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Disease handling from a financial perspective

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Which report would Gordon Gekko pick?



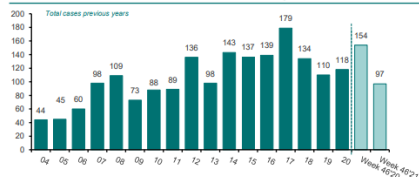
2. SALMON MARKET OVERVIEW

Norwegian fish health, week 46

97 suspected/confirmed PD cases and 18 suspected/confirmed ISA cases

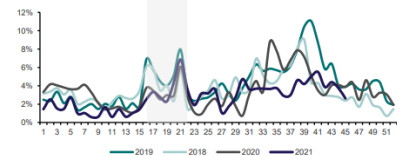
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Sites with PD in week 46 2021 versus 2020 – suspected/confirmed cases



- In week 46 of 2021 (this week), the number of sites with PD was 97 and the number of sites with ISA was 18 (suspected or confirmed).
- In the corresponding week in 2020, the number of locations with PD was 154, while 17 had ISA (suspected or confirmed).

Locations above sea lice limits (%)



- There were 16 sites above lice limits (3% of reported locations) in week 45. In the corresponding week in 2020, the number was 23 (equivalent to 4% of reported locations).
- Between weeks 16 and 22, the lice limit was lowered in some parts of the country.
- 87 sites performed mechanical lice treatment measures last week versus 84 in the corresponding week in 2020.

Source: Barentshatch

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*Share prices in this presentation were correct as of 16:30 CET on 18 November 2021

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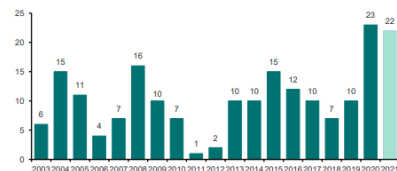
2. SALMON MARKET OVERVIEW

Norwegian fish health, week 46

Heading towards new peak year for ISA outbreaks in 2021

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Markets

ISA – Number of confirmed cases (2003–2021)



- Infectious salmon anaemia (ISA) cases in the Norwegian salmon industry more than doubled in 2020 from the 10 confirmed cases in 2019.
- The Norwegian Food Safety Authority has confirmed 19 cases so far in 2021.
- NTS ASA announced that its farming subsidiary Midt-Norsk Havbruk suspects iLA at its locality in Bjerøya (Kråkholmen), a couple of weeks ago. This was confirmed this week (15. November). The locality has around 1.18m fish with an average weight of 4.2kg.

ISA – monthly confirmed cases (2016–2021 YTD*)

	2016	2017	2018	2019	2020	2021
Jan	2	1	2	1	2	1
Feb	1	0	0	0	1	0
Mar	0	1	0	0	2	0
Apr	3	0	0	1	2	3
May	0	2	1	0	3	2
Jun	2	1	1	1	1	6
Jul	0	2	0	2	5	5
Aug	0	1	0	0	2	0
Sep	1	1	0	0	1	0
Oct	2	1	0	1	3	3
Nov	0	0	0	3	1	1
Des	1	0	0	1	0	0
Sum	12	10	7	10	23	22

Source: Barentshatch, Norwegian Veterinary Institute
*Note: 2021 YTD as of week 52 2021

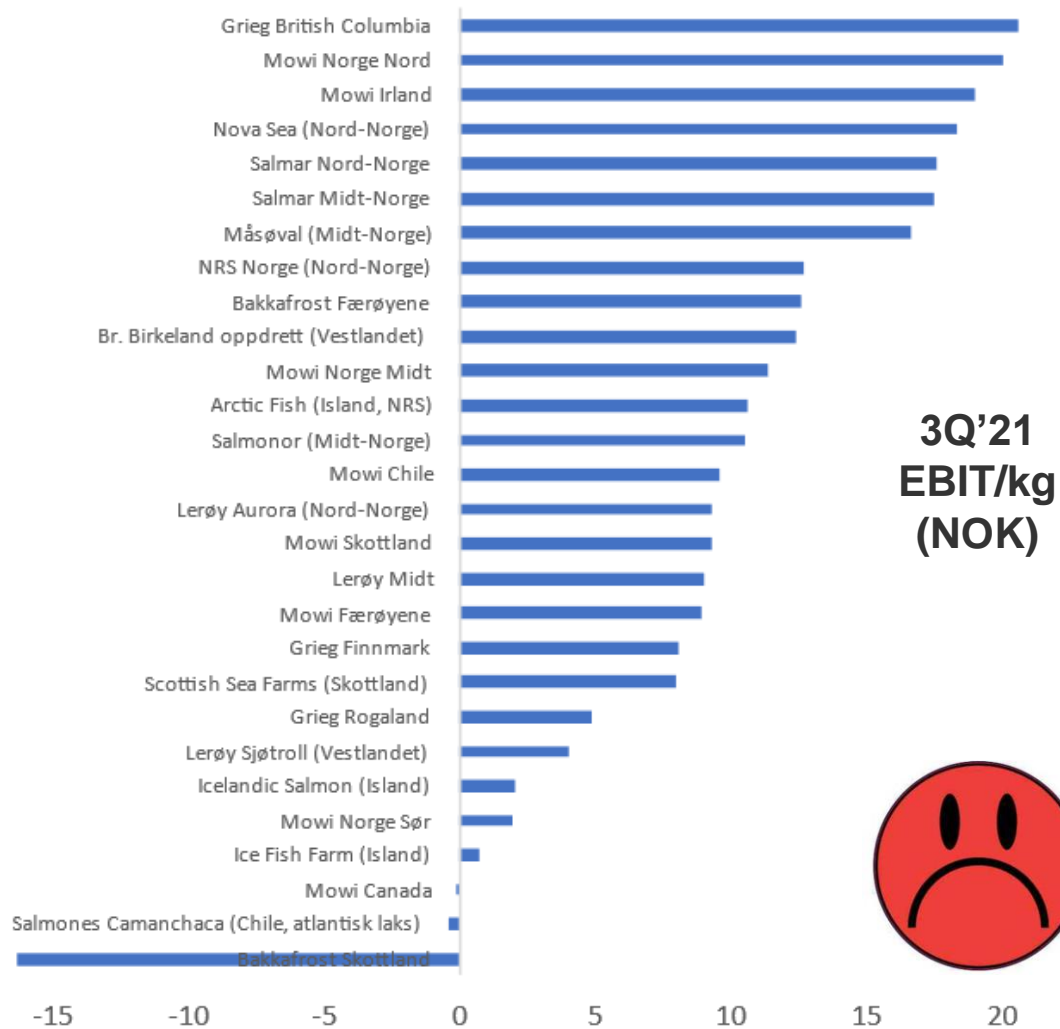
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- ISA is a contagious disease that causes lethargy and anaemia, and may lead to significant mortality in seawater if not appropriately managed.
- Control of an ISA outbreak is achieved through the culling or harvesting of affected fish, and the application of stringent biosecurity and mitigation measures.
- The virus is harmless to humans.
- Suspicion or detection of ISA means that salmon cannot be exported from the suspected location to China, Australia, or New Zealand.

The financial approach to disease

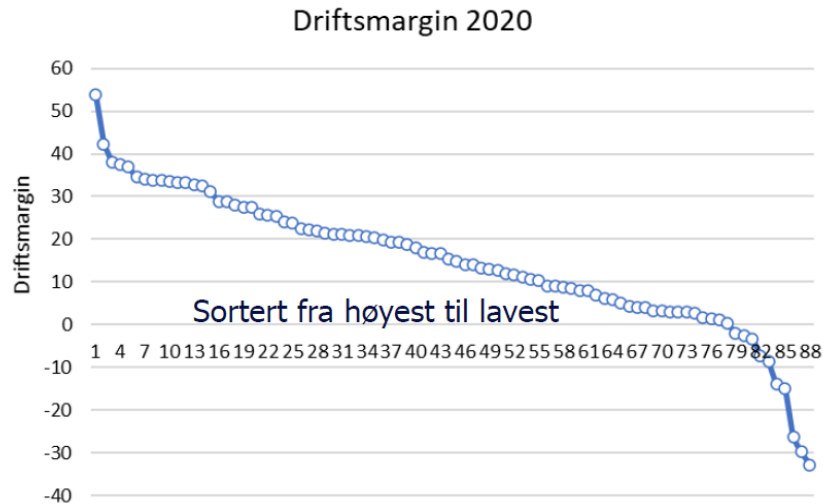
- It's difficult for financial players to assess the disease impact directly
- Focus is primarily indirect via
 - **Profitability**
 - Cost and achieved price
 - **Biological performance**
 - Mortality
 - Feed conversion ratio
 - Harvest weights
 - Share of superior vs downgraded product
 - **Antibiotics use**

Fish health a key margin driver

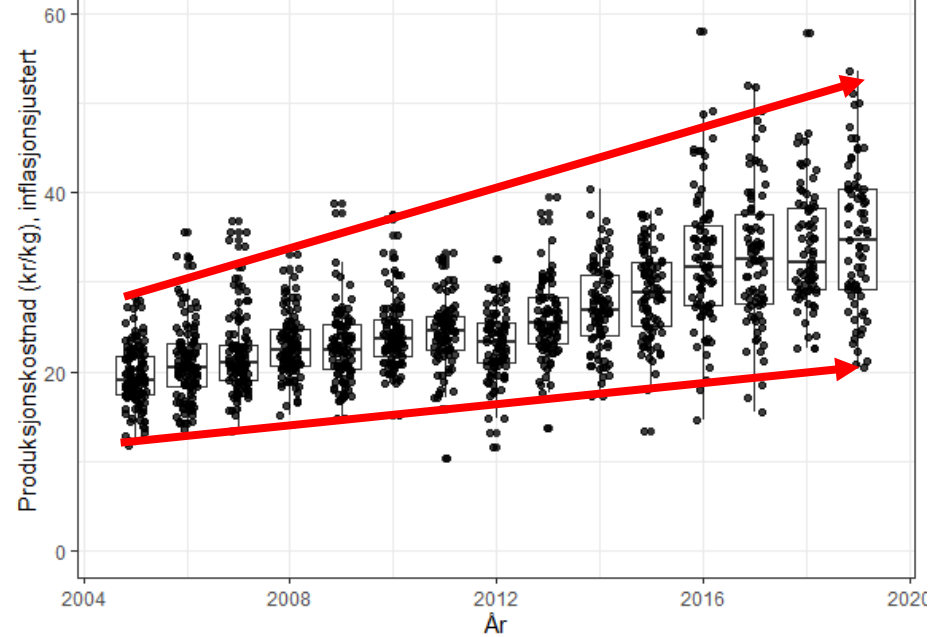


Increasing variation in profitability among farmers

EBIT margin Norwegian salmon farmers, 2020

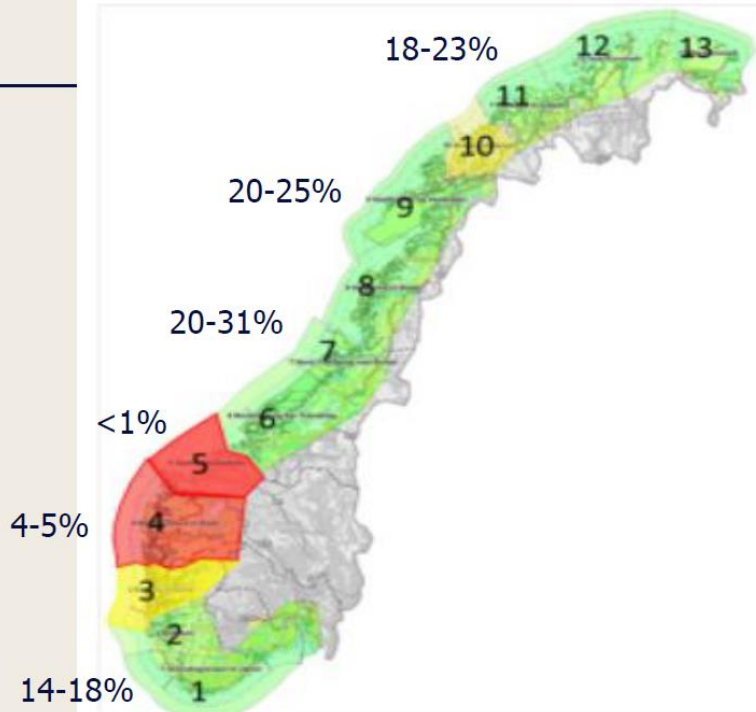


Cost per kg, NOK

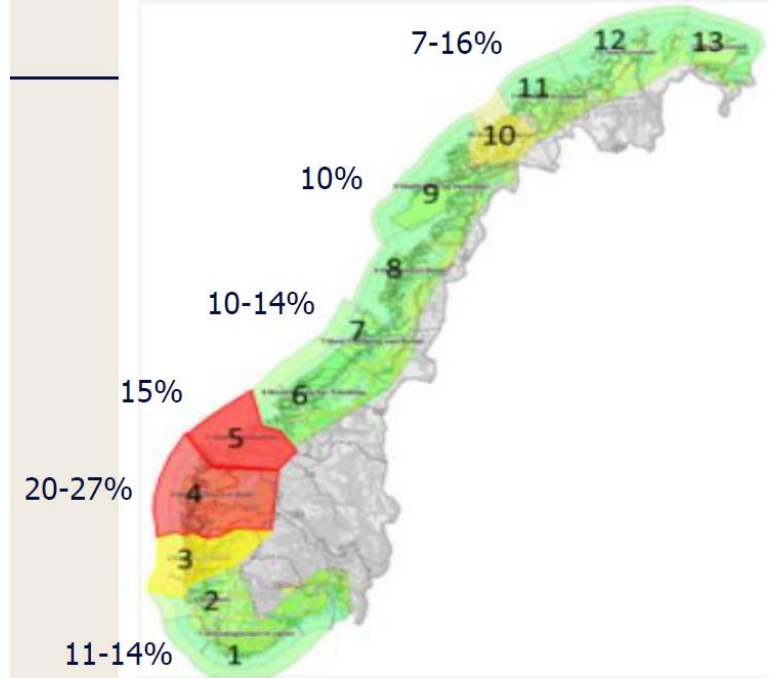


Geography – large variations in performance

EBIT-margins, salmon farming, 2020



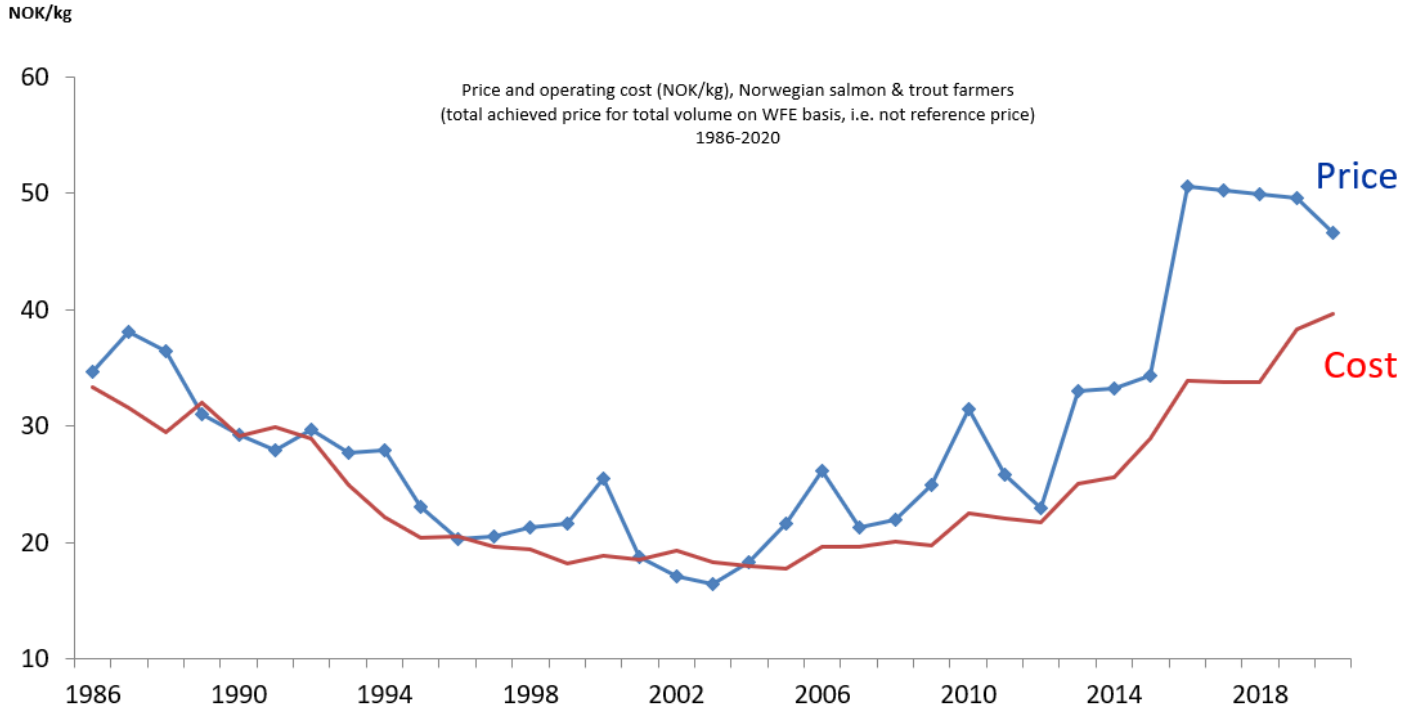
Mortality, salmon farming, 2020



Source: Bård Misund, UiS

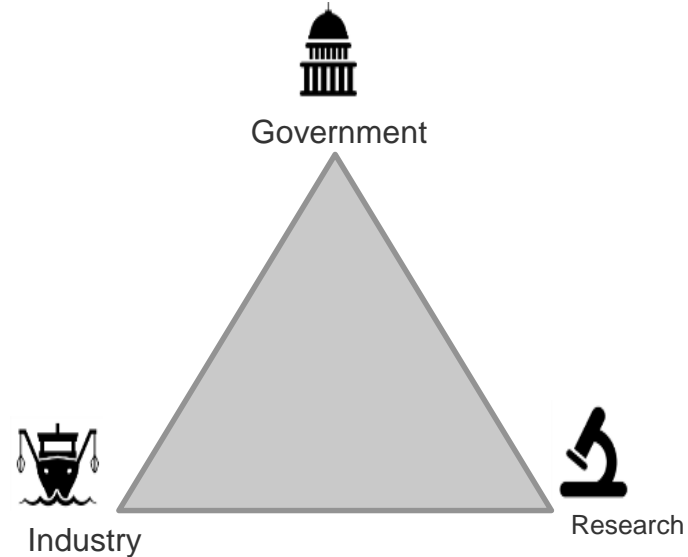
Watch the cost trend

Patogens a key cost driver



What makes aquaculture investable?

- Disease management
- Regulations
- Prices
- Sustainability

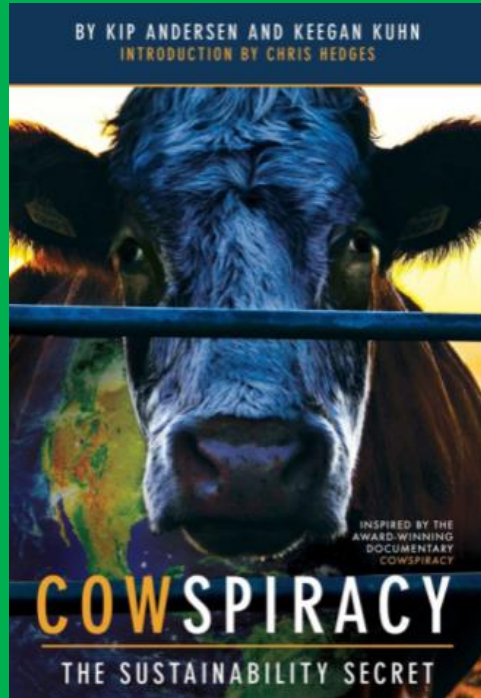
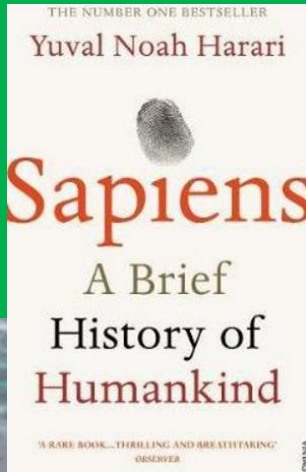


A setup to deal with new and unexpected diseases is key

Antibiotics and animal welfare is not a «salmon debate»



The ethical aspect



Isabella Hood, 15, Matakana, New Zealand 'Veganism is the only sustainable choice for people'

I had my eight-month vegiversary recently. I became vegan after a friend was interested in it and gave me a few videos to watch - two of which were *Cowspiracy* and *Earthlings*. There was no going back. I pretty much went vegan overnight. My parents are not vegan (for now) and my mum worries a lot about me getting a balanced diet and makes sure I eat lots of nuts and vegetables. This is a huge help because I can be lazy about this. My dad mainly just teases me.

The main reason I became vegan was because I see all animals as my friends and I would not want to eat a pig, just as I would not want to eat a dog. Every animal is a living, breathing and feeling creature who doesn't want to die. I don't want to contribute to their deaths.

There is so much I could say about why veganism is the only sustainable choice for people. I could spout so many shocking statistics and facts. For example, animal agriculture is the leading cause of CO₂ emissions, deforestation and pollution of our waterways. It has been predicted that if the whole world went vegan, then world hunger could be solved five times over. Humans are taking the Earth for more than she's got and it's killing it.

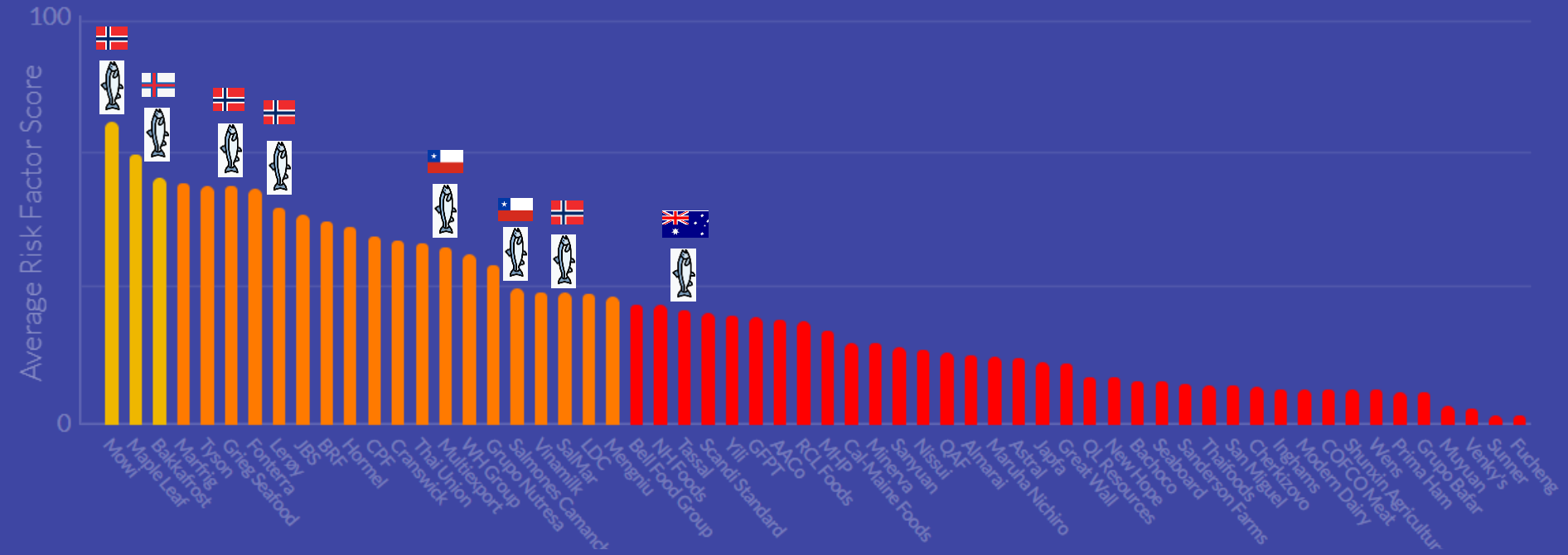
Fiskehelsesrapporten, Veterinærinstituttet:

De aller fleste forskere mener at fisk har evne til bevisst å registrere sanseinntrykk og dermed kan oppleve følelser som frykt, smerte og ubehag. Oppdrettsfisk er omfattet av dyrevelferdsloven og har det samme vern som andre produksjonsdyr, og skal ha et miljø og en håndtering som sikrer god velferd gjennom hele livssyklusen.



The Coller FAIRR Protein Producer Index

Best practice ● Low risk ● Medium risk ● High risk ●





Animal welfare a subgroup in Corporate Responsibility

Coller FAIRR Protein Producer Index: The nine risk factors considered

1.  Greenhouse gas emissions (GHGs)

2.  Deforestation and biodiversity

3.  Water scarcity and use


4.  Waste and water pollution

5.  Antibiotics

6.  Animal welfare

7.  Working conditions

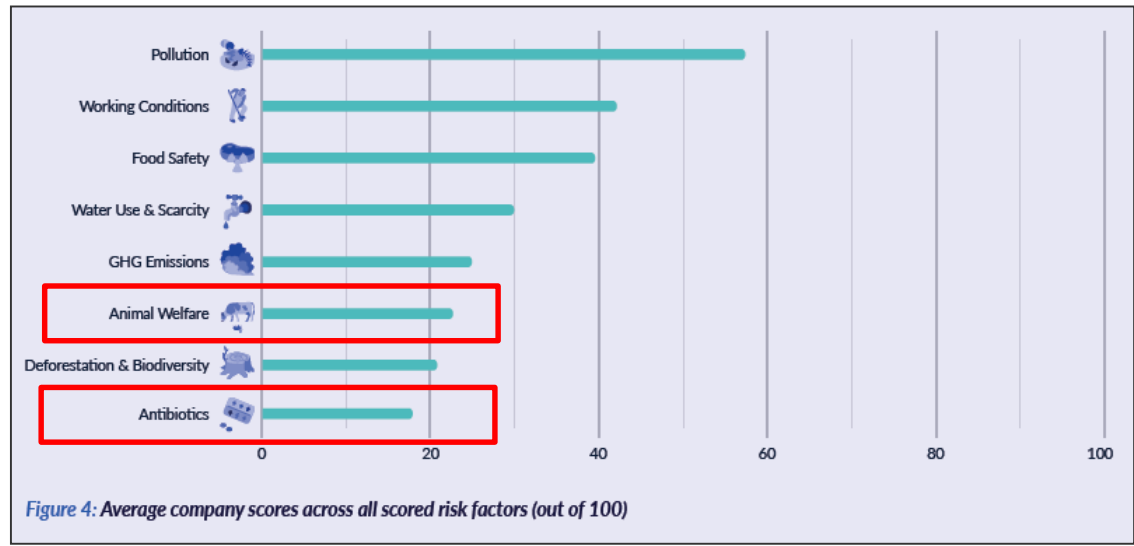
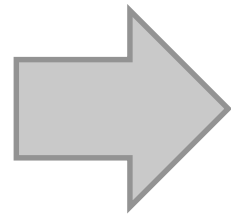
8.  Food safety

9.  Sustainable proteins*

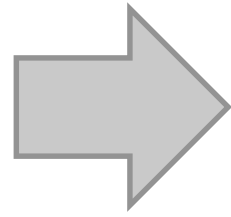
* We assessed companies on their exposure to alternative proteins, given the growing market opportunities in this space. However, this risk factor is not scored.

Coller FAIRR protein producer index

Bad news:
Animal welfare towards the bottom



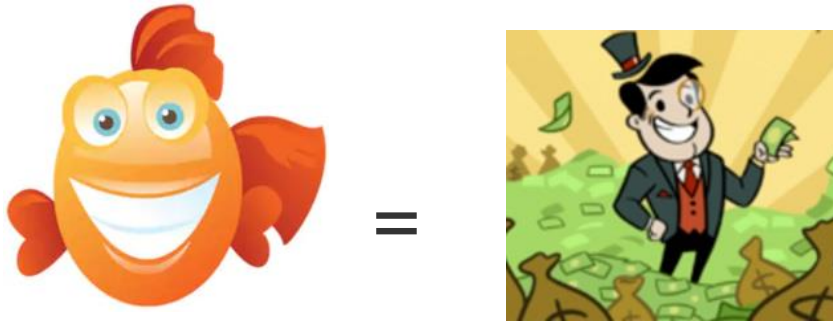
Good news:
Aquaculture (i.e. salmon) at the top



Source: Coller FAIRR

Summary

- Fish disease and welfare is a key driver of profitability
- This fact in combination with increased focus on sustainability in general will make its reporting more prominent in the years to come, also to the financial community
- And the impact on share prices and access to capital will increase



Happy fish = happy shareholders