



Benchmark[®]
Genetics

**Advancing
global aquaculture
through genetics**



Enhancing your farming efficiency

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INTRODUCTION

A dedicated stand-alone genetics company

Who we are

As a leader in aquaculture genetics, Benchmark Genetics is entering a new era of innovation and growth. We are present in every major aquaculture market and work with a wide range of species, delivering continuous genetic improvement to the global aquaculture industry.

Our newly established stand-alone company comprises two core business areas: Salmon Genetics and Genetics Services. We operate two in-house salmon breeding programmes with facilities in Norway and Iceland. We are the leading provider of genetics services, drawing on extensive experience from 40 applied breeding programmes involving 30 species across 36 countries.

Our strategy is innovation-led, harnessing advanced breeding technologies such as QTL (Quantitative Trait Loci) mapping and Genomic Selection. While technology underpins everything we do, we remain firmly customer-focused, ensuring our innovations meet real-world needs.

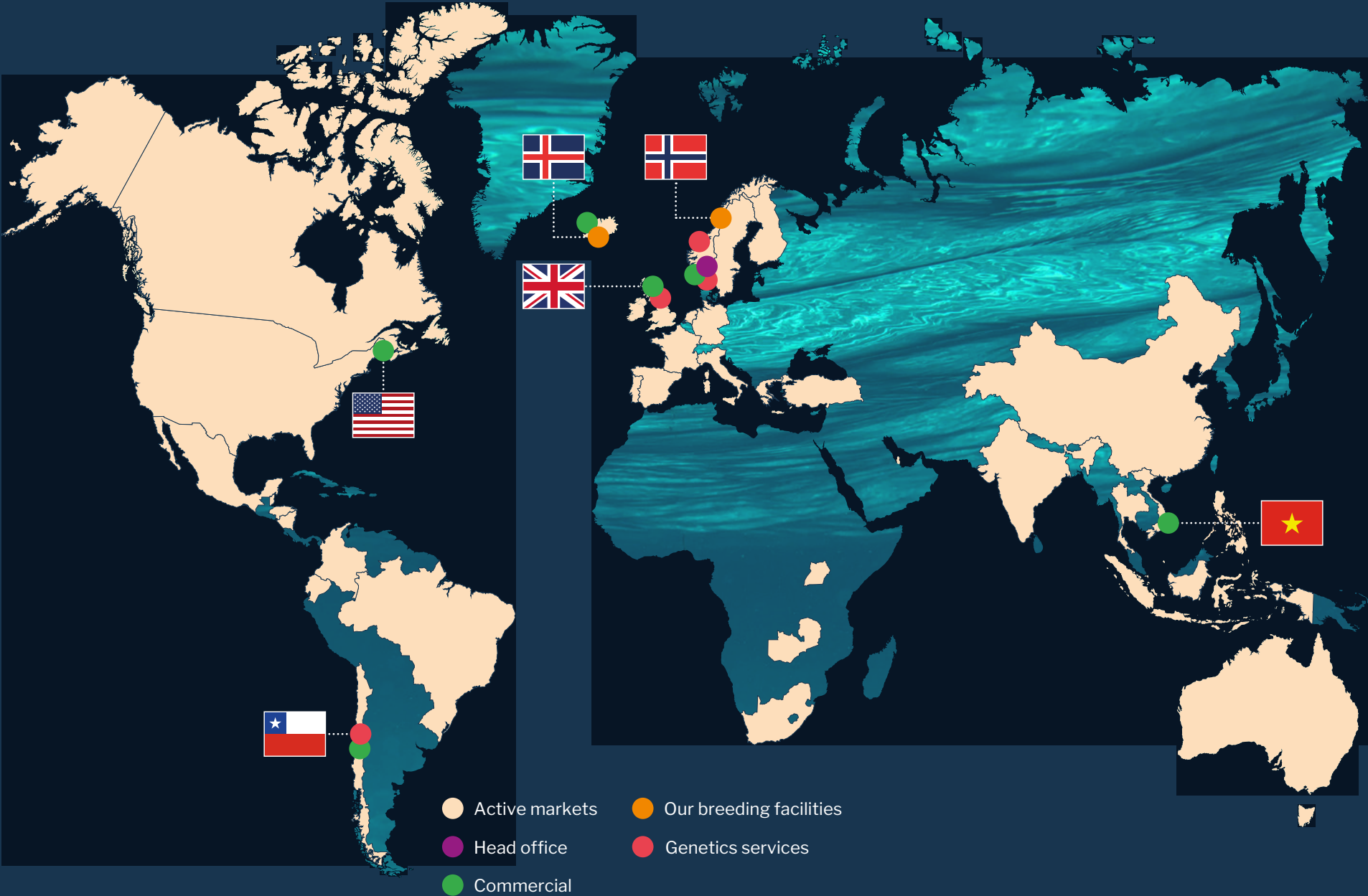
Aquaculture genetics is at the heart of building an even more sustainable food future. At Benchmark Genetics, we are committed to delivering innovations that enhance fish performance, robustness, and environmental responsibility. By combining science with practical solutions, we empower producers to meet global demand while protecting our planet.

Kristian Botnen
CEO, Benchmark Genetics



GLOBAL REACH

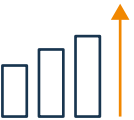
Delivering continuous genetic improvements to the global aquaculture industry



~40
Market countries



200
Employees



6
Countries with
commercial operations

BUSINESS AREAS

Our approach is built around two strategic priorities

Salmon	Eggs with specialist traits
	SalmoRobust® SalmoBoost® SalmoPrime® SalmoRAS®
External services	Consulting and breeding management
	Genetics Services Genotyping Services Genotyping services and genotyping tools designed for more than 30 species



FACILITIES



Salten, Norway



Lønningdal, Norway



Vogar, Iceland



Kalmanstjörn, Iceland



Kollafjörður, Iceland



Scan the QR code to find
our worldwide directory



Benchmark Genetics invests significant amounts each year in research and development. With established breeding programs in Norway and Iceland, we can offer a solid genetic foundation for our global customer base.

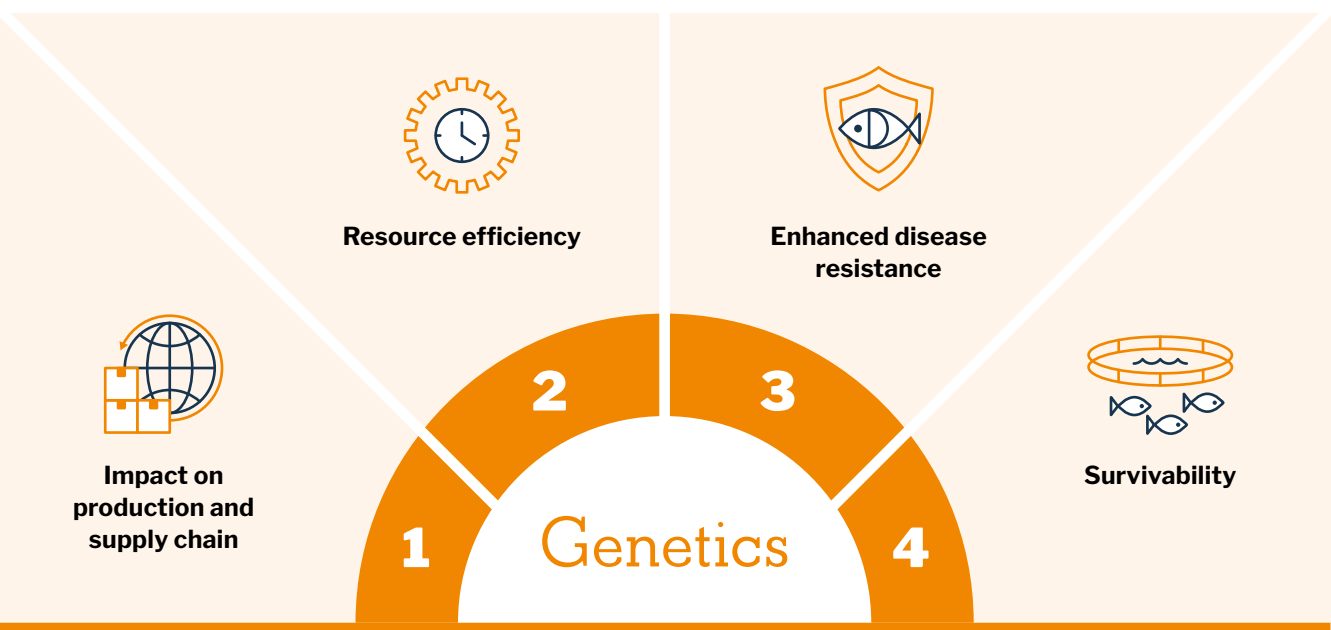
Birgitte Sørheim, Marketing Director,
Benchmark Genetics



INDUSTRY IMPACT

Genetics transformative impact on the entire supply chain

Resource efficiency, disease resistance and survivability



Current practices within Benchmark Genetics



Cryopreservation



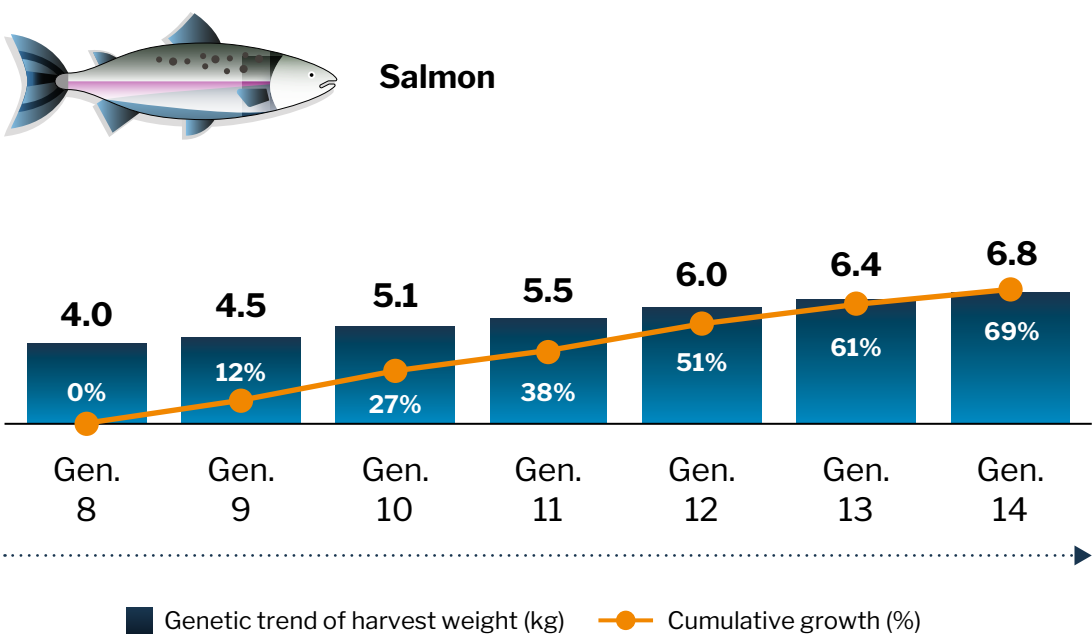
Selection methods



Genomics

Cumulative genetic improvement for salmon growth

Genetic trend of harvest weight



Gen. 8 for salmon is used as the baseline to show trends, even though improvements began at Gen. 0.

Salmon genetics

Your partner in sustainable
aquaculture — providing
science-driven innovation
for long-term growth

WHAT WE OFFER

We strive to be the foundation of our customer's success

- 1

Our Atlantic salmon ova portfolio has been developed to deliver optimised growth potential and robustness.
- 2

The Benchmark Genetics salmon strains have been improved through 50 years of breeding, providing a crucial starting point for efficient and resilient production.
- 3

Strict biosecurity protocols are one of our defining strengths. We maintain the highest standards to ensure a clean, safe, and secure supply of eggs.
- 4

In-house cryopreservation of milt enables us to select top-performing males, enhancing the genetic foundation for performance.
- 5

Robust R&D capacities translate the latest scientific developments into commercial practice, innovation and improved products.



Worldwide Delivery

Through years of global customer relationships, we have proven our ability to send ova worldwide 52 weeks a year and meet the needs of salmon producers around the globe.



Logistics

Solid procedures and decades of experience ensure that eggs maintain quality during transport.



Technical Services

Best practice support offers salmon farmers efficiency and competitive advantage. We share guidelines for order and egg delivery, hatchery manual and start feeding calculator.



Advancing salmon farming by providing a solid genetic foundation and high quality, biosecure eggs, all year round

SALMON GENETICS PORTFOLIO

Product line with enhanced genetic potential

Optimised genetics with enhanced selection intensity for key traits based on the most important needs from specific farming environments and production methods.



Solid growth and robustness

Ova selected for **strong growth and extra strong resistance to IPN**.

Additionally, it offers a balanced selection for resistance to CMS, PD, Lice and ISA, and a lower risk of early maturation.

Key properties:

- High growth performance
- Extra strong protection against Infectious Pancreatic Necrosis (IPN)
- Balanced protection against Cardiomyopathy Syndrome (CMS), Pancreas Disease (PD), Lice and Infectious Salmon Anemia (ISA)
- Lower risk of early maturation



Superior growth

Ova selected for the **highest growth potential, extra strong resistance to IPN and strong resistance to CMS**.

Additionally, it offers a balanced selection for resistance to PD, Lice and ISA, and a lower risk of early maturation.

Key properties:

- Our highest selection for growth performance
- Extra strong protection against Infectious Pancreatic Necrosis (IPN)
- Strong protection against Cardiomyopathy Syndrome (CMS)
- Balanced protection against Pancreas Disease (PD), Lice and Infectious Salmon Anemia (ISA)
- Lower risk of early maturation



Superior robustness

Ova selected for **extra strong growth, and extra strong resistance to CMS and IPN**.

Additionally, it offers a balanced selection for resistance to PD, Lice and ISA, and a lower risk of early maturation.

Key properties:

- Extra high growth performance
- Extra strong protection against Cardiomyopathy Syndrome (CMS) and Infectious Pancreatic Necrosis (IPN)
- Balanced protection against Pancreas Disease (PD), Lice and Infectious Salmon Anemia (ISA)
- Lower risk of early maturation



Custom-built for specific needs

Upon request, we can deliver customized salmon ova with a selection of traits tailored to your unique requirements. In close dialogue with our specialist teams, we can meet your specific needs of regional and potential production challenges with SalmoTailored®.

Optional key properties:

Selection with tailored levels of strength in the following traits:

- Growth performance, Cardiomyopathy Syndrome (CMS), Infectious Pancreatic Necrosis (IPN), Pancreas Disease (PD), Lice, Infectious Salmon Anemia (ISA), Late Maturation, Pigment, Gill health (AGD)
- All-Female and/or Sterile (3n)



Optimal RAS

Premium selection of salmon ova for the specific requirements of the land-based production environment.

This product is selected for extra high growth and a reduced early maturation (All-Female), or even elimination of early maturation (All-Female/Sterile (3n)).

Key properties:

- Extra high growth performance
- All-female

Optional properties:

- Sterile (3n)
- Extra strong protection against Infectious Pancreatic Necrosis (IPN)

Organic ova

Organic ova according to DEBIO/TÜN certification.

Available upon request and must be ordered well in advance (12 months before delivery).

For further information about our products visit
bmkgenetics.com/new-product-line



KEY PARTNERSHIPS

Collaboration with leading farming companies in Norway



Two broodstock licenses in Nordland supplying Benchmark Genetics Salten with breeders



Operational agreement for the two licenses owned by Benchmark Genetics



Joint venture for operations of Salmar’s breeding program, ‘Rauma’



10-year multiplication agreement for the SalmoBreed strain and sales of eggs. Bolaks have been multiplying the SalmoBreed strain for more than 50 years

Total of 10 licenses for breeding and R&D



Certifications

We are aiming for the highest standards of operation and fish welfare, with a minimum impact on the environment and have international accredited systems: ISO 9001: 2015, ISO 14001, Global G.A.P., Debio, TÚN, RSPCA, WOA.



CLIENT TECHNICAL SUPPORT

Ensuring quality and traceability through expert support and smart systems



We aim to personally deliver the eggs to conduct quality controls and to support our clients at egg inlays.

Our team of technical experts have exquisite knowledge about hatchery management and are available to customers for questions, support and sharing of best practices.

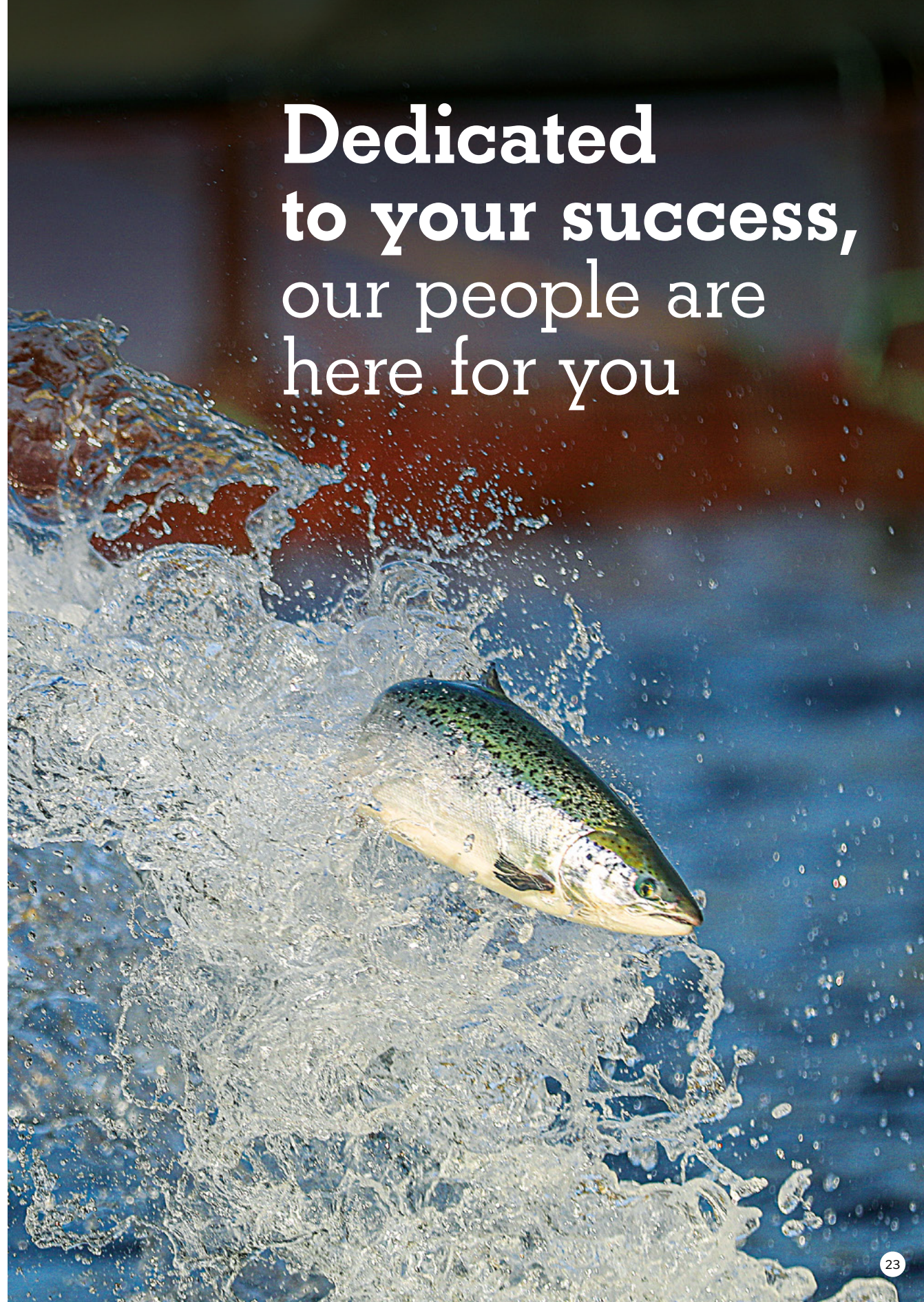
The BreedControl™ system, invented by Benchmark Genetics, helps our customers keep track of contracts, orders, deliveries, documents, certificates, and the ova benchmarking survey.

For every delivery, we keep a batch of eggs until start-feeding, so called quality groups, to register the performance of each delivery to our customers. This also ensures a good and fair claim process in case of quality deviations.



 **BreedControl**
by Benchmark Genetics

Dedicated to your success, our people are here for you



CONTACTS

For further information about us and our products, please visit **bmkgenetics.com** or scan the QR code to find our contacts

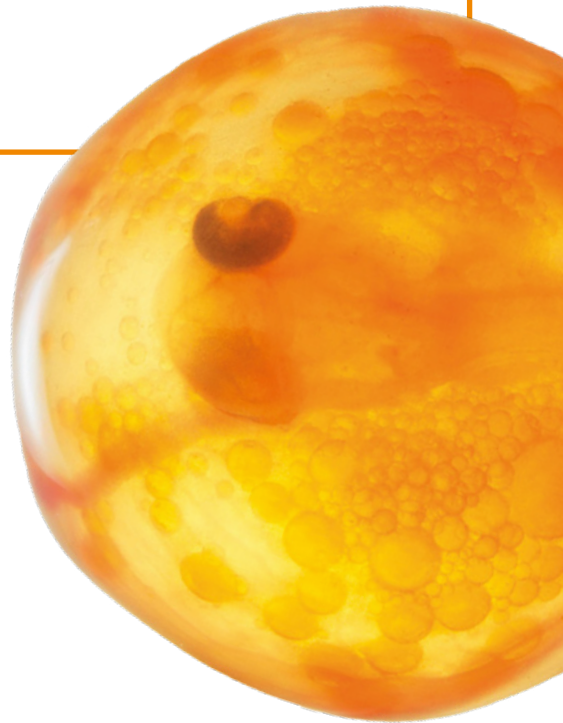


Decisions made at the genetic stage have a significant impact on optimal growth rates, production timelines, and resistance to parasites and diseases throughout the farming cycle. A salmon's performance is closely linked to the genetic potential of the egg, regardless of production conditions.

Your dedicated contact is involved from day one — bringing expertise, taking a holistic view, and applying best practices to support your success. Precise delivery and dependable follow-up are always key priorities in our commercial approach.

Alongside a strong genetic foundation, achieving consistent results across the value chain relies on high egg quality, a secure and disease-free supply, year-round delivery, and close customer support.

Kate Furhovden Stenerud
Chief Commercial Officer
Benchmark Genetics



Genetics services

Backed by decades of global experience in commercial breeding programs, industry collaboration, and genetic expertise, Benchmark Genetics provides a world-class, one-stop platform for aquaculture genetic solutions.

We help clients accelerate genetic gain, improve production performance, and achieve long-term commercial success.

GENETICS SERVICES

Unlock the power of genetic improvement

Benchmark Genetics Services is a recognised global provider of aquaculture genetics services.

Through our integrated service platform, we deliver holistic solutions that help producers and breeding companies maximise the financial value of their genetic improvement strategies. We combine expertise in selective breeding, genomics, genotyping, breeding program design, and bioeconomic analysis.

What we are here for

Our purpose is to help clients create measurable economic value from their genetic investments by tailoring solutions that support continuous genetic improvement, deliver cost-effective results, and maximise the financial impact of their breeding strategies.

Our strength

- A complementary team of skilled geneticists specialising in breeding program design and operational support, ensuring tailored solutions aligned with each client's strategic priorities and resources.
- Decades of combined experience across 40 breeding programs and more than 30 aquaculture species, including salmonids, marine and freshwater fish, shrimp, and molluscs.
- Leading technology platform of advanced database, analytics, genomic tools and cryopreservation.
- Innovation driven by client needs, actively developing new products and solutions that address emerging challenges and create practical value for breeding programs.

Our commitment to clients is to deliver measurable value through an unmatched holistic solutions platform, helping every client achieve proven results from their genetic investments.

Who are we for

Our services are designed for a wide range of clients, from start-ups establishing new breeding programs to experienced breeding companies and producers seeking to improve performance. We also work with researchers and academics advancing the science behind breeding programs. We help translate strategic breeding objectives into measurable business value.

How our service works



Free consultation

Understand your needs and goals



Project proposal

Scope, timeline and approach outlined



Technical visit

On-site assessment of your programme



Customised plan

Tailored to your species, goals, resources



Implementation & support

Hands-on assistance through deployment



Monitoring and reporting

Ongoing review of progress and results

Contact Benchmark Genetics for more information

genetic.services@bmkgenetics.com

genotyping.services@bmkgenetics.com

GENETICS SERVICES

Power your breeding success

We offer a one-stop solutions platform with customised, holistic service packages designed to increase the value of your genetic activities.



For each breeding program, we optimise the use of available infrastructure and adapt our technologies to the client's genetic resources and production system. This allows us to design effective breeding strategies with a clear objective: to maximise genetic gain and deliver the greatest possible return on investment.

**Morten Rye, Director,
External Services and Global Strategies**

Breeding program solutions at a glance

Services can be delivered as standalone offerings or bundled into a comprehensive breeding program solution.



Scan the QR code for technical information about our services

GENETICS SERVICES

1. Technical services breeding programs



Technical review

An independent review of breeding program operations, genetic audit, genetic evaluations, and genotyping strategies to identify opportunities to improve performance, optimise costs, and accelerate genetic progress.



Genetic audit of existing programs

Comprehensive assessment of your breeding and broodstock management programs, including genetic diversity, inbreeding analysis, pedigree review, and population structure assessment.



Genetic audit of new programs

A thorough assessment of broodstock quality, genetic health, and pedigree structure, supported by tailored management plans to secure long-term genetic viability.



Advanced breeding program design & support

We design custom breeding strategies tailored to your objectives, resources, production system, and target traits, with full technical support through implementation, routine operations, data hosting, and genetic evaluation. Program designs may include selection strategies and integrated programs. Our genomic breeding program services also provide integrated genotyping support, including SNP panel or array development, marker validation, and data integration into breeding decisions.

2. Bioeconomic modelling



Our bioeconomic modelling translates genetic improvement into clear business value by quantifying and assessing the economic impact of key traits. By comparing current and future multi-trait breeding scenarios, we help clients identify the strategies and genomic technologies that deliver the strongest return on investment, prioritise resources with confidence, and align breeding decisions with long-term profitability and value creation.

3. Genotyping



End-to-end genotyping solutions that turn genetic data into actionable value for breeding programs across major aquaculture species. Our comprehensive portfolio includes ready-to-deploy, off-the-shelf solutions covering more than 30 aquaculture species, complemented by custom SNP panel design and development to tailor our genotyping solutions to each breeding program's specific needs. We have the right genomic solution for every breeding program.

4. Cryopreservation *(region- and species-specific; contact us for more information)*



Comprehensive cryopreservation solutions designed to support long-term genetic management, safeguard valuable genetic resources, and improve operational flexibility. Services range from protocol development and optimisation to full-service cryopreservation, including broodstock conditioning, gamete collection, processing, freezing, storage, and fertilisation support.

5. Advanced tools



Data capture and management

R&D support

Bioinformatics

A range of software and algorithms for genetics analysis

Electronic PIT tags

Reliable electronic identification solutions that enable accurate individual tracking, efficient phenotypic data collection, and improved data quality across breeding program operations.

Phenotypic software

Phenotypic software as an add-on to our electronic PIT tag solutions, supporting efficient data capture, management, and integration across breeding program operations.

6. Training & capacity building



On-site or remote training, technical workshops, and ongoing knowledge transfer to strengthen your team's capabilities.

GENETICS SERVICES

Benchmark Genetics offers high quality, all-inclusive, genotyping services for all major aquaculture species

Genotyping solutions

We offer a range of cost-effective genotyping tools that are optimised for a range of applications to suit client breeding programs or research requirements. Harnessing Axion genotyping solutions, Benchmark Genetics provides a large range of ready-made arrays, as well as offering bespoke array design services for a range of current or emerging species.

Species	Scientific name	Panel types
Finfish arrays		
Atlantic salmon	<i>Salmo salar</i>	● ● ●
North American salmon	<i>Salmo salar</i>	● ● ●
Barramundi	<i>Lates calcarifer</i>	● ●
Hamour	<i>Epinephilus coioides</i>	● ●
Meagre	<i>Argyrosomus regius</i>	● ●
Rohu	<i>Labeo rohita</i>	● ●
Safi	<i>Siganus canaliculatus</i>	● ●
Tilapia	<i>Oreochromis niloticus</i>	● ● ●
Yellowtail kingfish	<i>Seriola lalandi</i>	● ● ●
Arctic charr	<i>Salvelinus alpinus</i>	● ● ●
Catfish	<i>Ictalurus spp.</i>	● ● ●
European seabass	<i>Dicentrarchus labrax</i>	● ● ●
Gilthead seabream	<i>Sparus aurata</i>	● ● ●
Tambaqui	<i>Colossoma macropomus</i>	● ● ●
Pacu	<i>Piaractus mesopotamicus</i>	● ● ●
Coho salmon	<i>Oncorhynchus kisutch</i>	● ● ●
Rainbow trout	<i>Oncorhynchus mykiss</i>	● ● ●
Murray cod	<i>Maccullochella peelii</i>	● ● ●
Pompano	<i>Trachinotus anak</i>	● ●
Jade perch	<i>Scortum barcoo</i>	●
Flatfish arrays		
Senegalese sole	<i>Solea senegalensis</i>	● ●
Turbot	<i>Scophthalmus maximus</i>	● ●
Crustacean arrays		
Tiger prawn	<i>Penaeus monodon</i>	● ●
Whiteleg shrimp	<i>Litopenaeus vannamei</i>	● ● ●
Mollusc arrays		
Mytilus mussel	<i>Mytilus spp.</i>	● ● ●
Pacific oyster	<i>Crassostrea gigas</i>	● ● ●
European flat oyster	<i>Ostrea edulis</i>	● ● ●
Sydney rock oyster	<i>Saccostrea glomerata</i>	● ● ●
Manila clam	<i>Ruditapes philippinarum</i>	● ● ●
Grooved carpet shell	<i>Ruditapes decussatus</i>	● ●
Coral and algae array		
Coral-algae	<i>Acropora (coral) & Symbiodiniaceae (algae)</i>	● ● ●

Panel types: ● High-density ● Medium-density ● Low-density

* New arrays to be released in 2027.

Market-leading innovation and R&D

We strive to be a recognised technology leader by delivering innovative solutions and superior products driven by expertise

MARKET-DRIVEN INNOVATION

World-renowned R&D and technology leadership

Market-driven innovation

The future of the industry and your business is front of mind when we are developing our products and solutions.

Key genetics R&D priorities include:

- Optimisation of genomic selection and trait recording to continuously improve health and performance of salmon lines, and;
- New methods for mass production of sterile production animals, as well as gene editing for key target traits.

Benchmark Genetics have successfully developed salmon lines with enhanced growth and disease resistance by innovating in breeding program design, including application of the latest genomic tools.

Key facts



30

scientists

18

PhD degrees



>20 years

average aquaculture experience



500+

scientific publications



40

programmes

30

species applied experience

International collaborations



At Benchmark Genetics we are translating the latest scientific developments into commercial practice, enhancing the sustainability of the industry to the benefit of our clients.

Ross Houston
CSO, Benchmark Genetics



FOREFRONT POSITIONS AND R&D PILLARS

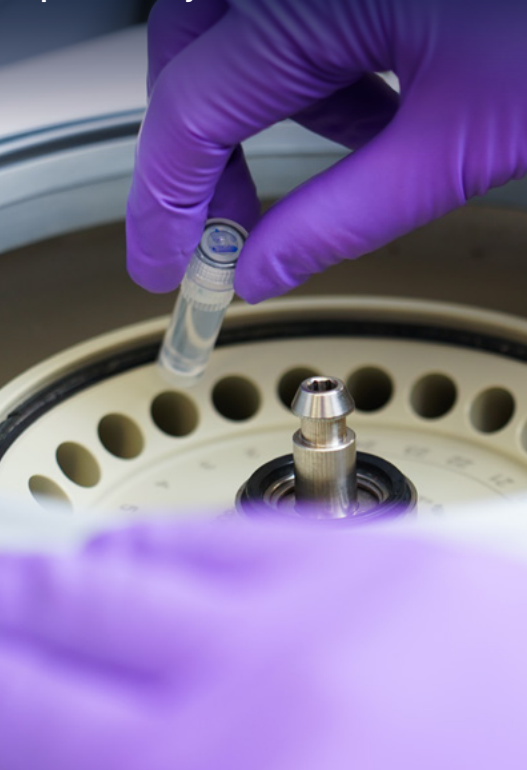
Leveraging cutting-edge genetic technologies aimed at developing next-generation breakthrough products

Our pillars for future development are centred around market disruptive technologies.

As global aquaculture continues to expand, genetic innovation is vital to optimising production, resilience, and sustainability. Benchmark Genetics molecular genetics team, based in Edinburgh, Scotland, leads this advancement with cutting-edge genotyping services tailored to the needs of global aquaculture producers.

Genomic data obtained through genotyping allows the aquaculture breeding and production industry to benefit from more efficient genetic improvement and management of their stocks.

Diploid sterility



Automated and large-scale field data collection



Reproductive biology



Epigenetics



Gene editing



PRESENTING OUR NEW OWNER

Benchmark Genetics operates as an independent company under the private ownership of Novo Holdings, a leading Danish investment firm

Novo Holdings — A global leader in life science investments

Novo Holdings is the holding and investment company responsible for managing the assets of the Novo Nordisk Foundation, one of the world's largest enterprise foundations.

With a strong focus on life sciences, Novo Holdings invests in innovative companies across all stages of development. The firm also manages a diversified portfolio that includes listed equities, bonds, real estate, infrastructure, and private equity.

A frontrunner in research and innovation, Novo Holdings recognises the transformative potential of aquaculture genetics. Through genetic advancements, the company sees significant opportunities to enhance productivity, resilience, and sustainability in global aquaculture.

Novo Holdings purpose

To improve people's health and the sustainability of society and the planet, by generating attractive long-term returns on the assets of the Novo Nordisk Foundation.



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