

Farmed Arctic Charr *Salvelinus alpinus*



- Responsible Land-based Farming
- Sustainability
- 100% Traceability
- Green Geothermal Renewable Energy
- Reared in Crystal Clear Brackish Water
- Low Carbon Footprint
- Excellent Nutritional Value
- No Genetic Modifications
- No Growth Hormones or Antibiotics
- Superior Quality and Taste



Fresh - Frozen - Whole Fish - Fillets - Portions

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Samherji's Aquaculture

Samherji's aquaculture is comprised of most aspects of fish farming, i.e. hatching, juvenile production, the on-growing of marketable fish, production of fish feed, harvesting, packaging and marketing of the products.

The various fish farming operations are all landbased and situated around Iceland. The farms have been audited and certified by IMO (Institute for Marketecology) for Whole Foods and the brand new state of the art processing plant has recently aquired a BAP (Best Aquaculture Practice) certification.

Arctic Charr commercial story and production

Samherji fishfarming has a broodstock farm and produces Arctic Charr roes but also purchases roes from Holar University. Holar has years of experience and a well established breeding program for Arctic Charr. Holar also run the breeding program at Samherji's own broodstock facility.

After hatch, alevins (yolk sac larvae) are transferred to nurseries where the fish are reared in freshwater up to 70-100g before they being transferred to on-growing sites. There the Charr is farmed under the best available conditions in high-quality brackish water, pumped directly from boreholes located on site. The water from the boreholes has been naturally filtered through Icelandic lava. The combined production capacity of Samherji's on-growing farms is approximately 4000 metric tons of Arctic Charr per year.

At all the farms, environmental factors such as oxygen levels, salinity, density (max 50kg/m³) and temperature are constantly monitored and adjusted to best fit the optimal living conditions of the fish at every stage. Feeding and oxygenation is automatic and computer controlled and thus it can be monitored and controlled from anywhere. Our feeding methods are specially adapted to the feeding habits of Arctic Charr, based on our extensive experience in Arctic Charr farming.

Feed from Laxá Feed Mill Ltd. in Iceland (owned by Samherji) is the only feed used in the Arctic Charr on-growing production. The fish meal and fish oil that is used in the production of Laxá feed come from sustainable managed fish stocks in Icelandic waters. Marine protein is about 50% of the total protein in the feed and it contains both fish- and rapeseed-oil. No other protein sources from the animal kingdom are used and no drugs are added to the feed. The only pigment used is the natural substance Panaferd.



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Feed Ingredients	
High quality fish meal, fish oil, rapeseed oil, soy meal, mais, wheat, vitamins, minerals and pigments (Panaferd)	
Protein %	35,5 - 45,0
Fat % (there of 25% rapeseed oil)	23 - 25
Carbohydrates %	11 - 18
Ash %	6



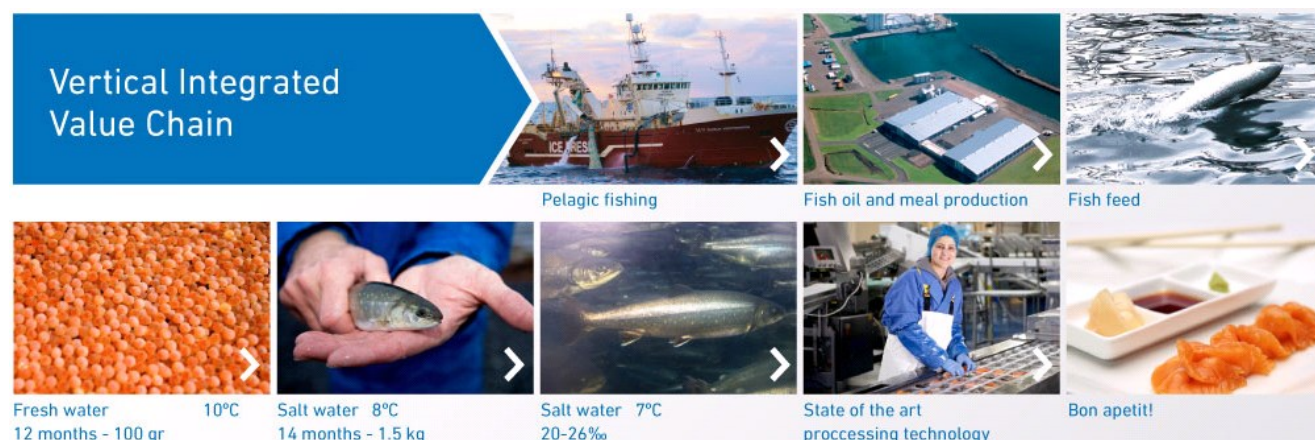
Chemotherapeutic treatments are never used in the Arctic Charr farming of Samherji. Approved vaccines are used strategically as a part of the company's biosecurity plan, so all juveniles are vaccinated before transfer to the on-growing farms. As a part of the biosecurity plan, all the farms have a contract with a fish veterinarian who makes regular visits. The veterinarian is responsible for the overall health management and also works closely with the Samherji's quality manager and all the farm managers as a consultant.

When the fish reach harvest size (800-2000gr) the fish are transported live, using a specially equipped truck to Samherji's state of the art processing plant which is located close to the farms and the international airport. During transport, the oxygen level of the water is controlled and closely monitored.

During the whole harvesting process, the welfare of the fish is our main priority. An electric stunner is used for the slaughtering and all methods used during the process are focused on preventing discomfort and stress, ensuring maximum quality of our finished products.

In the beginning of 2018 the processing plant moved to a brand new facility and much has been invested in human resources and equipment that allows for the production of high quality fresh and frozen fillets, portions, and whole fish that meet the highest requirements of the market. These new facilities offer many possibilities for the development of new products in cooperation with our many customers worldwide. The new processing plant is equipped with the state of the art technology and is one of a kind since the whole process is developed in cooperation with our employees which have decades of experience in Arctic Charr processing.

All our products are sold through Ice Fresh Seafood, a wholly-owned subsidiary of Samherji. Ice Fresh Seafood was founded on solid foundation and possesses great knowledge and contacts in markets all over the world.



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Why Ice Fresh Arctic Charr ??

Responsible Land-based Farming

- Controlled environment ensures optimal living conditions for the fish from hatch to harvest
- Minimal risk to wild stock – double security barriers in our land-based tanks ensure minimal risk of escapes (there has never been an escape for over 30 years).



Sustainability and Low Carbon footprint

- Green energy from renewable geothermal energy sources
- Feed from sustainable resources (Icelandic Responsible Fisheries)
- High quality crystal clear rearing water, naturally filtered through Icelandic lava
- Low FFER - Fish in- Fish out ratio
- Life Cycle Assessment (done in 2012) shows that our Arctic Charr has very low carbon footprint compared to average figures (2,01 kg CO2/kg of consumed food)

Certifications

- All our farms have been certified by IMO for Whole Foods Standards every year since 2009
- We are certified by Acoura (A member of Lloyd's Register group) for BAP standards (GFSI ISO/IEC 17065)



100% Traceability

- From the hatchery to your plate
- We operate with three systems that can be linked together and enable us to track the fish backwards and forwards:



Fishtalk Control - Data base for all our fishfarms – tracks all fish from hatch to harvest



Harvest production system – registers all harvests, orders and sales



Account system that tracks all sales to our customers



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Excellent Nutritional Value

- Good source of protein and polyunsaturated fatty acids
- In 100g of fresh Charr : 19,1g protein, 19,1g fat and zero carbohydrates
- **Rich in Omega-3 fatty acids** - 2,7g of **Omega-3** per 100g

Farmed Arctic Charr- Nutritional facts Marks: Arctic Charr from Sandgerdi	
100 g : kcal 248, KJ 1040	
Protein	19.1 g
Total fat	19.1
Saturated fat (% of total fat)	15,5
Polyunsaturated fatty acids (% of total fat)	25,3
Monosaturated fatty acids (% of total fat)	56,1
Carbohydrates	0 g
Sodium	0.071 g
Ash	1.1 g
Omega 3	2.7 g
*Cholesterol	68.3 mg
Water	61.6 g
Iron	0.19 mg
Potassium	0.433 g
Calsium	0.008g

Superior Quality and Taste

- Sweet aroma and mild distinctive taste
- It's an all natural product



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Selected “Best Choice” by Monterey Bay Aquarium Seafood Watch

- <https://www.seafoodwatch.org/seafood-recommendations/groups/arctic-char?method=farmed&q=Arctic%20Char,%20Farmed&t=Arctic%20Char>
- „Farmed Arctic char is a „Best Choice“ because it’s farmed in an ecologically responsible manner“

Arctic Charr products Fresh

Fresh Fillets					
gr			oz		
250	-	400	10-12	12-14	PBO
400	+		14-16	16-18	18+
styro box - inner bag 5kg 10 kg 10lb 20lb					

Fresh Whole					
gr			lb		
1000	-	1500	2,2	-	3,3
1000	-	2000	2,2	-	4,4
styro box - inner bag 10kg 25 kg 20lb 50lb					



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Arctic Charr products

Frozen

Frozen portions - IQF				
gr		oz		
80	-	200	3 - 7	PBO
tolerance = +/- 10g - 1/2 oz				
inner bag - carton box 5kg 10kg 500kg				

Frozen portions - vacuum packed				
gr		oz		
80	-	200	3 - 7	PBO
tolerance = +/- 10g - 1/2 oz				
carton box 5kg 10kg 500kg				

Frozen fillets - IQF				
gr		oz		
150	-	250	5 - 9	PBI
200	-	400	7 - 14	PBO
inner bag - carton box 5kg 10kg 500kg				

Frozen whole - IQF				
gr		lb		
300	-	600	0,7 - 1,3	
inner bag - carton box 5kg 10 kg 500kg				



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