

Land-based and offshore farming

What will be the impact from new farming methods

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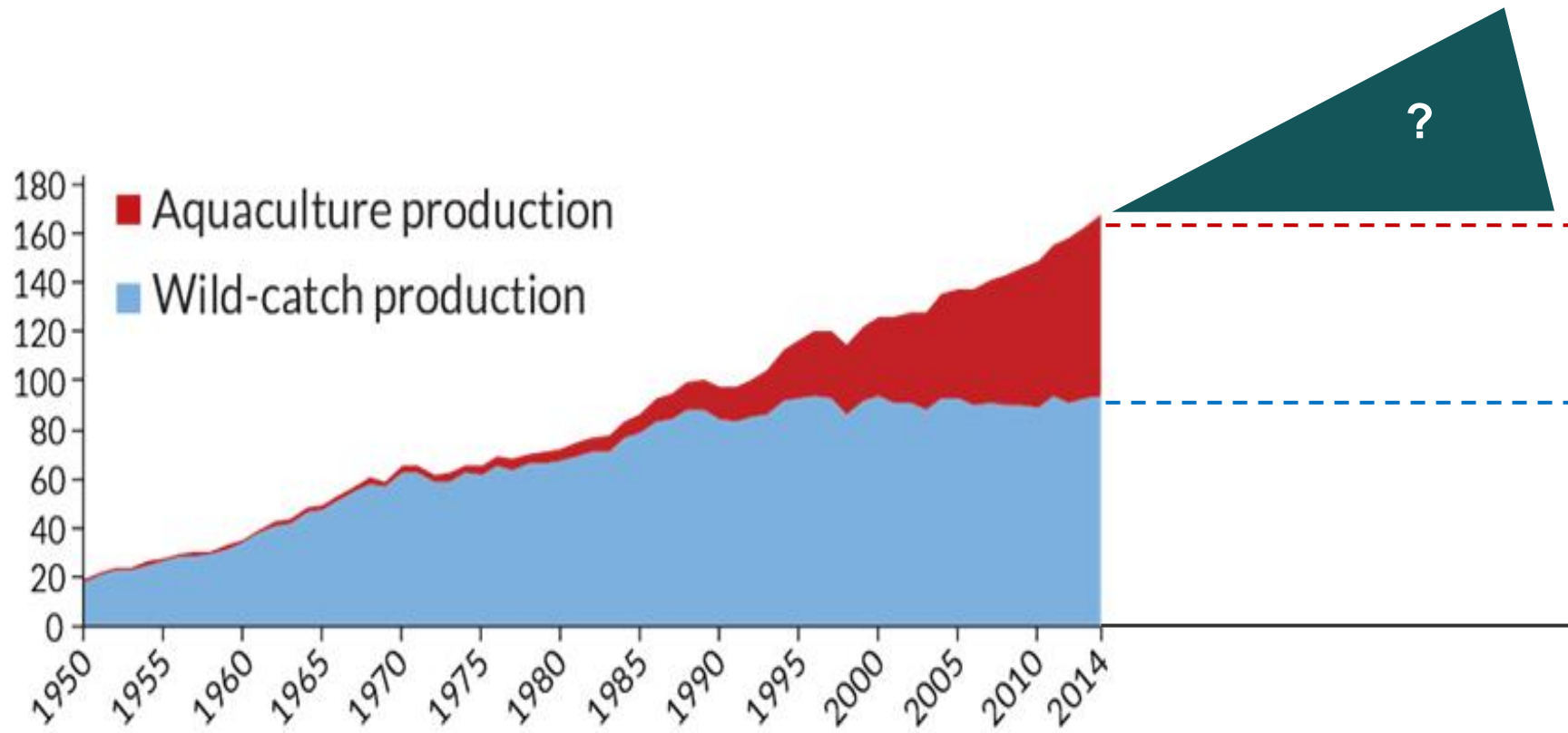
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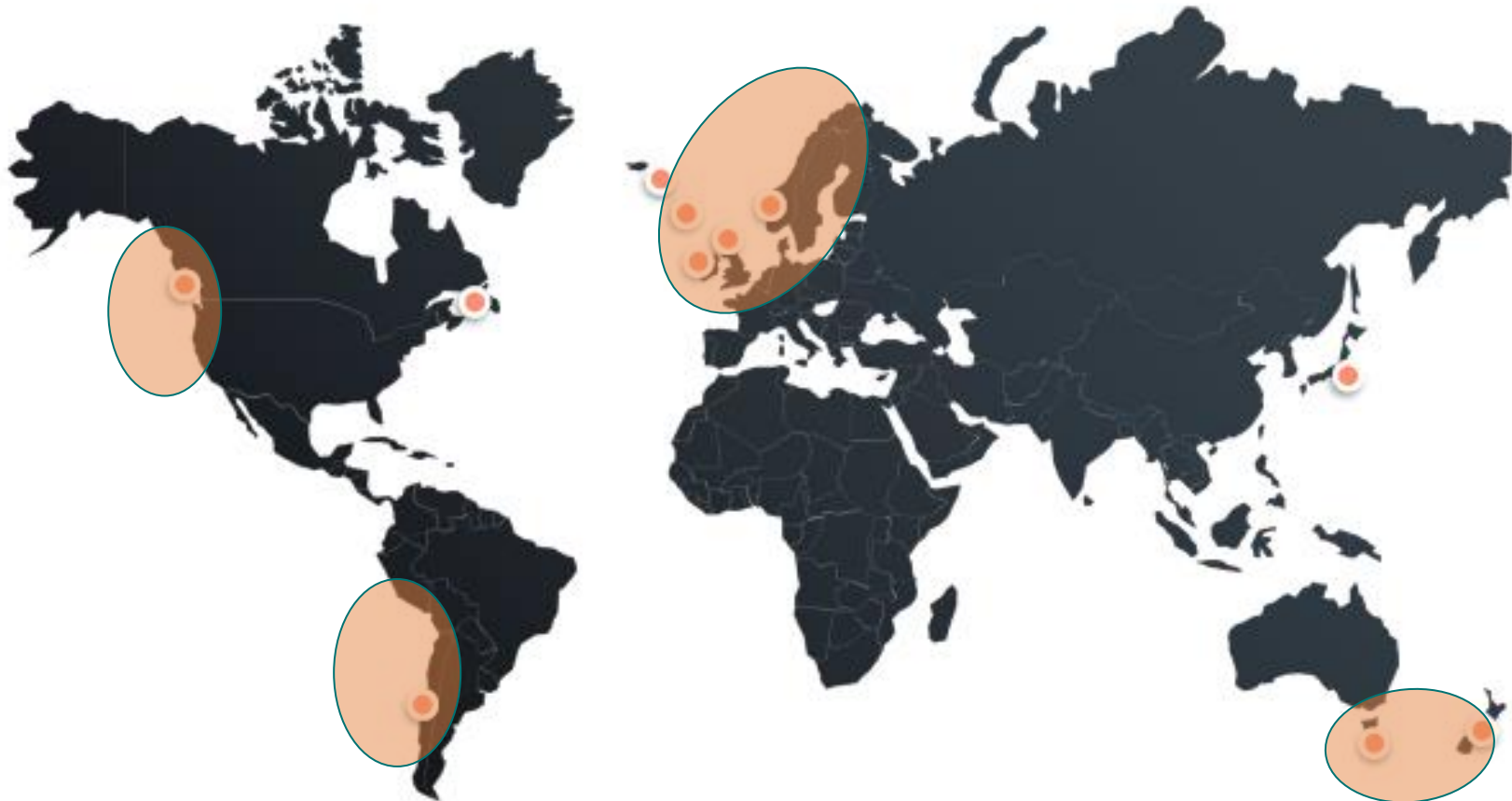
Demand will continue, but who will provide the supply

Will the wild-catch/aquaculture supply shift repeat itself?



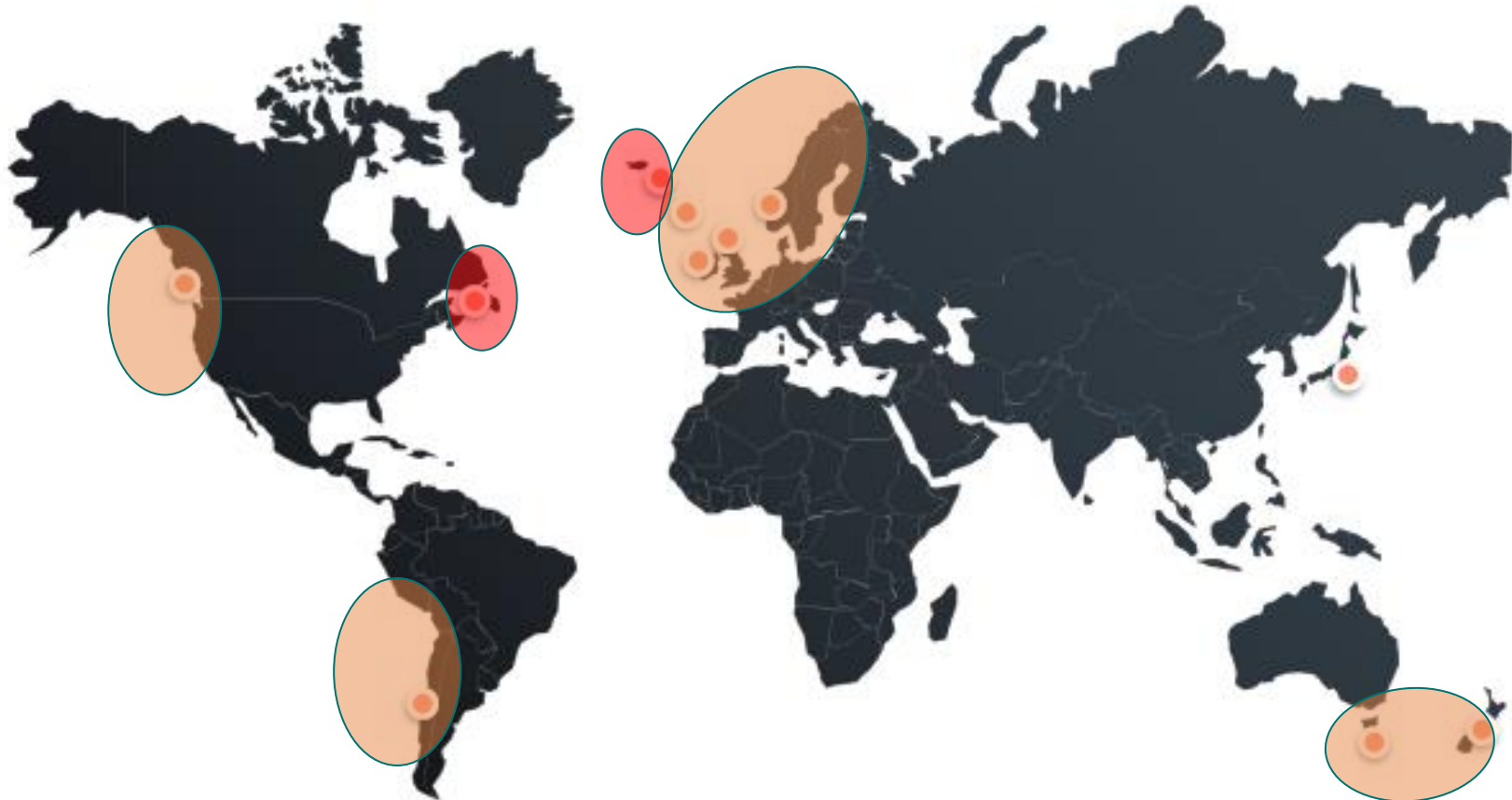
Who, where and what can replace net pen farming?

Existing regions



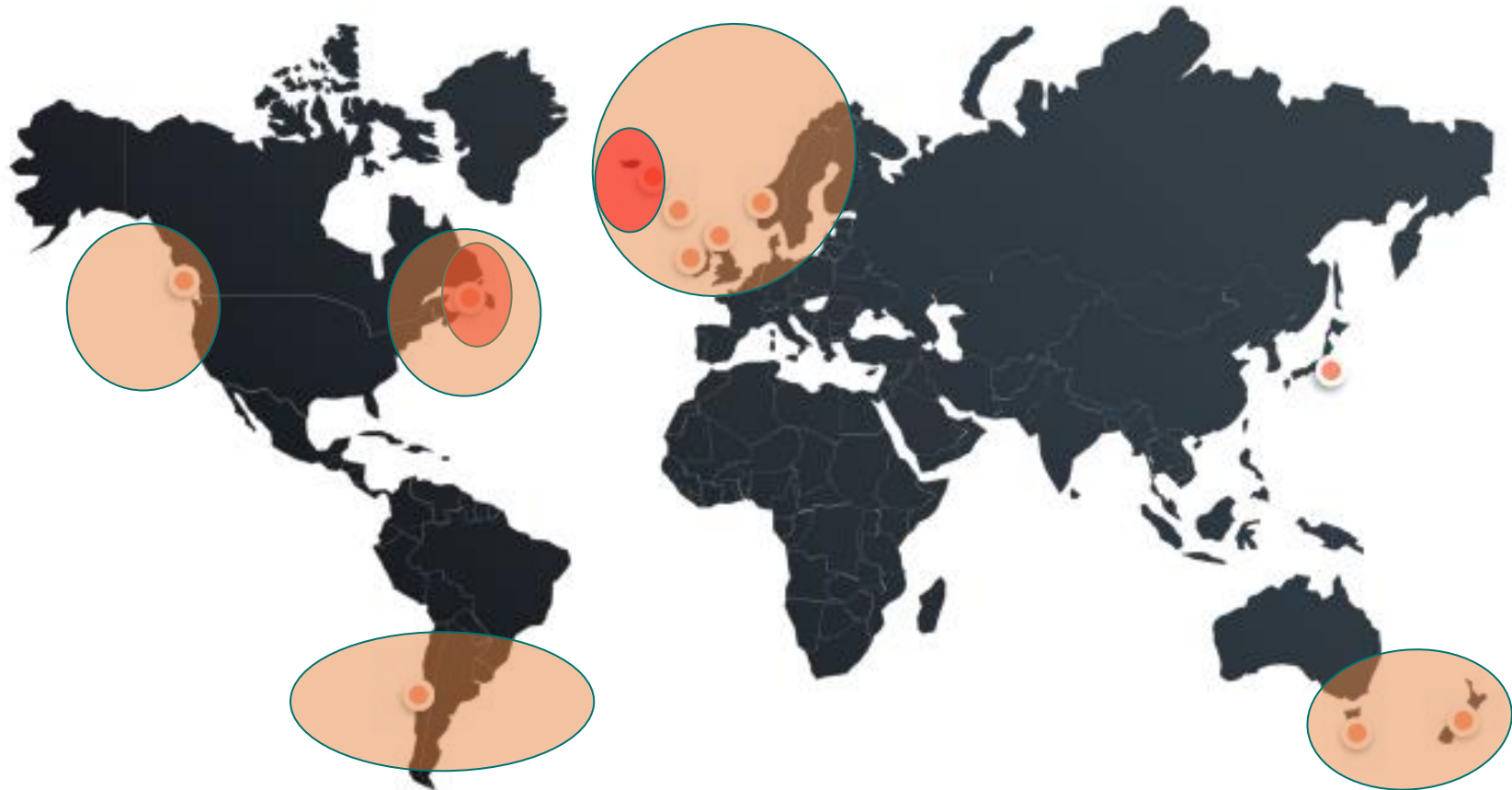
Who, where and what can replace net pen farming?

New regions in Eastern Canada and Iceland are developing, but too small...



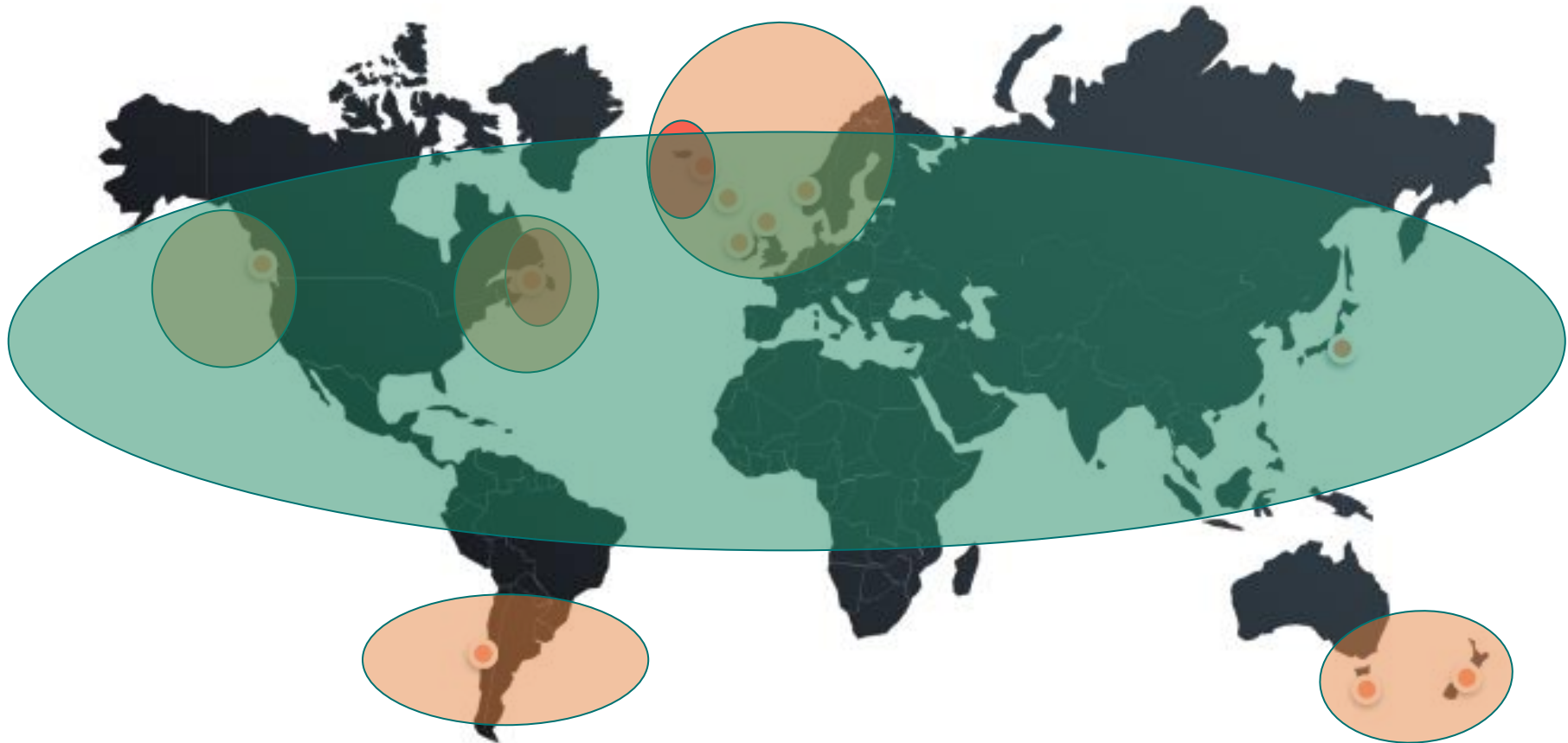
Who, where and what can replace net pen farming?

Offshore could expand existing regions and open new areas



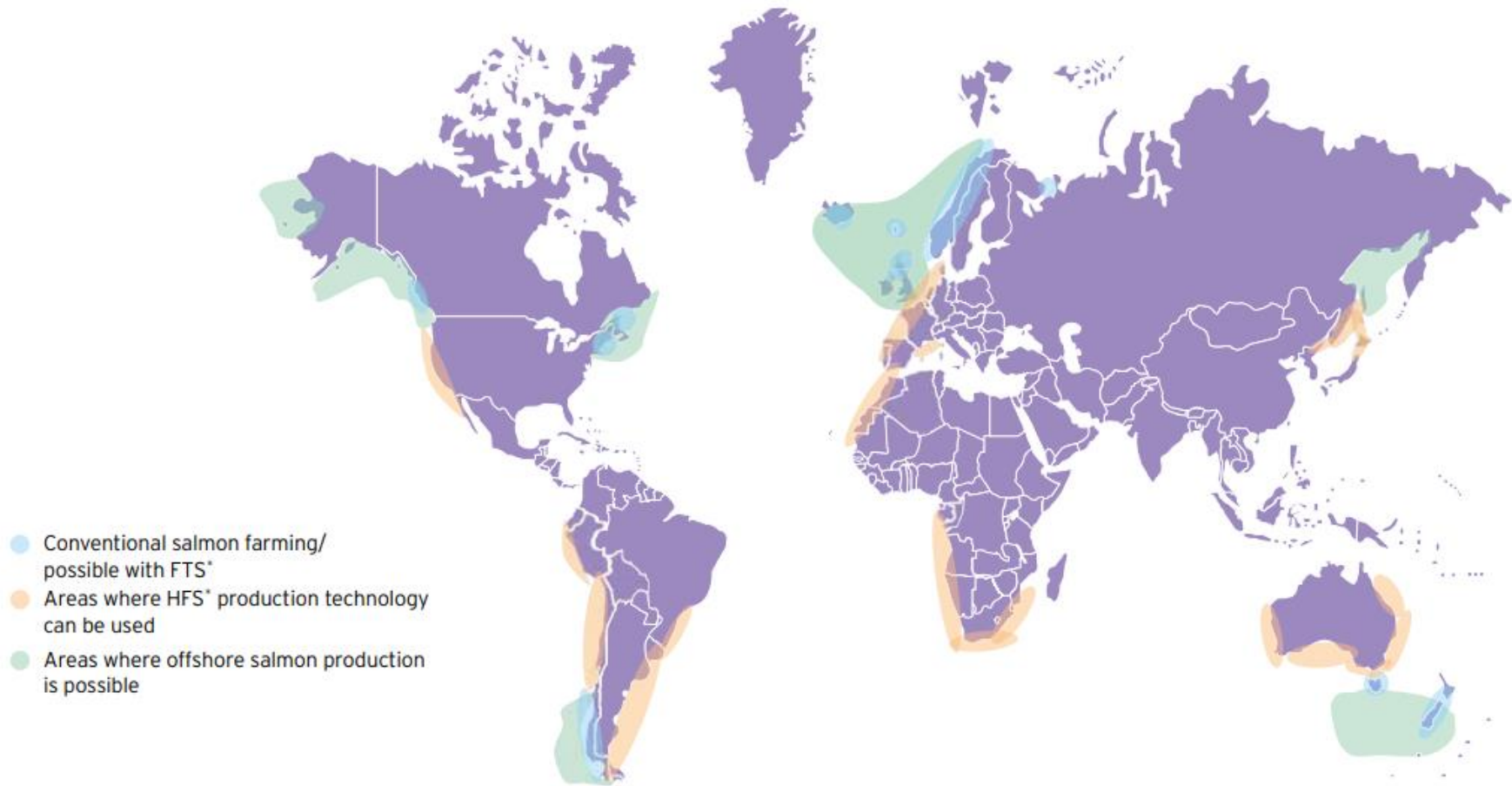
Who, where and what can replace net pen farming?

Land-based could possibly revolutionize the areas we can do farming



EY – The Norwegian Aquaculture Analysis 2020

The state of aquaculture in 2040



Flow-through system (FTS), hybrid flow-through system (HFS) and recirculating aquaculture system (RAS) are different production technologies used in land-based salmon farming. While facilities using FTS and HFS are dependent on being placed near the coastline, RAS is not.

Offshore projects picking up speed

Serial production of 23kt (rwt) offshore unit in operation from 2026 onwards

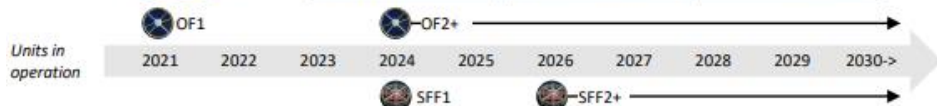
SalMar Offshore – Key figures

Possible areas to do offshore farming

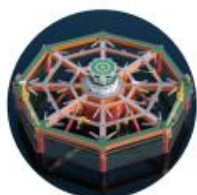
EXPOSED Ocean Farm (OF)



| | First unit OF1 | Additional units OF2-> |
|-------------------|----------------|------------------------|
| Volume* | 7 500 rwt | 10 000 rwt |
| CAPEX | 1 billion NOK | 0,6-0,8 billion NOK |
| Production cost** | 35 NOK/kg | 33 NOK/kg |
| Construction time | 18 months | 18 months |
| In operation | Since Q3 2017 | From 2024-> |

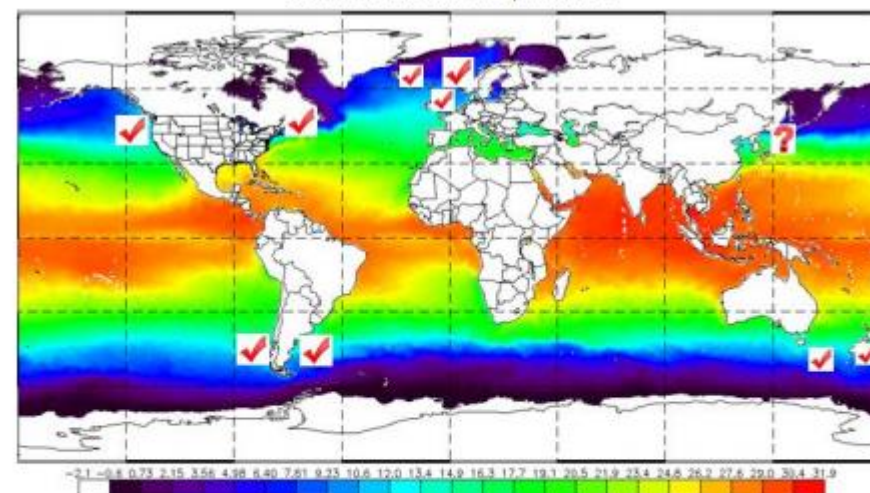


OPEN OCEAN Smart Fish Farm (SFF)



| | First unit SFF1 | Additional units SFF2-> |
|-------------------|-----------------|-------------------------|
| Volume* | 23 000 rwt | 23 000 rwt |
| CAPEX | 2,3 billion NOK | 1,5-2,0 billion NOK |
| Production cost** | 37 NOK/kg | 34 NOK/kg |
| Construction time | 23 months | 20 months |
| In operation*** | From Q2 2024 | From 2026-> |

Mean sea water temperatures



Land-based projects... 0.5mill tones... 1.8mill tones... 2.3mill tones..?

Close to impossible to track land-based project development

Laksemarkedet: Disrupsjon?

Står vi overfor disrupsjon i laksemarkedet med landbasert produksjon?

Rush etter landbaserte lakseanlegg: Myndighetene går glipp av milliardinntekter

Kommentarer av **Aslak Berge** - 4 januar 2021

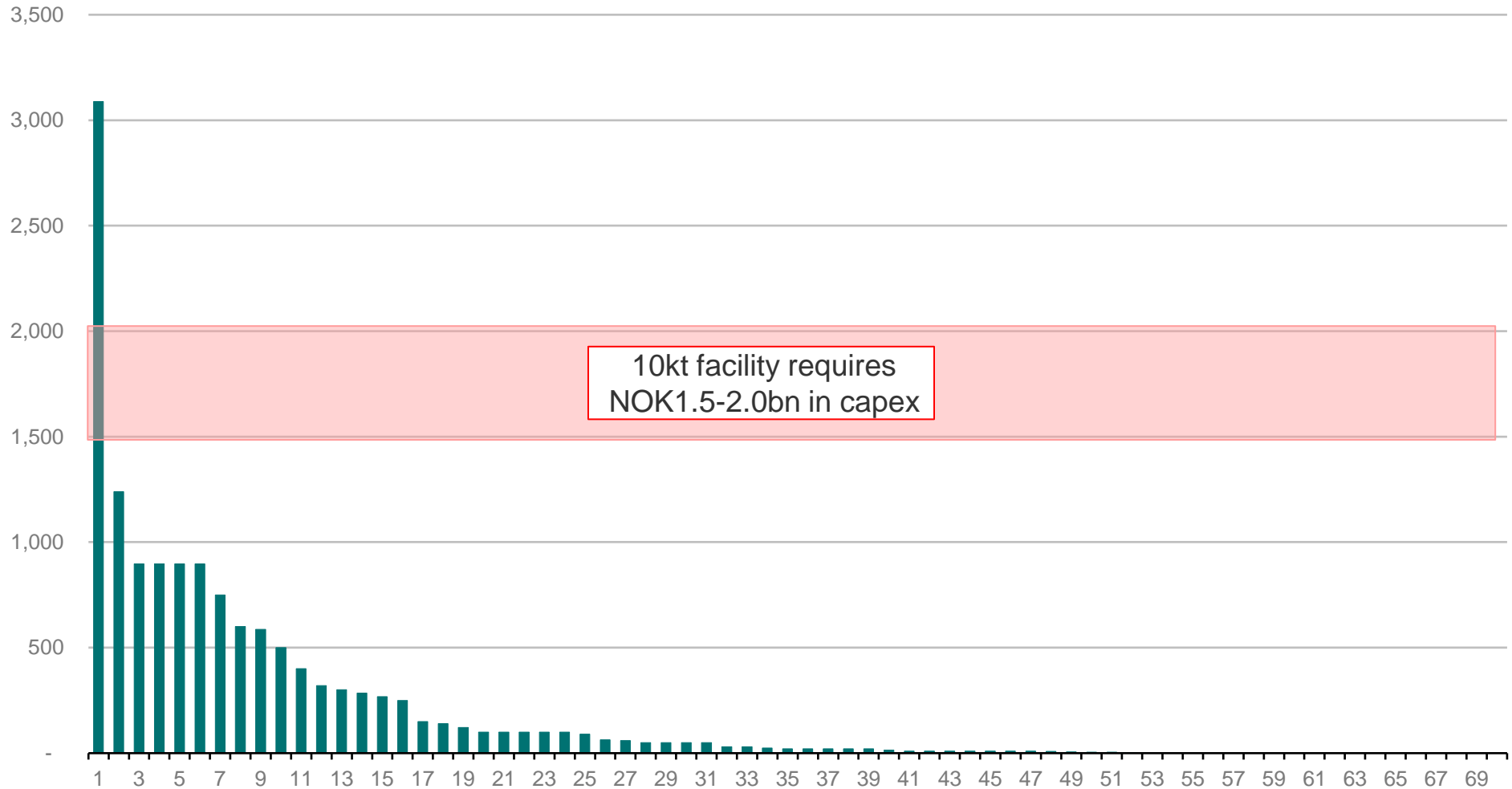
Byggeplaner på land har passert 1,8 millioner tonn laks i årlig produksjon.

I løpet av tre år har utviklingen i landbasert produksjon av laks tiltrukket seg betydelig kapital, og 1,8 millioner tonn kapasitet står klar til å bygges i ulike land nær forbrukeren. Totalproduksjonen av laks er i dag på 2,6 millioner tonn.



Land based production volume on the rise, but significant capex remains

Assuming USD20/kg land-based capex and USD1.5bn raised, 77kt could be produced, but...

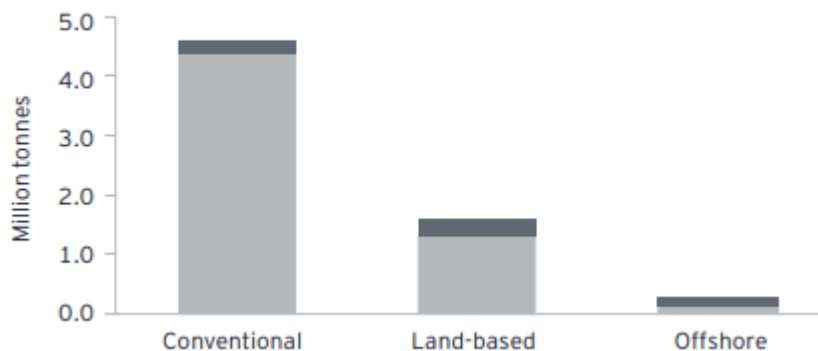


How much will come from land based and offshore by 2040?

EY best guess 1.3-1.6m tones from land-based 0.1-0.3m tones from offshore

EY estimate for 2040 (million tonnes)

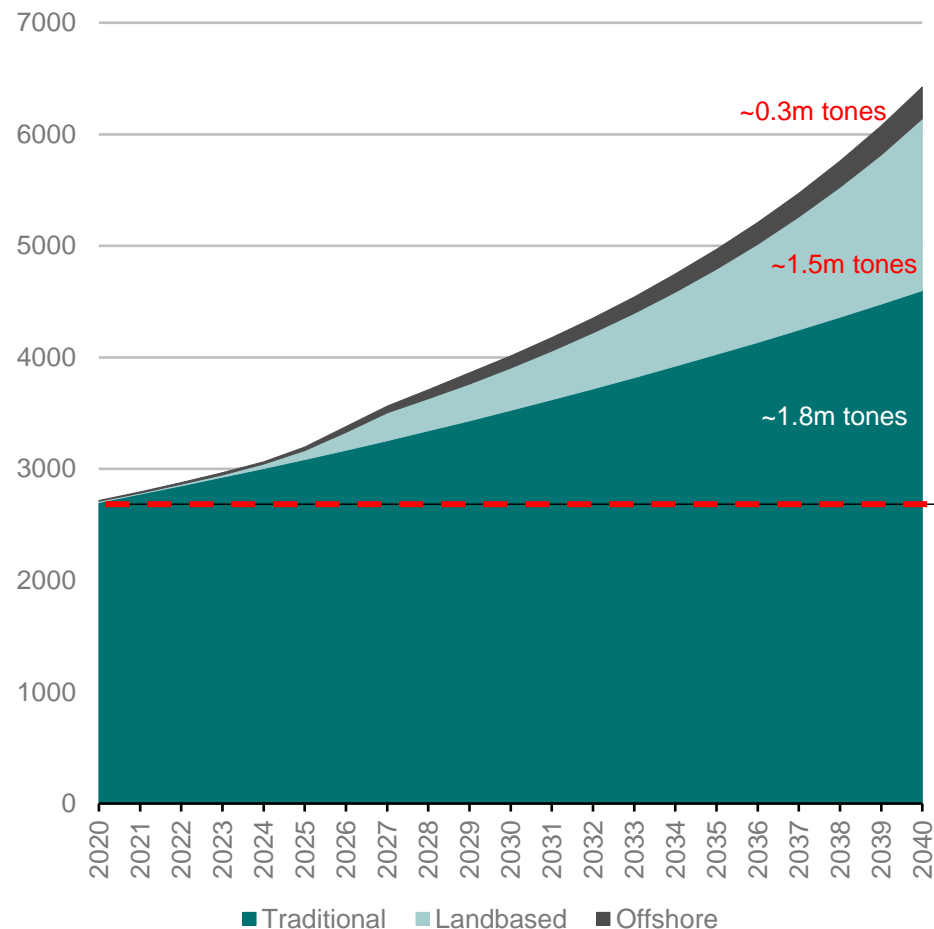
Estimated production volume in 2040



Comments

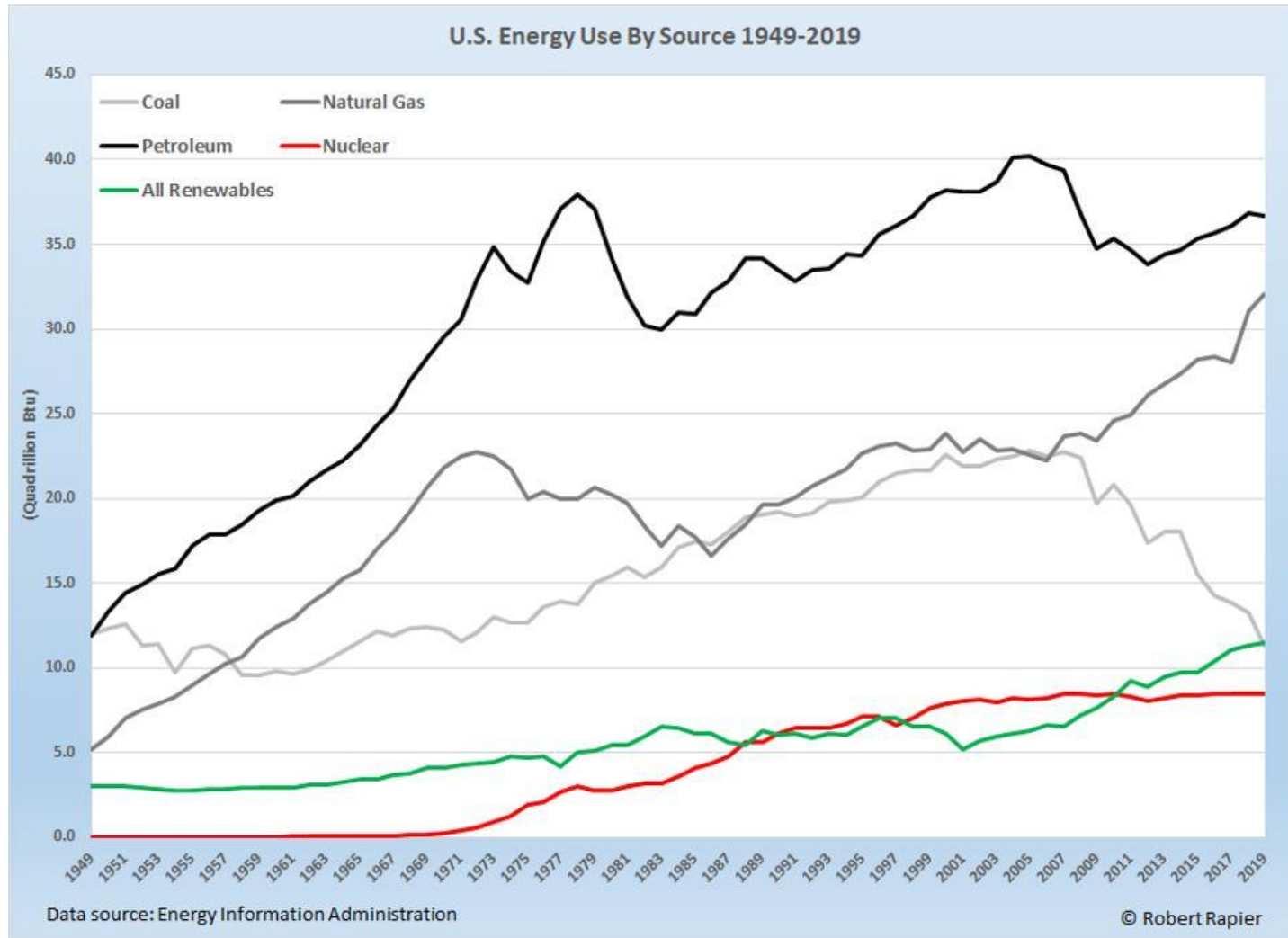
- 4.4% CAGR demand growth
- 2.6-2.7% CAGR traditional supply growth
- Is it credible traditional farming will grow more than land-based over the next 20 years?

EY estimate for 2040 (global supply 000' tones)



How much will come from land based and offshore by 2040?

Lessons from the energy market...



What do the numbers tell us?

It's all about the financial returns

| Per kg (HOG, NOK) | New technology | | Traditional | |
|------------------------------|----------------|-----------|-------------|---------------|
| | Land-based | Offshore | Ex-license | Incl. License |
| Investment | 200 | 100 | 50 | 200 |
| Required return | 10 % | 10 % | 10 % | 10 % |
| Required EBIT/kg | 20 | 10 | 5 | 20 |
| Production cost | 40 | 40 | 40 | 40 |
| Required salmon price | 60 | 50 | 45 | 60 |

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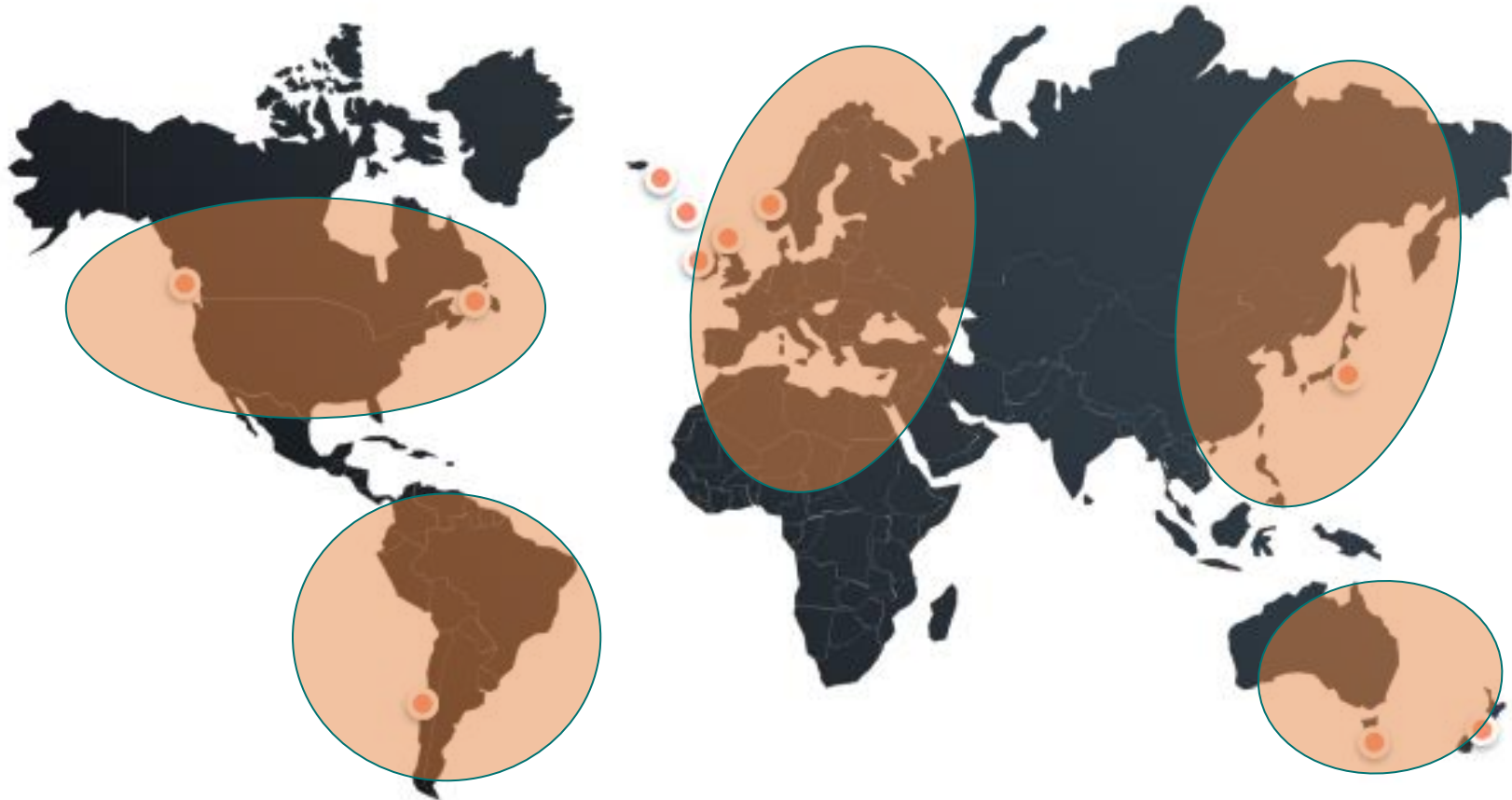
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More regional markets will develop

Supply to the region closest to you. Better for cost and better for the environment



What other implications beyond more supply...

Changing industry dynamics

- Seems increasingly likely new technology will emerge with harvest volumes from 2025 onwards
 - Who will financing the growth, who will build, who will operate?
- Will traditional farmers have an advantage in the land-based and offshore space?
 - Offshore – Probably...
 - Land-based – Not so sure...
- Will offshore farming ‘level the playing field’ when it comes to good/bad sites?
 - Massive valuation gap between ‘good and bad’ farmers
- Is it credible to think traditional farming volumes will grow if alternative farming emerge?
 - What regions of traditional farming will grow? Cost and regulatory perspective?
 - High-cost regions shrinking or shutting down
- More regional production, taking advantage of transport cost
- More processing, more feed, more support/service

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