Operational efficiency and biological control throughout the value chain

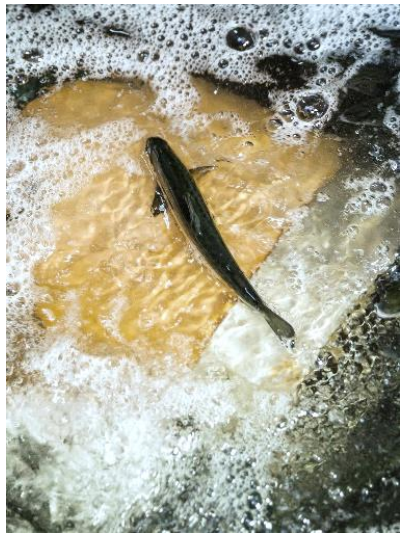
Capital markets day | August 2019

Manuel Arriagada, CEO

State of the art operations ensure operational efficiency and sanitary control

Genetics

Freshwater



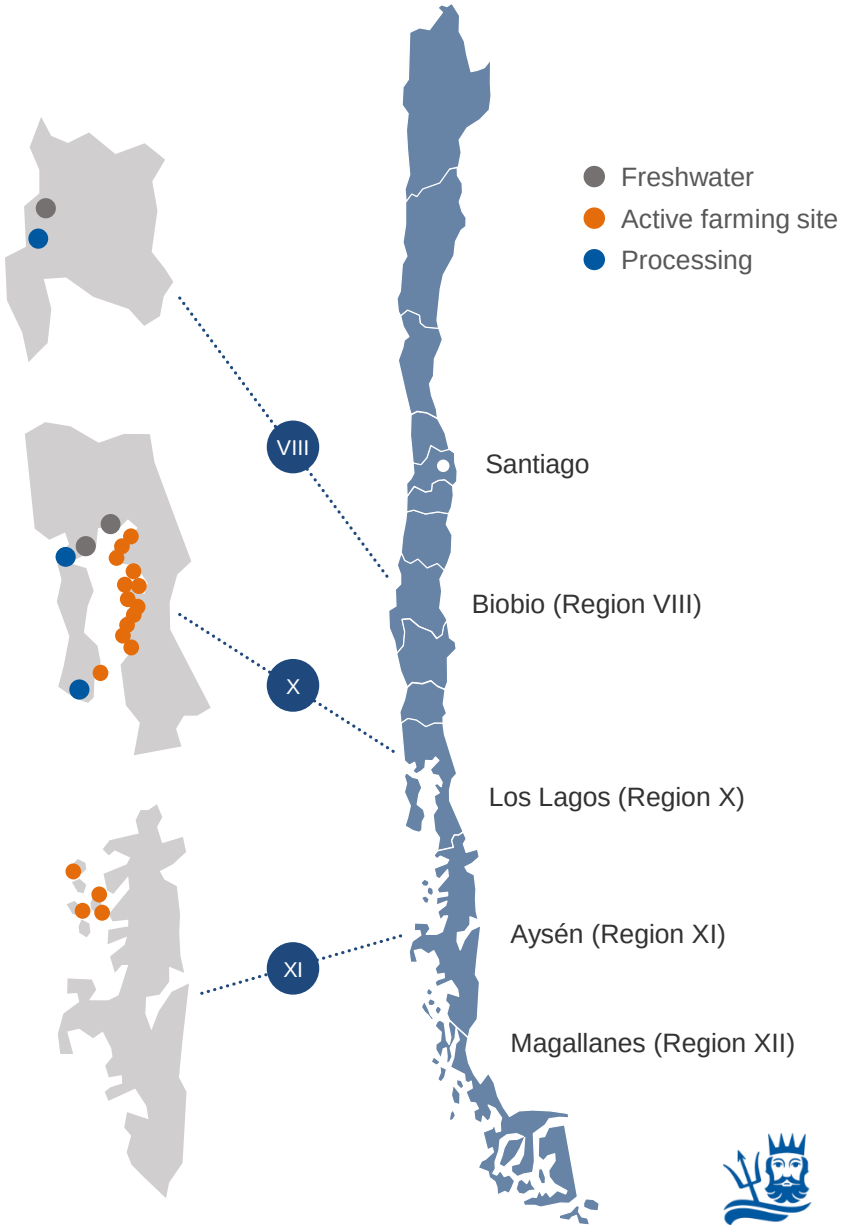
Seawater

Processing

Sales & Marketing

Located in the pristine glacial waters of Chilean Patagonia

- 3 freshwater hatcheries for Atlantic salmon egg production and smoltification
- 2 freshwater hatcheries for coho/trout smolt production
- Geographically diversified portfolio of farming sites with 74 concessions dispersed over regions X and XI
  - 22 active Atlantic salmon farming sites
  - 4 coho sites for 2019 stocking plan
  - 7 trout farming sites owned through joint venture in force 2017-2022
- 3 processing plants for primary and value-added processing



Genetics and freshwater

Biological stability through high-quality breeding

Isolated freshwater operations for Atlantic salmon ensure biological control

- 100% self-sufficient production of broodstock, eggs and smolt in own hatcheries and spawning plant
- One of Chile’s largest RAS facilities, providing annual production of 14 million smolt at 100g
- Self-sufficiency and isolation from industry significantly lowers sanitary risks

Petrohué Hatchery
Ensenada, Los Lagos Region (X), Chile

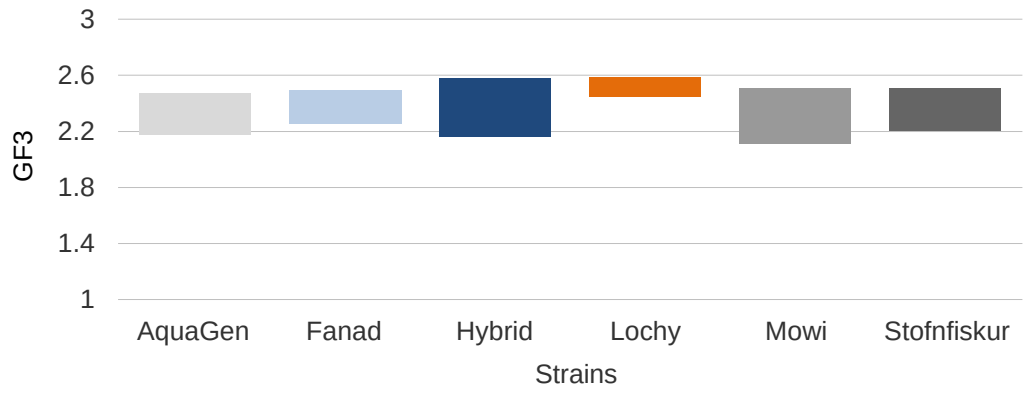
The Lochy strain - proprietary, unique and fast-growing

- 15-year improvement program focused primarily on growth
- GF3* growth coefficient increased 5% per generation
- Can grow up to 5.5kg LW in 10-11 months (male population)
- Higher harvest weights significantly improve yield

- Lochy can only be stocked for August-January harvest due to maturity issues (Q3-Q4 mainly)
- Historically complemented with Fanad strain and hybrid (Lochy + Fanad) for Q1-Q2 harvest

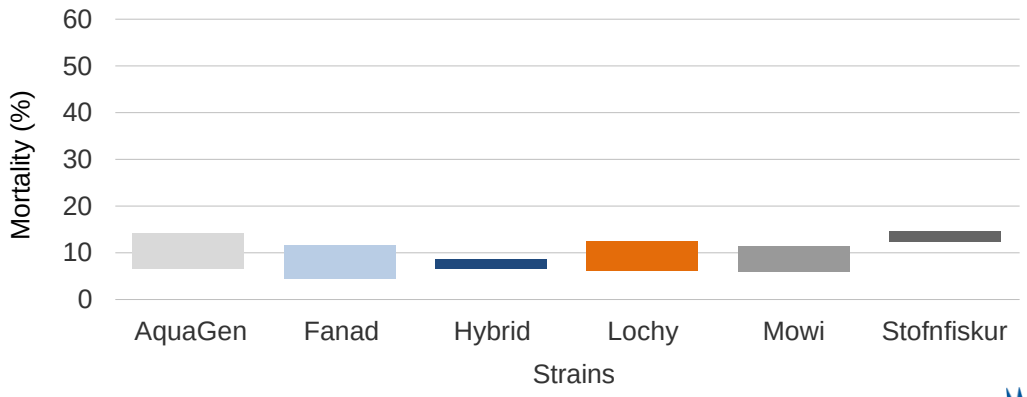
Accumulated GF3*

Atlantic salmon, closed cycles January 2018 - July 2019



Cumulative mortality (%)

Atlantic salmon, closed cycles January 2018 - July 2019



*Thermal growth coefficient: $GF3 = \frac{\left(\text{Harvest weight}^{\frac{1}{3}} - \text{Starting weight}^{\frac{1}{3}}\right) \times 1{,}000}{\text{Total sum temperature}}$

Optimizing seawater production through strain selection

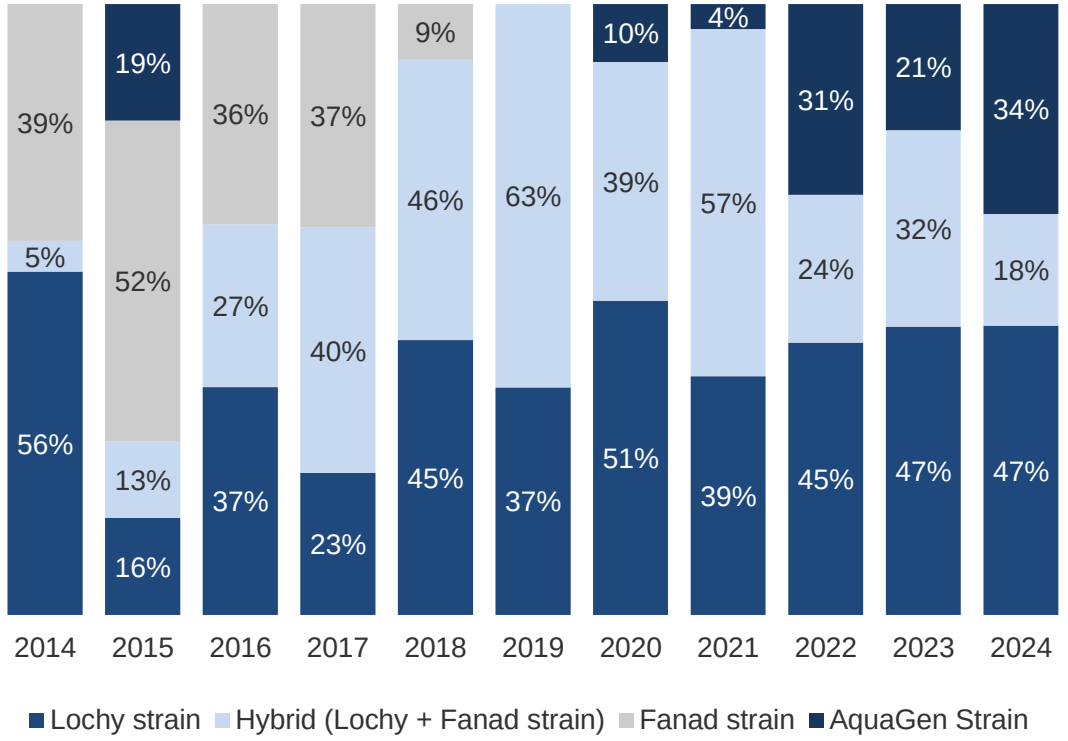
The hybrid strain – taking advantage of the Lochy's growth attributes

- Developed by pairing the Lochy and Fanad strains
- Stronger growth than traditional Fanad without Lochy's maturity issues
- Compliments the Lochy by allowing for Q1-Q2 harvest

AquaGen strain

- Multiplier agreement, with internal egg production
- Introducing AquaGen strain with 2022 smolt to complement the Hybrid and benchmark attributes
- Maintains isolation and full sanitary control

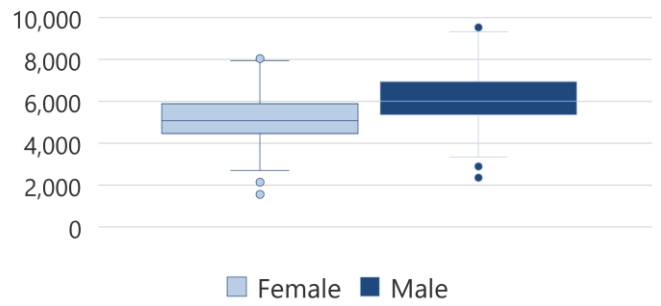
Historical and expected smolt release strain mix (%)



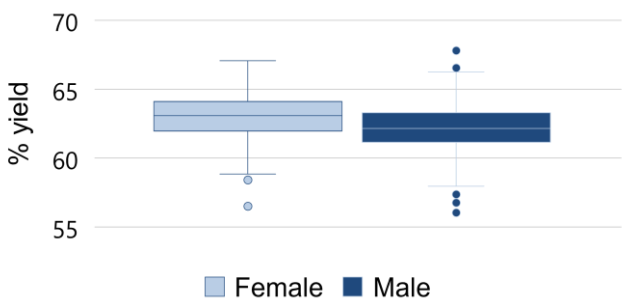
Early gender selection reduces sanitary risk and increases processing yield

- Males achieve up to 12% faster growth and 1.1pp higher yield in HOG processing
- Females 1.05pp higher yield in value added processing
- Sorting by gender lowers risk and improves yield
  - Higher-risk sites stocked with males only, thus reducing time at sea and sanitary risk exposure
  - Improves processing yields for both VAP and HOG
  - In 2019, all sites are stocked with gender differentiation

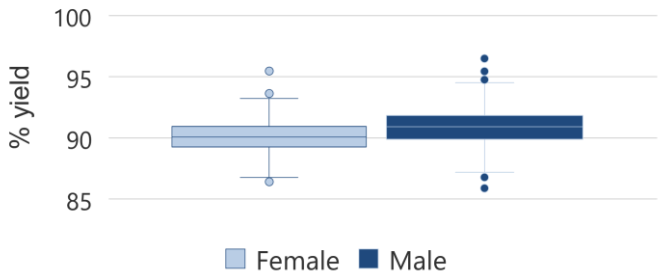
Harvest weight distribution by gender (grams)



VAP yield distribution by gender (%)



HOG processing yield distribution by gender (%)



Persistent focus on improving smolt yield

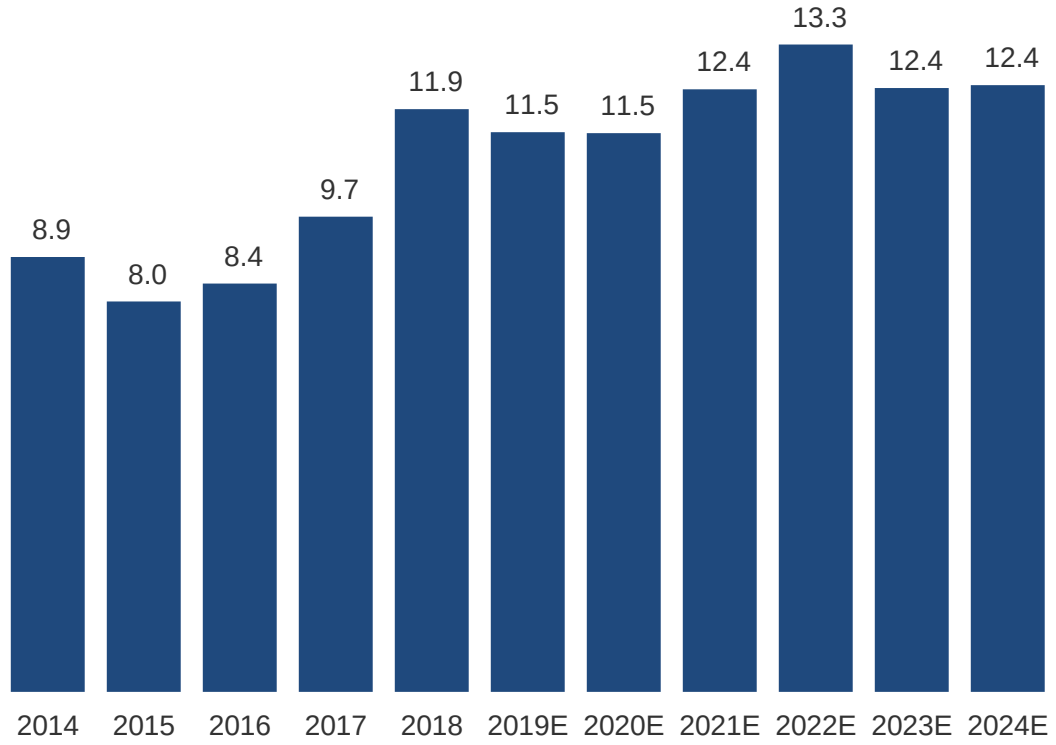
Genetics

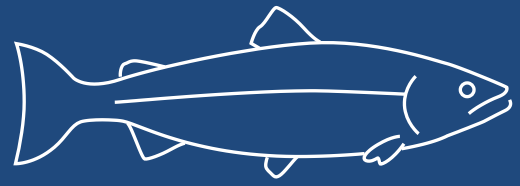
- Optimizing strain mix during grow-out phase
- Genomic selection historically based primarily on growth
- Ongoing genetic improvement program focused on SRS- and sea lice resistance
- Gender selection in freshwater and sorting in grow-out sites

Post-smolt evaluation

- Medium term project (4-6 years)
- Looking for land, water rights and environmental authorizations
- Targeted stocking-weight: 200-500g
- Chief motivation: shorter exposure to seawater risks

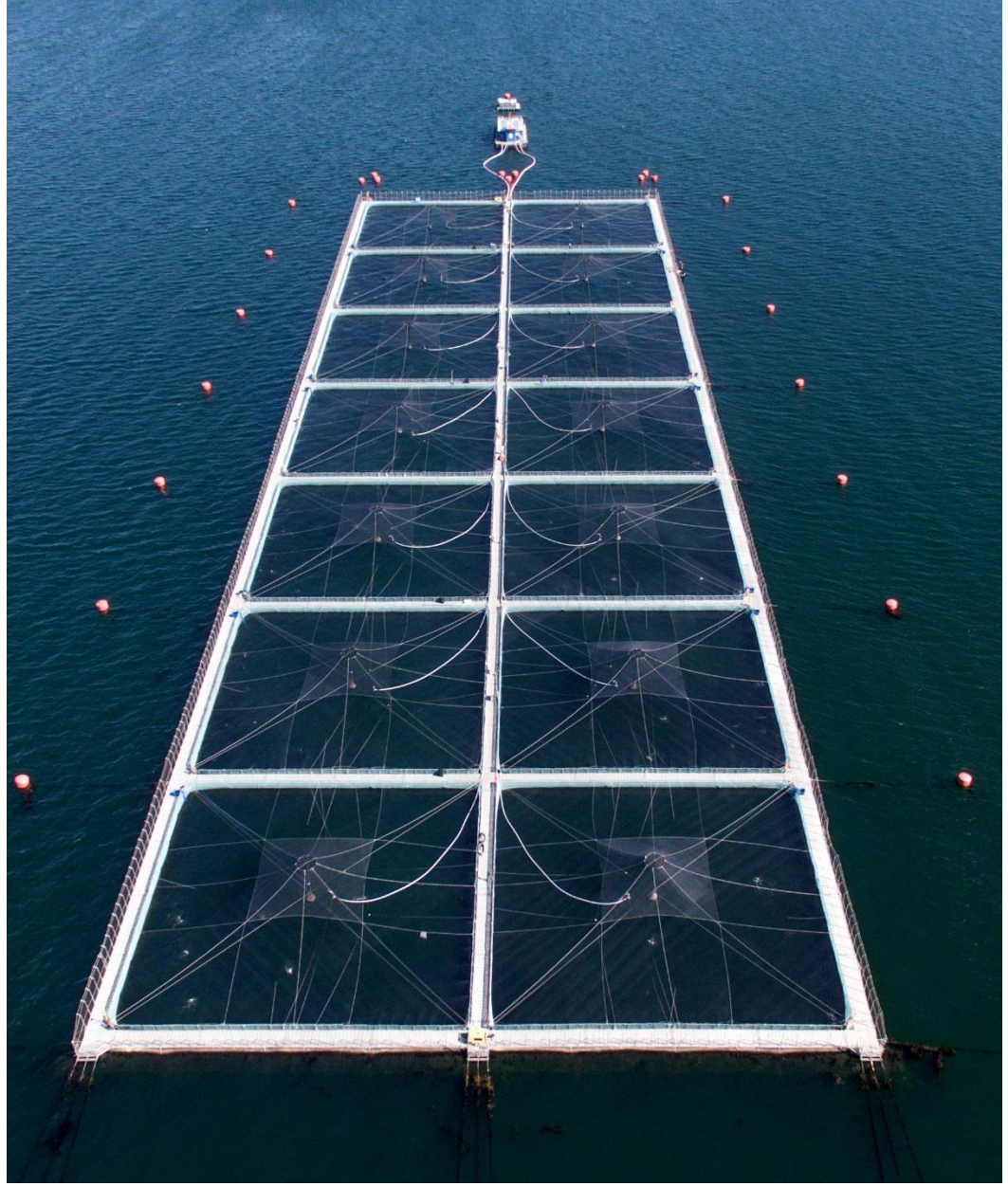
Historical and expected smolt release
(million smolt)





Seawater

Safeguarding fish health and ensuring biological control



Among the lowest-cost producers of salmon in Chile

- Prime portfolio of sites
- Strong operational and sanitary practices
- Good smolt quality
- Lower mortality
- High yield

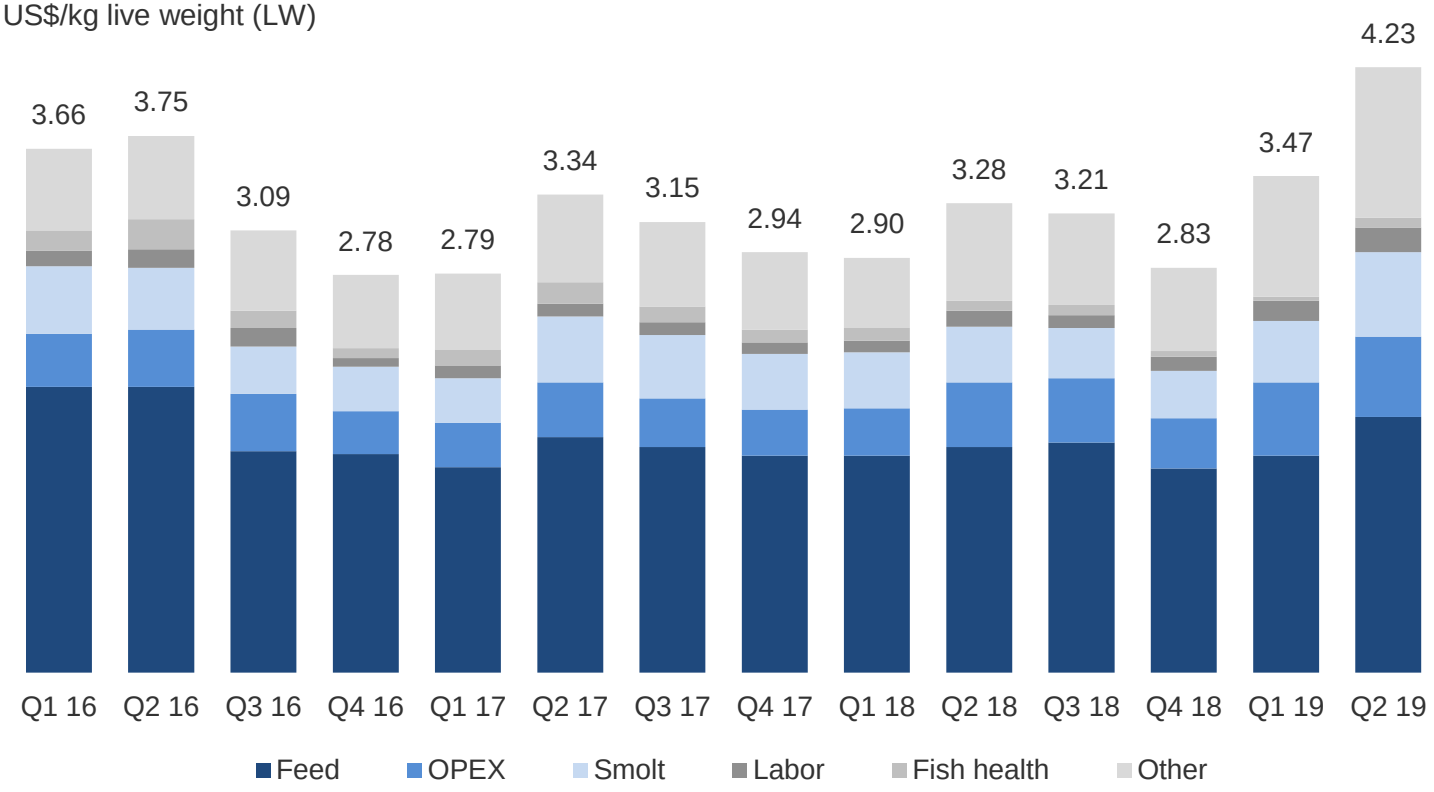
Continuously working to improve operations

- Improving efficiency and productivity
  - Investing in in 40x40 meter cages
  - Improving economies of scale
  - New sea lion nets reinforced with iron fibers
- Promoting growth and reducing feed conversion ratios
  - New feeding barges with added capacity and feeding lines
  - Increased # of feeding days through remote feeding
  - High-quality cameras to enhance feed monitoring control
  - High-energy diets increase growth and reduce feed conversion rate
  - Reduced maturity and increased growth through use of photoperiod

Operational efficiency impacted by biological issues

Atlantic salmon ex-cage cost

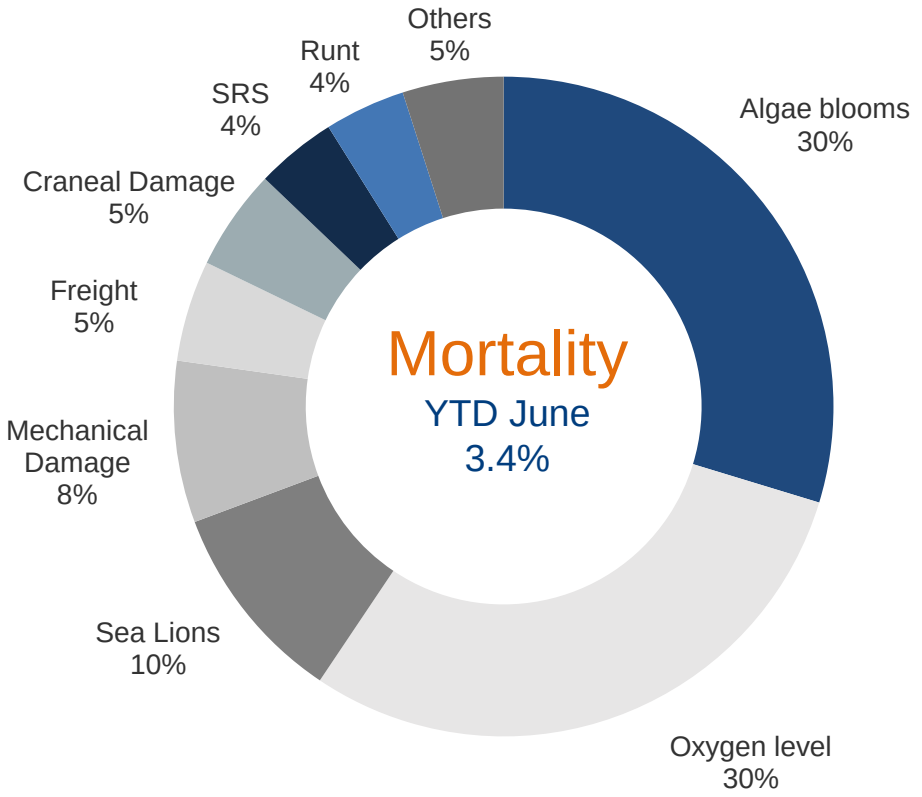
US$/kg live weight (LW)



- High Q2 ex-cage cost due to:
  - 50% of harvest affected by algae blooms, resulting in lost feeding days and low average weight of 3.8kg
  - 40% of Q2 harvest from sites with low-density stocking
- No low-density sites will be harvested in H2 2019
- Good feeding behavior and no algae situations since June 2019

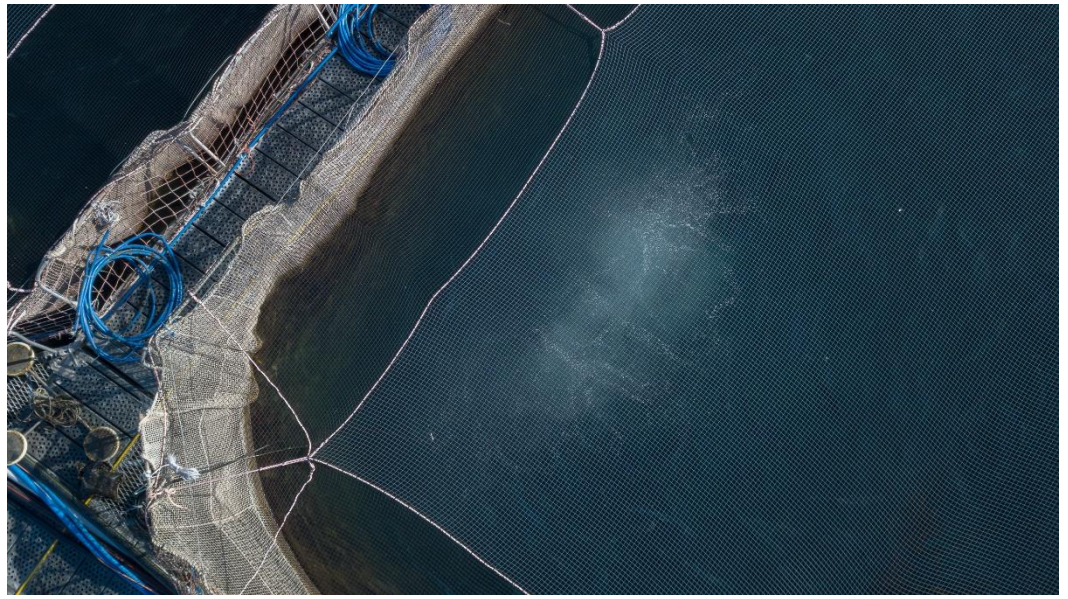
Algae blooms and oxygen levels are the main causes of mortality

- High mortality from low oxygen levels
  - Isolated cases of low oxygen in H1 2019
  - Lack of cryogenic oxygen supply due to supplier shortage
- Isolated cases of algae blooms resulted in feeding limitations and mortalities



Taking action to fulfill ambitious targets

- 10 Cryogenic platforms with supply barges implemented in 2019 to strengthen oxygen supply
- 3 new oil-based oxygen systems in place from 2019/2020
  - In situ oxygen generation
- Upwelling systems will mitigate algae effects
- Targeting less than 8% closed cycle mortality rate



Oxzo upwelling system

Focused on reducing the use of antibiotics

Q2 2019	2016	2017	2018	2019
FCRb* (live weight)	1.36	1.17	1.21	1.30
Yield (kg WFE/smolt)	4.01	5.16	4.76	4.45
Average harvest weight (kg WFE)	4.79	5.00	4.81	4.35
Antibiotic usage (g/ton)	761	515	515	381
Antiparasitic usage (g/ton)	10	12	13	16

* FCRb = Feed conversion rate, biological

Negative aspects of antibiotics usage

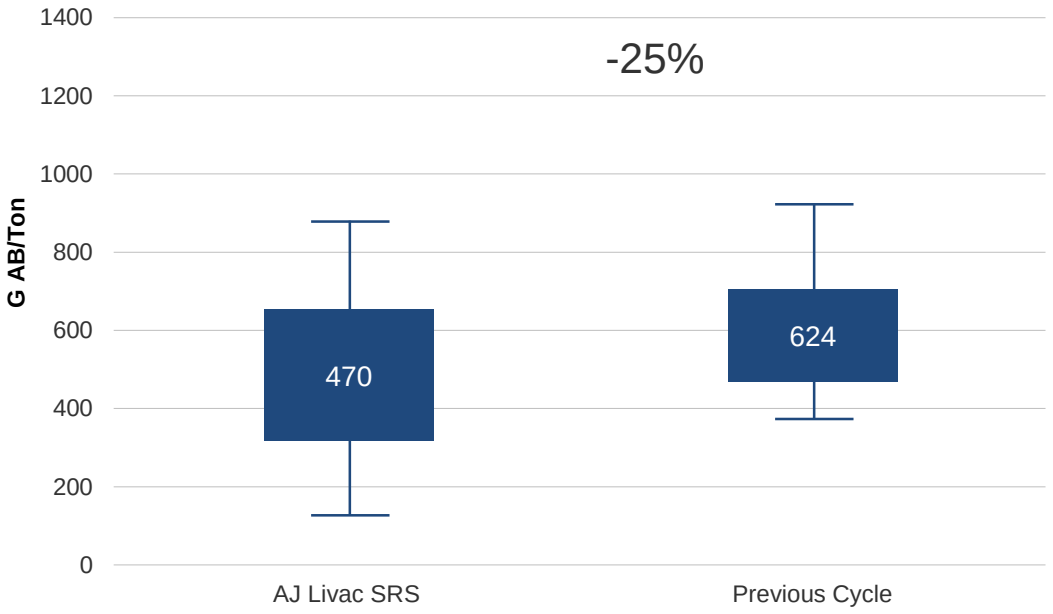
- Impacts sustainability and environment
- Negative market perception

Salmones Camanchaca targets

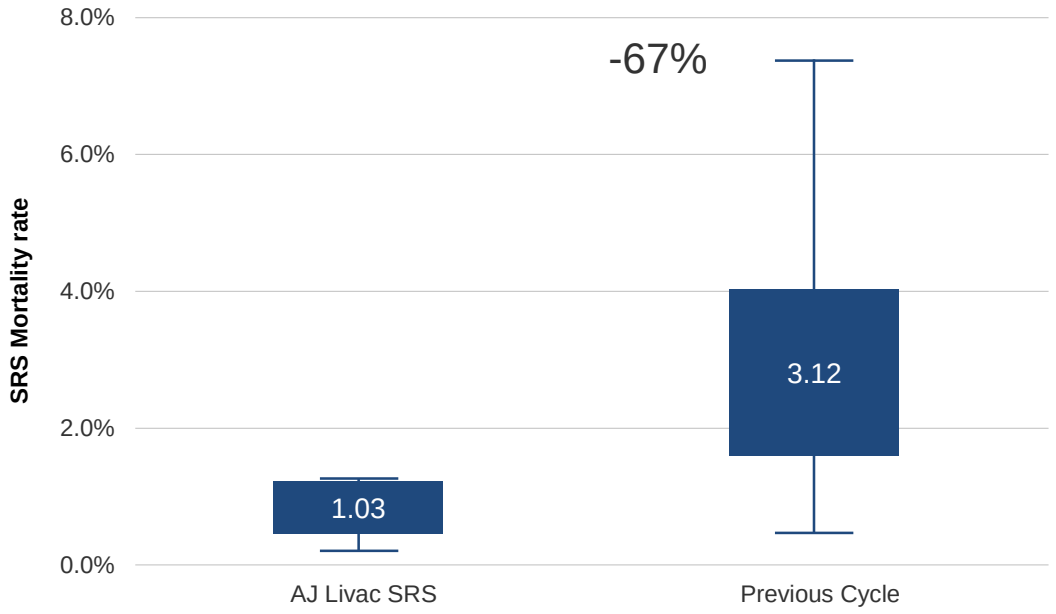
- 50% reduction of antibiotics by 2025
- Reduce negative US price gap to non-Chilean salmon

LiVac vaccination has proved an effective measure to reduce mortality and antibiotics

Grams antibiotics administered per ton



Total mortality from SRS



Sea lice control is fundamental to fish farming

Regulatory efforts to monitor sea lice levels

- Aiming to protect wildlife and safeguard fish welfare
- Requirement of less than 3 female sea lice per fish
- Mandatory harvest of 25-100% at sites with more than 3 CAD situations*

Industry currently dependent on two medicinal treatments

- Lufenuron: Effective protection in seawater during the first 4-5 months
- Azamethiphos: losing efficacy, resulting in increased sea lice pressure

Salmones Camanchaca's medium- and high-risk areas

- Areas may be classified as medium- or high-risk due to increased sea lice pressure
- As of July 2019, 6/15 active sites (40%) were located in medium- or high-risk areas
- 31,000 tons (35% of harvest) projected to be harvested from medium- or high-risk areas from Aug. 2019 - Dec. 2020

* CAD situations: Instances with more than 3 gravid female sea lice per fish on average

Strengthening sea lice protection during final seawater phase

0 months

- Up to ~800 g
- Current treatment: Lufenuron
- Protection: Good

5 months

- Up to ~3kg
- Current treatment: Azamethiphos
  - Losing efficacy and currently inadequate
- New treatment: Alfaflux
  - To be evaluated,
  - Expected efficacy in line with Lufenuron

10 months

- Up to ~5kg+
- Current treatment: Azamethiphos
  - Losing efficacy and currently inadequate
- New treatment: Hydrogen Peroxide
  - Starting treatment from October 2019
  - Highly efficient
  - Expected duration ~12 months
- New non-pharmacological treatments
  - Starting pilots in November 2019

17 months

# of months in seawater

⇨ Considerable time to evaluate new treatment methods

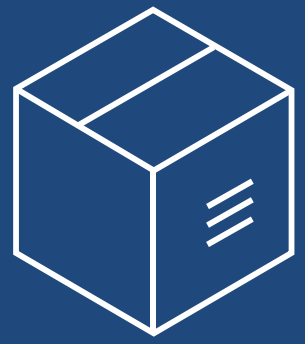
Sea lice treatments under review through industry partnerships

New treatment methods

- Mechanical treatments currently under review
  - Optilicer
  - SFI Hydrolicer (Faroese)
  - FLS Delouse
- Other measures being introduced
  - Salmoclinic, 2021
  - Freshwater treatments using wellboats, 2020-2021 - tender process starting in H2 2019

Industry cooperation

- 12 Chilean companies cooperating to test new treatment systems and share results
- Advantages of cooperating
  - Lower fish stress levels
  - Lower capex, opex and initial risk



Processing and sales

Driving value through cost efficiency and product flexibility

Extensive and efficient processing capacity

San José primary processing (Region X)

- Processes fish harvested in Region X, uniquely located close to ocean sites
- Daily processing capacity of 85,000 salmon
- ~30% third-party processing drives expected 2019 unit cost reduction of 25%
- Exports whole fresh salmon directly to Brazil, China and Argentina

Surproceso Primary processing (Region X)

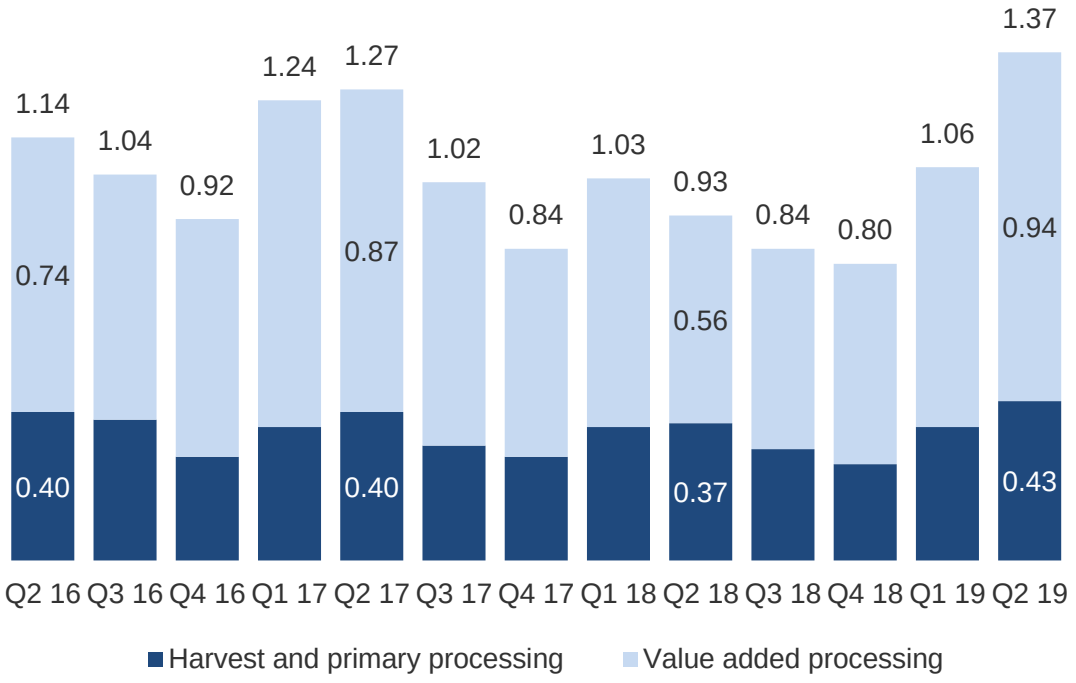
- 33.33% ownership interest
- 100% ownership of slaughtering cage concession next to plant
- Fish harvested in Region XI with daily processing capacity of 115,000 salmon
- Third-party processing profits drives expected 2019 unit cost reduction of 76.5%
- Geographically well positioned to be the preferred processing plant for region XII

Tomé value added processing (Region VIII)

- Very flexible processing, switching between fillets, portions and other VAP
- ~80% of Salmones Camanchaca's harvested volumes runs through Tomé
- Proximity to Santiago provides flexibility to ship fresh fish to the United States
- Daily processing capacity of 350 tons raw material and expert at transforming non-premium graded harvest into premium graded products

Targeting processing cost below US$ 1/kg WFE

Atlantic salmon processing cost (US$/kg WFE)



- Q2 2019 cost of US$ 1.37/kg
  - Higher share of portions and fillets - increased cost/kg by 30 cents y-o-y
  - Low average weight and reduced scale effect increased cost/kg by 20 cents y-o-y
- Expected FY 2019 processing cost below US$ 1/kg target due to higher volume and increased average weight in H2 2019

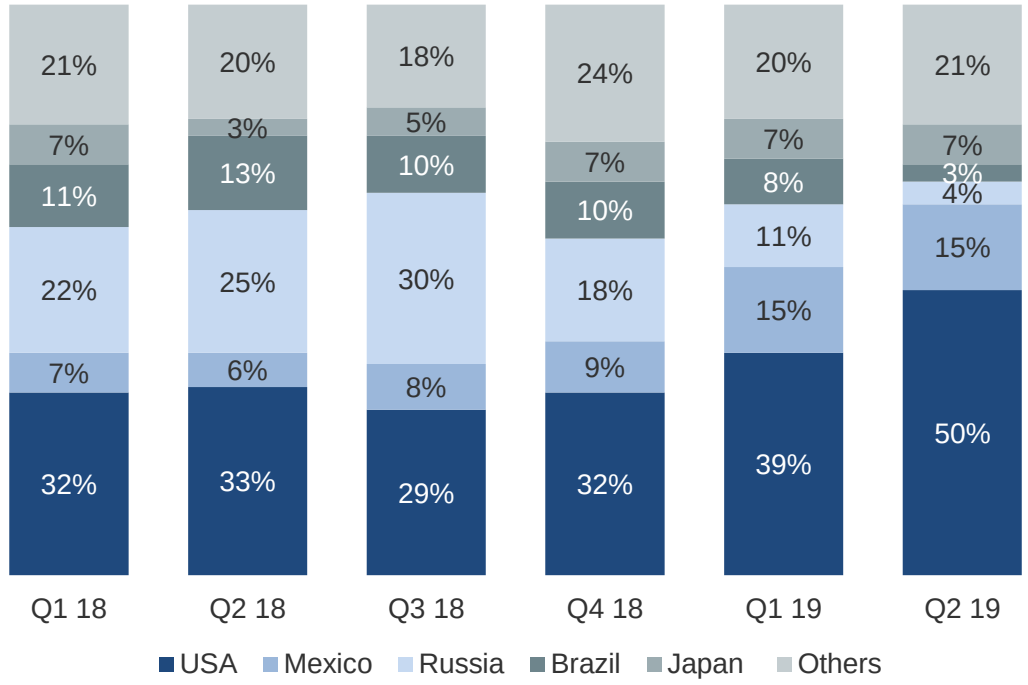
Ambitious processing efficiency investment program

2018 Tomé VAP capacity and efficiency	2019 - H1 2020 San José expansion, cold storage capacity	2019 - H1 2020 Tomé VAP capacity and efficiency
US$ 8.3 million	**US$ 5.7 million**	**US$ 3.0 million**
Status • Completed 2018 **Improvements** • Freezing and filleting capacity (frozen tunnel and Marel filleting lines) • Production efficiency, fillet injection. • New facilities for direct dispatch **Benefits** • Enhanced yield optimization and product quality • Increased labor efficiency • Cold storage rental savings • Potential annual EBIT effect: US$ 5.1 million	**Status** • 90% completed **Improvements** • Stunner optimization, gutting machine, dynamic weighter, 12 gates grader, and flow ice upgrade • Improving fresh whole lines cold storage, packaging lines, quality calibration and HOG grader • Improved truck access and charging station **Benefits** • Increased staff productivity • Improved plant efficiency and capacity • Potential annual EBIT effect: US$ 1.1 million	**Status** • 40% completed **Improvements** • Fresh fillet grader and portions grader • Infeeds & weight checkers (giveaway reduction) • Connections, conveyors, packaging and labelling stations **Benefits** • Filleting capacity: +60% • Portions capacity: +80% • Increased staff productivity • Potential annual EBIT effect: US$ 2.1 million

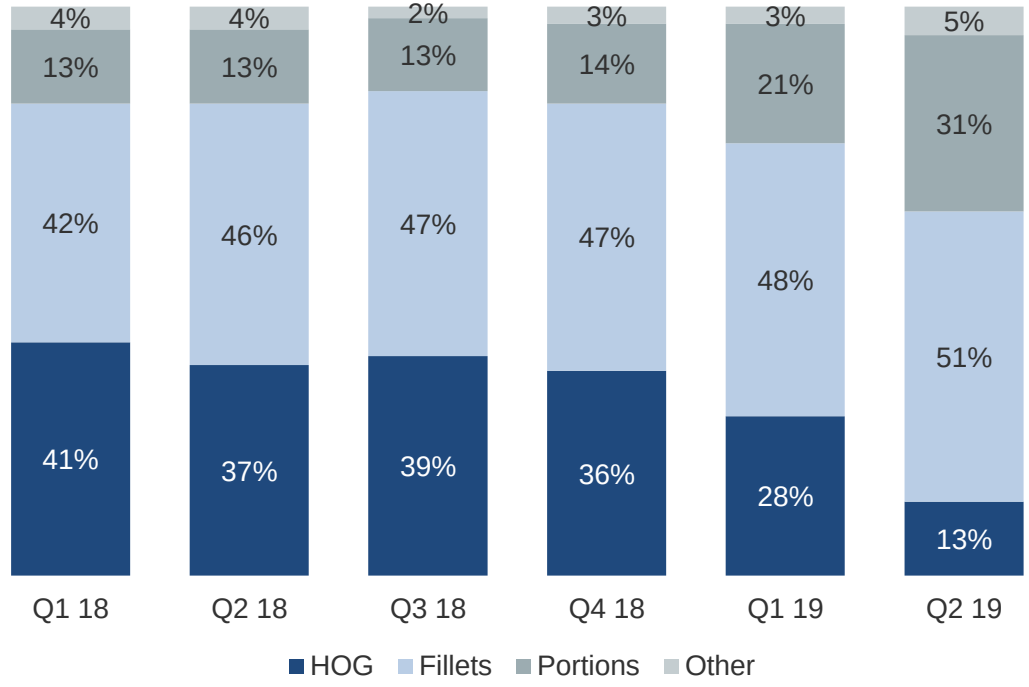
High flexibility in market and product allocation

% based on US$ sales

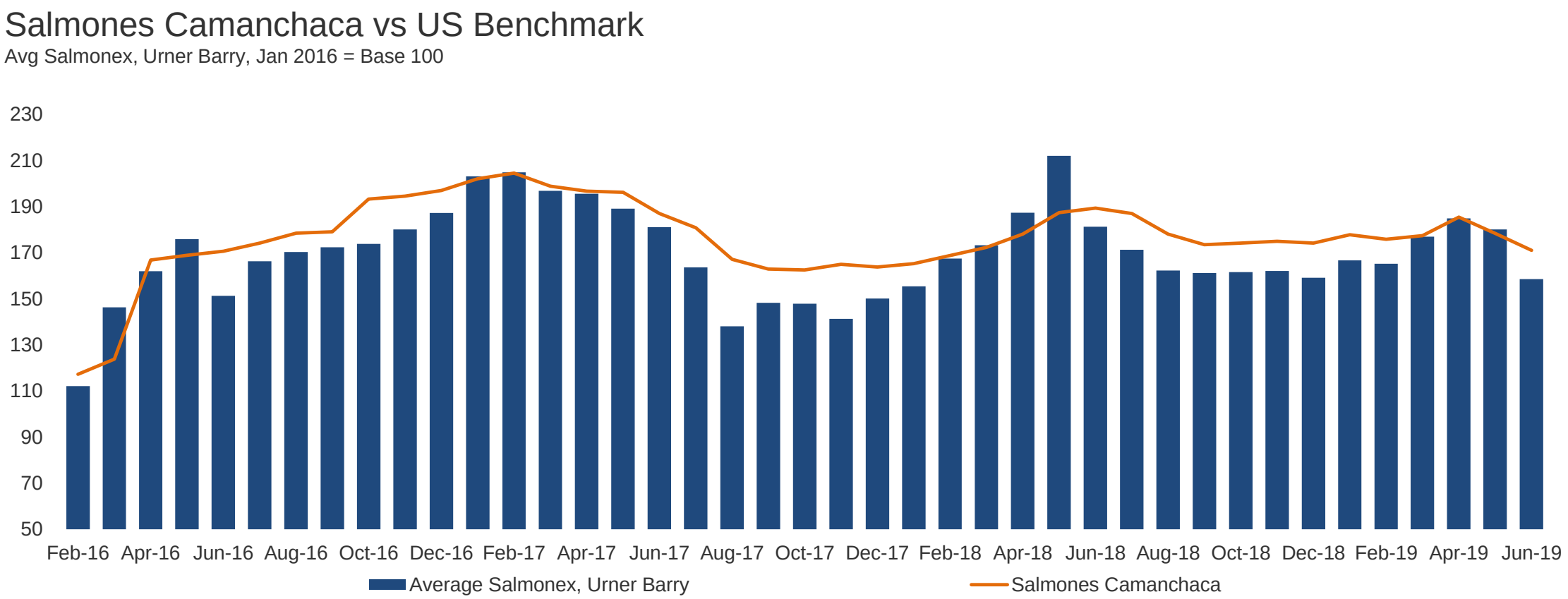
Sales distribution by market

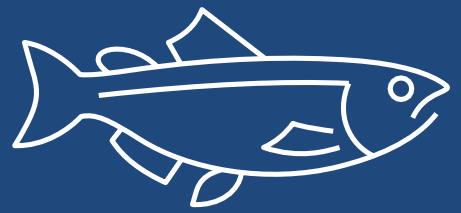


Sales distribution by product



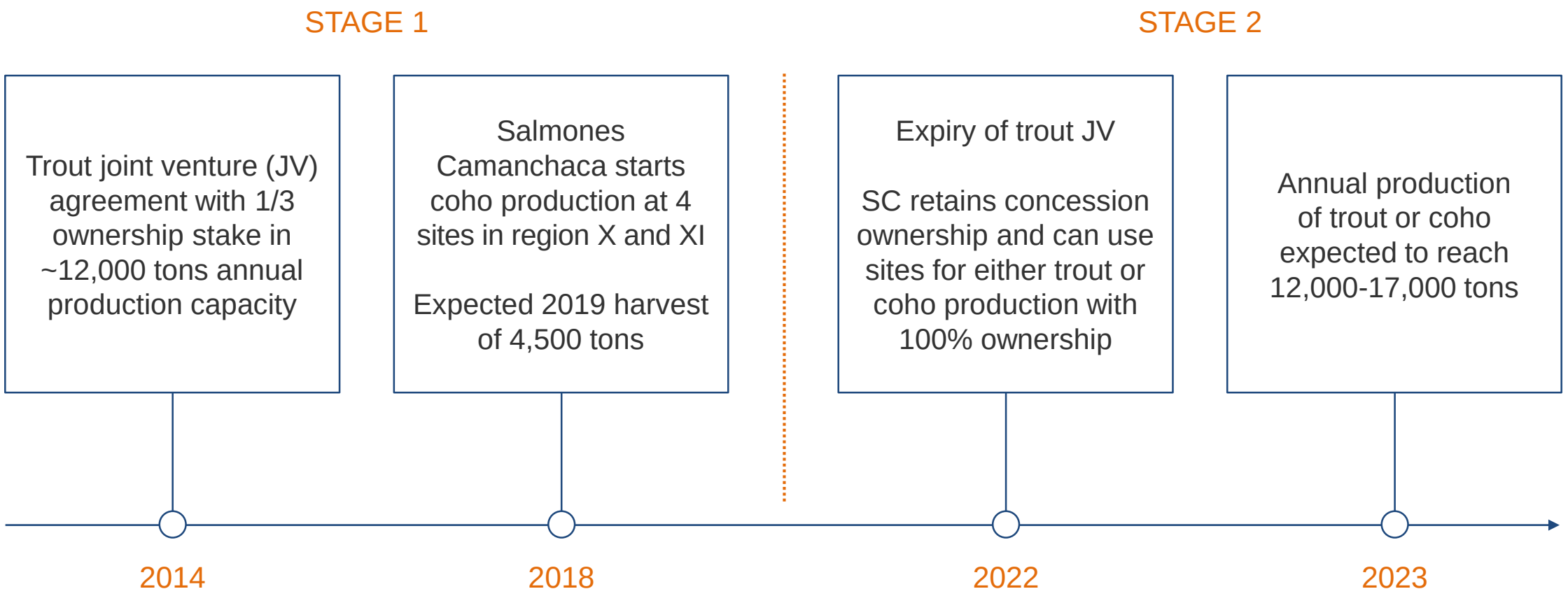
Processing flexibility enables high-value sales





Other species initiative

Targeting 12,000-17,000 tons other species production by 2023



Coho has attractive qualities and strong growth potential

Advantages

- Well adapted to local sanitary conditions
  - Low SRS prevalence
  - Low antibiotic usage
  - Completely immune to sea lice
  - Short production cycles of 8-9 months
- Strong volume growth potential

Coho situation at active sites

Aug. 2019

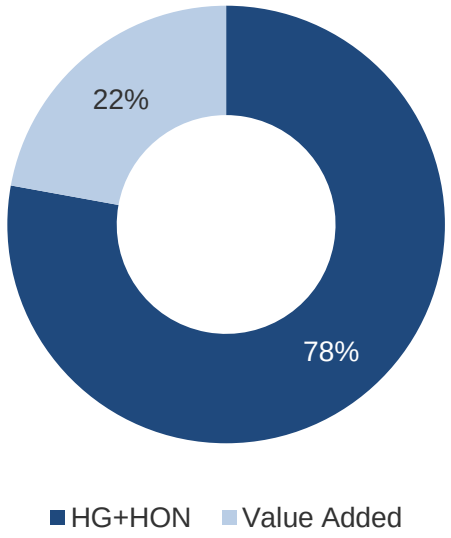
# of coho in the sea	1.4 million
Average weight	1.9 kg
Accum. mortality rate	2%
Feed conversion ratio	1.14
Antibiotic treatments	0
Sea lice treatments	0

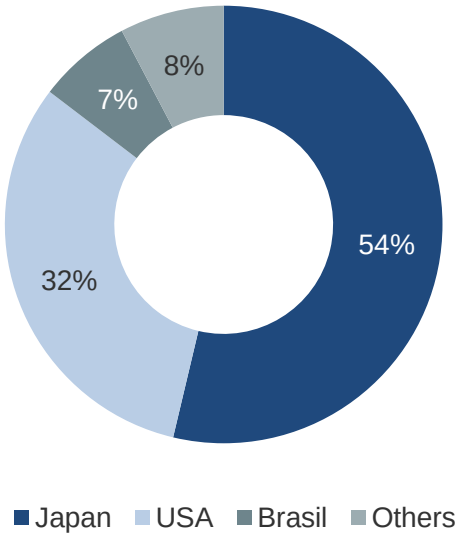
Limitations

- Harvest seasonality due to maturity
- Lower average weight
- Requires pre-rigor processing
- Market dependence
  - 80% of Chilean coho sold to Japan

Japan is currently the main market for coho

2019 coho sales and product distribution forecast





Other species initiative infrastructure investment needs

Year	Investment area		Estimated amount
2021	Freshwater*	• Egg-supply • Smolt production	US$ 20 million*
2022	Seawater*	• Site infrastructure	US$ 30 million*
2022-2023	Processing	• Pre-rigor filleting • HG continuous frozen-tunnel	US$ 10 million
2023	Seawater	• Working capital	US$ 30 million
2021-2023	Total		US$ 90 million

*Amounts will vary depending on the mix between own infrastructure and third-party services

Salmones Camanchaca will also invest continuously in activities related to market development, such as product development and targeted marketing efforts.

Operational efficiency and biological control throughout the value chain

- Fully integrated operations, isolation and geographical dispersion ensure biological and sanitary control
- Freshwater production optimized through high-quality smolt: Lochy strain, genetic program, hybrid and AquaGen initiatives and gender selection
- Seawater investments in productivity and initiatives to promote growth and reduce antibiotics
- Investments and improvements implemented to address biological challenges
- Significant processing investment program to secure high level of productivity and market flexibility
- Growth initiative within other salmonid species, trout and coho, targeting 12,000-17,000 tons in 2023. Total production goal is 75,000-80,000 tons in 2023

Salmones Camanchaca

Feeding the world from the ***ocean***