



Developing a global footprint in
land-based aquaculture – with a
Norwegian foothold

August 2020

Nordic Aquafarms aims to be a leading player in land-based aquaculture with production close to large markets



KNOW-HOW



TECHNOLOGY



**LOCATIONS
CLOSE TO LARGE
MARKETS**



**NON-SITE SPECIFIC
+75,000 MT HOG
IN PIPELINE**

Nordic Aquafarms has two Nordic facilities in production and two US facilities under development



Fredrikstad Seafoods (NO)

- One of the largest full-cycle land-based farming facilities for **Atlantic Salmon**
- Center for R&D and training
- Capacity of ~1,500 MT (HOG)
- First harvest in Q2 2020



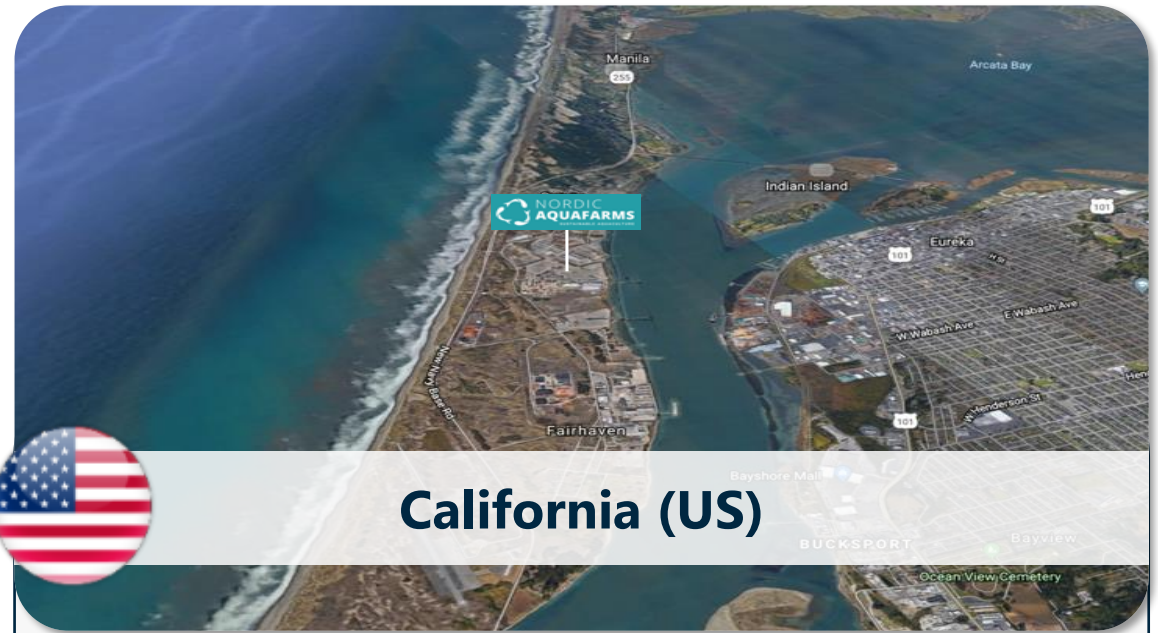
Sashimi Royal (DK)

- One of the largest full-cycle land-based production facilities for **Yellowtail Kingfish**
- First harvest in Q2 2018
- Capacity of ~900 MT (HOG)
- Potential to expand substantially



Maine (US)

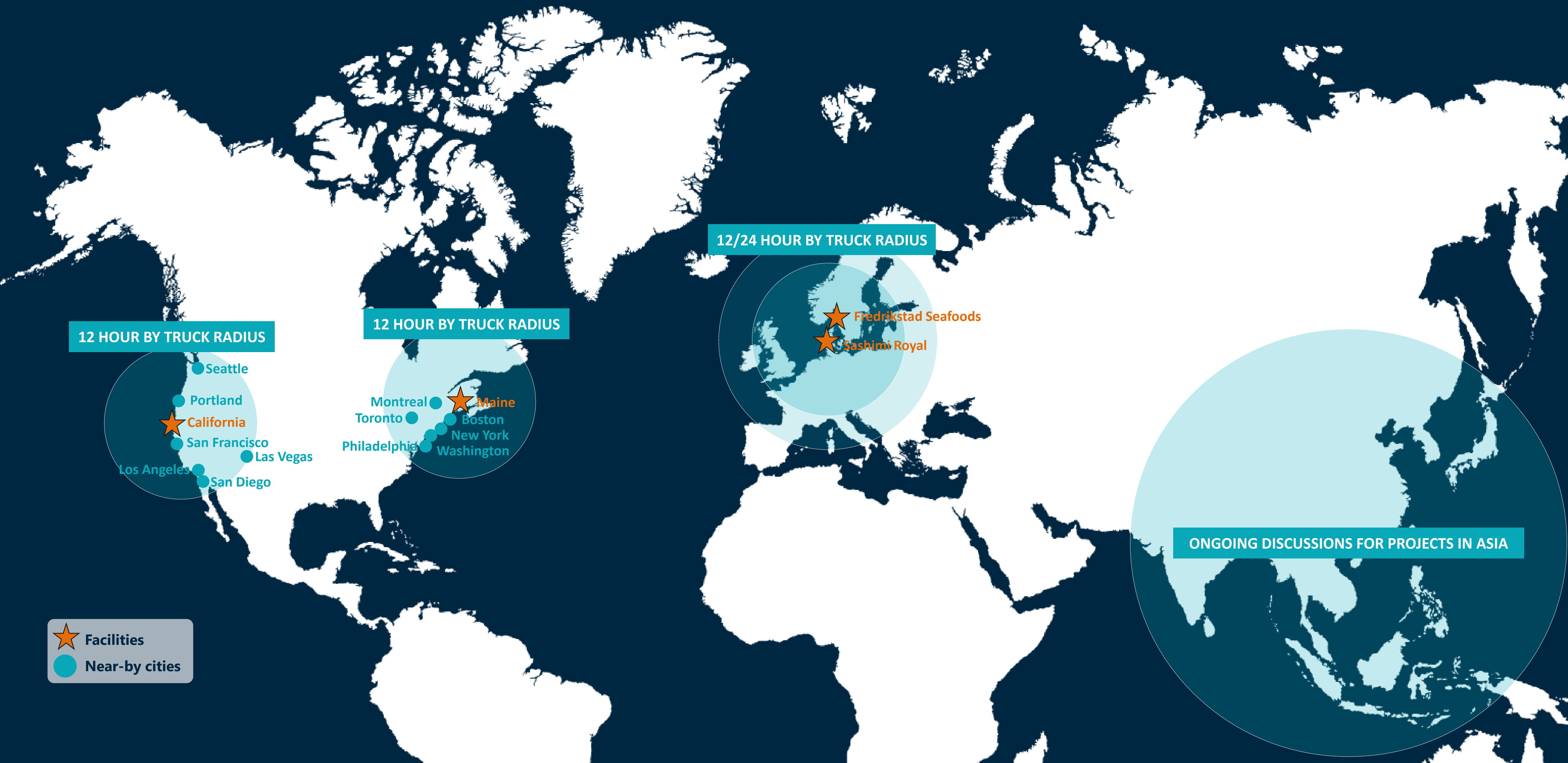
- Final stage of planning phase for a full-cycle land-based farming facility for **Atlantic Salmon**
- Capacity of ~25,000 MT (HOG) fully developed
- Start of construction possible in 2020



California (US)

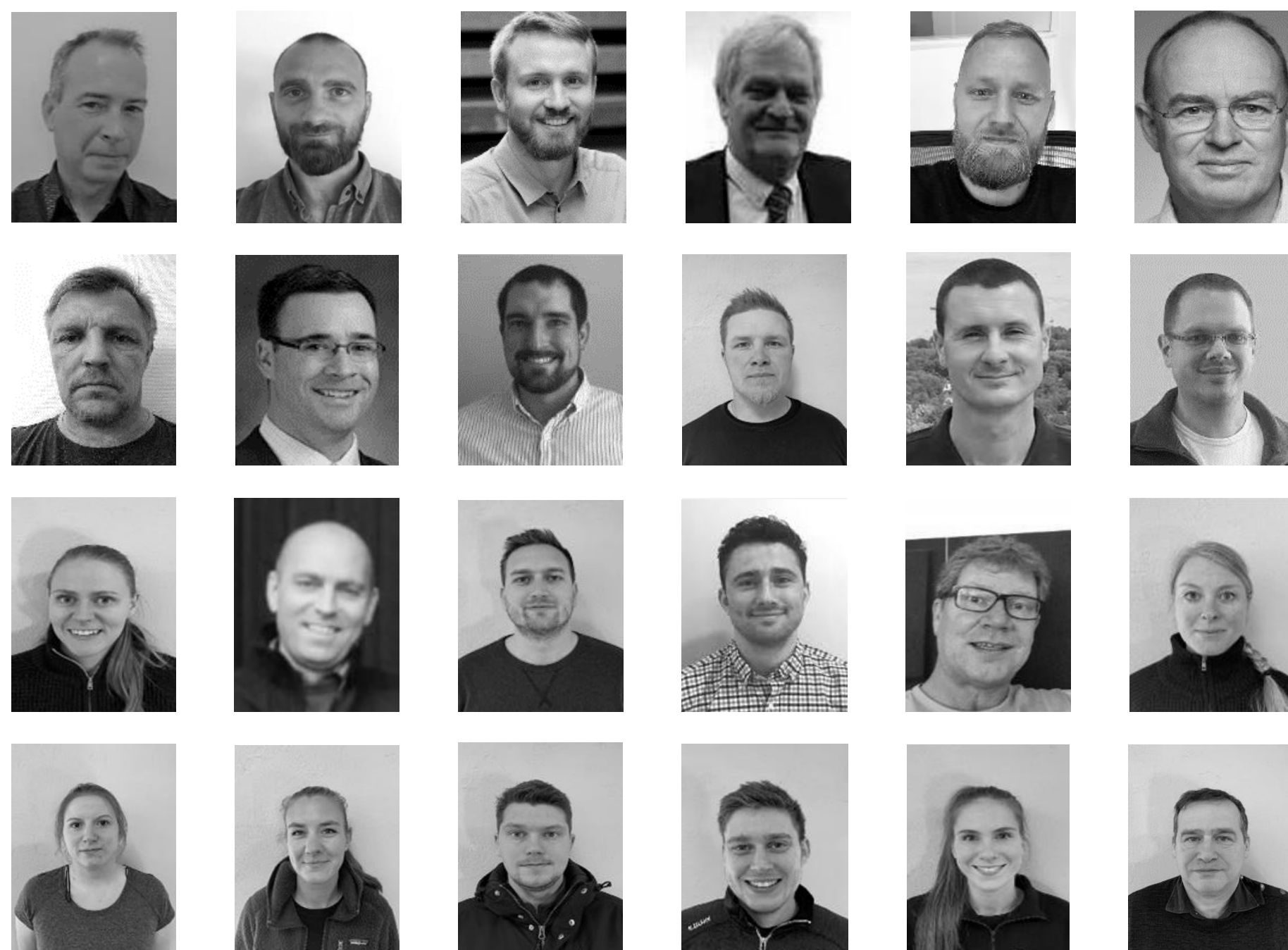
- Planning to build a full-cycle land-based farming facility for **Atlantic Salmon**
- Capacity of ~25,000 MT (HOG) fully developed
- Permitting process initiated, approval of permits possible in 2021

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NAF has an in-house multi-disciplined team to execute on its strategy...

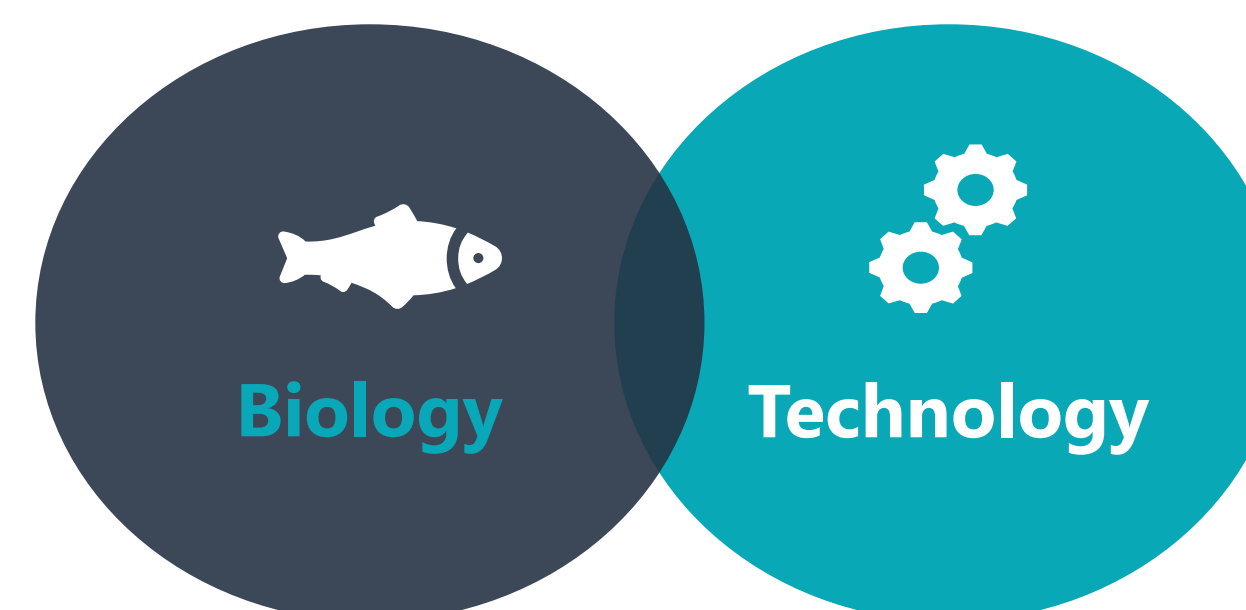
Some of our people...



A seasoned and agile in-house team, with significant experience from engineering, construction and production

...and why we have them

- Land-based facilities are not off-the-shelf products
.....therefore we have +10 engineers dedicated to our facilities
- Project execution is complex
.....therefore we have +5 experienced resources dedicated to execution and management of our projects together with leading project management partners
- To operate large scale RAS facilities you need both technical and biological capabilities
.....therefore we have +40 multidiscipline resources in our production units



Dedicated Management backed by an experienced Board of Directors

Management NAF AS Holding Company



**Bernt-Olav
Røttingsnes**
CEO



Lars Henrik Haaland
CFO



Erik Heim
President NAF Inc.



Marianne Næss
EVP Commercial



Brenda Chandler
CFO, NAF Inc.



Roger Fredriksen
Managing Director
Fredrikstad Seafoods



Claus Rom
Managing Director
Sashimi Royal



Mikkel Thomsen
CTO

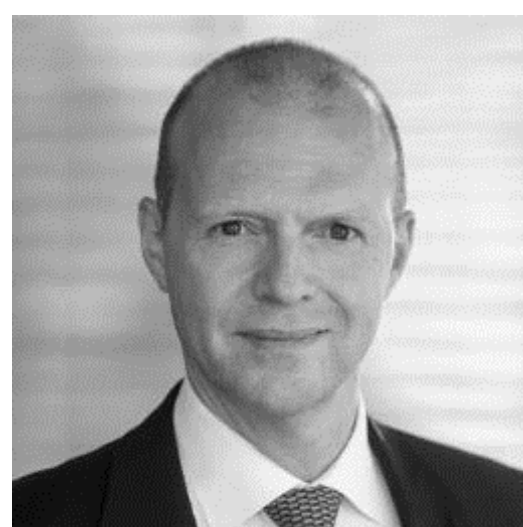
US Commercial Management

NO Management

DK Management

Technical Development

Board of Directors



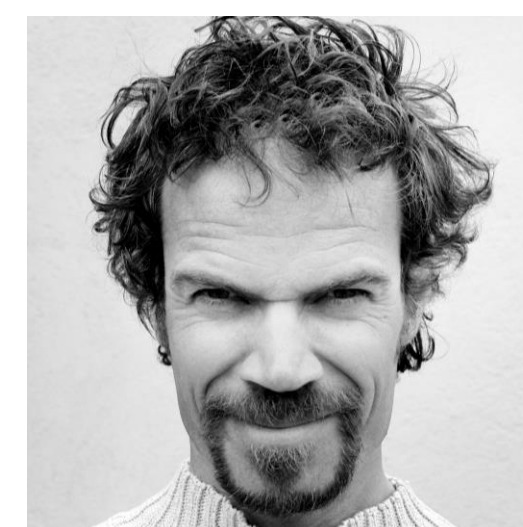
Stig Even Jakobsen
Chairman



Petter Winther Borg
Board Member



Haakon Aschehoug
Board Member



Bård Eker
Board Member



Bjørn E. Knappskog
Board Member



John Binde
Board Member

See appendix for detailed information

Source: Nordic Aquafarms

A sustainable way of increasing aquaculture production



Local Production

No Escapes or Sea Lice

Limited Discharge

Efficient Feed Conversion Rate

Land-based aquaculture offers a unique value proposition

Production benefits



Stable and optimal temperatures and salinity



Constant monitoring and adjustment of O₂ and CO₂ levels



Countercurrent water flow ("the fish exercise")



Input and output control (water, discharge, feed, light)



Continuous water treatment

Market benefits



Local product benefits/Proximity to large end-markets



Significant cost and environmental (CO₂) savings in transport



Increased freshness and longer shelf life of product



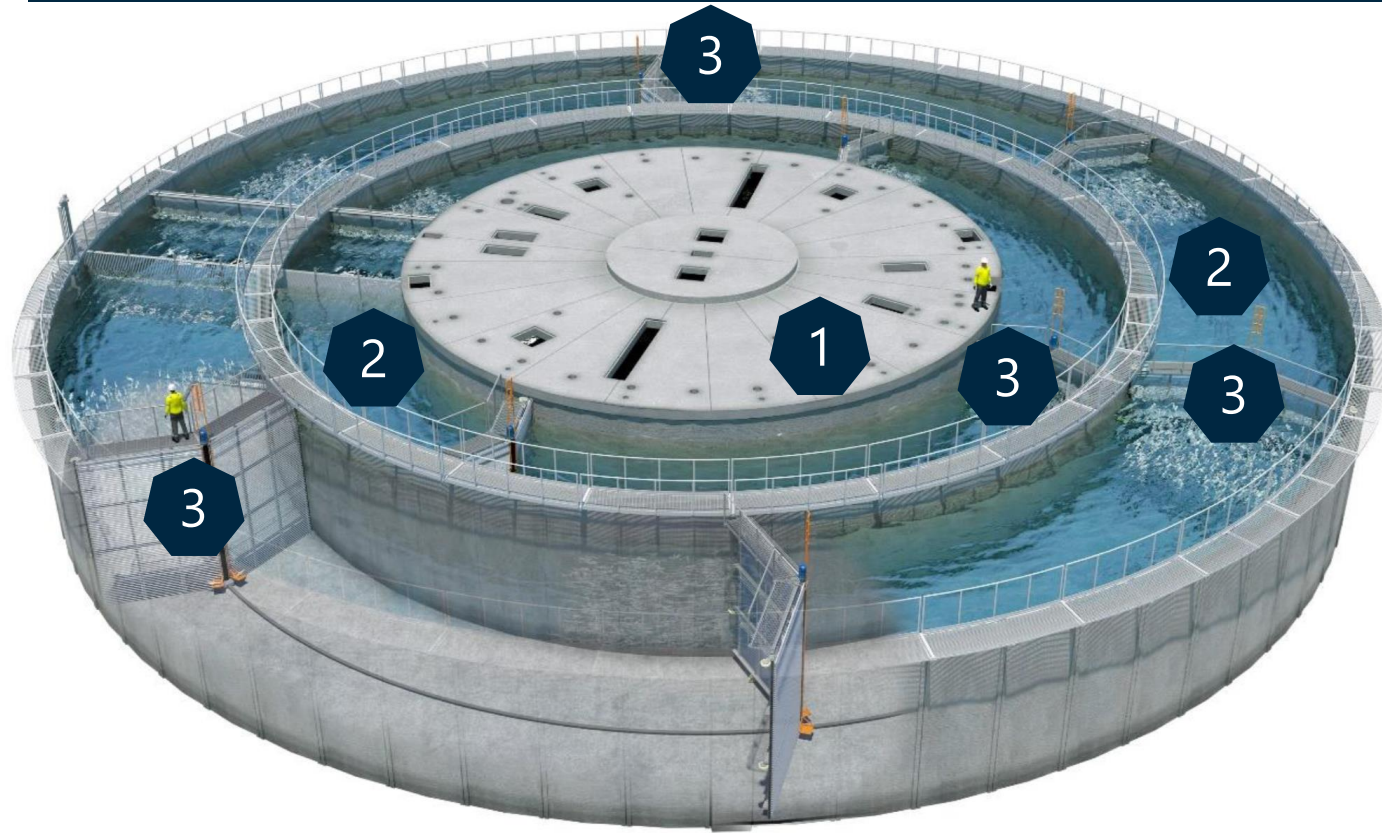
Weekly stable volumes delivered all year around



No escapes / No sea lice

NAF incorporates lessons learned in Fredrikstad and into future production facilities

Krüger Veolia RAS 2020 technology used in the Fredrikstad and Sashimi Royal facilities

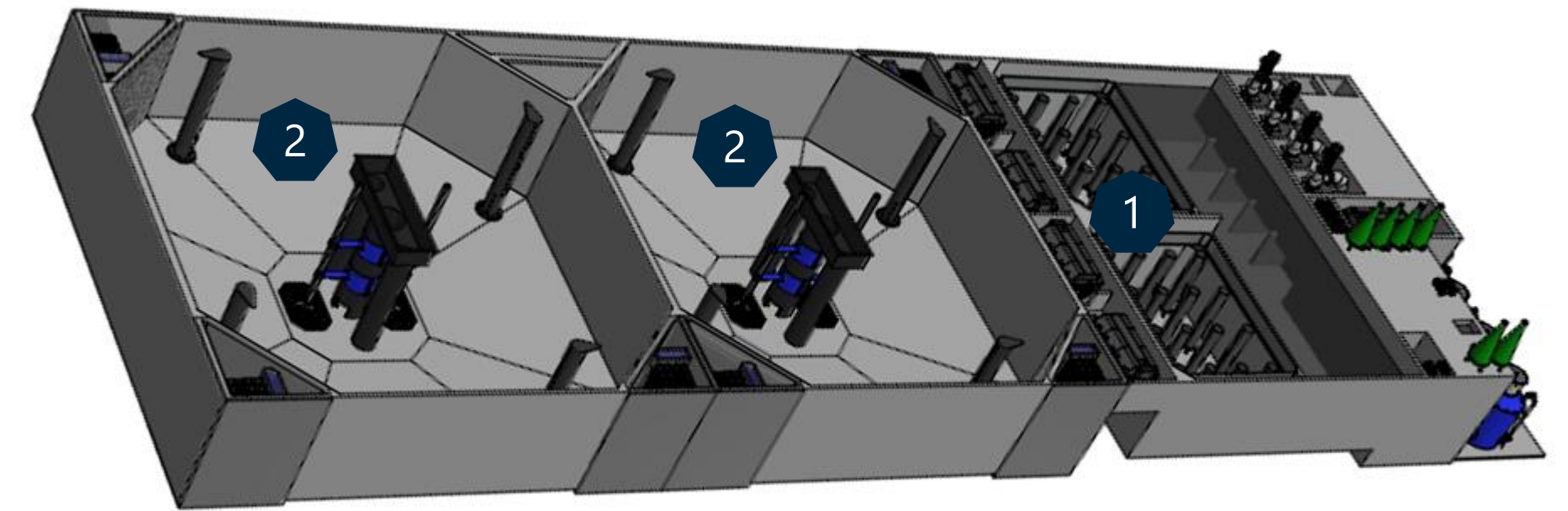


1. Biofilter
2. Grow-out tanks (5,200 m3)
3. Movable gates

Main lessons learned:

- + Strong biological performance
 - + Salt water and counterflow
 - + The core technology works!
-
- The movable gates prevents salmon from fully circulating in the tanks
 - Water treatment of 1.5x per hour limits capacity
 - Limited possibility to clean and maintain without emptying the tank
 - Some components have proven vulnerable to salt water which lead to higher maintenance

Production systems to be used in Maine, California and other future projects



Main changes in the new design:

- Individual octangular tanks. Allows the fish to freely swim counterflow.
- Water treatment capacity increased to 2.0x per hour with 20% side stream treatment
- All key components of high-end quality to sustain salt water
- Use of Nordic Aquafarms proprietary biofilter – more than 100 filters installed in RAS facilities last decade without any H2S incidents linked to the filter

The main difference in the new system is the shape of the tanks and the increased water treatment capacity

Growout - detailed

Drivers for design / main objectives of design

Product Quality

Ensure top quality fish through:

- Extensive water treatment
- Sufficient capacity in separate purge
- Countercurrent water flow

Capacity/efficiency

Increase probability of reaching full capacity through:

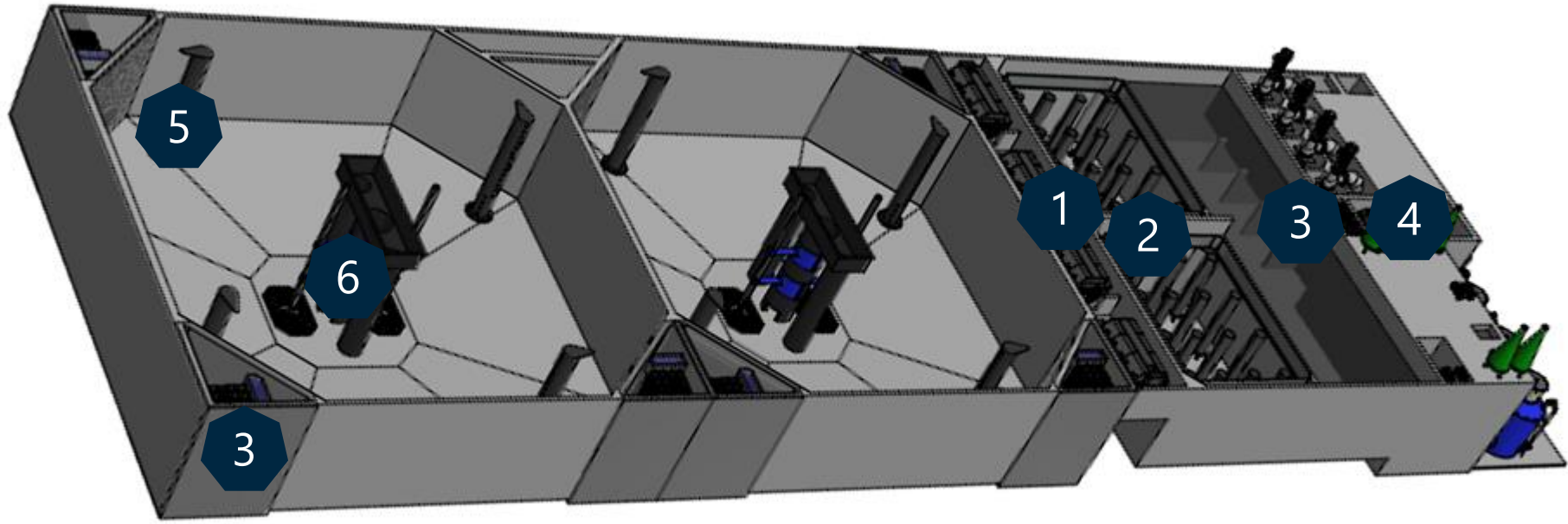
- Extensive water treatment
- Realistic densities and production planning
- Practical fish logistics

Risk Mitigation

Risk mitigation through:

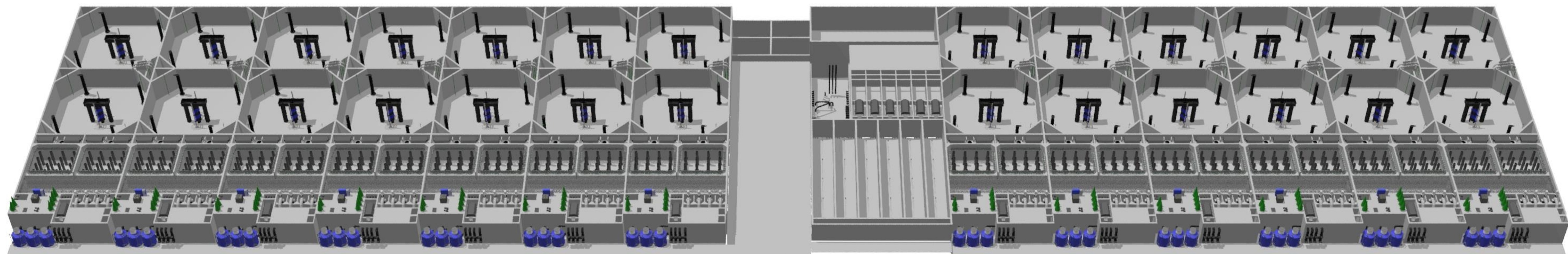
- Limited biomass per RAS loop
- High quality equipment
- Redundancy on key components

1. Mechanical filters
2. Biofilter
3. CO2-degassing
4. Side stream treatment including ozone and protein skimmer
5. Water inlet
6. Sludge and dead fish removal, fish out-system



Growout modular concept (50% of fully developed US facilities)

High-end technological solutions will improve product quality, reduce risk and increase probability of reaching full capacity output from facility



2 tanks per RAS loop, i.e 4% of biomass at risk (fully developed)



2 water exchanges per hour and 20 % side stream treatment



Sufficient capacity in separate purge



High quality equipment and redundancy on key components



NAF proprietary and patented bio filter (also used by industry majors)



Scalable

Fredrikstad Seafoods serve as Nordic Aquafarms' «center of knowledge»



Comments

- One of the largest land-based salmon farming facilities in production, with a current capacity of ~1,500 MT (HOG)
- The facility has two independent modules, each with a separate RAS loop
- Fredrikstad Seafoods will primarily function as a hub for research and development, training, building of knowledge and best practice execution for Nordic Aquafarms' planned facilities abroad
- First release of smolt end of May 2019
- Biological performance so far has been positive, with the largest fish surpassing 7kg in size (more details on the following page)
- First harvest and sales in Q2 2020

1 **Offices** ✓

3 **Production facility** ✓

2 **Water intake** ✓

4 **Harvesting and offices** ✓

The Product

Impeccable quality and looks



Great customer feedback

Great taste

Firm texture

Nice colour

Delicate fat distribution

"The fish has been very well received by our customers. Our customers are willing to pay extra for this product compared to traditional farmed salmon"

- Christer W. Andersen, Gla'laksen

"Tender meat with an unobtrusive fine taste!"

- Svein Schlizio, Deutsche See

"Firmer than normal, less fat, great taste and especially well-suited for smoking and curing"

- Slippen Restaurant

The reasons behind



Counterflow



Sea water



Fish welfare



High protein feed



Purging

Yellowtail Kingfish produced at Sashimi Royal has been very well received by the market

- 🔄 **Amberjack – *Seriola lalandi***
- 🔄 **Mainly imported from Asia and Australia**
- 🔄 **Marine warm water fish**
- 🔄 **Premium product – “Hamachi”**



Sashimi Royal – Production of Yellowtail Kingfish



Breakdown of sales achieved to date

 Average price	90 DKK/kg
 Current capacity EBIT margin	20%
 Target EBIT margin ⁽¹⁾	30%
 EBIT margin w/add. capacity ⁽²⁾	40%

Land-based facility for Yellowtail Kingfish

- Production of Yellowtail Kingfish since 2017
- Harvest and sales since June 2018
- 1 production module with a current annual harvest capacity of ~900 MT HOG
- Potential for substantial on-site capacity expansion
- Quality certifications by ASC and Ikijime



Source: Nordic Aquafarms

Note: (1) At current capacity; (2) With increased capacity of approx. 1,000 MT

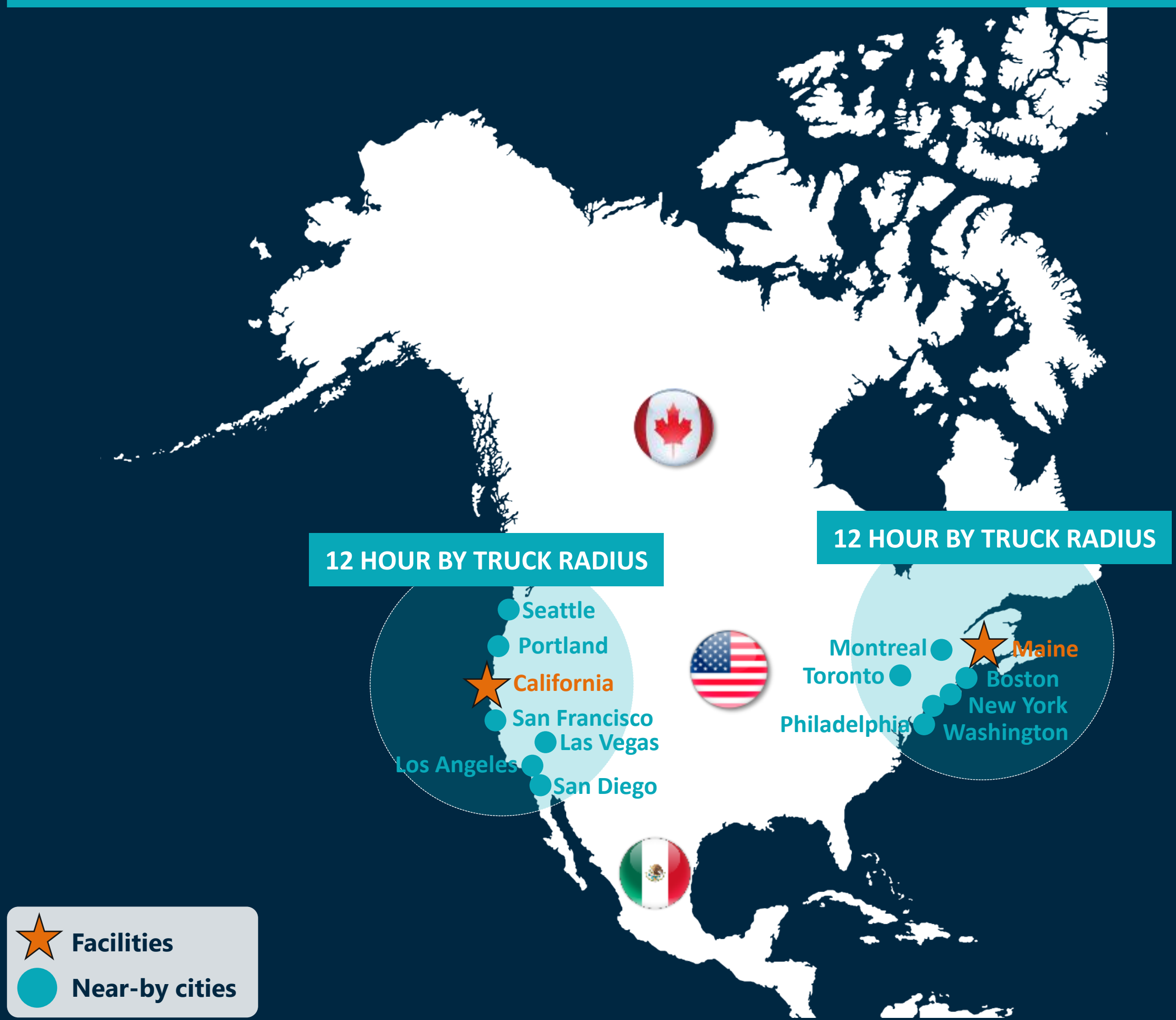
The US has several benefits for land-based salmon farming...

Nordic Aquafarms chose the US...

...due to several benefits for land-based salmon farming

The US has a 90 per cent trade deficit on seafood – large land-based salmon farming opportunity

- Current consumption of ~500,000 MT salmon, and growing demand
- Limited domestic production – dependent on imports
- Supply of local fresh product in the US makes sense both from a cost- and environmental perspective



Fresh- and saltwater



Proximity to major cities



Environmentally conscious



No need for airfreight

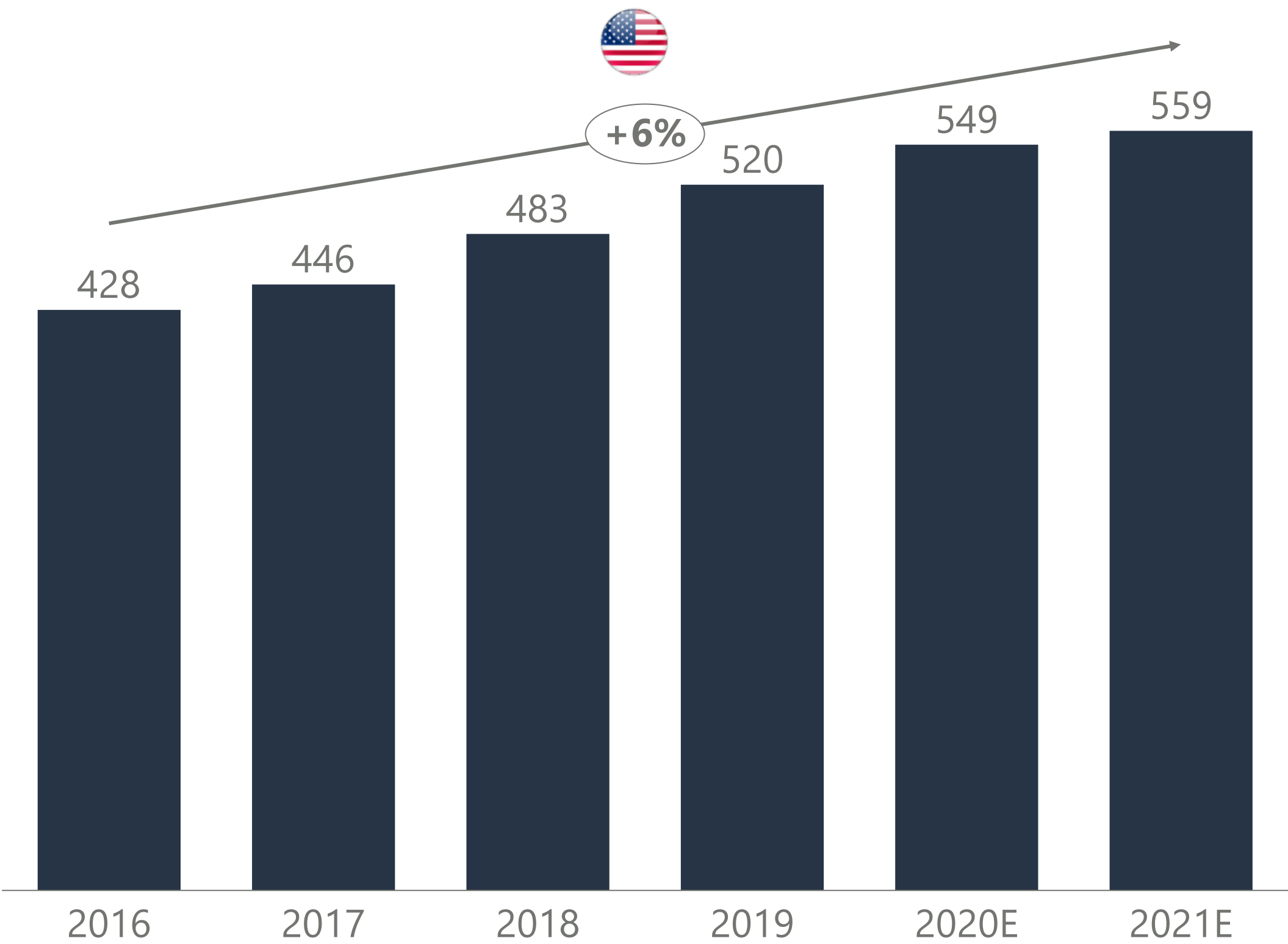
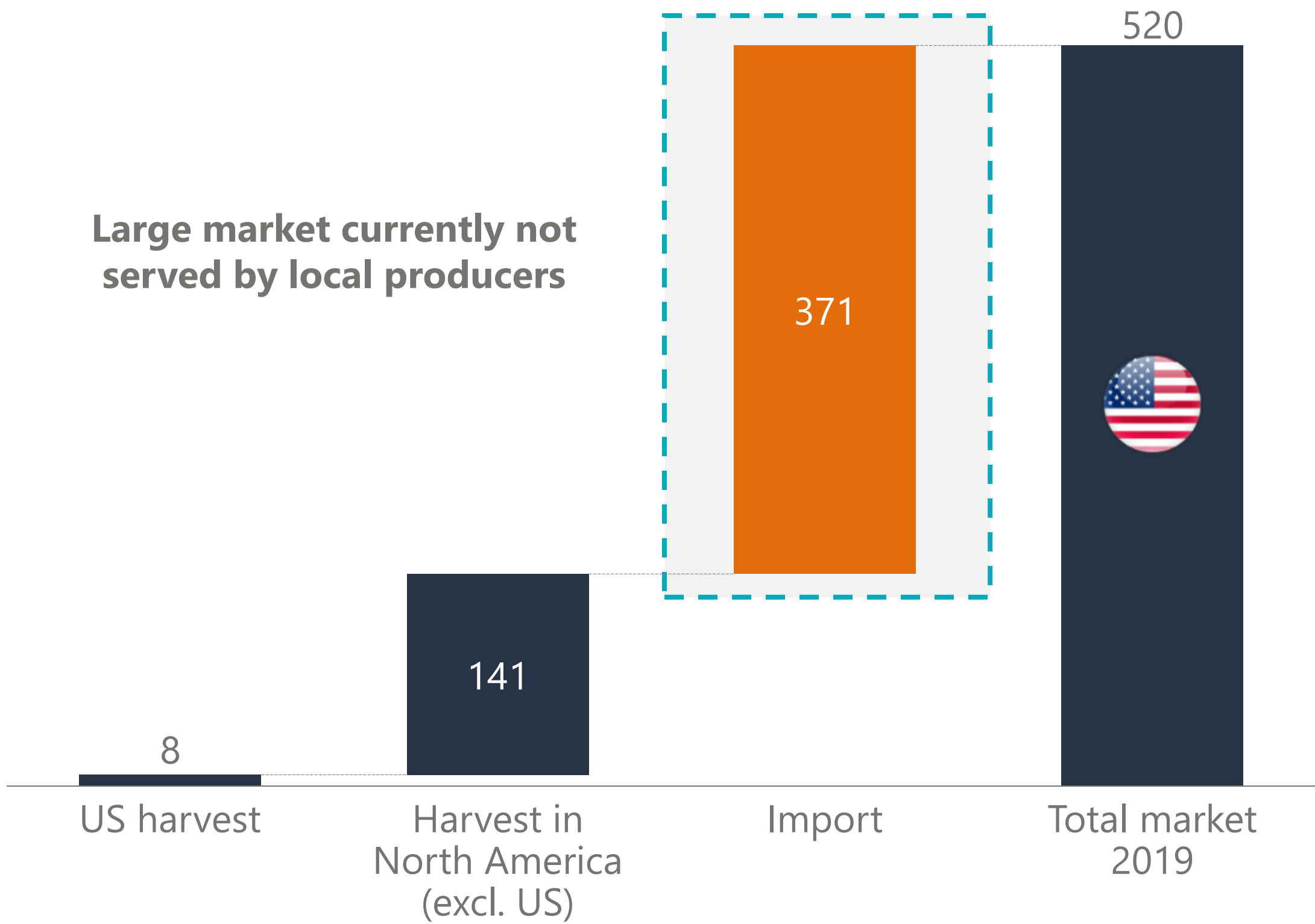
...and the market potential for locally produced salmon is huge

US market (kt) - ~98% of Atlantic is imported to the US...

...and the demand is increasing

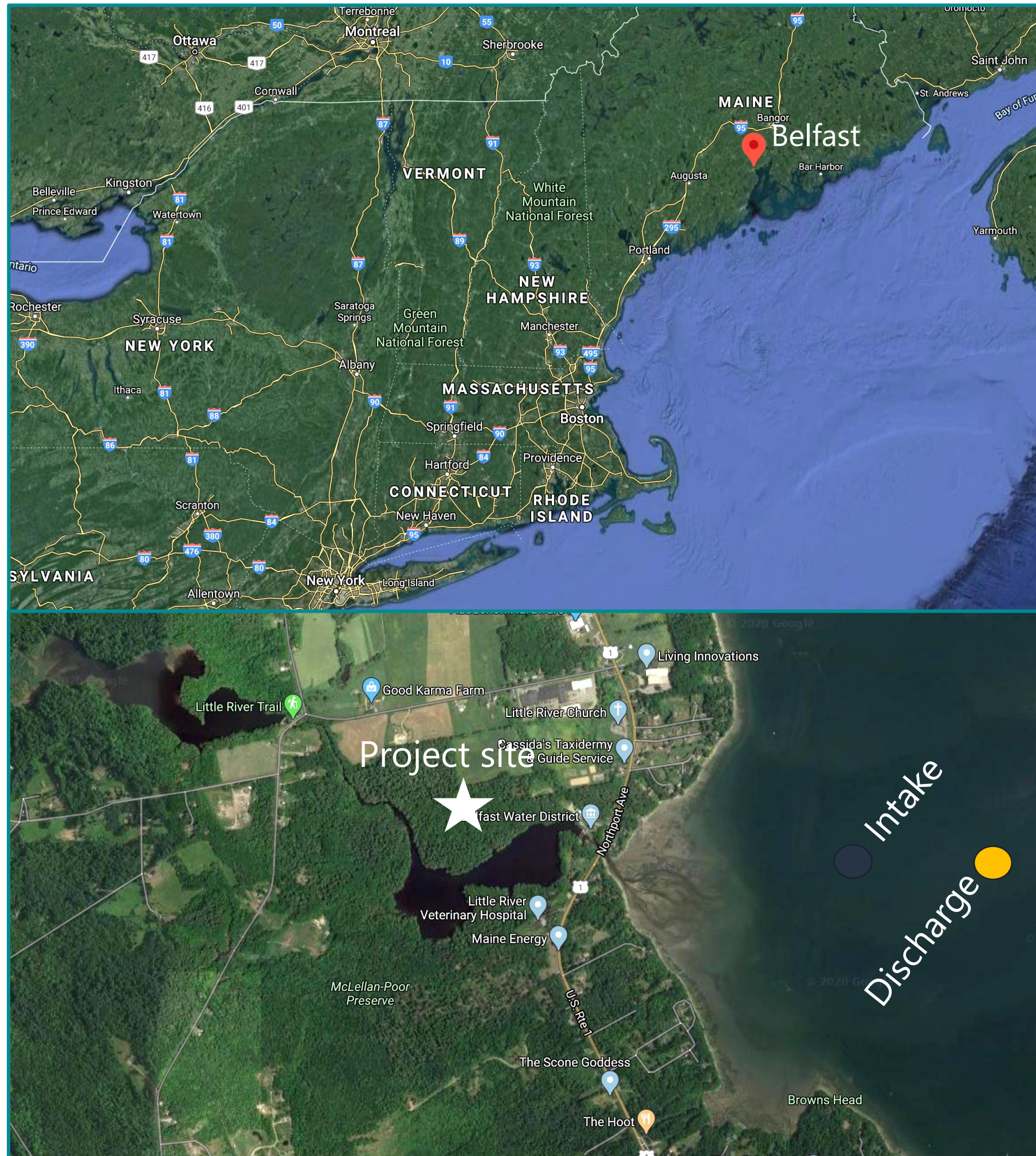
US Atlantic salmon demand (WFE kt)

US Atlantic salmon demand (WFE kt)



Source: Mowi Salmon farming Industry Handbook 2019, Kontali

Orientation: Belfast, Maine site



- Development site located in the heart of New England
- 2 hours to Portland, Maine
- 3,5 hours to the seafood hub Boston
- 214,500 m2 purchase of undeveloped land at Little River
- Land is zoned for industrial / agriculture / aquaculture
- Easement agreement for ocean access
- Seawater intake from the bay
- Freshwater from biosecure wells and city water
- A relatively low cost area, but with good services

Little River Location



Belfast is an end-to-end operation with eggs coming in the door and processed product out the other – all in one location

Eggs from Iceland

Regional feed supplier

Clean salt- and freshwater

Local biofuel for back-up



Onsite 3rd party oxygen generation

Onsite 3rd party rooftop solar park

HOG + processed salmon

Local waste value-added

Lobster bait

Treated discharge

Project start possible in 2020



1	Property	✓	Secured option to buy a ~223,000 m ² site
2	Due diligence	✓	Due diligence completed in Q2 2018
3	Hired key staff	✓	Hired key staff during 2018 and 2019
4	Governmental permits	✓	Expected to receive permits within 2020

NAF is close to start construction of its Maine facility

- NAF has secured a property in Belfast, Maine and is in an advanced planning stage to build a facility with a fully developed capacity of ~25,000 MT (HOG) p.a.
- Average harvesting size +5 kg HOG
- The construction of the facility will be divided into phases
 - Possible phase one;
 - ~12.500 MT growout
 - Smolt capacity for fully built out facility
 - Water Infrastructure for fully built out facility
 - Processing plant for fully built out capacity (including VAP capacity)
 - Phase two additional grow-out capacity of ~12.500 MT
- Ongoing and planned activities prior to construction start:
 - Detailed engineering
 - Financing; debt and equity
- Start of construction possible in 2020

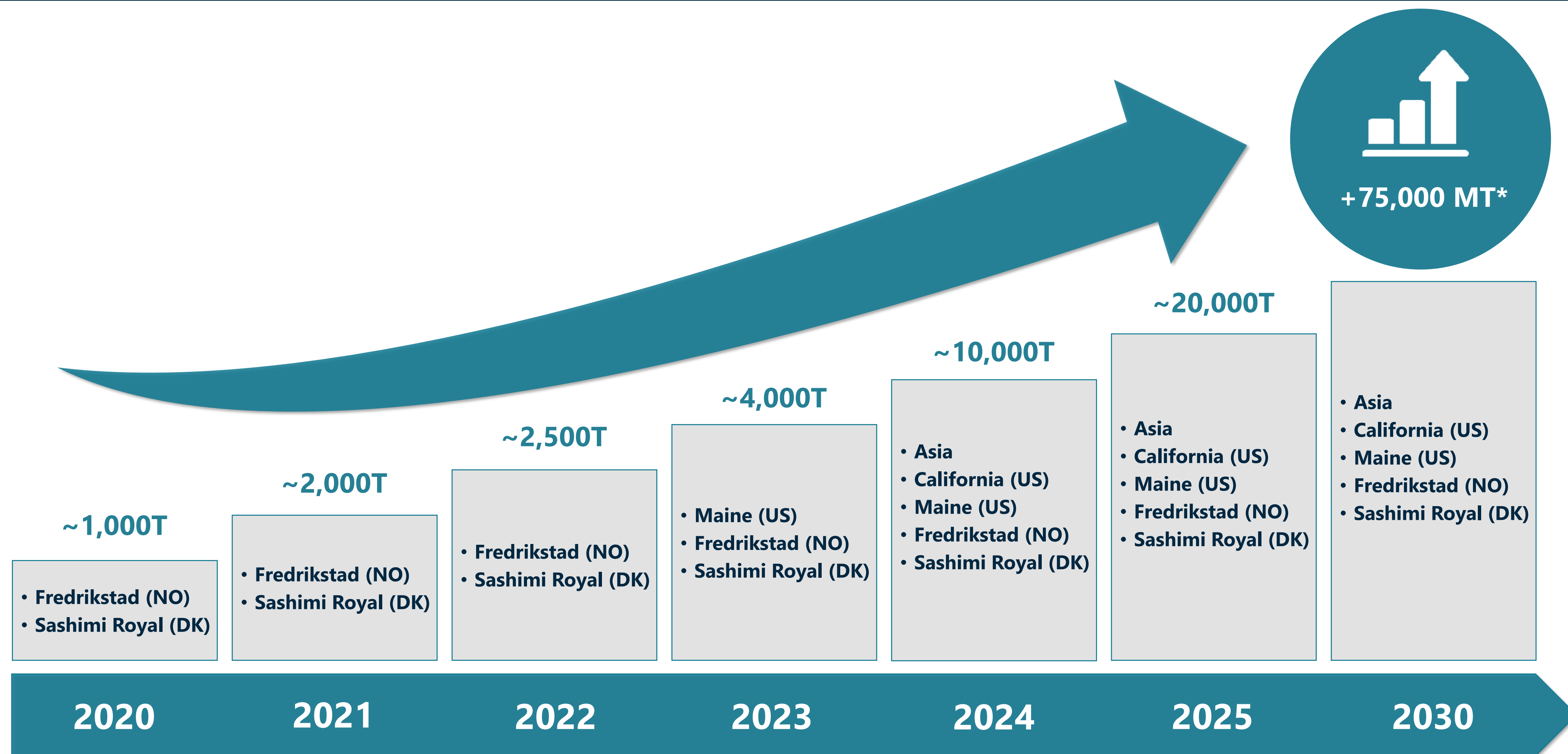
California (US) – Local project to serve the US West Coast



NAF is in the development phase of the California facility

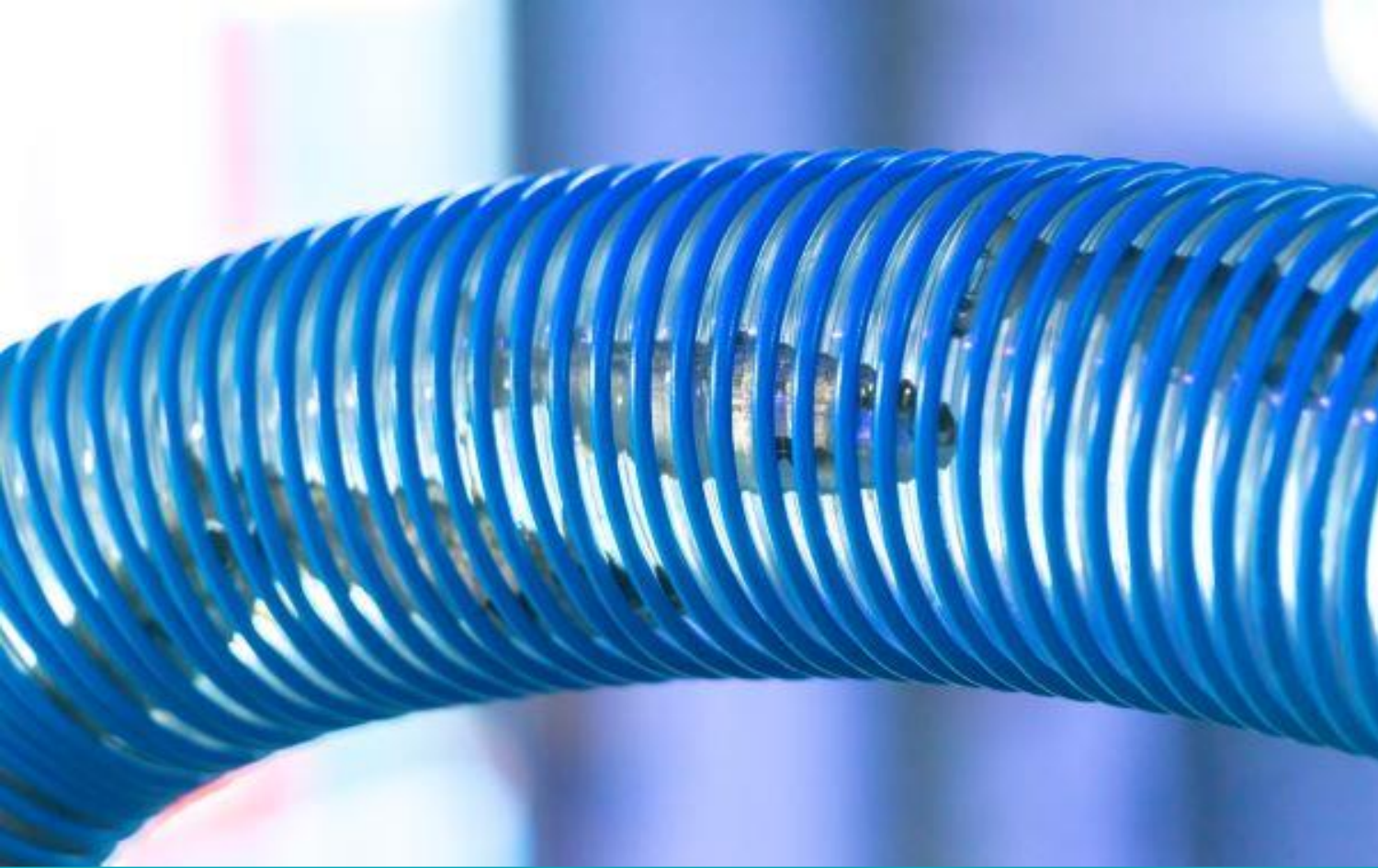
- Located in Eureka, Northern California
- ~25,000 MT capacity (HOG) fully developed with average harvesting size +5 kg HOG
- Secured option to lease a ~140,000 m² site and additional land for expansion available
- Possible granting of permits within 2021
- “Copy-paste” of facility in Maine

Nordic Aquafarms is stepping up production in the years to come



* Indicative harvest volumes (HOG)

Source: Nordic Aquafarms



Pictures from Nordic Aquafarms' land-based facility in Fredrikstad

