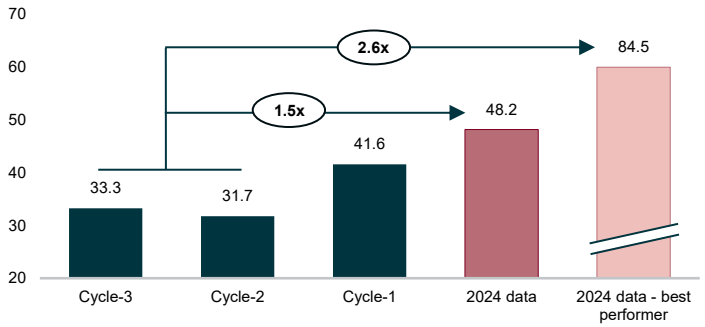
LSG – Operating EBIT/kg (HOG)



Note: Higher historical treatments: C-3: +33%, C-2: +36%, C-1: +17%. Modelled based on both company specific and general operational assumptions.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

LSG – Operating EBIT per generation (NOKm)



Note: Higher historical treatments: C-3: +33%, C-2: +36%, C-1: +17%. Modelled based on both company specific and general operational assumptions.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Submerged farming in Norway

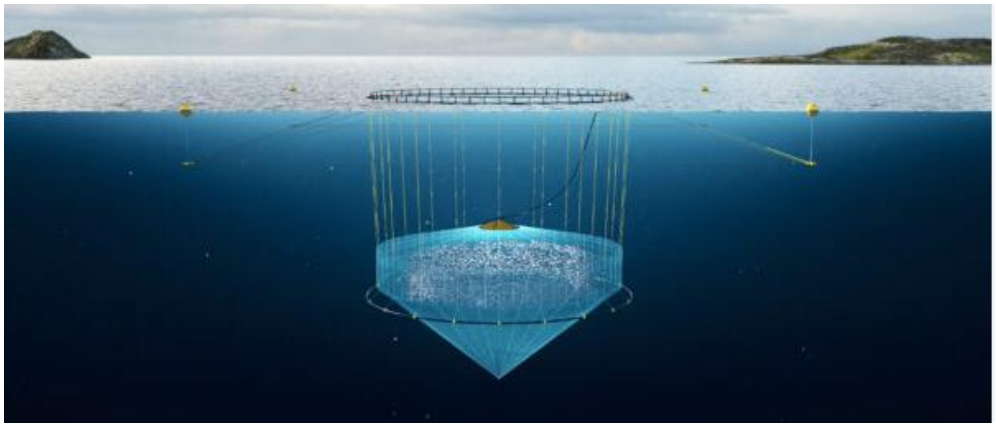
Submerged farming is expanding but still concentrated among four operators. Our October 2026 mapping identifies 48 Norwegian sites with submerged operations. Lerøy Seafood, SalMar, Mowi and Sinkaberg account for 44 of these, with the largest geographical concentration in PA6 and PA7. The technology aims to reduce exposure to sea lice and surface conditions, potentially improving performances at historically challenging sites. Industry disclosures and independent research generally support lower treatment requirements, while findings on growth, feed conversion and mortality are more mixed. Submerged sites are in deeper water but show only marginal differences in MOM-B (sea-bed conditions) assessments and current speeds. To determine whether the reported benefits extend across operators, our analysis compares 40 eligible latest-cycle observations with conventional peers matched by Production Area (PA), calendar week and biological cycle age, supplemented by same-company regional comparisons. Each submerged site receives equal weight in this exercise. Unknown adoption dates assumed site-wide technology use, and incomplete cycles mean the findings describe relative performance rather than an isolated causal effect.

Technology rationale

The development of submerged cages dates back to trials in the late 2000s

Following years of research and development, leading equipment suppliers and salmon farmers began testing submerged systems at full commercial scale around 2020–22. According to the Norwegian Institute of Marine Research, ~10 localities used submerged farming in 2023, increasing to around 20 in 2024 and 40 in 2025. Our mapping identifies 48 Norwegian sites with submerged operations as of October 2026.

Submerged pen – Illustration photo



Source: AKVA

Key rationale is reducing exposure to near-surface conditions

The main rationale for submerged farming is reducing exposure to conditions near the surface, particularly sea lice and wave action. Positioning fish at depths of around 20–30 metres can reduce contact with infective lice larvae, which are generally concentrated in the upper water layers. Lower infestation pressure may reduce the need for mechanical and medicinal treatments, potentially reducing costs and treatment-related mortality while improving fish welfare. Deeper water may also offer more stable temperatures, although conditions vary by site and season.

Economic opportunity is particularly relevant at historically challenging sites

An improving biological performance could increase productivity and the value of an operator's existing site portfolio. If lower lice levels also reduce the release of larvae into surrounding waters, neighbouring farms could benefit too. The investment case for the companies therefore rests on whether treatment savings, lower losses and improved productivity outweigh the conversion costs and additional operating expenses. Bringing weaker sites closer to the performance of the best conventional farms could create substantial value, we believe.

Submerged farming puts greater demands on site selection, equipment and day-to-day operations

Successful submerged deployment requires a detailed understanding of water depth, currents, water exchange, temperature and oxygen availability. Feeding and fish monitoring also need to function reliably at depth. Supporting systems can include waterborne feed delivery,

automated lice counters, underwater welfare cameras and reliable electricity supply. These requirements make submerged operations more technically and operationally demanding, with careful monitoring needed to ensure that the intended biological benefits are realised.

Previous research and industry knowledge – mixed but same direction

Lerøy Seafood was one of the early users of the submerged technology and showed data on its performance through 2025

Lerøy Seafood reported harvests up to 2025 at its CMD in 2026, including 62% fewer lice treatments, a 2% higher superior share and a 9% higher biological feed conversion ratio (bFCR) at submerged sites, with mortality broadly unchanged compared to its conventional sites. Lerøy Seafood cited feed conversion as the key challenge still to be resolved. It also said its data is biased, since it placed submerged pens at its weakest-performing sites. AKVA, the main supplier of submerged cages with over 400 Nautilus units deployed, claims 78–83% fewer treatments across 19 harvested sites. It highlighted Sinkaberg in its Q1 2026 presentation, which farms almost entirely submerged and had 4% mortality and a 92% superior share in 2025.

Independent research confirms the lice effect, but is more cautious on the rest

The Institute of Marine Research's 2026 risk report finds lower or similar mortality, though it says the documentation is limited, and notes injuries from early air-dome designs. A 2026 modelling study found that storms can send lice down to submerged cage depth, mainly in autumn and winter, and more often in the north of Norway, so the benefit varies by site and season. An NTNU study of paired commercial sites found 10x fewer delousings, and a 15% heavier slaughter weight, but slightly higher mortality and about five weeks longer at sea, meaning increased feed costs. Note the NTNU study was carried out at "pen-level", analysing localities in PA6 and PA7, with detailed data access on a wide range of factors impacting biological performance and growth.

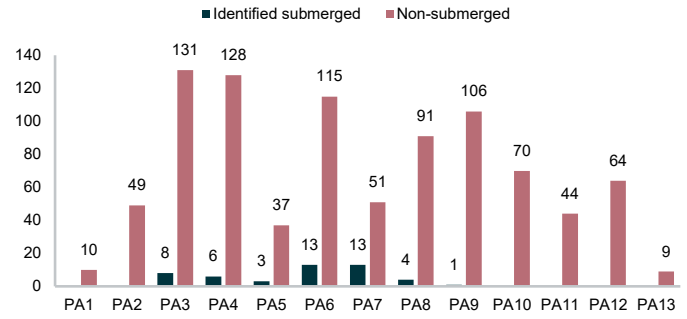
Our analysis relies solely on site-level data that farmers report to BarentsWatch

Our research is less granular than company-reported figures or controlled studies, but broader in scope. By covering all submerged sites in Norway rather than a select sample, it tests whether the market view holds across the industry: that submerged farming leads to lower lice levels and fewer treatments.

Norwegian footprint

The 48 submerged sites analysed in this report are all in PAs 3–9 (6 and 7 have the most – 13 each). Non-submerged sites are counted as those that have been active since 2024. PA7 has the highest ratio of submerged to non-submerged sites, at ~20%.

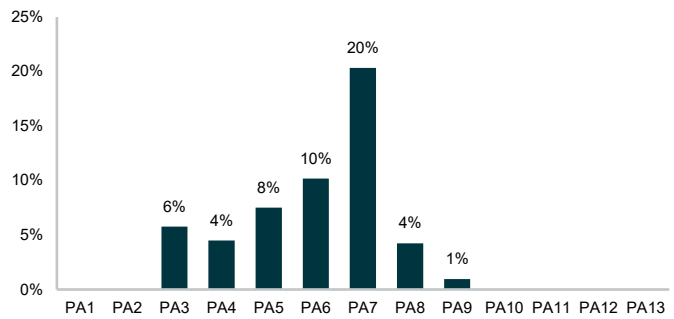
Number of submerged and conventional (active) sites across PAs



Note: Conventional are all sites that's been active since 2024.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Share of sites using submerged technology per PA



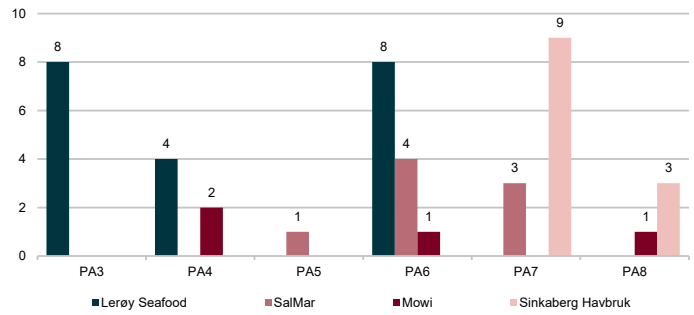
Note: Conventional are all sites that's been active since 2024

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations).

Large operators account for the vast majority of submerged sites in Norway

In terms of ownership of these submerged sites, it is no surprise to us that 44 of the 48 are operated by some of the Norway's large operators: Lerøy Seafood, SalMar and Mowi are listed, while Sinkaberg Havbruk is not. Of the listed names, Lerøy Seafood stands out on early adoption (as does Sinkaberg Havbruk). The charts below show the PA split at submerged sites we found, as well as the percentage of their total active sites for each.

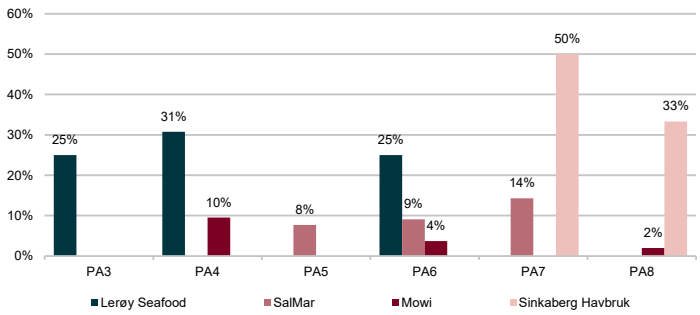
Number of submerged within each PA per operator



Note: Conventional are all sites that's been active since 2024.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Share of sites using submerged technology per PA per operator

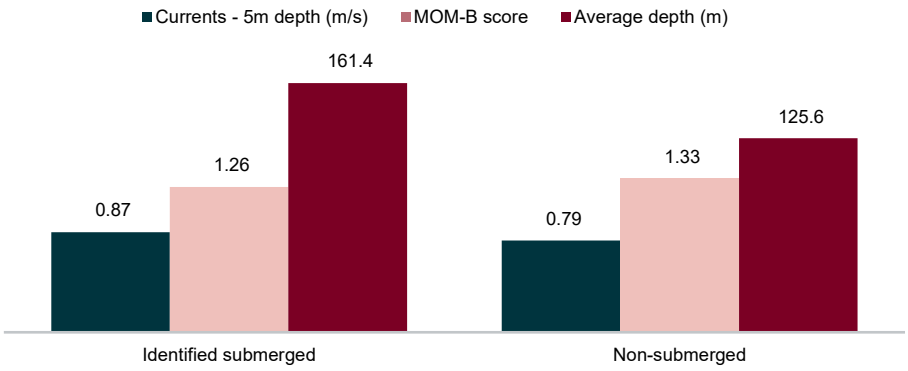


Note: Conventional are all sites that's been active since 2024

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations).

Site-specific data shows only marginal differences between submerged and non-submerged sites in the latest MOM-B environmental assessments and the 50-year return-period current speed at a 5m depth. The clearest difference is seabed depth, which we estimate as the average of the minimum and maximum anchoring depths. On this measure, submerged sites are in much deeper water, consistent with the need for sufficient depth to operate cages below the surface.

Average currents, MOM-B score (latest) and average depth* – weighted



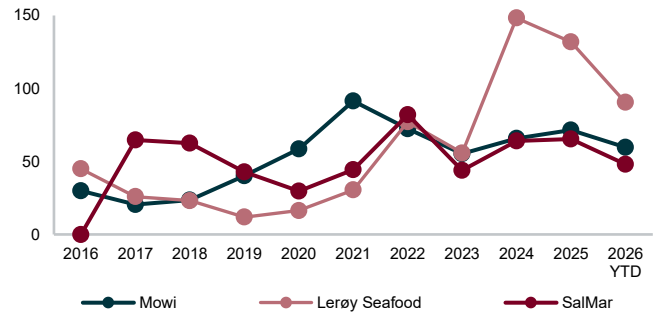
Note: *Based on NYTEK data – average of locality min and max anchor sea depth

Source: DNB Carnegie & Directorate of Fisheries (data)

Submerged fronted as the one of the key new technologies for growth

Salmon farmers are talking a lot more about technology, and submerged is the clear winner. Since 2020, mentions of technology in reports and calls from Mowi, Lerøy and SalMar have more than doubled. Submerged was barely mentioned until 2023 but is now a fixed part of the growth story, led by Lerøy and followed by SalMar. Mowi is more reserved. The industry is pitching new technology, and submerged in particular, as the way to keep growing volumes in a more sustainable way.

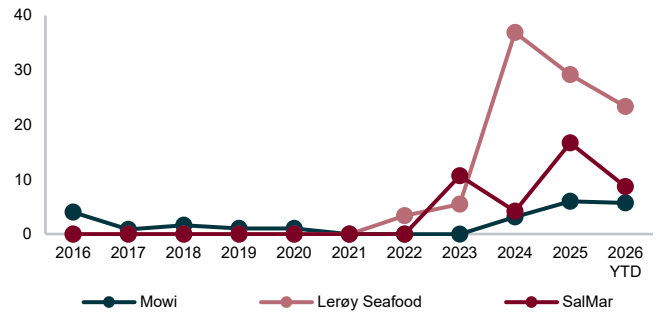
More talk about technology



Note: Passages mentioning "technology", per 1,000 farming passages

Source: Companies

Submerged picked up materially last couple of years



Note: Passages mentioning "submerged", per 1,000 farming passages

Source: Companies

Study design and methodology

We looked at lice levels, treatment requirements, and relative performance of submerged sites

In this report, we assess whether sites we identified are using submerged technology have lower lice levels and treatment burdens than comparable conventional sites, and how their relative performance varies across operators, PA and biological cycles. Our analysis combines weekly BarentsWatch lice and treatment reports with site information from Norway's Directorate of Fisheries. We used Python to prepare the data, identify cycles, match peers and calculate results, and Excel© for review and charting. The current analytical dataset runs through week 41 of 2026.

Identify submerged sites and biological cycles

We identified **48 sites in Norway using submerged technology.** We assign technology status at site level and, as the share of submerged pens at each site is unknown, assume that all pens at an identified site use submerged technology. While the latest cycles are identified as using submerged technology, we generally do not have reliable dates for when it was installed. We therefore use the latest detected cycle as the submerged observation period, while treating earlier cycles as historical context. Their technology status cannot consistently be classified as either pre- or post-adoption.

We infer biological cycles from the pattern of weekly lice reporting

A new cycle starts with the first reported lice observation following at least four consecutive weeks without a lice report, while shorter gaps of 1–3 weeks remain within the existing cycle. Cycle age then counts elapsed calendar weeks from that first reporting week. This provides a consistent analytical definition across sites, although the first lice report remains a proxy for cycle start rather than a confirmed smolt stocking date.

Cycles are numbered chronologically for each site. Under this definition, the latest cycle is cycle 0, the preceding cycle is −1, and so on. As 'latest' is determined separately for each site, it might include a recently completed cycle and does not represent a single calendar-year cohort.

Selecting matched peers

Analysis approach aligns comparison by geography, season and approximate production stage

Unless otherwise stated, we compare each submerged site-week with conventional sites in the same PA and calendar week, with inferred cycle age within ±4 weeks. This aligns the comparison by geography, season and rough production stage. Slaughter holding cages and sites in our submerged register are excluded from the conventional peer pool.

We use two principal control groups, depending on the issue being examined:

Control group	Definition	Purpose
Same-PA peers	Eligible conventional sites from all companies in the same PA, calendar week and cycle-age window.	Main geographical and seasonal benchmark.
Same-company regional peers	Eligible conventional sites from the same parent company within PA pairs **3–4, 5–6 or 7–8**, matched by calendar week and cycle age.	Compare submerged sites with the operator's own conventional operations while retaining a usable peer pool.

Source: DNB Carnegie

The core latest-cycle universe includes sites that reported lice within 26 weeks (6-months) of the dataset cut-off. Unless otherwise stated, headline comparisons also require at least 10 valid matched weeks per site, **producing a main sample of 40 submerged sites.** The 10-week requirement sets a minimum level of data coverage: once a site qualifies, all its eligible matched weeks are used.

In this report, 'N' denotes the number of submerged sites, rather than the number of controls or site-week observations. Sample sizes vary with data availability and the requirements of each analysis. Where we compare control groups directly, they are evaluated on the same submerged observations so that differences reflect the choice of benchmark.

Example

Consider a hypothetical submerged site operated by **Company A in PA3**, at **cycle week 20 in calendar week 30**. Eligible peers must be observed in calendar week 30 and fall within cycle weeks **16–24.** Assume the following conventional sites meet those timing requirements:

Example: three hypothetical sites with the following available observations

Conventional site	Operator	PA	Adult female lice per fish
1	Company A	3	0.10
2	Company B	3	0.20
3	Company A	4	0.30

Source: DNB Carnegie

- **Same-PA peers*:*** Sites **1 and 2** qualify because both are in PA3. Their mean lice level is **0.15**.
- **Same-company regional peers:** Sites **1 and 3** qualify because both belong to Company A within the PA3–4 pair. Their mean lice level is **0.20**.

The submerged observation remains the same; however, the benchmark changes because the two definitions select different peers.

Below we show the identified sites, eligible study samples and the average number of controls per matched week. The 8.4 below for Same-PA peers (as defined above), means the number of conventional sites contributing to a typical matched week.

Identified sites, eligible study samples and the average number of controls per matched week

Operator	Identified submerged sites	Same-PA sample, N	Avg. Same-PA controls/week	Same-company sample, N	Avg. regional company controls/week
Lerøy Seafood	20	17	9.1	16	2.1
SalMar	8	7	8.4	6	2.6
Mowi	4	4	8.9	4	3.5
Sinkaberg Havbruk	12	10	7.7	9	1.7
Other operators	4	2	4.5	0	n.a.
Total	**48**	**40**	**8.4**	**35**	**2.2**

Note: Latest-cycle lice comparison. N refers to submerged sites. Control counts are averaged across matched weeks within each site, then equally across sites. The company sample requires ≥10 weeks valid under both benchmarks.

Source: DNB Carnegie (estimates) & companies

Measuring and aggregating performance

Sea lice

Lice comparisons use reported adult female lice per fish, with missing lice reports excluded from the averages

For each submerged site-week, the main control value is the arithmetic mean of the matched peers' reported lice levels. We first average the matched observations in each submerged site and then average across sites. This gives each submerged site equal weight, irrespective of capacity, production volume or number of observed weeks, with its matched controls series receiving the corresponding weight.

Headline relative differences are calculated as:

(average submerged outcome/average matched-control outcome) -1

A negative value indicates lower lice levels or treatment frequency at submerged sites.

Main measure of treatment activity throughout the historical analysis

Treatments

For treatments, we measure the share of eligible matched weeks with at least one reported medicinal or non-medicinal lice treatment when we look back at historical cycles. This provides the main measure of treatment activity throughout the historical analysis, where detailed information on individual methods and the number of pens involved is less complete. A treatment week can contain several treatments or methods, while a week without a treatment record is classified as having no reported treatment.

A deeper dive into the treatment burden, distinguishing mechanical, thermal, medicinal and freshwater

A separate treatment analysis from 2024 onward

To examine treatment burden in greater detail, we use a separate dataset covering **cycles starting from 1 January 2024**, when more granular reporting became available. These records distinguish mechanical, thermal, medicinal and freshwater treatments, as well as whole- and partial-site treatment. Restricting the analysis to cycles starting within this reporting period avoids combining different levels of treatment in the same cycle. Method frequencies measure the share of matched weeks containing each method. As several methods can be reported in the same week, their percentages should not be added to obtain total treatment frequency. We also calculate pen-treatment exposures by summing reported pens across partial-treatment records. This measure can count the same pen more than once.

The detailed dataset has its own eligibility rules, producing a national Same-PA sample of **43 sites** and same-company comparisons covering **36 sites across four operators**. These samples are identified separately from the core biological analysis, allowing differences in the figures to be traced to the underlying data, eligible sites and control group. The economic scenarios then combine these observed treatment measures with explicit assumptions about treatment costs, fish weight, growth, mortality and production volumes. Where a national cycle-stage profile is applied to an individual operator, that transfer is also treated as a model assumption.

Historical comparisons and robustness

The historical analyses examine how earlier cycles of today's identified submerged sites performed against conventional peers. Relative cycle numbers align the sequence of cycles across sites, although the calendar dates of those cycles differ.

We use three approaches to distinguish changes in performance from changes in site composition and observation length

Historical approach	Sites included	Observation window
Unbalanced	All eligible sites available in each cycle, allowing composition and N to change.	Available matched observations within each cycle.
Balanced	The same eligible sites in every cycle compared.	Available observations, with cycle lengths allowed to differ.
Balanced with matched duration	The same eligible sites in every cycle compared.	Each site is followed over a common cycle-age window, determined by its shortest cycle observation window.

Source: DNB Carnegie

Matched-duration approach addresses the risk of comparing a short, recent cycle with longer historical cycles

Each cycle must still meet the relevant minimum matched-week requirement within the common comparison window. Additional checks vary the minimum observation requirement, recency screen and lice benchmark. Together, these show how sensitive the findings are to sample selection and the influence of high-lice control observations.

Example

Example: three hypothetical sites with the following available observations:

Site	Previous cycle	Latest cycle
A	60 weeks	40 weeks
B	50 weeks	30 weeks
C	No available data	20 weeks

Source: DNB Carnegie

- **Unbalanced:** The previous cycle includes A and B, while the latest includes A, B and C, i.e. the sample increases from two to three sites.
- **Balanced:** Only A and B are included in both cycles, using all available observations. The sites remain the same, but observation lengths differ.
- **Balanced with matched duration:** A and B are still included, but we use only the **first 40 weeks of each cycle for A** and the **first 30 weeks for B**. Each site is therefore compared over the same part of its cycles.

Cycle stages and time to first event

To examine how performances develop through a cycle, we distinguish weeks 1–20, 21–40, 41–60 and 61+. Each stage uses the sites with valid matched observations in that period. Later stages therefore contain fewer sites and do not necessarily represent the same site composition as earlier stages.

We also examine the time to the first reported treatment or first specified lice threshold. These analyses use a separate matching design, comparing submerged cycles with conventional cycles in the same PA that started within ±4 weeks. Kaplan-Meier curves estimate the share of sites that have not yet had a lice and/or treatment event, over a maximum 60-week horizon. Cycles without an observed event are included up to their last available follow-up week, meaning incomplete cycles remain in the analysis. Matched controls are weighted so that a larger control pool does not give one submerged site greater influence.

Limitations

Matching cycles addresses geography, season and inferred cycle age, but differences in fish size, site conditions and management practices may still influence the results. Company classifications also rely on available site-register mapping, which may not capture all a company's historical ownership and/or operating arrangement.

Reported data can contain omissions or subsequent corrections, while unknown adoption dates, possible variations in submerged pen coverage and incomplete current cycles limit interpretation. The findings therefore describe our view of relative performances under the stated definitions and should not be taken as an isolated causal estimate of the technology's effect.

The financial analysis translates observed treatment patterns into illustrative earnings scenarios using assumptions about treatment costs, fish weight, growth, mortality and feed efficiency. We standardise production to a 70-week cycle and eight pens per site. This allows consistent comparisons, but actual cycle lengths, site layouts and production conditions vary. Temperature is another important uncertainty. Conditions at different depths can affect growth, feed efficiency and lice pressure, with effects that may help or weaken submerged performance depending on the site and season. Matching sites within the same area and calendar week does not ensure identical temperature exposure where the fish are held. We cannot fully isolate these effects, so actual growth and financial outcomes may be better or worse than the model suggests.

National performance

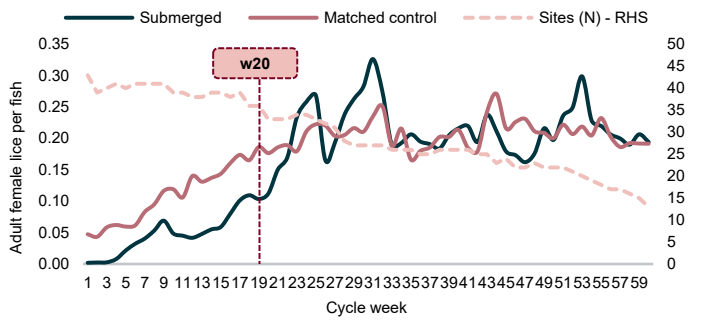
We believe the clearest advantage of submerged technology in aquaculture is fewer lice initially and later treatment. Our analysis showed ~57% fewer lice during the first ~20 weeks of a cycle, before levels broadly converge with matched controls from weeks 20–25 onwards. In our event analysis, median first treatment occurs at week 26 versus week 12 for matched controls, while the first incidence of more than 0.20 adult female lice occurs roughly eight weeks later. Less early treatment activity also leaves a cumulative treatment gap as cycles progress. Across the headline N=40 sample, our analysis shows lice levels are ~18% below mean matched controls and treatment frequency ~32% lower, with 58% of submerged sites outperforming on both measures. Both advantages hold across alternative sample definitions. However, we found early gains do not eliminate high-lice episodes later in the cycle, and declining sample sizes – particularly beyond week 40 – limit our confidence in later-cycle comparisons.

Fewer lice initially, but ultimately comparable with control at cycle-end

Our analysis shows the advantage of fewer sea lice gradually fades over a cycle

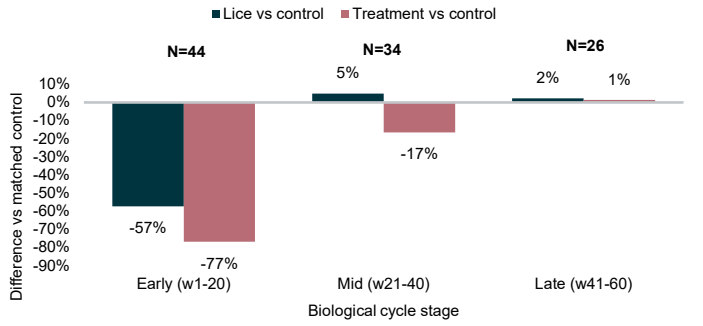
The two charts below summarise our main findings at national level. Our analysis uses eligible latest/current cycles, for which we have the most confidence that the sites are using submerged technology, and compares them with conventional Same-PA peers matched by production area, calendar week and biological cycle age (±4 weeks). Submerged sites show far lower lice levels during the first ~20 weeks of the cycle, while levels at matched conventional controls rise steadily from the early weeks – during this time, lice levels are ~57% lower at submerged sites. However, from around cycle weeks 20–25, the difference narrows significantly, with submerged and conventional sites showing broadly similar lice levels through much of the remaining cycle. Delayed lice build-up is accompanied by lower early treatment frequency, although this gap also narrows to ~17% lower in the middle period, compared with ~77% lower in the early phase. As already discussed, the sample size declines as cycle age increases, particularly beyond week 40, so later-cycle developments should be interpreted with greater caution.

Adult female lice by biological cycle week



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Relative performance by biological cycle stage



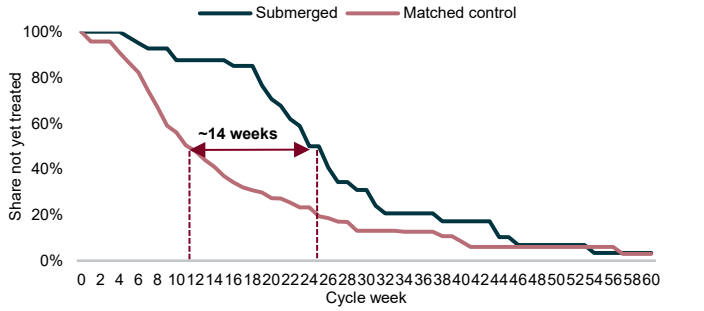
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

First lice event and treatment happen later

Treatment curves confirm our findings

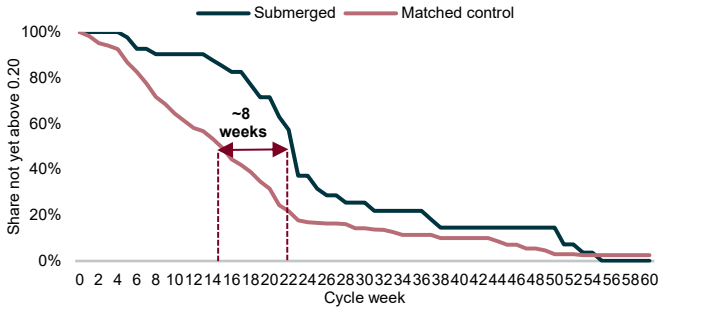
The charts below show how the early lice advantage is also reflected in the timing of initial lice build-up and treatment. Using 44 (ten matched reporting week not required) eligible latest or recently completed submerged cycles, we compare each site with conventional cycles in the same production area starting in ±4 weeks of detected cycle start. On this basis, we estimate median first lice treatment is in week 26 for submerged sites, versus week 12 for matched controls, implying a delay of ~14 weeks. The median first exceedance of 0.20 adult female lice per fish occurs in week 23 versus week 15, an ~8-week delay. The gap between the curves is clearest early in the cycle, consistent with our findings of a longer period of low lice pressure and limited intervention at submerged sites. As the cycles mature, we found lice pressure and treatment increases in both groups.

Share of sites not requiring lice treatment by cycle week



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Share of sites not yet above 0.20 adult female lice per fish



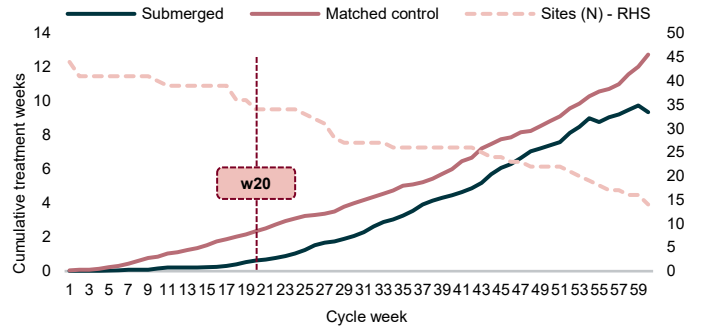
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Cumulative treatment gap

Relative advantage narrows, but delay in first treatment compounds

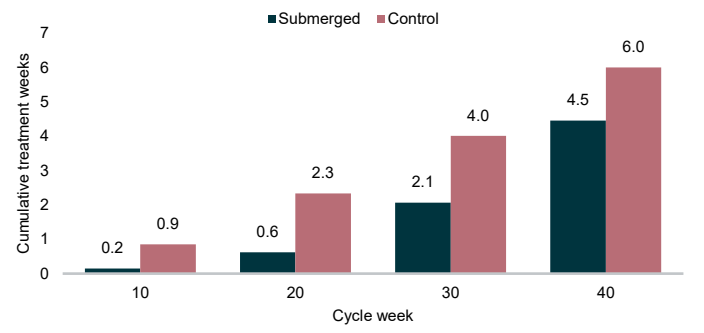
The charts below show how the cumulative number of weeks with at least one reported lice treatment evolves over the production cycle. Our analysis shows treatment weeks build far more slowly at submerged sites, particularly during the first half of the cycle – by week 20, the cumulative figures are ~0.6 treatment weeks at submerged sites versus ~2.3 for matched Same-PA controls. The gap remains wide at week 30 (~2.1 versus ~4.0), although the relative advantage narrows as the cycle matures. Together with the ~14-week delay in first treatment, these findings suggest a later start to treatment in submerged farming and fewer cumulative treatment weeks.

Cumulative treatment weeks by cycle week



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Cumulative treatment weeks at selected cycle ages



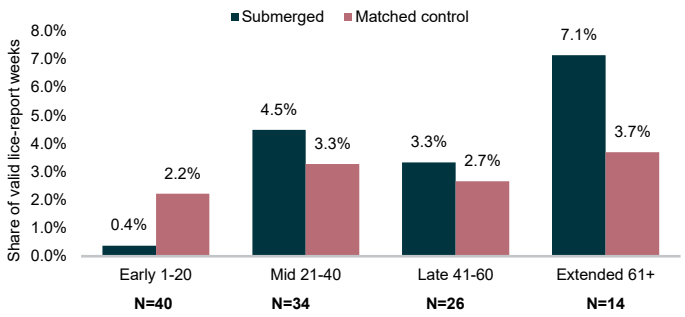
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

However, large early gains do not eliminate later lice tail risk

Breaking it down to the more extreme events, we can also see how exposed and how often the submerged sites are exposed to high lice pressure

The chart below to the left shows the share of valid lice-report weeks at or above 0.5 adult female sea lice per fish, split by biological age. Our key finding is that submerged sites are far less exposed to ≥0.50 lice levels during the first 20 weeks, at 0.4% of valid report weeks versus 2.2% for matched controls, before narrowing as cycles mature. Lower sea lice levels in the initial weeks of cycle but submerged exceeding matched controls in the later stages may indicate that farmers are willing to accept high lice levels to avoid treatments – which can cause more vertical integration of water and mixture of water and sea lice levels when the submerged is lifted to the surface and into the lice belt. The chart below to the right splits the difference in threshold-exceedance frequency into three levels, showing the percentage-point difference in the share of observation at or above each adult female lice threshold (submerged minus matched controls). As can be seen, with the exception of extended 61+ with few counting sites (N), submerged technology had a ~1% lower share of the extreme events of lice levels above 1.0.

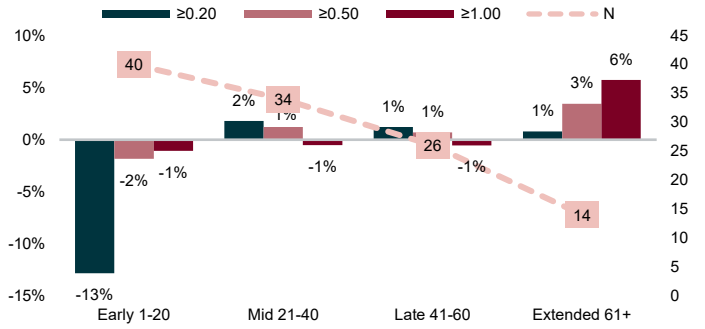
Share of lice-report weeks at or above 0.50 by cycle stage



Note: At least ten valid matched lice weeks across the cycle.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Difference in threshold-exceedance frequency

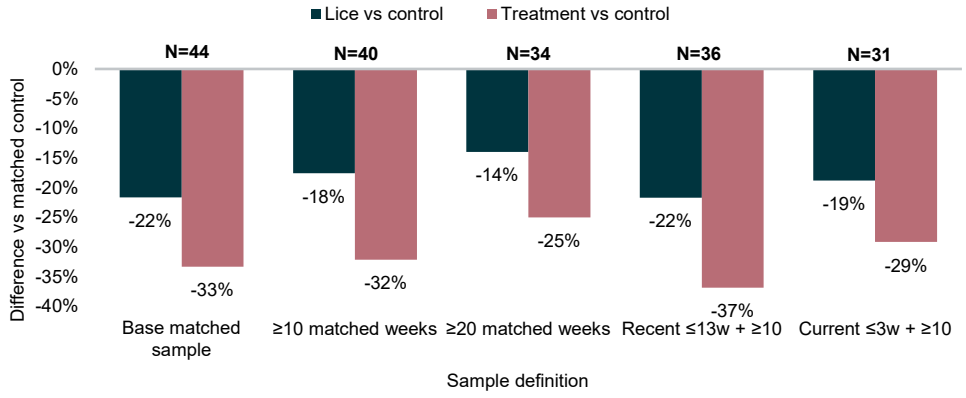


Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Submerged versus matched controls results also borne out across sample definitions

Against the mean of matched controls, submerged sites show lower lice levels and treatment frequency under all five sample definitions (see labels in chart below). In our analysis, lice levels are 14–22% lower and treatment frequency 25–37% less across the specifications, compared with 18% and 32%, respectively, in our headline sample of 40 sites. Both advantages remain when we set a requirement of at least 20 matched weeks or restrict the analysis to sites reporting within the past three weeks. This suggests the direction of the result is not dependent on short observation histories or less-recent cycles, although its magnitude varies with the sites retained.

Relative performance across alternative sample definitions on latest cycle

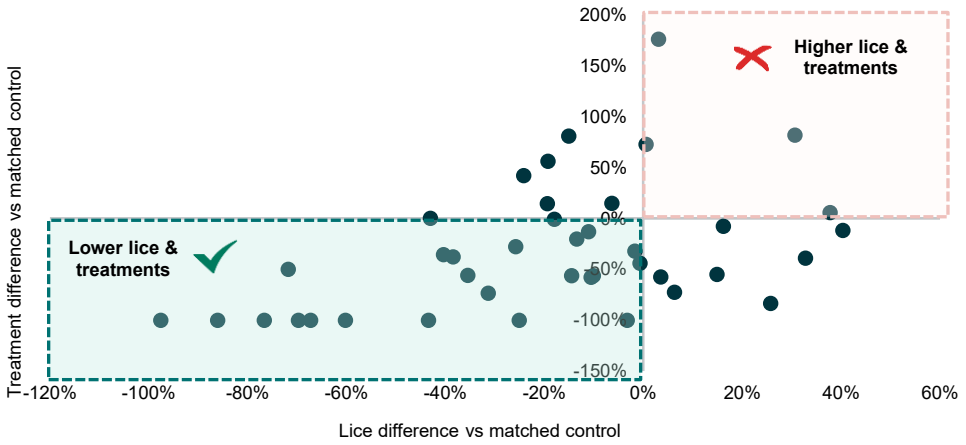


Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Most submerged sites outperform their Same-PA peers

The chart below shows how lice levels and treatment frequency vary across the 40 submerged sites in the headline sample relative to their Same-PA peers, with each dot representing one site. Sites in the lower-left quadrant outperform on both measures. Overall, 73% have lower lice levels, 75% have lower treatment frequency and 58% outperform on both. Some sites combine lower lice with higher treatment activity, while others record higher lice despite fewer treatment weeks. This variation highlights the importance of the regional and operator differences examined later in the report. Individual sites also contribute different amounts of cycle history, so comparisons between dots should take account of their differing cycle maturity.

Site-level submerged performance vs matched conventional controls



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

National performance over time

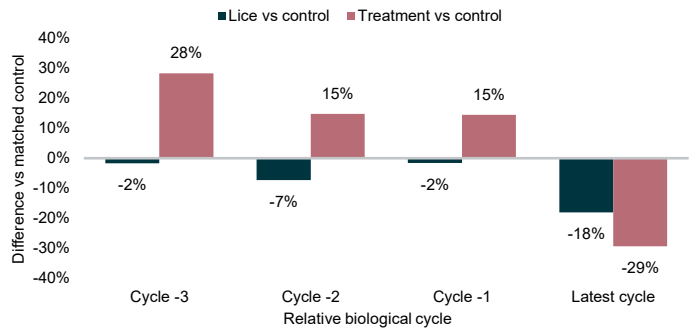
The latest cycle combines lower lice with fewer treatment weeks, when comparing submerged with their matched controls. Historically, the same 34 submerged sites were treated ~15–28% more frequently than their same-PA peers, while recording broadly similar lice levels. In the latest cycle, the analysis shows both measures improve: lice levels are ~18% lower and treatment frequency ~29% lower. This remains when we use the same sites and, for each, compare the same number of weeks from the start of every cycle. In this comparison, lice are ~19% lower and treatment frequency ~32% lower (N=33). The results therefore show a shift from more treatment and similar lice levels to fewer treatment weeks and fewer lice. As outlined in 'Study design and methodology' above, we assume all the latest cycles use submerged technology, but exact deployment dates are unknown. Earlier cycles might have included submerged operations, so the results cannot be interpreted as a straight before and after comparison.

The latest cycle looks better than earlier matched controls cycles

To assess how the submerged sites have performed historically, we used data for the past four cycles (-3 to the latest). The charts below show the balanced relative performance, meaning that the same N=34 submerged sites appear in all cycles and qualify that each has ≥10 matched lice weeks in every cycle. We see a clear improvement in the latest cycle; in cycles -3 to – 1, lice levels were broadly similar to matched controls, ranging from around 2–7% lower, while treatment activity was ~15–28% higher. In the latest cycle, the performance improves materially, with adult female sea lice ~18% below matched controls and treatment activity ~29% lower. The latest cycle result therefore does not appear to be driven simply by historically advantaged sites. The same locations previously required more treatment effort to maintain broadly comparable lice level as their conventional peers. The findings support the view that the farmers have picked out the most challenging sites to implement the submerged technology.

Looking at the data from another angle, the right-hand chart below shows the share of sites outperforming conventional matched controls in terms of adult female lice levels and treatment activity across four consecutive biological cycles (-3 to the latest). In cycles -3 to -1, a small majority of sites had lower lice than matched controls (56–62%), while only 29–38% had less treatment activity. In the latest cycle, outperformance widens materially, with 76% of sites showing fewer lice and 71% less treatment activity than matched controls. The improvement in the latest cycle is therefore not just driven by a few strong sites. A clear majority of the same sites are now outperforming their matched controls on biological performance and treatment burden.

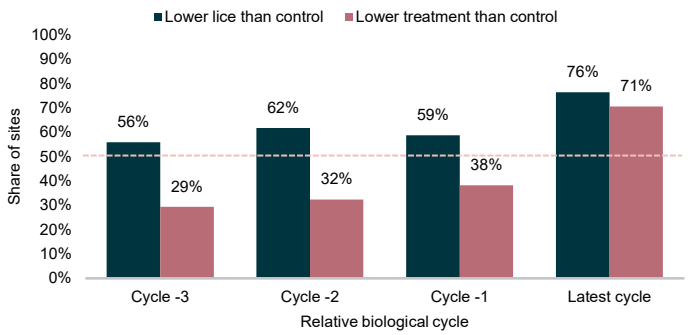
Relative performance vs matched controls across biological cycles



Note: Balanced, N=34

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Share of sites outperforming matched controls by biological cycle



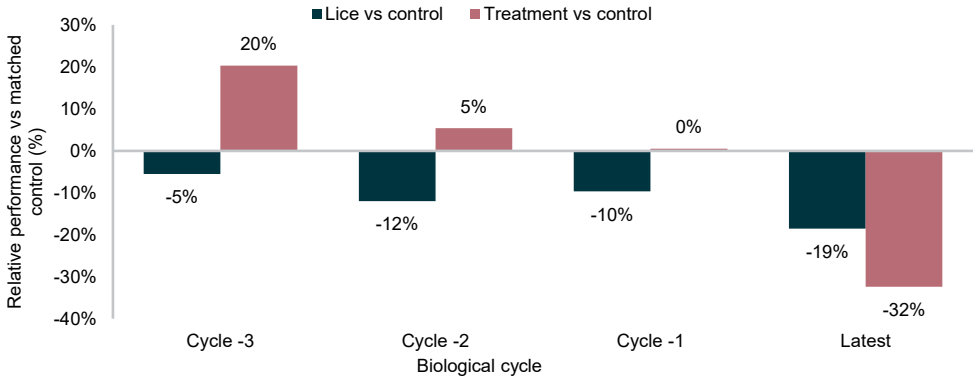
Note: Balanced, N=34

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

This improvement bears out over comparable observation periods

The chart below removes the difference in cycle duration, so each site four cycles are compared over the same biological age window for each site, and all four cycles are condensed to the relevant site's shortest observed duration (the median window is 55 weeks). When adjusting for observation length, we can still clearly see that the latest-cycle advantage survive, with the last cycle showing female sea lice levels ~19% below matched controls and treatment activity ~32% lower. This suggests the result is not simply explained by the latest cycles being at an early stage or shorter.

Relative performance of submerged vs matched controls across biological cycles



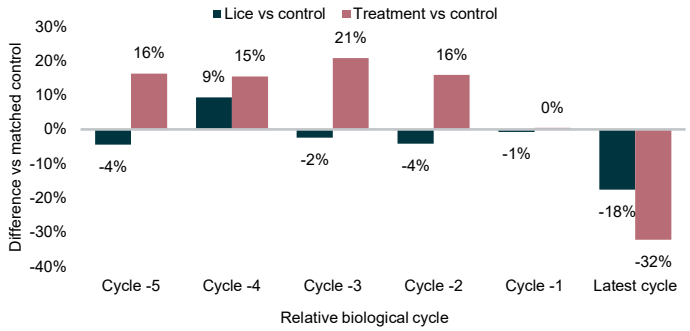
Note: Balanced with matched duration (N=33)

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

The latest cycle also stands out over a longer history

The charts below extend the comparison back to cycle −5 by allowing the eligible sites to vary between cycles, with 31–45 sites contributing in each period. This avoids requiring every site to qualify across all six cycles, while coverage further back is limited. The longer history shows lice levels fluctuating in the sample and treatment frequency generally higher, before the marked latest-cycle improvement. It therefore adds historical context, showing that the latest results stand out beyond the three preceding cycles. We believe changes in site composition mean these charts provide supporting evidence for the balanced comparisons.

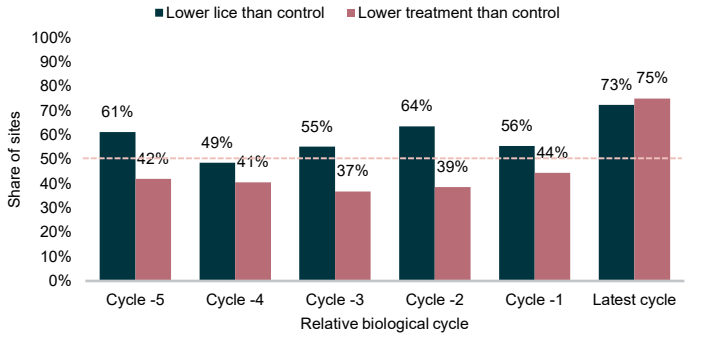
Relative performance vs matched controls across biological cycles



Note: Unbalanced (N varies from 31 to 45 sites)

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations) &

Share of sites outperforming matched controls by biological cycle



Note: Unbalanced (N varies from 31 to 45 sites)

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Production area differences

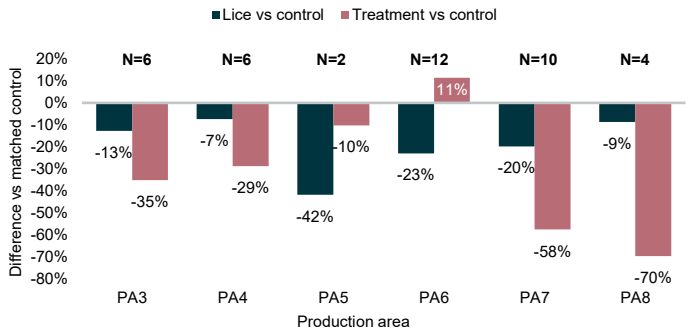
Latest-cycle lice levels are below mean matched controls in all six represented PAs, but only PA5 and PA7 retain an advantage over median controls. Treatment frequency is far lower in PA7–8, while PA6 combines lower average lice with higher treatment frequency. The balanced historical comparison also shows latest-cycle treatment improvements across PA3, PA4, PA7 and PA8, with PA6 remaining above controls. These findings show the national result is uneven across areas. Small samples, operator composition and differing observation periods mean the results describe selected matched cohorts rather than overall biological performance across entire production areas.

The national result is uneven across production areas

Using the N=40 headline cohort and latest cycle, average lice levels are below mean same-PA controls in every represented area

Treatment outcomes vary more widely: frequency is ~35% lower in PA3, ~29% lower in PA4 and ~10% lower in PA5, versus reductions of ~58% in PA7 and ~70% in PA8. PA6 is the exception, with treatment frequency ~11% above matched controls despite ~23% fewer lice. The right-hand chart below shows that every sampled site in PA7 and PA8 has lower treatment frequency than its matched controls. The lice outperformance is less uniform, covering 70% of sites in PA7 and 50% in PA8. However, PA5's large average lice advantage should be interpreted cautiously because it contains just two sites.

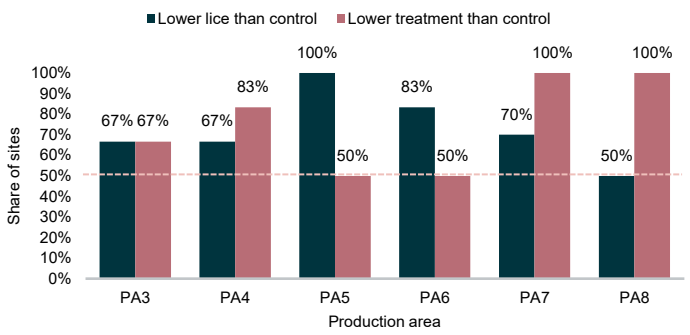
Latest-cycle performance vs matched controls by production area



Note: N=40

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Share of submerged sites outperforming matched controls by PA



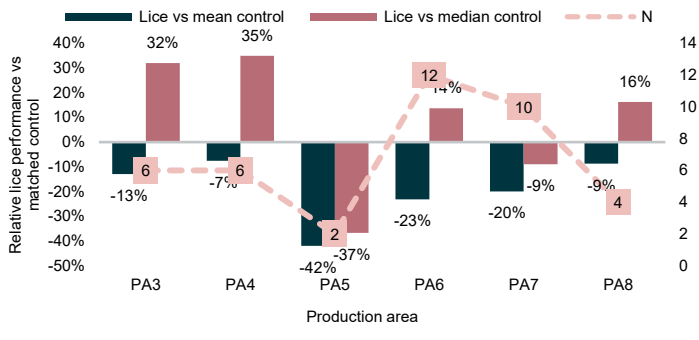
Note: N=40

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Controls choice changes the reading of regional lice gaps

Against median controls, the lice advantage remains in PA5 and PA7 but reverses in PA3, PA4, PA6 and PA8, highlighting the importance of the control benchmark. The historical treatment chart uses the same sites across four cycles, requiring ≥10 matched lice weeks per cycle. This balanced sample illustrated in the chart to the left below includes 33 sites after excluding PA5 (N=1), explaining differences from the headline latest-cycle bars. PA3, PA4, PA7 and PA8 show latest-cycle treatment improvements, while PA6 remains above controls. Observation lengths are not standardised.

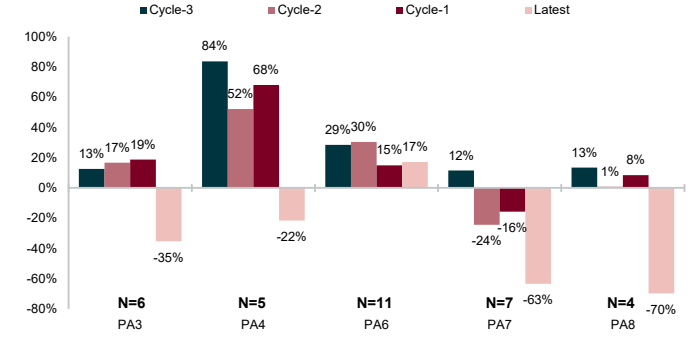
Relative lice performance vs mean and median matched controls



Note: N=40

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Relative treatment performance per PA – cycle history



Note: N=40, Balanced

Source: BarentsWatch (data) & Directorate of Fisheries (data) DNB Carnegie (calculations)

Operator-level performance

Observed gains vary significantly across operators and control benchmarks. SalMar shows the clearest combined advantage against Same-PA peers, with ~42% fewer lice and ~54% lower treatment frequency. Sinkaberg also sees a significant treatment reduction (~56%) in this scenario, alongside a smaller lice advantage. Lerøy Seafood's results primarily indicate later treatment rather than lower overall frequency, while Mowi combines fewer treatment weeks with higher lice levels later in the cycle. Across operators, early lice and treatment advantages generally narrow as cycles progress. Benchmark choice materially affects the lice findings: SalMar remains below both mean and median controls, whereas Lerøy Seafood's and Sinkaberg's mean-based lice advantages do not extend to the median benchmark. The historical Same-company regional comparisons nevertheless retain combined lice and treatment advantages for SalMar and Sinkaberg, with more mixed outcomes for Lerøy Seafood and Mowi. The chapter therefore points to meaningful treatment reductions in selected operator samples, alongside significant differences in lice performance. However, small samples and uncertain historical adoption dates limit definitive operator rankings and causal conclusions.

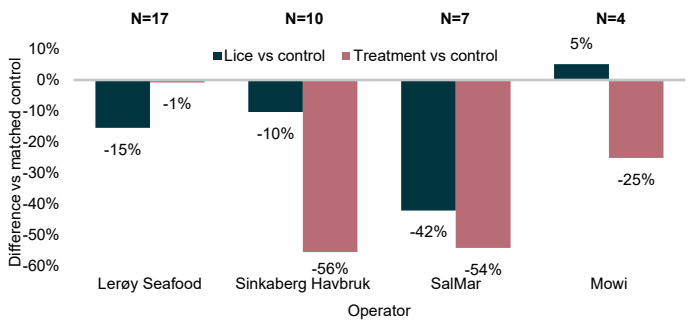
Company averages hide distinct biological outcomes

The charts below compare latest-cycle adult female lice levels and treatment frequency at submerged sites with their Same-PA peers, split by operator. The four operators shown account for 38 of the 40 headline sites. As illustrated, across Lerøy Seafood's 17 sites, lice levels are ~15% below matched controls, while treatment frequency is broadly unchanged at ~1% lower. Sinkaberg's 10 sites have ~10% fewer lice and ~56% lower treatment frequency. SalMar's seven sites show the strongest combined result, with ~42% fewer lice and ~54% lower treatment frequency. Across Mowi's four sites, lice are ~5% higher, alongside ~25% lower treatment frequency.

The results therefore differ in both magnitude and breadth

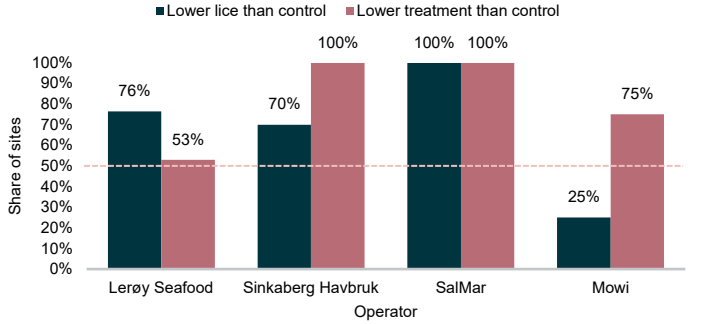
The right-hand chart shows how widely these outcomes occur. For Lerøy Seafood, 76% of sites have fewer lice and 53% have lower treatment frequency. The corresponding shares are 70% and 100% for Sinkaberg, while all seven of SalMar's sites outperform on both measures. For Mowi, 25% have fewer lice and 75% have lower treatment frequency. The results therefore differ in both magnitude and breadth, with the small samples – particularly for Mowi and SalMar – supporting directional comparisons rather than definitive operator rankings.

Relative performance vs matched controls by operator



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

% of submerged sites outperforming matched controls by operator



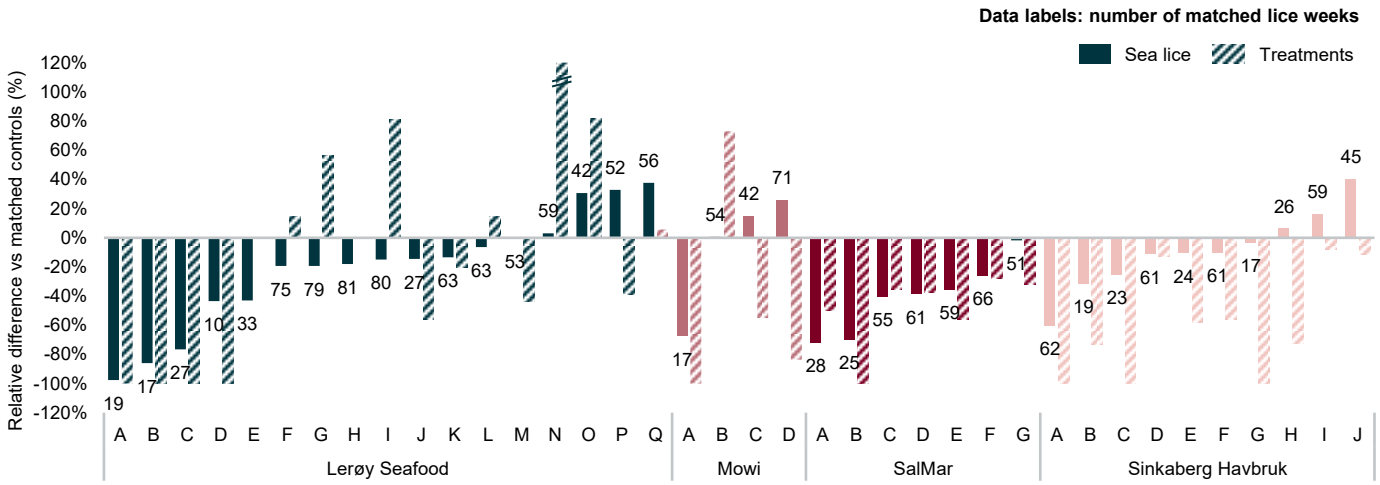
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

The chart below shows the distribution behind the operator averages, with each pair of bars representing one submerged site's latest-cycle lice levels and treatment frequency relative to its Same-PA peers. Sites require at least 10 matched lice weeks, and the labels show the number of matched lice weeks contributing to each estimate. Operator-level figures compare equally weighted mean levels, so they need not equal the simple average of these site-level percentage differences.

Most sites have fewer lice than their matched controls, although the magnitude varies significantly

Treatment frequency is lower at all seven SalMar sites and all 10 Sinkaberg sites, and at three of four Mowi sites. Lerøy Seafood shows a more mixed treatment pattern, with nine of 17 sites below matched controls and several significant increases elsewhere. Mowi also illustrates how fewer treatment weeks can coexist with higher lice levels. Observation depth differs between sites, and shorter records may mainly capture early-cycle performance rather than full-cycle outcomes.

Sea lice and treatment – site-level performance vs matched conventional controls



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

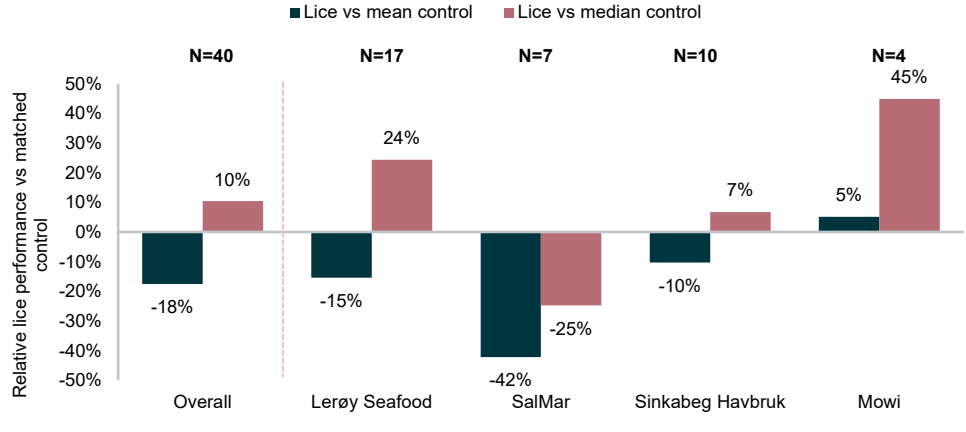
Weekly lice profiles clarify the operator contrast

The chart below compares the same latest-cycle submerged observations with both mean and median lice levels in their matched conventional control pools. The mean reflects the full influence of high-lice observations, while the median represents the mid-point of each weekly control pool and is less affected by extreme values. These weekly benchmarks are averaged over matched weeks and then equally split across submerged sites.

Overall, submerged lice levels are ~18% below the mean control benchmark but ~10% above the median benchmark

Lerøy Seafood shows a similar pattern, at ~15% below mean controls and ~24% above median controls, while Sinkaberg is ~10% below the mean and ~7% above the median. SalMar's lice advantage persists under both definitions, at ~42% below mean controls and ~25% below median controls. Mowi is above both benchmarks, by ~5% and ~45%, respectively. The results show that the mean-based lice advantage is sensitive to the distribution of lice in the conventional control population. For Lerøy Seafood and Sinkaberg, outperformance against the average control level does not extend to the median benchmark. Mean and median answer different questions, and their divergence is informative, with SalMar providing the clearest observed lice advantage under both definitions.

Relative lice performance vs mean and median matched controls



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

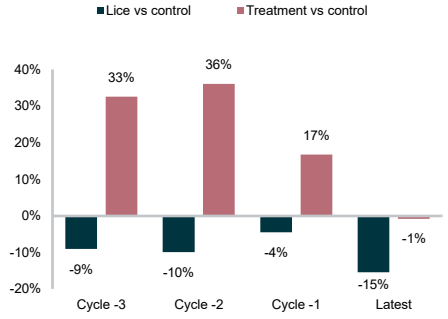
Operator history

Lerøy Seafood – early gains narrow as treatment catches up

Average treatment frequency across the 17 sites is broadly in line with matched controls, with a clearer difference in timing

Lerøy Seafood's cycle history against Same-PA peers shows that lice levels were already somewhat lower historically, although treatment frequency was far higher, at ~17–36% above matched controls. In the latest cycle, its lice performance improves further to ~15% below matched controls, while treatment frequency falls to approximately parity (~1% lower). The latest-cycle weekly profiles show later lice build-up and treatment accumulation at its submerged sites, although the advantage narrows as the cycle progresses. Average treatment frequency across the 17 sites is therefore broadly in line with matched controls, with a clearer difference in timing. Treatment activity increases among the smaller group observed at later biological ages, eventually pushing the cumulative profile above controls.

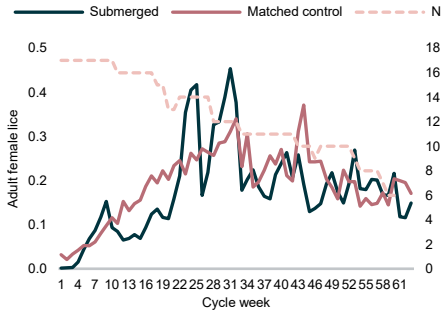
LSG: historical cycle performance



Note: Balanced, (N=17)

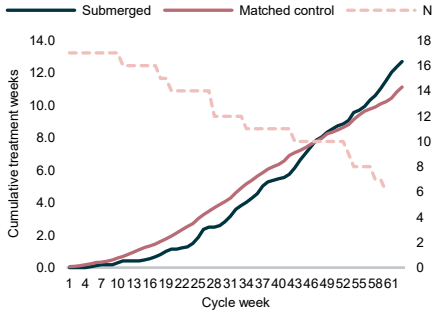
Source: DNB Carnegie (estimates) & company

LSG: sea lice by biological cycle week



Source: DNB Carnegie (estimates) & company

LSG: cumulative treatment weeks



Source: DNB Carnegie (estimates) & company

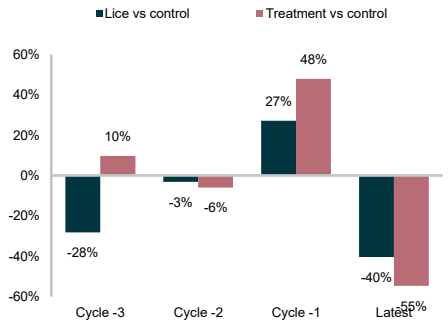
SalMar – treatment advantage remains through the observed period

SalMar's cycle history shows a more mixed pattern, with latest-cycle lice levels ~40% below matched controls and treatment frequency ~55% lower, following levels ~27% and ~48% above matched controls, respectively, in cycle −1. The balanced historical sample includes just five sites, so the scale should be interpreted with caution. Observed latest-cycle lengths range from 51–66 weeks, averaging ~60 weeks.

Early advantage does not prevent subsequent lice build-up

The latest-cycle weekly profiles show low lice levels and no recorded treatment during the first 20 weeks, compared with earlier lice build-up and treatment among controls. By week 60, the cumulative profile reaches ~7–8 treatment weeks versus ~12 for controls, although only two sites are included in this instance. Unlike Lerøy Seafood, the cumulative treatment profile remains below matched controls throughout the displayed period. Lice levels rise later and track matched controls more closely, showing that the early advantage does not prevent subsequent lice build-up.

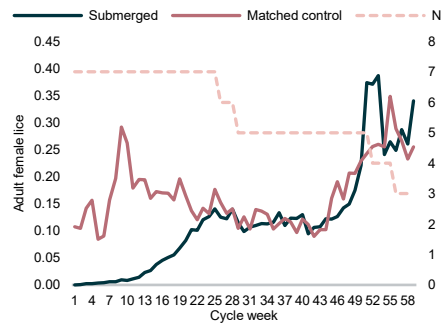
SALM: historical cycle performance



Note: Balanced, (N=5)

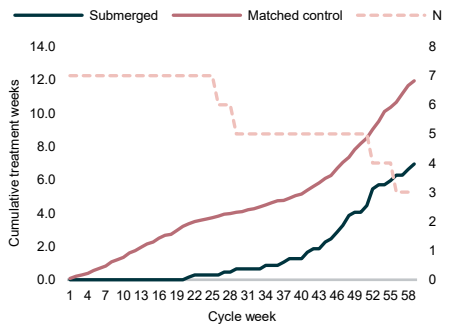
Source: DNB Carnegie (estimates) & company

SALM: sea lice by biological cycle week



Source: DNB Carnegie (estimates) & company

SALM: cumulative treatment weeks



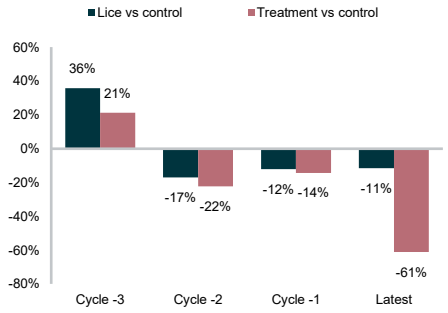
Source: DNB Carnegie (estimates) & company

Delayed early lice build-up and particularly limited early treatment activity, then broadly converging lice levels

Sinkaberg Havbruk – lower treatment frequency remains as lice levels converge

Sinkaberg shows a modest latest-cycle lice advantage (~11% lower) alongside a significant reduction in treatment frequency (~61% lower). The same eight sites also outperformed matched controls in the previous two cycles, with lice levels ~12–17% lower and treatment frequency ~14–22% lower. The latest-cycle weekly profiles show delayed early lice build-up and particularly limited early treatment activity, followed by broadly converging lice levels. As with SalMar, the cumulative treatment gap remains substantial throughout the displayed period. Lice levels subsequently move in a similar pattern to matched controls, indicating that the treatment advantage continues even as the difference in observed lice levels narrows.

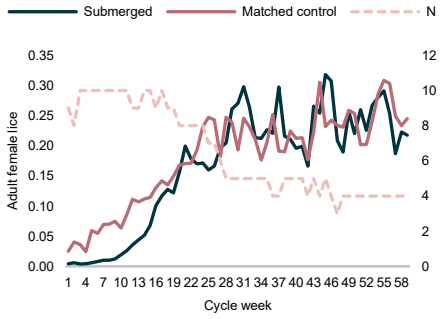
SINK: historical cycle performance



Note: Balanced, (N=8)

Source: DNB Carnegie (estimates) & company

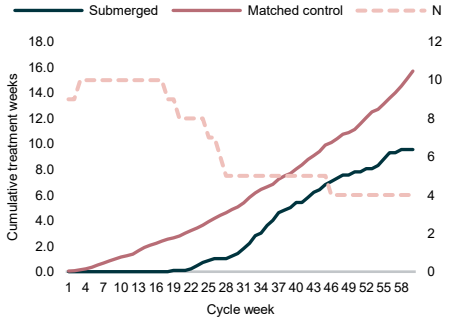
SINK: sea lice by biological cycle week



Note: Fluctuations in N: missing lice observations or unavailable matched controls.

Source: DNB Carnegie (estimates) & company

SINK: cumulative treatment weeks



Note: Fluctuations in N: missing lice observations or unavailable matched controls.

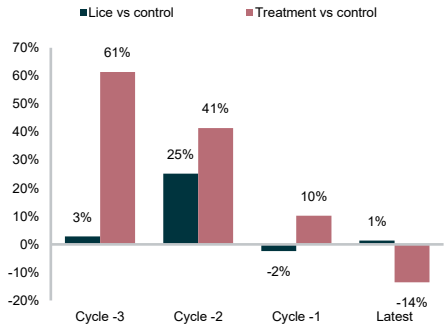
Source: DNB Carnegie (estimates) & company

The results show fewer treatment weeks and higher lice levels later in the cycle, rather than a consistent advantage across both measures

Mowi – Treatment frequency improves despite mixed lice outcomes

Although the balanced historical sample is small (N=3), treatment frequency declines across successive cycles, from ~61% above matched controls in cycle −3 to ~14% below in the latest cycle. Latest-cycle lice levels are roughly in line with matched controls (~1% higher). The weekly lice profiles show the variation behind these averages: submerged sites initially have fewer lice, before the relationship generally reverses from around weeks 22–25. The cumulative treatment profile nevertheless remains below matched controls throughout the period shown. The results therefore show fewer treatment weeks alongside higher lice levels later in the cycle, rather than a consistent advantage across both measures.

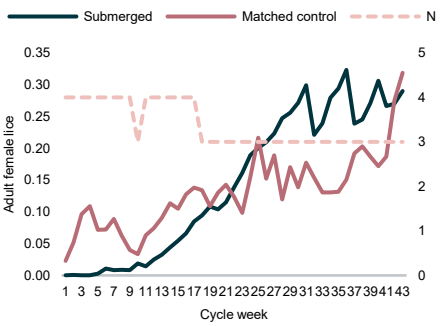
Mowi – historical cycle performance



Note: Balanced, (N=3)

Source: DNB Carnegie (estimates) & company

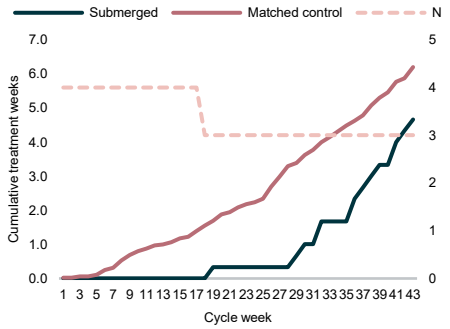
Mowi – sea lice by biological cycle week



Note: Fluctuations in N: missing lice observations or unavailable matched controls.

Source: DNB Carnegie (estimates) & company

Mowi – cumulative treatment weeks



Source: DNB Carnegie (estimates) & company

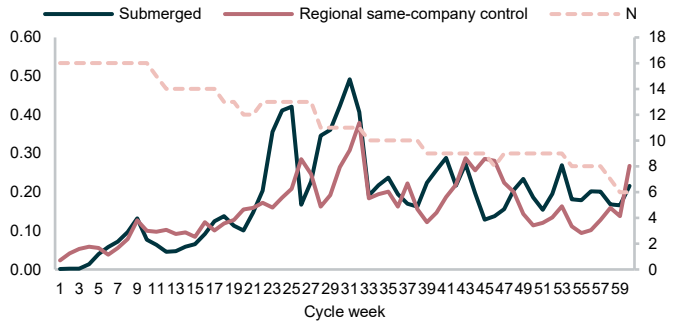
Mixed lice outcomes against Same-company regional peers

Having compared submerged sites with industry-wide Same-PA peers, we now change the benchmark to assess performance against each operator's own conventional sites. These Same-company regional peers belong to the same parent company within PA pairs 3–4, 5–6 or 7–8, and remain matched by calendar week and biological cycle age within ±4 weeks. The comparison uses mean matched controls lice levels. The availability of eligible Same-company matched controls changes the matched controls observations and sample sizes relative to the preceding charts.

Change in benchmark produces a mixed picture, with outcomes differing across operators and biological ages

The latest-cycle profiles show that SalMar and Sinkaberg retain a clear early lice advantage under this benchmark, although the gaps narrow as the cycles progress. Lerøy Seafood's lice levels broadly track its regional company matched controls, with several periods above them. Mowi also starts with low lice levels, but submerged sites generally have higher lice than their company peers later in the displayed period. The change in benchmark therefore produces a mixed picture, with outcomes differing across operators and biological ages. The clearest common pattern is an early-cycle lice advantage, while sustained outperformance against each operator's own conventional sites is less consistent.

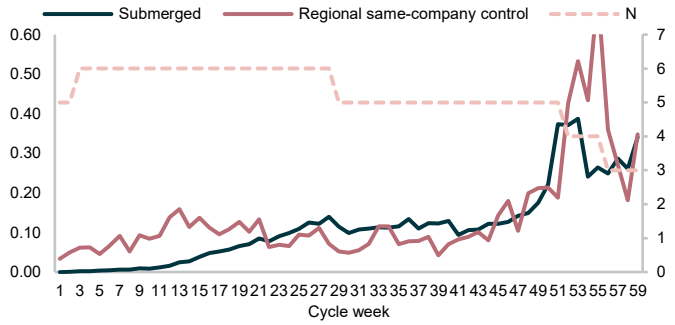
Lerøy Seafood – adult female lice per fish by biological cycle week



Note: Fluctuations in N: missing lice observations or unavailable matched controls.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

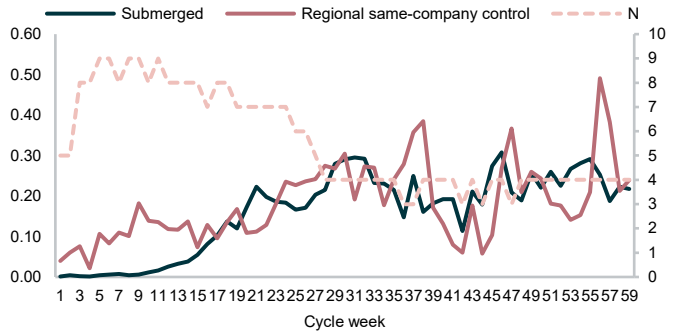
SalMar – adult female lice per fish by biological cycle week



Note: Fluctuations in N: missing lice observations or unavailable matched controls.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

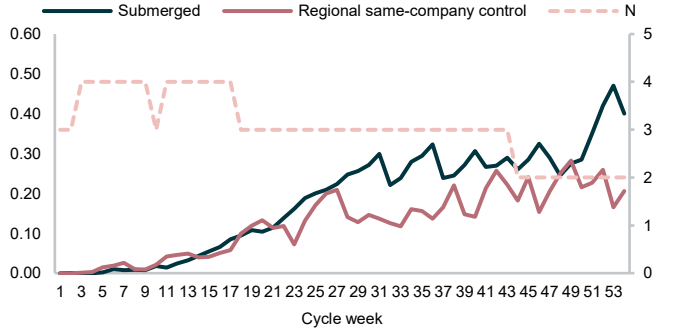
Sinkaberg Havbruk – adult female lice per fish by biological cycle week



Note: Fluctuations in N: missing lice observations or unavailable matched controls.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Mowi – adult female lice per fish by biological cycle week



Note: Fluctuations in N: missing lice observations or unavailable matched controls.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

The dashed N lines in the charts above show the number of contributing submerged sites, and later observations should be interpreted alongside the smaller samples. The following charts extend this Same-company comparison across historical cycles, using balanced samples and matched observation windows to assess how relative performance has changed over time.

SalMar and Sinkaberg retain a combined advantage

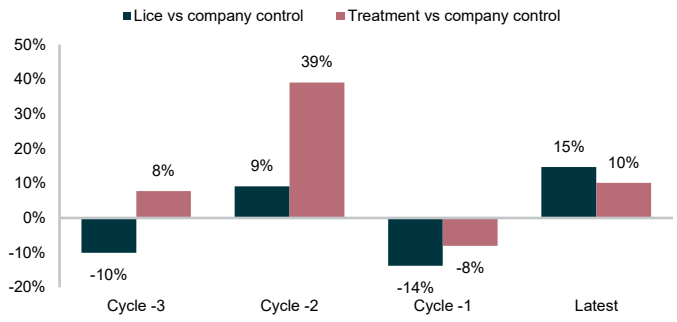
We now extend the Same-company regional peer comparison across four biological cycles. Within each operator, the same submerged sites must have at least ten valid matched weeks in every cycle. Each site's cycles are compared over common biological-age windows, reducing differences in observation length. These additional requirements change the samples relative to the preceding latest-cycle profiles. Window lengths vary between sites, with the figures reported beneath the charts are operator medians.

SalMar's latest cycle shows ~22% fewer lice and ~46% lower treatment frequency than its regional company peers, following a mixed history that included materially higher levels on both measures in cycle −1. Sinkaberg also retains an advantage on both measures, with ~28% fewer lice and ~69% lower treatment frequency. Its lice advantage is smaller than in cycle −1, but the treatment reduction is substantially larger.

The picture is less favourable for Lerøy Seafood and Mowi

Lerøy Seafood's latest-cycle lice levels and treatment frequency are above its regional company matched controls following mixed historical results. Mowi combines ~37% higher lice with ~31% lower treatment frequency, illustrating how fewer treatment weeks can coexist with higher lice levels. The clearest combined advantage therefore remains with SalMar and Sinkaberg under this alternative benchmark. However, the small samples and uncertainty around historical technology deployment dates mean these comparisons should be interpreted as observed performance patterns rather than isolated estimates of the technology's effect. It is also worth highlighting that the eligible control sites when using the sites from the same company, averaging 2.2 – versus 8.4 when looking at PA matched controls.

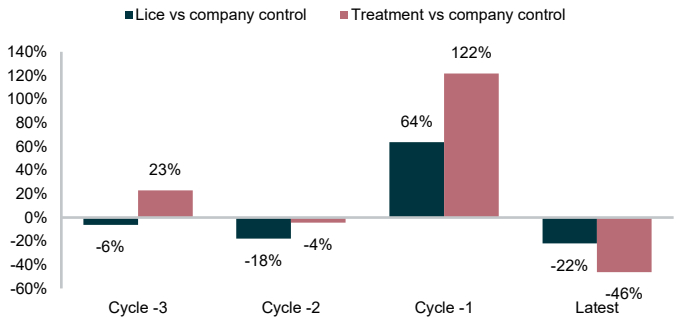
Performance vs regional Lerøy Seafood matched controls across biological cycles



Note: N=13, Common window = 57 weeks

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

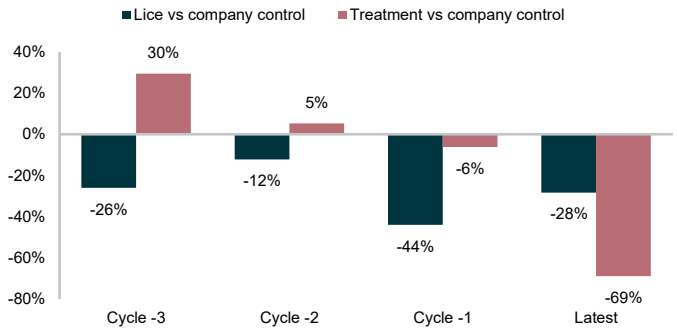
Performance vs regional SalMar matched controls across biological cycles



Note: N=5, Common window = 55 weeks

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

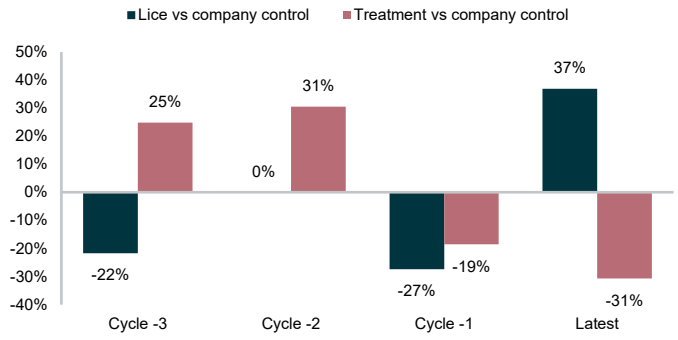
Performance vs. regional Sinkaberg matched controls across biological cycles



Note: N=5, Common window = 51 weeks

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Performance vs regional Mowi matched controls across biological cycles



Note: N=3, Common window = 54 weeks

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Treatment burden and strategy

Treatment weeks are less frequent overall, with a different mix. In the detailed 2024+ sample, treatment is recorded in 11.5% of matched weeks at submerged sites versus 17.5% for Same-PA peers, implying ~34% lower frequency. Whole-locality treatment is particularly uncommon, at 0.6% versus 4.6% of matched weeks, while freshwater and multiple-method treatment are more common. Against Same-company regional peers, treatment frequency is lower for SalMar, Mowi and Sinkaberg, while Lerøy Seafood is broadly similar. Combining frequency, scope and reported pen counts in a standardised 70-week, eight-pen illustration produce lower modelled exposures per pen for the first three operators, but higher exposure for Lerøy Seafood. These differences provide inputs for our financial analysis, although reported pen exposures are not confirmed separate handling events, acknowledging that combined methods may count the same pens more than once.

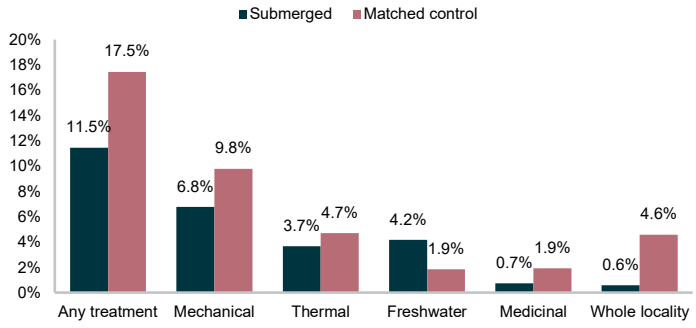
Fewer treatment weeks, with a different treatment mix

We now use the detailed BarentsWatch treatment records to examine what happens when treatments are given, adding information on method, scope and reported pen counts to the above frequency analysis. The dataset covers each site's latest eligible cycle starting on or after 1 January 2024, requiring at least 10 matched reporting weeks. At each site, treatment frequency is calculated across all matched weeks, including weeks without treatment, while treatment mix considers only weeks with recorded treatment. A week that has both mechanical and freshwater treatment counts once under 'any treatment' and once under each method, so the method shares can overlap.

Across the national sample, treatment is recorded in 11.5% of matched weeks at submerged sites versus 17.5% for Same-PA peers. As illustrated in the chart to the left below, mechanical, thermal and medicinal treatments are less frequent, while freshwater treatment is more frequent, at 4.2% versus 1.9%. Whole-locality treatment is particularly rare, occurring in 0.6% of matched weeks versus 4.6% for controls.

The right-hand chart examines the mix within weeks when treatment is given. On a site-weighted basis, partial-locality treatment accounts for 94% of treatment weeks at submerged sites versus 71% for matched controls. Freshwater and multiple-method treatment are also more common. The data therefore shows fewer treatment weeks overall, as well as a shift towards partial-locality treatment and a different method mix. These categories overlap and should not be added together.

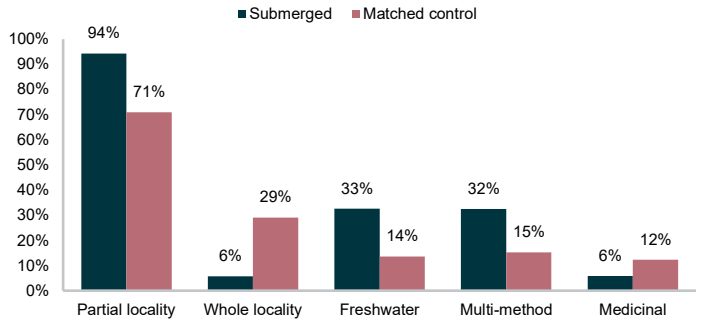
Treatment frequency by method



Note: Measures the share of all matched weeks, N=43

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Treatment mix and scope



Note: Measures the share of weeks with treatment, N=33

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Treatment frequency and intensity are separate questions

Fewer treatment weeks does not automatically imply a proportionate reduction in the number of pens involved

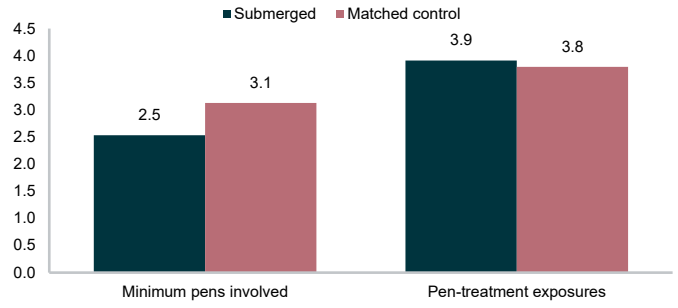
During partial-treatment weeks, the minimum-pens measure averages ~2.5 at submerged sites versus ~3.1 for matched controls. Adding the pen counts across all treatment records, however, gives similar totals of ~3.9 and ~3.8. For example, the same two pens receiving mechanical and freshwater treatment would contribute four to this total, even though only two pens were involved. The pattern is consistent with smaller treatment groups and more combined methods but does not establish whether fish undergo less physical handling.

The operator comparison also shows significant differences

Lower treatment frequency for three operators

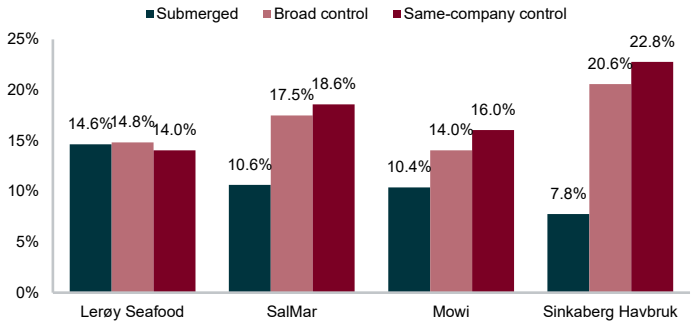
Against Same-company regional peers, treatment frequency is lower for SalMar (10.6% versus 18.6%), Mowi (10.4% versus 16.0%) and Sinkaberg (7.8% versus 22.8%). Lerøy Seafood is broadly comparable, at 14.6% versus 14.0%. Both peer benchmarks in this chart use the same underlying paired observations, helping distinguish the effect of matched control choice.

Pens involved and exposures per partial-treatment week



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Treatment frequency by operator and peer group



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

The method breakdown highlights further differences between operators

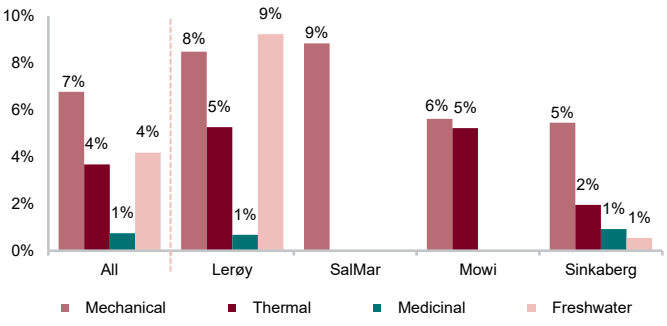
Treatment patterns translate into different modelled exposures

Each percentage in the chart to the left below represents the share of all matched weeks with that method recorded, calculated for each site and then averaged equally across the operator's submerged sites. Freshwater treatment is concentrated in Lerøy Seafood, SalMar's recorded activity is predominantly mechanical, and mechanical and thermal methods account for much of Mowi's and Sinkaberg's activity.

To standardise the comparison, we combine partial-treatment pen exposures with whole-locality treatment frequency, assuming a 70-week cycle and eight pens per locality. Here, partial-treatment exposure is the total reported pen count averaged across all matched weeks, including weeks without treatment. As illustrated in the chart to the right below, this produces ~6.3 exposures per pen at Lerøy Seafood's submerged sites versus 5.3 for its matched controls. The corresponding figures are 2.8 versus 7.5 for SalMar, 2.2 versus 6.9 for Mowi, and 2.7 versus 10.4 for Sinkaberg.

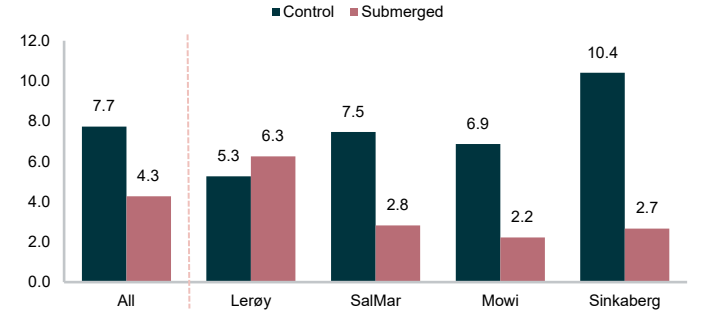
These are illustrative modelled exposures, rather than observed totals for completed cycles. They combine treatment frequency and scope, providing a bridge into the financial analysis. Translating these exposures into costs and mortality effects requires assumptions about costs by method, fish size and treatment-related mortality. Several records may cover the same pens receiving different methods during one combined operation. Both methods can add costs, but treating them as separate physical interventions could double-count shared operating costs or overstate handling-related mortality. The records do not allow us to fully distinguish combined operations from separate treatments, adding uncertainty to the estimates.

Treatment method frequencies at submerged sites



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Modelled pen-treatment exposures per pen over 70 weeks



Note: Modelled 70-week cycle; eight pens per locality. 'All' uses Same-PA peers; operator comparisons use Same-company regional peers

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Financial implications

Fewer treatments using submerged technology can improve earnings through lower treatment costs, better survival and larger fish at harvest. Our general model shows ~6% higher EBIT per production cycle, mainly from larger harvest volumes, while profit per kg changes little. The operator results vary: SalMar, Mowi and Sinkaberg show stronger financial benefits, while Lerøy Seafood's current treatment frequency, more expensive treatment mix and higher feed use weigh on returns. Lerøy nevertheless shows the largest modelled EBIT/kg improvement when we compare current treatment inputs with scenarios based on earlier, higher treatment levels. This illustrates how challenging sites can become more profitable from a weak starting point, even while the average site still earns less than conventional farms. Feed efficiency is the main swing factor we found, as extra feed can quickly eat into treatment savings. Looking further ahead, we see the biggest opportunity improving weaker sites. Our model suggests ~6–21% higher EBIT per cycle vs traditional sites and our NPV calculations indicate ~3–10% value uplift with successful implementation across around one-third of farming sites. Results vary widely, with SalMar showing the strongest absolute performance and Lerøy Seafood showing the biggest EBIT/kg uplift due to a lower starting point.

Input factors and assumptions

Experience has shown how difficult it is to forecast biological performance, whether as a sell-side analyst or in a farming company

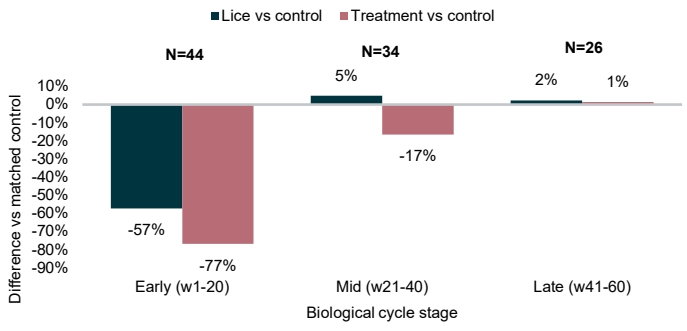
Unexpectedly strong growth in Norwegian supply in 2025, continuing into 2026, illustrates the scope of the challenge. Nevertheless, the long lead times on new farming technology require assumptions to assess investments and refine forecasts. Our detailed treatment analysis from 2024 onwards, alongside more completed cycles and longer observation histories at submerged sites, provides a stronger basis for these calculations, we believe. Combining these findings with Norway's Directorate of Fisheries data and a set of general assumptions, below we show our estimates of the potential financial implications of operating a submerged pen versus a conventional pen. Despite several potential limitations to both assumptions and model setup, a sensitivity analysis using the various input measures still gives valuable insights, we believe.

Submerged have higher average weight during treatment

A key finding in this report is much lower lice levels and treatment frequency during the first ~20 weeks of the production cycle

Delaying lice build-up and treatment allows fish to grow with fewer early interventions and shifts treatment towards later stages, when fish are heavier. We combine Skretting's growth table with the estimated distribution of treatment weeks across cycle stages, calibrating the conventional profile to an overall treatment frequency of ~17%. This gives a modelled average fish weight at treatment of ~2.65kg liveweight (LW) at submerged sites versus ~2.26kg LW for conventional matched controls. We apply these weight assumptions across all operators.

Relative performance by biological cycle stage



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Average weight during treatment – weighted after cycle phase

Production weeks	70.0				Treatment weeks	
	Weeks	Avg. Weight (LW, kg)	Control - treatment weeks	Submerged vs control	Control	Submerged
Week 1-20	20	0.46	12%	-77%	2.40	0.55
Week 21-40	20	1.61	18%	-17%	3.60	2.99
Week 41-60	20	2.82	20%	1%	4.00	4.04
Week 61+	10.0	4.47	20%	1%	2.00	2.02
Sum treatment weeks	70				12.0	9.60
Average treatment weight (LW, kg)					**2.26**	**2.65**

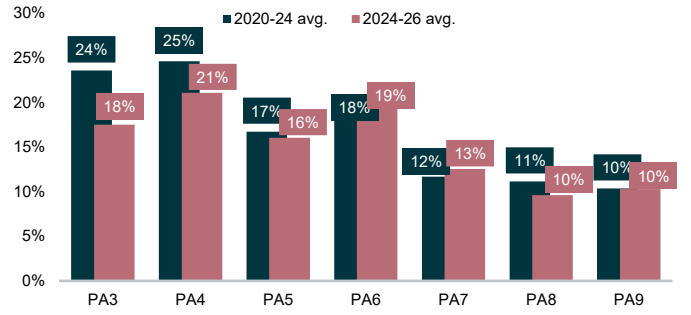
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Mortality

Calculating operator-specific conventional mortality assumptions that reflect geographical exposure

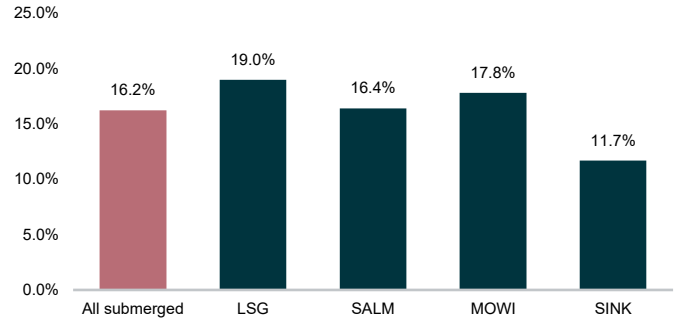
To estimate mortality for conventional matched controls, we use production-area mortality rates reported by the Norwegian Veterinary Institute, averaged across 2024–26. The chart to the left below shows these regional rates. We then weight them according to the distribution of each operator's submerged pens across PAs, deriving operator-specific conventional mortality assumptions that reflect geographical exposure.

Production cycle mortality (%)



Source: Veterinary Institute (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Estimated conventional mortality (%) based on submerged exposure



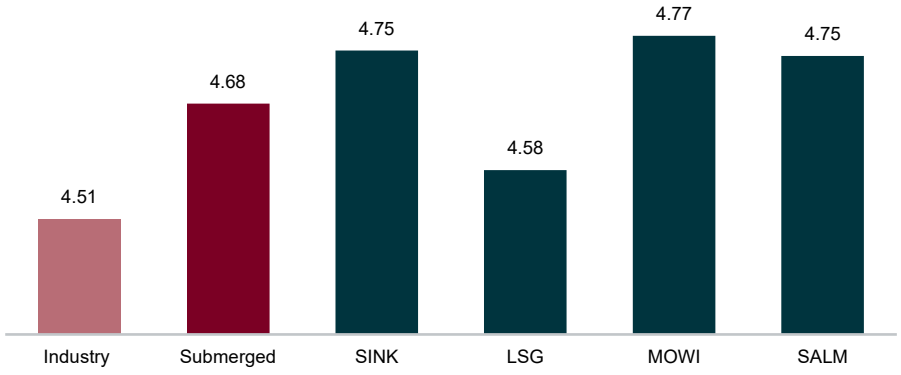
Source: Veterinary Institute (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Delousing has implications beyond the cost of treatment itself

Assuming the average submerged site produces larger fish

Every delousing is at the expense of fish growth, because feed is withheld before treatment, and handling stress reduces appetite afterwards. Industry sources put this loss at 5–10% of potential final weight. We use 7.5% for a conventional site, which in our data treats each pen about 7.7x per generation, so roughly 1% per treatment. A general submerged site in our research treats each pen about 4.3x, so they lose ~4% instead of 7.5%, lifting the harvest weight from 4.51kg (2025 national average) in a conventional pen to 4.68kg gutted (+3.6%). The benefit of this simple approach is that it rests on one transparent assumption and moves directly with the treatment frequency we observe; a more detailed bottom-up estimate gave a similar result (+3.9%) but required many more uncertain inputs. The drawback is that every treatment is assumed to cost the same in terms of growth regardless of method, fish size or season, and that it only captures the treatment effect, not how submersion itself affects growth. Deeper water tends to be colder but more stable, which can slow fish growth in parts of the year, although it also avoids heat stress in late summer. The differences on operator level are seen in the chart below and come only from how many fewer treatments each company's submerged sites need than the national average, with each treatment costing about ~1% of growth.

Estimated harvest weights for industry, all submerged, and operators (kg)



Note: All matched controls are set to 4.51kg.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Basis for our other assumptions

Other assumptions and input variables

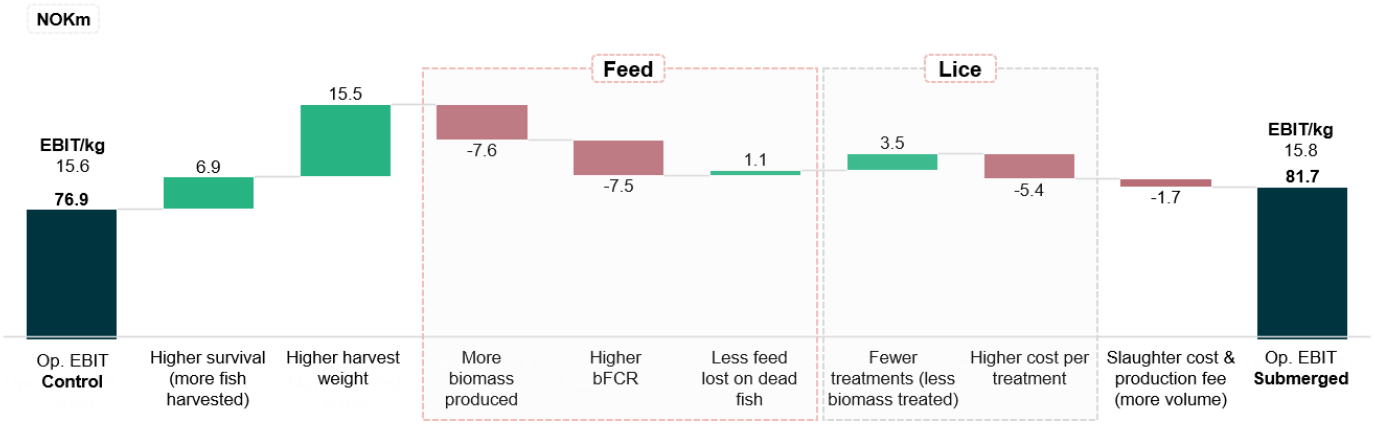
Weeks with treatment, treatment mix and pens treated are applied as described in the previous chapter, using the Same-company matched controls at operator level. We assume eight pens per site, 70 production weeks and 1.3m smolt per generation. Input costs are based on Lønnsomhetsundersøkelsen (2026) and the Mowi Industry Handbook 2026, and bFCR (biological feed conversion ratio) is set per operator. Treatment mortality per method comes from Fiskehelserapporten (median deaths in the two weeks after treatment, based on 4,644 treatments in 2014–19). This ranges from 0.10% for medicinal to 0.62% for mechanical treatments. Direct treatment costs per kg treated come from Walde et al. (2023), adjusted for inflation to 2025 levels. They range from NOK0.29/kg for mechanical to NOK1.49/kg for freshwater treatments. These costs cover the operation itself (vessel, crew and equipment), while mortality and lost growth are modelled separately. We also assume a spot price of NOK85/kg, used across the whole analysis.

Operating EBIT for submerged per generation comes out ~6% higher

With a bFCR of ~1.22, resulting in an efficient feed conversion ratio eFCR of ~1.32 (matching the national Norwegian figure presented in Lønnsomhetsundersøkelsen) for the conventional sites, we assume submerged bFCR is 5% higher (~1.29). With an achieved spot price of NOK85/kg, we end up with operating EBIT per generation of NOK82m, or ~6.3% higher for the submerged site than the conventional. While the EBIT/kg is fairly stable (NOK15.8/kg HOG for submerged, 0.9% above conventional), lower treatment mortality results in more individuals to sell, thus boosting the absolute figure.

The bridge chart below shows how the different cost elements play in, bridging the matched control performance to the submerged pens. The gain reflects higher survival, heavier harvest weights and fewer treatments (less biomass treated), while feed costs are a drag, related to more biomass needing more feed – boosting the absolute feed cost, and also the higher bFCR assumed.

Operational EBIT bridge – generational basis



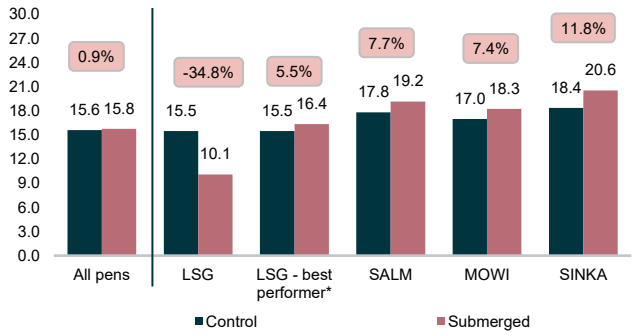
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Lerøy Seafood only outlier – hit by high treatment-frequency, -mix and bFCR

In terms of the company-specific calculations, we change up the matched control mortality to match PA exposure, factor in company-specific treatment data (frequency, mix, number of pens etc), estimated change in harvest weights and bFCR assumptions. For the latter, we use company-reported bFCR as the basis (1.20 for Lerøy Seafood, and 1.15 for SalMar, Mowi (group figure) and Sinkaberg (the latter is not reported, so our assumption) for the non-submerged sites. For the submerged sites, we adjust by +9% (across the board, matches Lerøy Seafood's comments at its 2026 CMD). The charts below show our findings in terms of EBIT and EBIT/kg can be found below, where Lerøy Seafood is the only negative outlier, being punished for treatment intensity being comparable with conventional peers, as well as having more expensive treatment (freshwater) and a higher bFCR. For the other companies, we see an improvement of ~7–12% in margins and a ~16–21% increase in absolute EBIT.

Looking into what is driving the treatment statistics behind Lerøy´s figures, we find out that its primarily four sites, all in region Midt. The softer performance of these sites is consistent with what management described in its Q3 presentation, mentioning mix results for the region. For Lerøy submerged as a whole, if we assume the same treatment mix as the control and the same number of pens treated, even if only partially treated, we end up with an operating EBIT 11% lower, an improvement but still hit by the higher frequency driving up implied treatment mortality and high feed cost. If we however use the data of one of the more promising sites in Lerøy's submerged portfolio, which is a site in PA3 with ~30 matched weeks, we see an outperformance with the estimated margin on this generation up ~5.5% and absolute operating EBIT up 14.5% – roughly on par with SalMar and Mowi.

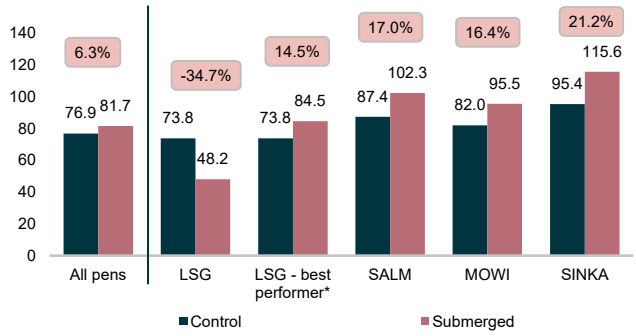
Operating EBIT/kg (HOG)



* Site in PA3 – with ~30 matched weeks

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Operating EBIT per generation (NOKm)



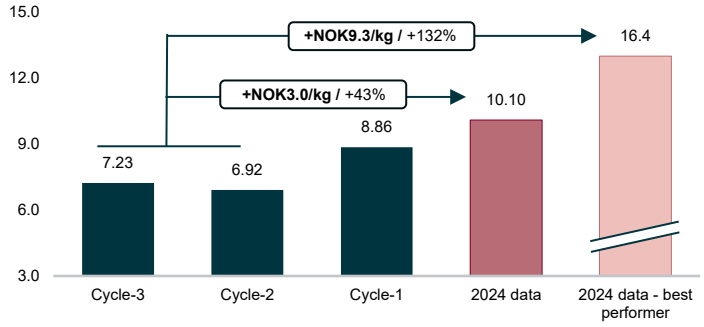
* Site in PA3 – with ~30 matched weeks

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Lerøy Seafood – NOK3.0–9.3/kg EBIT/kg improvement on submerged sites

In the three earlier cycles, treatment was ~17–36% more frequent at the Lerøy sites in our study than at other conventional sites in the same production area. We use these higher treatment frequencies in our model to illustrate what they would mean for earnings today. The other assumptions stay unchanged, including the mix of treatment methods and the number of pens treated per treatment week. Compared with the average of the cycle-3 and -2 scenarios, using the 2024+ treatment data gives ~NOK3.0/kg more in operating profit. The increase is ~NOK9.3/kg when we use figures from a selected stronger site. Modelled EBIT per production cycle rises from ~NOK32.5m in the historical reference scenarios to ~NOK48.2m with the 2024+ data and ~NOK84.5m in the stronger-site case. This illustrates how a challenging site can become more profitable even while it still earns less than the conventional farms used for comparison.

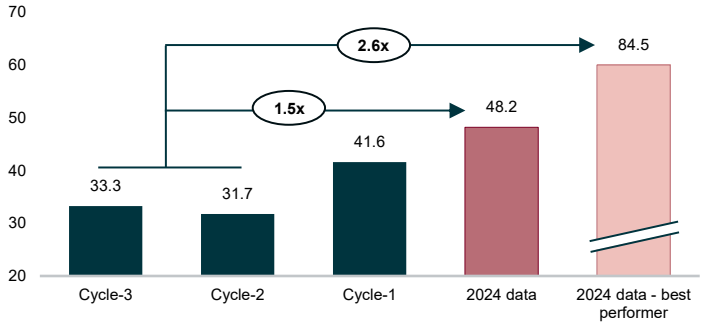
LSG – Operating EBIT/kg (HOG)



Note: Higher historical treatments: C-3: +33%, C-2: +36%, C-1: +17%.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

LSG – Operating EBIT per generation (NOKm)

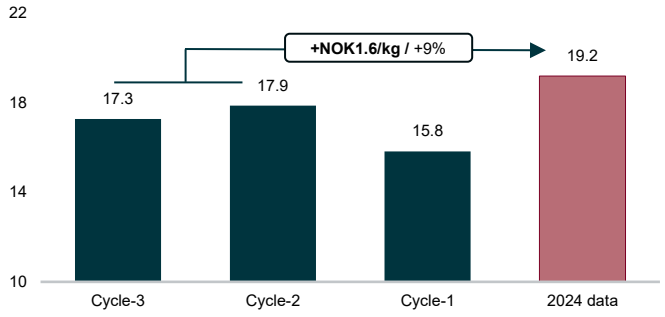


Note: Higher historical treatments: C-3: +33%, C-2: +36%, C-1: +17%.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

The charts below show the results of a similar exercise as done with Lerøy Seafood above. With all other operational assumptions staying the same, the latest cycle from the 2024+ treatment data shows an increase in margins of ~NOK1.6/kg HOG (+9%), lifting absolute operational EBIT 1.13x. For Mowi the calculations show an improvement on submerged sites of ~NOK2.6/kg HOG, (+16%), lifting absolute EBIT by 1.23x.

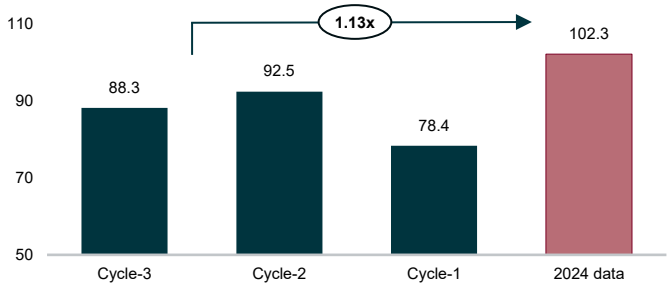
SALM – Operating EBIT/kg (HOG)



Note: Higher historical treatments: C-3: +10%, C-2: +6%, C-1: +48%.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

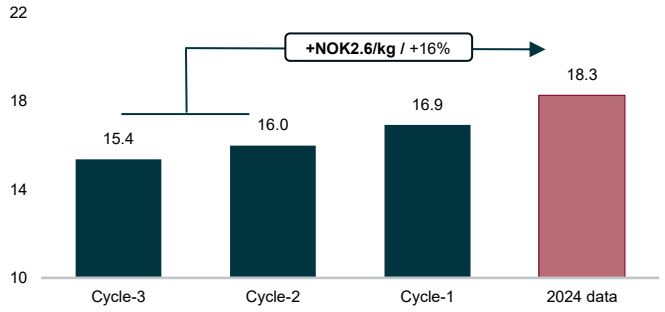
SALM – Operating EBIT per generation (NOKm)



Note: Higher historical treatments: C-3: +10%, C-2: +6%, C-1: +48%.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

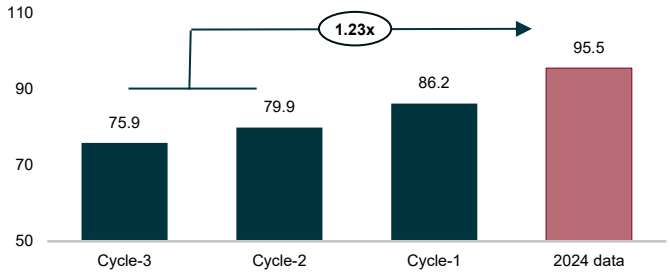
MOWI – Operating EBIT/kg (HOG)



Note: Higher historical treatments: C-3: +61%, C-2: +41%, C-1: +10%.

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

MOWI – Operating EBIT per generation (NOKm)



Note: Higher historical treatments: C-3: +61%, C-2: +41%, C-1: +10%

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Sensitivities

The tables show our calculation of the change in EBIT/kg (HOG) for submerged sites versus each operator's own conventional sites, across treatment frequency and biological feed conversion. Feed efficiency is the dominant lever: in our calculations, every 0.05 increase in bFCR reduces the uplift by ~NOK1.2/kg for all operators. Lerøy Seafood screens weakest today, but we estimate has the most to gain, as its submerged sites are the most sensitive to treatment frequency, with more pens treated per week and a higher share of freshwater treatments. Moving to 10% treatment weeks and a bFCR of 1.15, the figure for Lerøy Seafood's best-performing submerged sites (2026 CMD), would lift its margin by around NOK7/kg and turn the uplift positive. These are some of the actions Lerøy Seafood is targeting through its FCR improvement programme and site portfolio optimisation. As Lerøy Seafood has deployed submerged technology at sites that historically performed worst with conventional pens, our comparison could understate the underlying effect of the technology.

Lerøy Seafood – Change NOK/kg HOG vs matched control

LERØY	Biological feed conversion ratio (bFCR)					
Weeks with treatment	1.05	1.10	1.15	1.20	1.25	1.30
5.0%	7.1	5.9	4.8	3.6	2.4	1.2
7.5%	5.6	4.4	3.2	2.0	0.8	-0.4
10.0%	4.0	2.8	1.6	0.4	-0.8	-2.0
12.5%	2.3	1.1	-0.1	-1.3	-2.5	-3.7
15.0%	0.6	-0.6	-1.8	-3.0	-4.2	-5.4
17.5%	-1.2	-2.4	-3.6	-4.8	-6.0	-7.2
20.0%	-3.0	-4.2	-5.4	-6.7	-7.9	-9.1

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

SalMar – Change NOK/kg HOG vs matched control

SALMAR	Biological feed conversion ratio (bFCR)					
Weeks with treatment	1.05	1.10	1.15	1.20	1.25	1.30
5.0%	6.6	5.5	4.3	3.1	2.0	0.8
7.5%	6.2	5.0	3.8	2.7	1.5	0.4
10.0%	5.7	4.5	3.4	2.2	1.1	-0.1
12.5%	5.2	4.1	2.9	1.7	0.6	-0.6
15.0%	4.8	3.6	2.4	1.3	0.1	-1.1
17.5%	4.3	3.1	2.0	0.8	-0.4	-1.6
20.0%	3.8	2.6	1.5	0.3	-0.9	-2.1

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Mowi – Change NOK/kg HOG vs matched control

Weeks with treatment	Biological feed conversion ratio (bFCR) 1.05	1.10	1.15	1.20	1.25	1.30
5.0%	7.0	5.8	4.6	3.5	2.3	1.1
7.5%	6.6	5.4	4.2	3.0	1.9	0.7
10.0%	6.1	4.9	3.8	2.6	1.4	0.2
12.5%	5.7	4.5	3.3	2.1	1.0	-0.2
15.0%	5.2	4.0	2.9	1.7	0.5	-0.7
17.5%	4.8	3.6	2.4	1.2	0.0	-1.1
20.0%	4.3	3.1	1.9	0.8	-0.4	-1.6

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Sinkaberg Havbruk – Change NOK/kg HOG vs matched control

Weeks with treatment	Biological feed conversion ratio (bFCR) 1.05	1.10	1.15	1.20	1.25	1.30
5.0%	7.6	6.4	5.3	4.2	3.0	1.9
7.5%	6.9	5.7	4.6	3.5	2.3	1.2
10.0%	6.2	5.0	3.9	2.7	1.6	0.5
12.5%	5.4	4.3	3.2	2.0	0.9	-0.3
15.0%	4.7	3.6	2.4	1.3	0.1	-1.0
17.5%	3.9	2.8	1.6	0.5	-0.7	-1.8
20.0%	3.2	2.0	0.9	-0.3	-1.4	-2.6

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Financial impact on different adoption rates

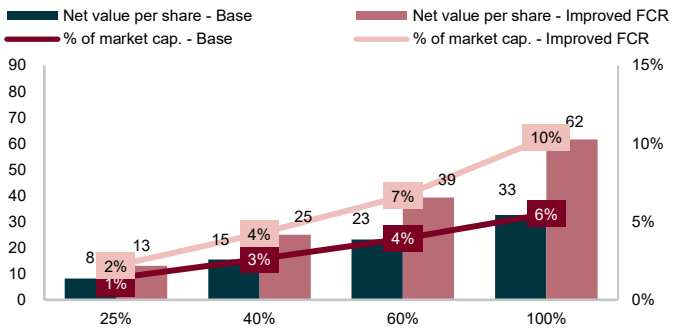
SalMar with 3–7% NPV uplift from successful rollout

In our main findings above, using current data, volumes per site for SalMar in submerged versus matched control increases 8.4%, while the total cost per kg HOG drops 1.9%. Assuming NOK20m capex per site (depreciated over 10 years), a 32% tax rate, WACC of 8% and terminal growth of 2.5%, we can estimate net value contributions assuming different submerged adoption rates. For SalMar, just focusing on Central (its only region currently with submerged cages due to its higher sea lice pressure and tougher environmental conditions), submerged sites make up roughly 10% of its portfolio (8/78 active since 2024). In both scenarios, we assume that remaining conventional sites have a slight lower cost on the spillover effect of more submerged sites, set as a percentage lower cost per kg per 10 percentage-points more submerged.

In the charts below, we calculate the effect on net value created per share and percentage of current market cap, assuming that 25–100% of Central volumes in 2028e (our estimate) comes from submerged pens. The improved FCR scenario in the chart to the left assumes the SalMar submerged sites have the same bFCR as the non-submerged. Depending on the submerged adoption share, the base case calculation yields a +1–6% positive impact, while the improved FCR case range is +2–10%, on value uplift relative to market cap. In the improved FCR case with 40% adoption in Central, corresponding to 33% on group level, would result in a ~NOK307m EBIT uplift, like the NOK360m uplift in the 'Back of the envelope' scenario for SalMar, presented later in the report.

To the right below we show a sensitivity analysis on the above-mentioned bull-case scenario showing the net value as percentage of market cap, based on a 40% submerged share, different cost reduction inputs for submerged and the calculated cost effect on the remaining conventional sites.

SalMar – estimated value uplift, base-case and improved FCR scenario analysis (NOKm, %)



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations) & Bloomberg (data)

SalMar – sensitivity analysis, bull-case scenario value uplift % of market cap (40% submerged share – Central)

Spillover - % lower cost conventional	Cost per kg, submerged vs control -11%	-9%	-7%	-5%	-3%
-12%	9.6%	8.7%	7.7%	6.8%	5.8%
-0.9%	8.7%	7.8%	6.8%	5.9%	4.9%
-0.6%	7.8%	6.8%	5.9%	4.9%	4.0%
-0.3%	6.9%	5.9%	5.0%	4.0%	3.1%
0.0%	5.9%	5.0%	4.0%	3.1%	2.1%

Note: Improved FCR scenario

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations) & Bloomberg (data).

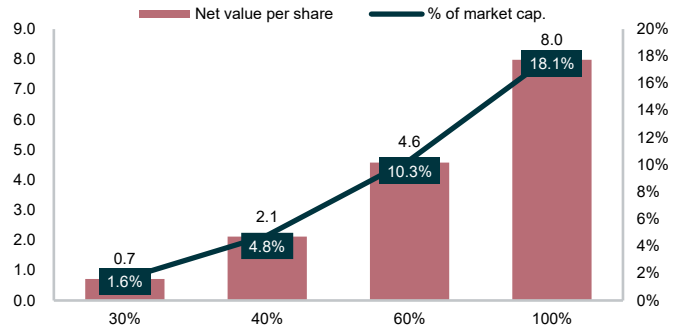
Lerøy Seafood with 5–10% NPV upside potential from successful rollout

Based on the above analysis solely factoring in our production cost model, Lerøy Seafood's current input parameters would indicate that generations in submerged cages would perform worse than the conventional matched control, due to more treatment and an expensive

treatment mix. This leads on to calculating the potential of these sites – i.e. the financial implications if we assume Lerøy Seafood's submerged sites had the same treatment mix and frequency as SalMar and an FCR in line with their conventional average (which management reports some sites are already at).

Under the same basic assumptions above, applying the company-specific figures to our 2028 estimates, and assuming a 25% submerged share today (20/79 active sites in Lerøy Midt and Lerøy Sjøtroll since 2024), we calculate a ~NOK120m–265m uplift to our 2028 operating EBIT estimate based on a 40–60% adoption share (corresponding to a group-level submerged share of ~30–45%). Under these two adoption scenarios, we estimate the value uplift versus market cap would be ~5–10%. This corresponds to our 5% EBIT uplift in our 'Back of the envelope' calculations later in the report, which assumes a 33% adoption rate in Midt and Sjøtroll.

Lerøy Seafood – estimated value uplift, base-case and improved FCR scenario analysis (NOKm, %)



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations) & Bloomberg (data)

Lerøy Seafood – sensitivity analysis, potential value uplift as a % of market cap (40% submerged share*)

Volume per site, sub. vs control	Cost per kg, sub. vs control					
	-10%	-9%	-8%	-7%	-6%
8.8%	8.7%	7.9%	7.2%	6.4%	5.7%
7.8%	8.4%	7.7%	6.9%	6.2%	5.4%
6.8%	8.2%	7.4%	6.7%	6.0%	5.2%
5.8%	7.9%	7.2%	6.5%	5.7%	5.0%
4.8%	7.7%	6.9%	6.2%	5.5%	4.8%

Note:* in Lerøy Midt and Lerøy Sjøtroll

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations) & Bloomberg (data), Note: Improved FCR scenario.

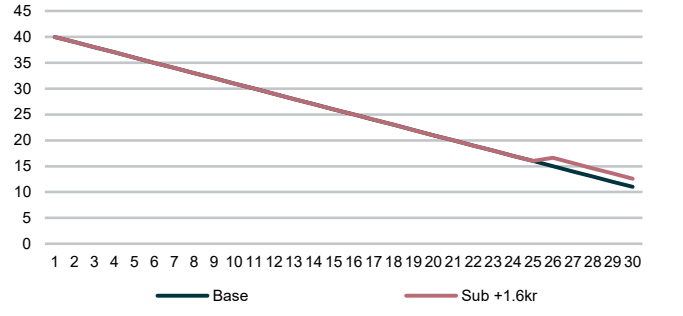
Back-of-the-envelope calculations

We looked at a detailed cost analysis for successful implementation of submerged farming, but also wanted to test a much simpler 'back-of-the-envelope' calculation – both yielded similar conclusions.

SalMar with ~NOK1.1/kg group EBIT upside potential at 33% rollout

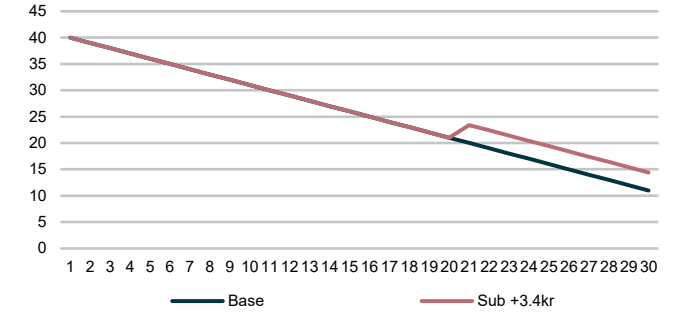
For this exercise, for SalMar, we assumed harvest from 30 active sites in 2028, with a base case assuming an EBIT/kg margin spread of NOK40 from the best site to NOK11 from the worst, giving an average of NOK26. In another scenario we model the five worst-performing sites improve by NOK1.6/kg, in-line with improvement vs cycle-2 and -3. This gives a new average margin of NOK26/kg, equal to a NOK46m uplift in EBIT from the Central region and NOK85m if a similar margin uptick is generated in North. We estimate in total this would lift Bloomberg consensus 2028e EBIT by 0.8%; if we increase this to the 10 worst-performing sites (33% penetration) and assume NOK3.4/kg improvement as in current cycle vs cycle -1, we calculate the total uplift to group consensus EBIT would be NOK360m or 3.6%. In addition, the group 2028e EBIT/kg margin would be lifted by NOK0.3–1.1/kg. The average improvement (both scenarios) of SalMar Central EBIT (~NOK466m) would match the NOK494m from a 40% submerged scenario in Central, or about 36% at group level, we calculate in this scenario.

SalMar – EBIT/kg Sub-5



Source: DNB Carnegie (estimates)

SalMar – EBIT/kg Sub-10

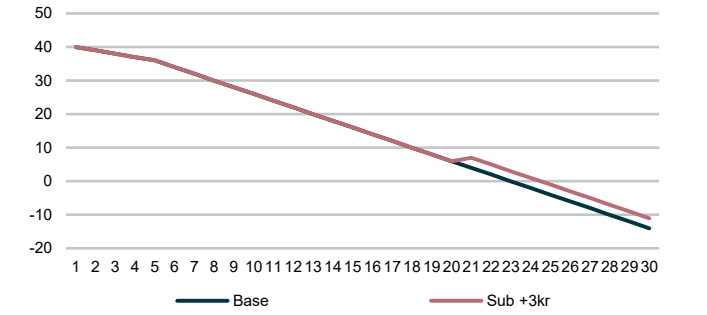


Source: DNB Carnegie (estimates) & company

Lerøy Seafood with NOK0.7–2.3/kg group margin upside potential

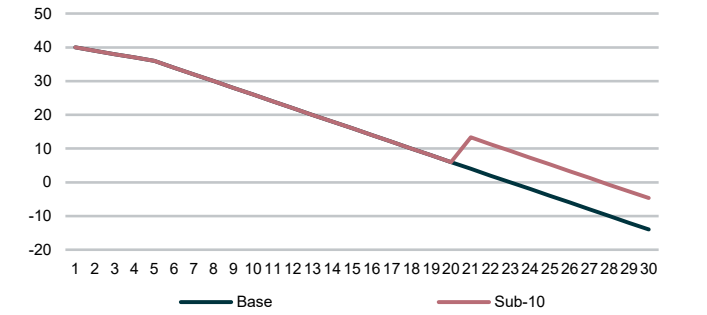
For Lerøy Seafood we also assume 30 sites are converted, with a starting point of NOK40/kg for the best-performing sites, but a steeper decline and the worst-performing sites being loss-making, yielding an average base-case scenario margin of NOK15/kg, NOK11/kg below SalMar. In a Sub +3NOK analysis, we assume 10 submerged sites improving by the NOK3.0/kg seen in the last cycle. In a Sub +9NOK scenario, we assume all 10 submerged sites improve by NOK9.3/kg, in line with current best performing submersible sites. Additional upside potential of NOK3.6/kg would exist through bFCR improving to 1.15 vs 1.30 today. Combined, these indicate NOK148m–459m in group EBIT, or 3.2–10% of 2028e Bloomberg consensus of NOK4,608m.

Lerøy Seafood – Sub +3NOK EBIT/kg scenario analysis



Source: DNB Carnegie (estimates) & company

Lerøy Seafood – Sub +9NOK EBIT/kg scenario analysis



Source: DNB Carnegie (estimates) & company

Since Lerøy Seafood has rolled out more submerged sites and explicitly guided at its 2026 CMD for lower submerged costs, we assume consensus is already factoring in a positive effect from the initiatives. Under the assumption consensus expects a NOK5/kg increase in feed costs in 2027, followed by a NOK3/kg reduction in 2028, we can conclude it is factoring in NOK1.1/kg 'other' cost savings by 2028 versus the 2026 base. Since our total group savings estimates suggest NOK0.7–2.3/kg, this indicates upside potential of negative NOK0.4/kg to positive NOK1.2/kg or -2% to +5% versus Bloomberg consensus.

Back-of-the-envelope calculation – SalMar and Lerøy Seafood earnings potential

SalMar			
Sites	Base EBIT/kg	Sub +1.6kr EBIT/kg	Sub +3.4kr EBIT/kg
1	40	40	40
2	39	39	39
3	38	38	38
4	37	37	37
5	36	36	36
6	35	35	35
7	34	34	34
8	33	33	33
9	32	32	32
10	31	31	31
11	30	30	30
12	29	29	29
13	28	28	28
14	27	27	27
15	26	26	26
16	25	25	25
17	24	24	24
18	23	23	23
19	22	22	22
20	21	21	21
21	20	20	*23*
22	19	19	*22*
23	18	18	*21*
24	17	17	*20*
25	16	16	*19*
26	15	*17*	*18*
27	14	*16*	*17*
28	13	*15*	*16*
29	12	*14*	*15*
30	11	*13*	*14*

Calculations			
EBIT/kg	26	26	27
Margin impovement vs. base		0.3	1.1
Harvest - SalMar Central 28e (kt)	172	172	172
EBIT - SalMar Central (NOKm)	4386	4432	4581
EBIT delta vs. base		1 %	4 %
Share of total submerged sites		17 %	33 %
EBIT improvement Central (NOKm)		46	195
EBIT improvement North (NOKm)		39	165
EBIT improvement Group (NOKm)		85	360
Uplift EBIT/kg on group level (NOK/kg)		0.3	1.1
Bloomberg cons group EBIT 28e (NOKm)		10120	10120
Potential uplift vs consenus %		0.8%	3.6%

Lerøy Seafood			
Sites	Base EBIT/kg	Sub +3kr EBIT/kg	Sub +9kr EBIT/kg
1	40	40	40
2	39	39	39
3	38	38	38
4	37	37	37
5	36	36	36
6	34	34	34
7	32	32	32
8	30	30	30
9	28	28	28
10	26	26	26
11	24	24	24
12	22	22	22
13	20	20	20
14	18	18	18
15	16	16	16
16	14	14	14
17	12	12	12
18	10	10	10
19	8	8	8
20	6	6	6
21	4	7	13
22	2	5	11
23	0	3	9
24	-2	1	7
25	-4	-1	5
26	-6	-3	3
27	-8	-5	1
28	-10	-7	-1
29	-12	-9	-3
30	-14	-11	-5

EBIT/kg	15	16	18
Margin impovement vs. base		1.0	3.1
Harvest - LSG Midt+Sjøtroll 28e (kt)	148	148	148
EBIT - LSG Midt + Sjøtroll (NOKm)	2171	2319	2629
EBIT delta vs. base		7 %	21 %
Share of total submerged sites		33 %	33 %
EBIT improvement Midt+Sjøtroll (NOKm)		148	459
EBIT improvement Group (NOKm)		148	459
Uplift EBIT/kg on group level (EBIT/kg)		0.7	2.3
Bloomberg cons group EBIT 28e (NOKm)		4608	4608
Potential uplift vs consenus %		3.2%	10.0%
DCAR cost savings already modelled (NOK/kg)		1.1	1.1
Potential additional upside (NOK/kg)		-0.4	1.2
EBIT upside (NOKm)		-72	239
Potential uplift vs consensus %		-2 %	5 %

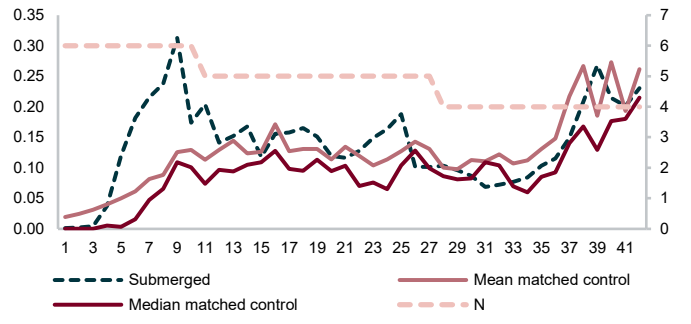
Source: DNB Carnegie

Appendix

Production area

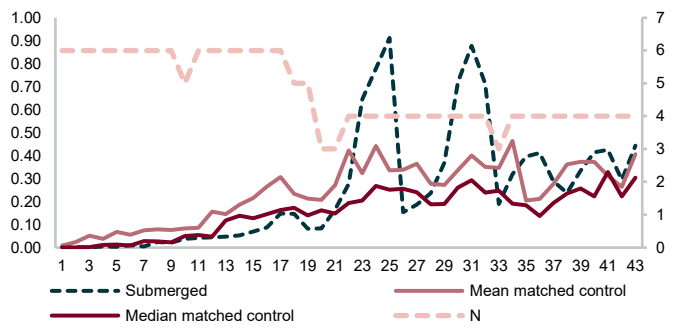
Latest cycle: Adult female sea lice

Adult female lice by biological cycle week – PA3



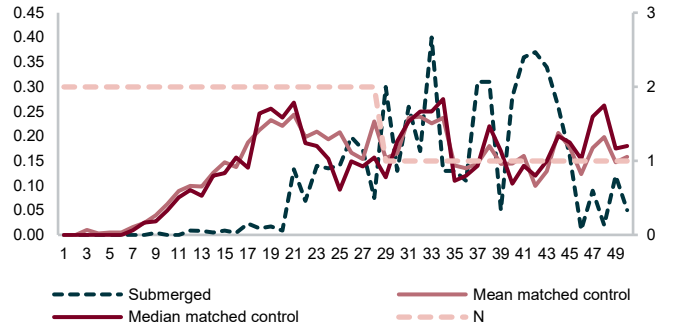
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Adult female lice by biological cycle week – PA4



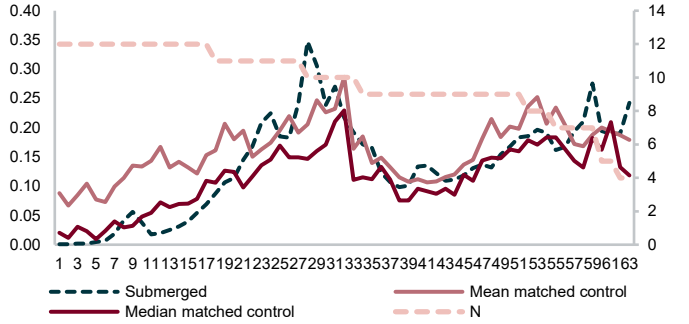
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Adult female lice by biological cycle week – PA5



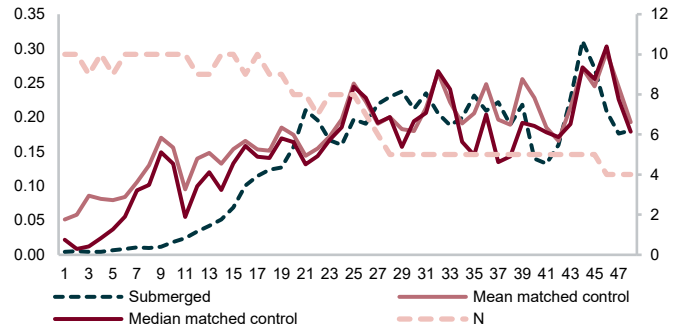
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Adult female lice by biological cycle week – PA6



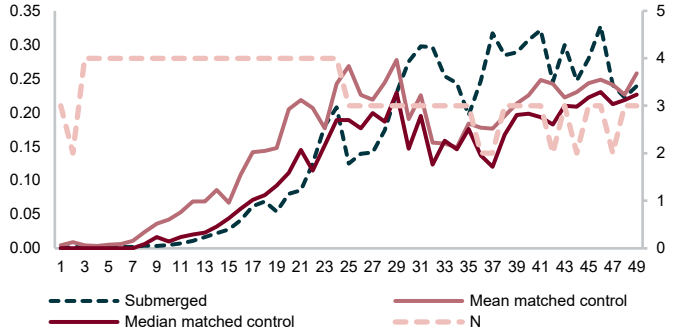
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Adult female lice by biological cycle week – PA7



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Adult female lice by biological cycle week – PA8

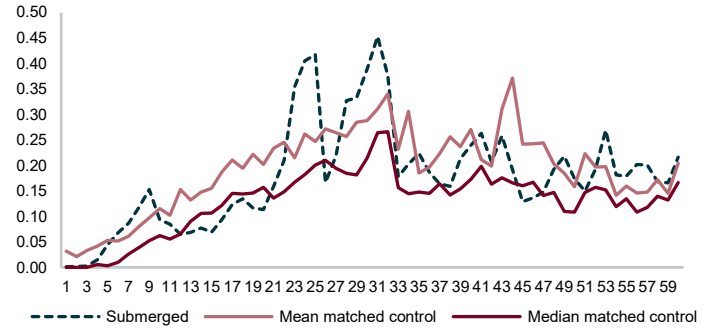


Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Operator

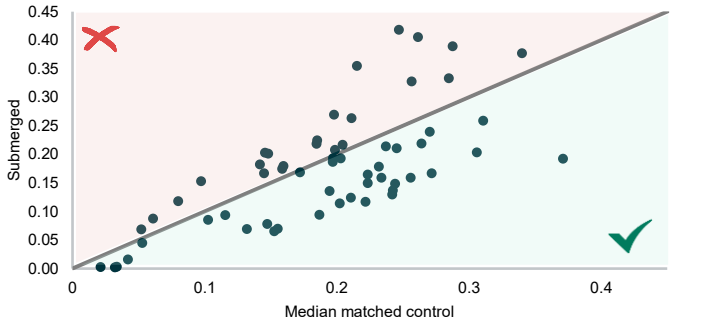
Latest cycle – PA matched controls

Lerøy Seafood – adult female lice by biological cycle week



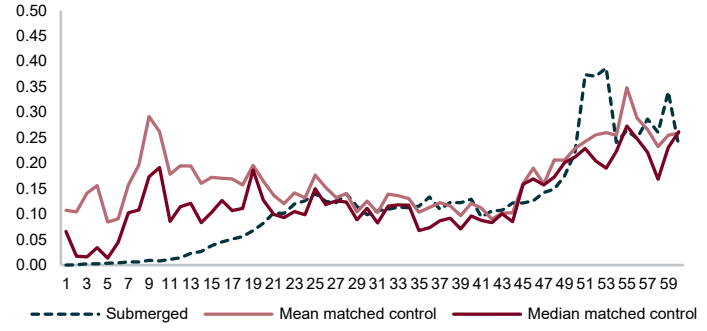
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Lerøy Seafood – weekly submerged lice vs mean matched controls



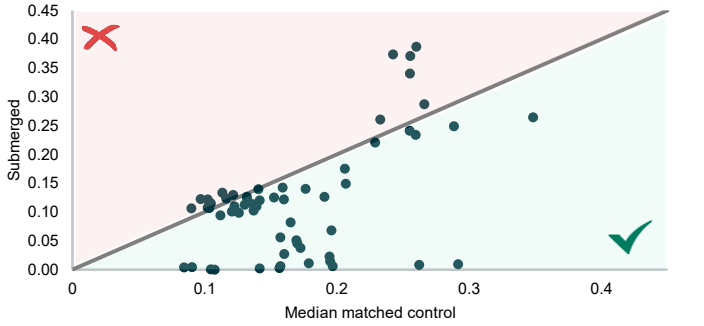
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

SalMar – adult female lice by biological cycle week



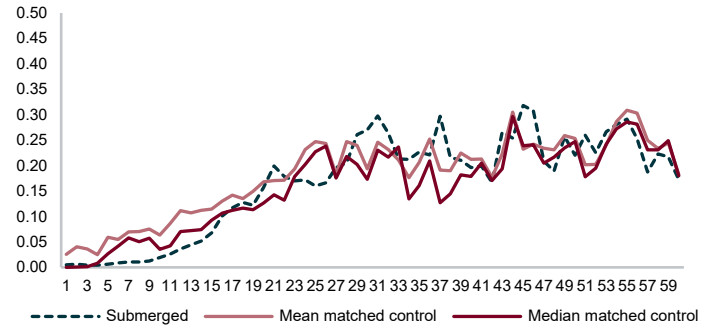
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

SalMar – weekly submerged lice vs. mean matched controls



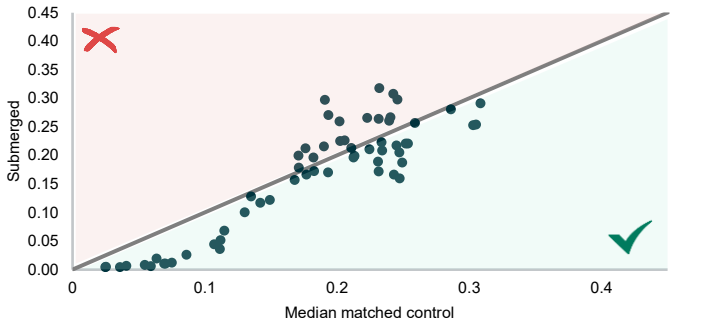
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Sinkaberg Havbruk – adult female lice by biological cycle week



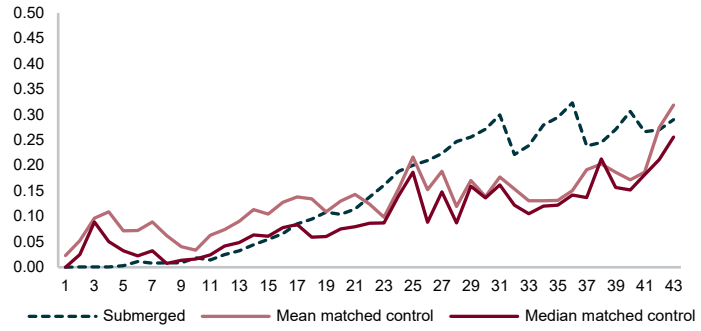
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Sinkaberg Havbruk – weekly submerged lice vs mean matched controls



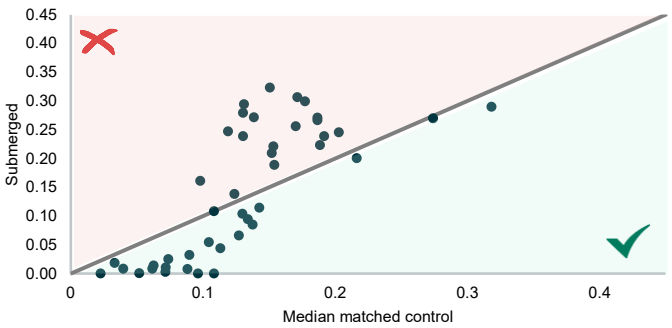
Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Mowi – adult female lice by biological cycle week



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

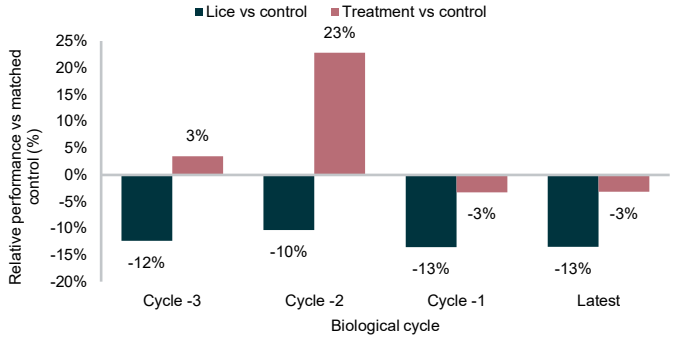
Mowi – weekly submerged lice vs mean matched controls



Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Relative performance vs matched controls – matched duration

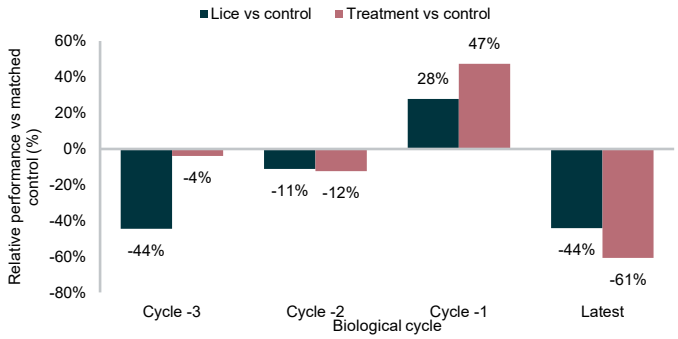
Lerøy Seafood – relative performance vs matched controls



Note: N = 16, Median window =55

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

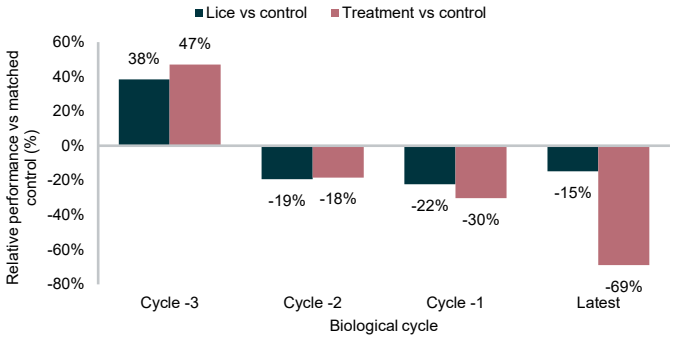
SalMar – relative performance vs matched controls



Note: N = 5, Median window =61

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

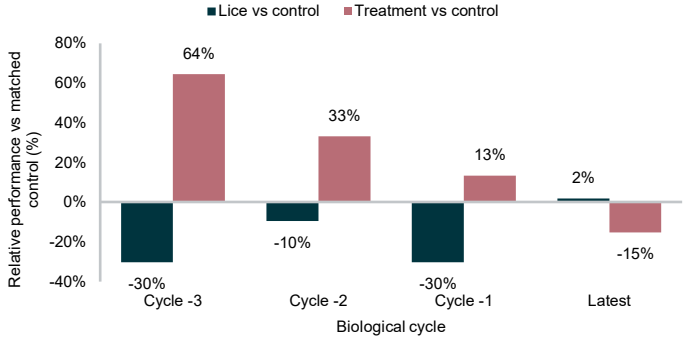
Sinkaberg Havbruk – relative performance vs matched controls



Note: N = 8, Median window =29

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Mowi – relative performance vs matched controls



Note: N = 3, Median window =54

Source: BarentsWatch (data) & Directorate of Fisheries (data) & DNB Carnegie (calculations)

Disclosures and disclaimers

DNB Carnegie

DNB Carnegie is a Business Area in the DNB Group comprising: 1) the investment services division of DNB Bank ASA; 2) DNB Carnegie Investment Bank AB (a wholly owned subsidiary of DNB Bank ASA) and 3) DNB Carnegie, Inc. (a wholly owned subsidiary of DNB Bank ASA). DNB Carnegie is a leading Nordic provider of investment services.

DNB Carnegie generates added value for institutions, companies and private clients in the areas of trading in securities, investment banking, and securities services.

The research of DNB Carnegie is produced in the investment services division of DNB Bank ASA and DNB Carnegie Investment Bank AB; thus "DNB Carnegie" should be read as meaning these two entities throughout the disclaimer text, unless otherwise expressively stated.

General

This research report has been prepared by DNB Carnegie and is based on information obtained from various public sources that DNB Carnegie believes to be reliable but has not independently verified, and DNB Carnegie makes no guarantee, representation or warranty as to its accuracy or completeness.

This research report does not, and does not attempt to, contain everything material that there is to be said about the company. Artificial intelligence-based tools may be used as part of the research production process; all content is reviewed by the responsible analyst Any opinions expressed herein reflect DNB Carnegie's judgement at the time this research report was prepared and are subject to change without notice.

DNB Bank ASA, its affiliates and subsidiaries, their directors, officers, shareholders, employees or agents, are not responsible for any errors or omissions, regardless of the cause, or for the results obtained from the use of this research report, and shall in no event be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of this research report.

Any use of non-DNB Carnegie logos in this research report is solely for the purpose of assisting in identifying the relevant party. DNB Carnegie is not affiliated with any such party.

DNB Carnegie produces and distributes research reports from 1) the investment services division of DNB Bank ASA; and 2) DNB Carnegie Investment Bank AB (a wholly owned subsidiary of DNB Bank ASA). Clients receiving research reports from DNB Carnegie will therefore receive research reports produced by both companies. This research report is produced in the DNB Carnegie company where the responsible analyst is employed, please see the responsible analyst's name and DNB Carnegie company on the front page under the analyst's name to determine in which DNB Carnegie company this research report is produced.

This research report is distributed in Australia, Canada, Norway, Singapore, the UK and the US by the investment services division of DNB Bank ASA; and in Denmark, Finland and Sweden by DNB Carnegie Investment Bank AB (a wholly owned subsidiary of DNB Bank ASA).

DNB Carnegie is under supervision

DNB Bank ASA is a bank incorporated in Norway and is authorised and regulated by the Norwegian Financial Supervisory Authority. DNB Bank ASA is established in Singapore and in the UK via its Singapore and UK branches, which are authorised and regulated by the Monetary Authority of Singapore, and on a limited basis by the Financial Conduct Authority and the Prudential Regulation Authority of the UK respectively. DNB Bank ASA is established in Sweden via its Sweden branch which are subject to supervision by the Financial Supervisory Authority of Sweden. DNB Carnegie Investment Bank AB is a bank incorporated in Sweden with limited liability and is authorised and regulated by the Swedish Financial Supervisory Authority. DNB Carnegie Investment Bank AB is established in Finland and Denmark via its Finland and Denmark branches which are subject to limited supervision by the respective national Supervisory Authorities.

Further details about the extent of regulation by local authorities outside Norway and Sweden are available on request.

Property rights

This research report is for clients only, and not for publication, and has been prepared for information purposes by DNB Carnegie.

This research report is the property of DNB Carnegie. DNB Carnegie retains all intellectual property rights (including, but not limited to, copyright) relating to this research report. Sell-side investment firms are not allowed any commercial use (including, but not limited to, reproduction and redistribution) of this research report contents, either partially or in full, without DNB Carnegie's explicit and prior written consent. However, buy-side investment firms may use this research report when making investment decisions, and may also base investment advice given to clients on this research report. Such use is dependent on the buy-side investment firm citing DNB Carnegie as the source.

The Report does not constitute investment advice

This research report is made for information purposes only, and does not constitute and should not in any way be considered as an offer to buy or sell any securities or other financial instruments or to participate in any investment strategy. This research report has been prepared as general information and is therefore not intended as a personal recommendation of particular financial instruments or strategies, and does not constitute personal investment advice. Investors should therefore make their own assessments of whether any of the trading ideas described herein are a suitable investment based on the investor's knowledge and experience, financial situation, and investment objectives.

Risk warning

The risk of investing in financial instruments is generally high. Past performance is not a reliable indicator of future performance, and estimates of future performance are based on assumptions that may not be realised. When investing in financial instruments, the value of the investment may increase or decrease, and the investor may lose all or part of their investment. Careful consideration of possible financial distress should be made before investing in any financial instrument.

Regulation AC analyst certification

The research analyst(s) responsible for the content of this research report certify that: 1) the views expressed in this research report accurately reflect that research analyst's personal views about the company and the securities that are the subject of this research report; and 2) no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in this research report. DNB Carnegie employees, including research analysts, may receive compensation that is generated by overall firm profitability.

Type of coverage, including valuation methodologies and assumptions

1. Fundamental analysis with a target price and recommendation. DNB Carnegie publishes a target price for most of the stocks in our Research Universe. The target price is the analyst's assessment of expected total return (including dividend per share) over the coming 12 months based on various fundamental valuation methods. The target price is based on a combination of several valuation methods such as discounted cash flow, pricing based on earnings multiples, multiple on book value, net asset value and peer comparison. A commonly used method is DCF valuation, where future cash flows are discounted to today. Analysts may also use different valuation multiples, e.g. P/E and EV/EBIT, relative to industry peers to obtain a target price. For companies where it is appropriate, a target price can also be based on the analyst's assessment of a fair ratio relative to the net asset value of the company. Target prices are revised when earnings and cash flow forecasts are changed. Thus, changes to estimates are a key risk to the target price. Other reasons for revising target prices include changes in the underlying value of a company's assets and when factors affecting the required rate of return change, which can also be seen as risk factors to the target price.

2. Quantitative and technical analysis. DNB Carnegie produces research based on quantitative and technical analysis ("quant products"). Such research is based on mathematical and technical models applied to companies, industries and sectors, rather than a fundamental analysis of a company. Quantitative and technical analysis thus does not result in estimates, a valuation or a recommendation (e.g. BUY, SELL, HOLD). Quant products may also have a significantly different time horizon from those of other products generated by DNB Carnegie. The views expressed in quant products may thus differ from, or conflict with, those presented in other research reports generated by DNB Carnegie.

3. Commissioned research reports: DNB Carnegie produces commissioned research paid for entirely by the issuer, but prepared under the same regulatory requirements and research practices as our independent research. Commissioned research reports may be branded 'Issuer sponsored research' or 'Marketing material' based on whether they meet all of the requirements of the EU code of conduct for issuer sponsored research. This branding is clearly presented on the front page and at the bottom of each subsequent page. Commissioned research reports include the analyst's assessment of a fair value range over the coming 6-12 months based on various fundamental valuation methods. A commonly used method is DCF valuation, where future cash flows are discounted to today. Analysts may also use different valuation multiples, e.g. P/E and EV/EBIT, relative to industry peers. For companies where it is appropriate, a fair value range can also be based on the analyst's assessment of a fair ratio relative to the net asset value of the company. Fair value ranges represent the assessment of the analyst(s) at the time of writing.

For fundamental and quant & technical analysis, you will find detailed information about the valuation or methodology, the underlying assumptions, and risks on DNB Carnegie Edge (www.edge.carnegie.se). The complete history of equity research reports and previous recommendations can also be found on DNB Carnegie Edge or, for commissioned research, on DNB Carnegie Access.

Recommendation structure:

BUY – expected return* greater than 10% within 12 months and an attractive risk/reward.

HOLD – expected return* of 0–10% within 12 months, or a neutral risk/reward profile.

SELL – expected negative return* within 12 months and an unattractive risk/reward.

NOT RATED – no recommendation on the stock.

UNDER REVIEW – the recommendation has been suspended temporarily.

*total return including dividend per share

Recommendations may, from time to time, deviate from the definitions above owing to market volatility. Any such deviation will be assessed regularly to determine whether it should no longer be considered temporary.

Frequency of update

DNB Carnegie's research analysis consists of case-based analyses, meaning the frequency of the analytical research report may vary over time. Unless otherwise expressly stated in this research report, the analysis is updated when considered necessary by the research department, for example in the event of significant changes in market conditions or events related to the issuer/the financial instrument.

Potential conflicts of interest

DNB Carnegie may from time to time perform or solicit investment banking services for any company mentioned in this research report. Any such publicly announced business activity during the past 12 months will be referred to in the company-specific disclosures.

Readers should assume that any company mentioned in this research report may have an active client relationship with DNB Carnegie which is not disclosed due to client confidentiality e.g. trading in securities. Readers should also assume that DNB Carnegie may provide registrar services to the company, and/or assist with new issuance of bonds where the process is handled by Fixed Income Sales only.

DNB Bank ASA, its affiliates and subsidiaries are engaged in commercial banking activities, and may for example be a lender to any company mentioned in this research report. This means that certain parts of these entities might have access to whatever rights and information regarding addressed companies as are available to a creditor under applicable law and the applicable loan and credit agreements.

DNB Carnegie and the rest of DNB Group have implemented a set of rules handling conflicts of interest. This includes confidentiality rules restricting the exchange of information between various parts of DNB Carnegie and the rest of DNB group. In order to restrict flows of sensitive information, appropriate information barriers have been established between the Investment Banking Division and other business departments in DNB Carnegie, and between DNB Carnegie and other business areas in the DNB Group. People outside an information barrier may gain access to sensitive information only after having observed applicable wall-crossing procedures. This means that employees of DNB Carnegie who are preparing the research reports are prevented from using or being aware of information available in other parts of DNB Carnegie or DNB Group that may be relevant to the recipients' decisions.

The remuneration of employees involved in preparing this research report is not tied to investment banking transactions performed by DNB Carnegie or a legal person within the same group.

Confidential and non-public information regarding DNB Carnegie and its clients, business activities and other circumstances that could affect the market value of a security ("sensitive information") is kept strictly confidential and may never be used in an undue manner. Internal guidelines are implemented to ensure the integrity and independence of research analysts. In accordance with the guidelines, the research department is separated from the Investment Banking department and there are no reporting lines between the research department and Investment Banking. The guidelines also include rules regarding, but not limited to, the following issues: contacts with covered companies, prohibition against offering favourable recommendations, personal involvement in covered companies, participation in investment banking activities, supervision and review of research reports, analyst reporting lines, and analyst remuneration.

DNB Carnegie and any of its officers or directors may have a position, or otherwise be interested in, transactions in securities that are directly or indirectly the subject of this research report. Any significant financial interests held by the analyst, DNB Carnegie, or a legal person in the same group in relation to the issuer will be referred to in the company-specific disclosures.

Company specific disclosures

The following disclosures relate to relationships between DNB Carnegie and the subject company.

Within the past 12 months DNB Carnegie has provided and/or received compensation for investment banking services and/or ancillary services regarding the following issuer(s): 2020 Bulkers, AFRY, Airthings, Aker ASA, Aker Solutions, Akva Group, Alligo, Ambea, Appear, Arctic Bioscience, Arctic Fish, Arion Bank, Auroora Group, Austevoll Seafood, AutoStore, Avarda, Axactor, B2 Impact, Balder, Bang & Olufsen, Bilia, BioInvent, BioMar, Bohus, Bonava, Bonheur, Borr Drilling, Borregaard, BrainCool, Bruton, BW Energy, BW LPG, BW Offshore, Cadeler, Calviks, Cambi, Cantargia, Carasent, ChemoMetec, Circio, Clas Ohlson, Coffee Stain Group, Constellation Oil Services, Coor, Crayon, Cyviz, Danske Bank, DNB, Elektroimportøren, Elkem, Elliptic Laboratories, Elmera Group, Elopak, Embracer Group, Entra, Eolus, EQT, Europris, Faron Pharmaceuticals, Flex LNG, Fortum, Framery, Frontline, Genco Shipping & Trading, General Oceans, Gentian Diagnostics, Gjensidige, Golar LNG, Golden Ocean Group, Gränges, Grieg Seafood, Gubra, Gulf Keystone Petroleum, H+H International, Hafnia, Harbour Energy, Hexagon Composites, Hexagon Purus, Himalaya Shipping, HMH, HMS Networks, Höegh Autoliners ASA, Hoist Finance, Humana, Icelandic Salmon, InstallatørGruppen, Intrum, ITAB Group, Ithaca Energy, Kambi, Karnov, Kid, Klaveness Combination Carriers, Komplett, Kongsberg Gruppen, Lerøy Seafood Group, Lifco, Link Mobility, Lundbeck, Lytix Biopharma, Magnora Data Center, Måsøval, Medistim, Medivir, Momentum Group, Mowi, MPC Container Ships ASA, Multiconsult, Napatech, Navamedic, NEL, Netel, Nobia, Noble Corporation, NorAm Drilling, Norconsult, Nordea, Nordic LEVEL Group, Nordtech, Norske Skog, Norwegian Air Shuttle ASA, NRC Group, Nykode Therapeutics, Odfjell SE, Okeanis Eco Tankers, OMC Tankers , Omda, Oncoinvent, Orexo, Otovo, Paratus Energy, Pareto Bank, Pelican Aqua Holding, Pexip, PhotoCure, Posti, Prosafe, Protector Forsikring, Public Property Invest, Rana Gruber, Reaktor, Rejlers, Rogaland Sparebank, Safe Bulkers, Salix Group, SalMar, Salmones Camanchaca, Sampo, Sandvik, Sats, SBB, Scandic Hotels Group, Scatec, Schouw & Co, Sea1 Offshore, Seadrill, SEB, Selvaag Bolig, Serica Energy, SkiStar, Sleep Cycle, SmartCraft, Smartoptics, Solar Foods, SpareBank 1 Helgeland, Sparebank 1 Østlandet, Sparebank 1 SMN, SpareBank 1 Sør-Norge, Sparebanken Møre, Sparebanken Norge, Sparebanken Øst, Star Bulk, Stora Enso, Storebrand, Subsea 7, Sveafastigheter, Sweco, Tången, Teekay Tankers, Telenor, Terranor, Terveystalo, TGS, Thor Medical, Thule Group, Tieto, Transocean, Truecaller, Veidekke, Vend, Ventura Offshore, Verisure, Vertiseit, Viaplay Group, Volati, Volvo, W5 Solutions, Wallenius Wilhelmsen ASA, WeSports, Western Bulk Chartering, Wilh. Wilhelmsen Holding ASA, Yara, Zealand Pharma

Within the past 12 months DNB Carnegie has been lead or co-lead manager in a public offering of financial instruments issued by the following issuer(s) and received compensation for it: 2020 Bulkers, Agilyx, Aker BP, Altra, Alvotech, Andfjord Salmon, Apotea, Appear, Archer, Arion Bank, Asker, Asmodee, Atlantic Sapphire, Auroora Group, Axactor, Axfood, B2 Impact, Bang & Olufsen, BEWI, BICO, Billerud, BioInvent, BioMar, BlueNord, Bohus, Bonava, Bonheur, Borr Drilling, Bruton, BW LPG, Cadeler, Calviks, Camurus, Canatu Oyj, Cantargia, Catella, Catena, Cinclus Pharma, CMB.TECH, Constellation Oil Services, Coor, Danske Bank, DNB, DNO, DOF, Dolphin Drilling, Dometic, Dorian LPG, Dustin, Egetis Therapeutics, Elkem, Emilshus, Entra, Envipco, Equinor, Excelerate Energy, Ferroamp, Flerie, Framery, General Oceans, Genmab, Genova, Gigante Salmon, Gjensidige, Golar LNG, Green Landscaping Group, GRK, Gulf Keystone Petroleum, Hacksaw Gaming, Hansa Biopharma, Harbour Energy, Hexagon Composites, HMH, Höegh Autoliners ASA, Hoist Finance, InstallatørGruppen, Intea, International Petroleum Corp, Intrum, Ithaca Energy, John Mattson, Kaldvik, KB Components, Kitron, Lerøy Seafood Group, Lifco, Lifecare ASA, Logistea, Logistri, Magnora Data Center, Medivir, Mowi, MPC Container Ships ASA, Napatech, Navigator Holdings Ltd, Nimbus Group, NOBA Bank Group, Nobia, Noble Corporation, Nordea, Nordic LEVEL Group, Nordic Semiconductor, Nordtech, Norsk Hydro, NP3, Nykode Therapeutics, Odfjell Drilling, Odfjell Technology, OKEA, OMC Tankers , Oncoinvent, Oncopeptides, Orexo, Orkla, Ortoma, OssDsign, Panoro Energy, Paratus Energy, Paxman, Pelican Aqua Holding, Posti, PowerCell, Public Property Invest, Qualisys, Reaktor, Röko, Rusta, Safe Bulkers, Salix Group, SalMar, Salmon Evolution, SaltX, Scatec, Scorpio Tankers, Sdiptech, Seadrill, SEB, Sentia, Serica Energy, SFL Corporation Ltd, SLP, Solar Foods, Solstad Maritime, Solstad Offshore, SpareBank 1 Helgeland, Sparebank 1 Nord-Norge, Sparebank 1 Østlandet, Sparebank 1 SMN, Sparebanken Norge, Stillfront Group, Stolt-Nielsen, Storebrand, Storskogen, Swedbank, Tången, Terranor, Thule Group, Tidewater, Tomra, Traton, Trianon, Vår Energi, Ventura Offshore, Verisure, Vertiseit, Vimian, Volati, Volvo, W5 Solutions, Wallenius Wilhelmsen ASA, WeSports, Xvivo, Zelluna

DNB Carnegie is market maker/liquidity provider in the following issuer(s): ALM Equity, Alvotech, Beijer Alma, Besqab, CAG Group, Clemondo Group, eEducation Albert, Elanders, Emilshus, Fastpartner, Iconovo, Idun Industrier, Nordic LEVEL Group, Sagax, SLP, Solar, Systemair

DNB Carnegie acts as a Certified Adviser to the following issuer(s): ALM Equity, Bokusgruppen, CAG Group, Calviks, Canatu Oyj, Clemondo Group, eEducation Albert, GiG Software, Nimbus Group, OssDsign, Solar Foods, Surgical Science Sweden, Terranor, W5 Solutions

The analyst(s) responsible for the following issuer(s) that are the subject of this research report (jointly with closely related persons) hold shares in: Alligo (1000 shares), Kone (3360 shares), Momentum Group (1000 shares), Scandic Hotels Group (758 shares)

Shares in the issuer(s) held by people involved in the production of research, including people that could reasonably be expected to have access to it before distribution: Assa Abloy (100 shares), BHG (100 shares), Boozt (100 shares), Corem (4 shares), Electrolux (169 shares), Electrolux Professional (169 shares), Embracer Group (200 shares), Ericsson (200 shares), Handelsbanken (954 shares), Husqvarna (254 shares), Industrivärden (14 shares), Investor (248 shares), Nokia (64 shares), Novo Nordisk (200 shares), Skanska (200 shares), SKF (160 shares), SSAB (200 shares), Telia Company (100 shares), Volvo (15 shares)

Share positions in the issuer(s) held as part the investment division in DNB Bank ASA. Holdings as part of DNB Carnegie's investment services activity are not included: Gentian Diagnostics (2110224 shares), Viaplay Group (7794009 shares)

Please see https://edge.carnegie.se/legal/disclosuresanddisclaimers for equity disclosures and historical recommendation and target price information on all companies covered by DNB Carnegie.

Recommendation distribution in the previous 12 months

Ratings	DNB Carnegie coverage universe % of total	Investment banking services * % of total
Buy	61	64
Hold	35	32
Sell	4	4

As of 09 Sep 2026

*Investment banking services provided by DNB Carnegie in the previous 12 months

Copyright © 2026 DNB Carnegie

Additional information for clients in Australia
This research report has been prepared and issued outside Australia.

DNB Bank ASA ARBN 675 447 702 is exempt from the requirement to hold an Australian financial services licence under the Corporations Act 2001 (Cth) ("Corporations Act") in respect of financial services it provides to "wholesale clients" within the meaning of the Corporations Act ("Wholesale Clients"). DNB Bank ASA accordingly does not hold an Australian financial services licence. DNB Bank ASA is regulated by Finanstilsynet (the Financial Supervisory Authority of Norway) under the laws of Norway, which differ from Australian laws.

This research report is provided only to authorised recipients who are both Wholesale Clients and "professional investors" within the meaning of the Corporations Act. In no circumstances may this research report be provided to any other person.

No member of the DNB Group, including DNB Bank ASA and DNB Carnegie Investment Bank AB, is an authorised deposit-taking institution ("ADI") under the Banking Act 1959 (Cth). Accordingly, neither DNB Bank ASA nor DNB Carnegie Investment Bank AB is supervised by the Australian Prudential Regulation Authority as an ADI.

DNB Bank ASA is a limited liability company incorporated in Norway.

Nothing in this research report excludes, restricts or modifies a statutory warranty or liability to the extent such an exclusion, restriction or modification would be prohibited under Australian law.

Additional information for clients in Canada
This research report and the information included herein is general investment advice that is not tailored to the needs of any recipient and, accordingly, is distributed to Canadian residents in reliance on section 8.25 of the Canadian Securities Administrators' National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. For disclosures regarding any financial or other interest that DNB Bank ASA, DNB Carnegie Investment Bank AB and their affiliates may have in the issuer or issuers that are the subject of this research report please see the potential conflict of interest section and the company-specific disclosures section.

Additional information for clients in Singapore
This research report is distributed by the Singapore Branch of DNB Bank ASA. It is intended for general circulation and does not take into account the specific investment objectives, financial situation or particular needs of any particular person. Please seek advice from a financial adviser regarding the suitability of any product referred to in this research report, taking into account your specific financial objectives, financial situation or particular needs before making a commitment to purchase any such product or security. You have received a copy of this research report because you have been classified as an accredited investor, an expert investor, or as an institutional investor, as these terms have been defined under Singapore's Financial Advisers Act (Cap. 110) ("FAA") and/or the Financial Advisers Regulations ("FAR"). The Singapore Branch of DNB Bank ASA is a financial adviser exempt from licensing under the FAA but is otherwise subject to the legal requirements of the FAA and of the FAR. By virtue of your status as an accredited investor, institutional investor or as an expert investor, the Singapore Branch of DNB Bank ASA is, with respect to certain of its dealings with you or services rendered to you, exempt from having to comply with certain regulatory requirements of the FAA and FAR, including without limitation, sections 34, 36 and 45 of the FAA. Section 34 of the FAA requires a financial adviser to disclose material information concerning designated investment products that are recommended by the financial adviser to you as the client. Section 36 of the FAA requires a financial adviser to have a reasonable basis for making investment recommendations to you as the client. Section 45 of the FAA requires a financial adviser to include, within any circular or written communications in which they make recommendations concerning securities, a statement of the nature of any interest which the financial adviser (and any person connected or associated with the financial adviser) might have in the securities. Please contact the Singapore branch of DNB Bank ASA at +65 6260 0111 with respect to any matters arising from, or in connection with, this research report. This research report is intended for and is to be circulated only to people who are classified as an accredited investor, an expert investor, or an institutional investor. If you are not an accredited investor, an expert investor or an institutional investor, please contact the Singapore Branch of DNB Bank ASA at +65 6260 0111. DNB Bank ASA, its affiliates and subsidiaries, our associates, officers and/or employees may have interests in any products referred to in this research report by acting in various roles including as distributor, holder of principal positions, adviser or lender. DNB Bank ASA, its affiliates, subsidiaries, our associates, officers and/or employees may receive fees, brokerage or commissions for acting in those capacities. In addition,, DNB Bank ASA, its affiliates and subsidiaries, our associates, officers and/or employees may buy or sell products as principal or agent and may effect transactions that are not consistent with the information set out in this research report.

Additional information for clients in the United States
The research analyst(s) named on this research report are foreign research analysts as defined by FINRA Rule 1220. The only affiliates contributing to this research report are the investment services division of DNB Bank ASA and DNB Carnegie Investment Bank AB (a wholly owned subsidiary of DNB Bank ASA) ("hereinafter DNB Carnegie"); the foreign research analysts employed by DNB Carnegie are named on the first page; the foreign research analysts are not registered/qualified as research analysts with FINRA; foreign research analysts are not associated persons of DNB Carnegie, Inc. and therefore are not subject to the restrictions set forth in FINRA Rules 2241 and 2242 regarding restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

This is a Third-Party Research Report as defined by FINRA Rules 2241 and 2242. Any material conflict of interest that can reasonably be expected to have influenced the choice of DNB Carnegie as a research provider or the Subject Company of a DNB Carnegie research report, including the disclosures required by FINRA Rules 2241 and 2242 can be found above.

This research report is being furnished solely to Major U.S. Institutional Investors within the meaning of Rule 15a-6 under the U.S. Securities Exchange Act of 1934 and to such other U.S. Institutional Investors as DNB Carnegie, Inc. may determine. Distribution to non-Major U.S. Institutional Investors will be made only by DNB Carnegie, Inc., a separately incorporated subsidiary of DNB Bank ASA which is a U.S. broker-dealer registered with the Securities and Exchange Commission ("SEC") and member of the Financial Industry Regulatory Authority ("FINRA") and the Securities Investor Protection Corporation ("SIPC").

Securities offered and sold in the U.S. are provided through DNB Carnegie, Inc. (SEC #8-66024 / CRD#127605).

Any U.S. recipient of this research report seeking to obtain additional information or to effect any transaction in any security discussed herein or any related instrument or investment should contact DNB Carnegie, Inc., 30 Hudson Yards, 81st Floor, New York, NY 10001, telephone number +1 212-551-9800.

At DNB Carnegie, we are dedicated to being the most respected partner for Nordic investment banking and wealth management solutions, leveraging the full capabilities of DNB. With unmatched strength across products, sectors, and geographies, our commitment is crystal clear: Clients first!

We deliver tailored financial solutions in mergers and acquisitions, capital markets, and financial advisory services by leveraging our deep market knowledge and expansive international reach. As an agile investment bank and part of a major Nordic banking group, we offer unparalleled local expertise, exceptional placing power, and a unique network.

Our roots run deep in the Nordic region, with strong local offices in Sweden, Norway, Denmark, and Finland. This solid foundation is amplified by our global presence in London, New York, and Singapore.

DNB Bank ASA, DNB Carnegie
Dronning Eufemias gate 30
0191 Oslo | Norway
Telephone: +47 915 04800

www.dnb.no

DNB Carnegie Investment Bank AB
Regeringsgatan 56
103 38 Stockholm | Sweden
Telephone: +46 8 676 88 00

www.dnbcarnegie.se

DNB Carnegie Investment Bank, Denmark Branch
Overgaden neden Vandet 9B
1414 Copenhagen K | Denmark
Telephone: +45 32 88 02 00

DNB Bank ASA, Singapore Branch, DNB Carnegie
1 Wallich Street Downtown Core 06
#30-01, Guoco Tower,Singapore 078881
Telephone: +65 6260 0111

DNB Carnegie Investment Bank AB, Finland Branch
Eteläesplanadi 2 PO Box 36
FI-00131 Helsinki | Finland
Telephone: +358 9 618 71 230

DNB Carnegie, Inc.

30 Hudson Yards
New York, NY 10001 USA
Telephone: +1 212 551 9800

DNB Bank ASA, London Branch, DNB Carnegie
The Walbrook Building, 25 Walbrook
London EC4N 8AF | England
Telephone: +44 20 7216 4000