

***XELECT*BIOAUDIT**

Introducing our independent biological
and genetic due diligence services



www.xelect-genetics.com

Independent Biological and Genetic Expertise

Until recently, due diligence for aquaculture mergers and acquisitions has focused on the financial and legal aspects of the transaction. However this fails to recognise one of the critical parts of a company: an evaluation of the genetic capital of their broodstock, and the biological aspects of their performance. Both these aspects can have a major impact on the future value of a business and its sustainability, but both also require highly specialist knowledge, coupled with commercial understanding of aquaculture operations.

Our unique blend of specialist expertise, a custom built genetics laboratory, industry experience and independence means that we are perfectly placed to offer a wide range of specialist consultancy and reporting services. Examples of our recent work include:

- Independent and confidential genetic audits and advisory services
- Biological due diligence assessments for mergers and acquisitions.

As our industry grows and evolves, investors and prospective owners are increasingly looking for reassurances about the sustainability of the operations, confidence in high animal welfare standards and for a sense check on feasibility of production and business plan targets. Our bioaudits can provide:

- Genetic assessment of broodstock samples to determine whether they can provide a secure, profitable breeding programme that is free of irreversible bottlenecks and the potential performance loss associated with inbreeding depression.
- In-depth assessment of hatchery and grow-out operations
- Evaluation of conformity to international best practice, including certifications.
- An indication of any potential biological risks to the delivery of the business plan and any implications for buy-side valuations.
- An assessment of management skills and staff development programmes.
- Recommendations on the scope for increasing production and profitability in the future, including areas for potential CAPEX investment.

Each due diligence assessment is bespoke for each client and typically includes an on-site visit by a senior member of Xelect, video conference interviews and broodstock genetic analysis. A detailed final report is provided and presented by our expert team. The scope of our audits usually includes the following areas.



Biological assets

- Auditing standards of broodstock management, including any breeding programmes that may be in place.
- Genetic evaluation of broodstock at our independent specialist laboratory, to check for evidence of inbreeding and to make sure there is sufficient genetic diversity for continued selective improvement on commercial traits.
- Recommendations for breeding programme 'best practice' to protect the sustainability of an operation.
- Highlighting any species-specific issues, or potential limitations of the species being farmed.

Production targets and productivity

- Audit of the available infrastructure, including potential for future growth.
- Evaluation of historical performance records (including growth, biomass and Feed Conversion Ratio) to identify any anomalies or poor practice.
- Feasibility checks on future business plan targets, based on biological factors.
- Assessment of feeding regimes and quality, including comparisons to industry standards.

Biosecurity

- Review of hygiene and biosecurity Standard Operating Procedures.
- Assessment of quarantine facilities and biosecurity measures to prevent disease outbreaks.
- Specialist laboratory diagnostics and reporting.
- Reviewing veterinary records and evaluating management of health issues.
- Review of historic disease outbreaks and remedial actions.





Environmental and animal welfare

- Overview of operational and environmental certification and standards, including any consequent market access risk.
- Review of waste management processing.
- Evaluation of environmental monitoring systems and mortality data, to identify risks to production targets.
- General review of husbandry practices and operational standards.

Harvesting and processing

- Analysis of current methods of harvesting and harvest recording.
- Evidence of hygiene and other quality control measures.
- Review of records of downgrading losses during processing.

Personnel, training and data management

- Auditing qualifications of management and staff, including interviews with key personnel.
- Evaluation of existing training and development programmes.
- Assessment of data management and reporting procedures, including data security standards.

Credentials

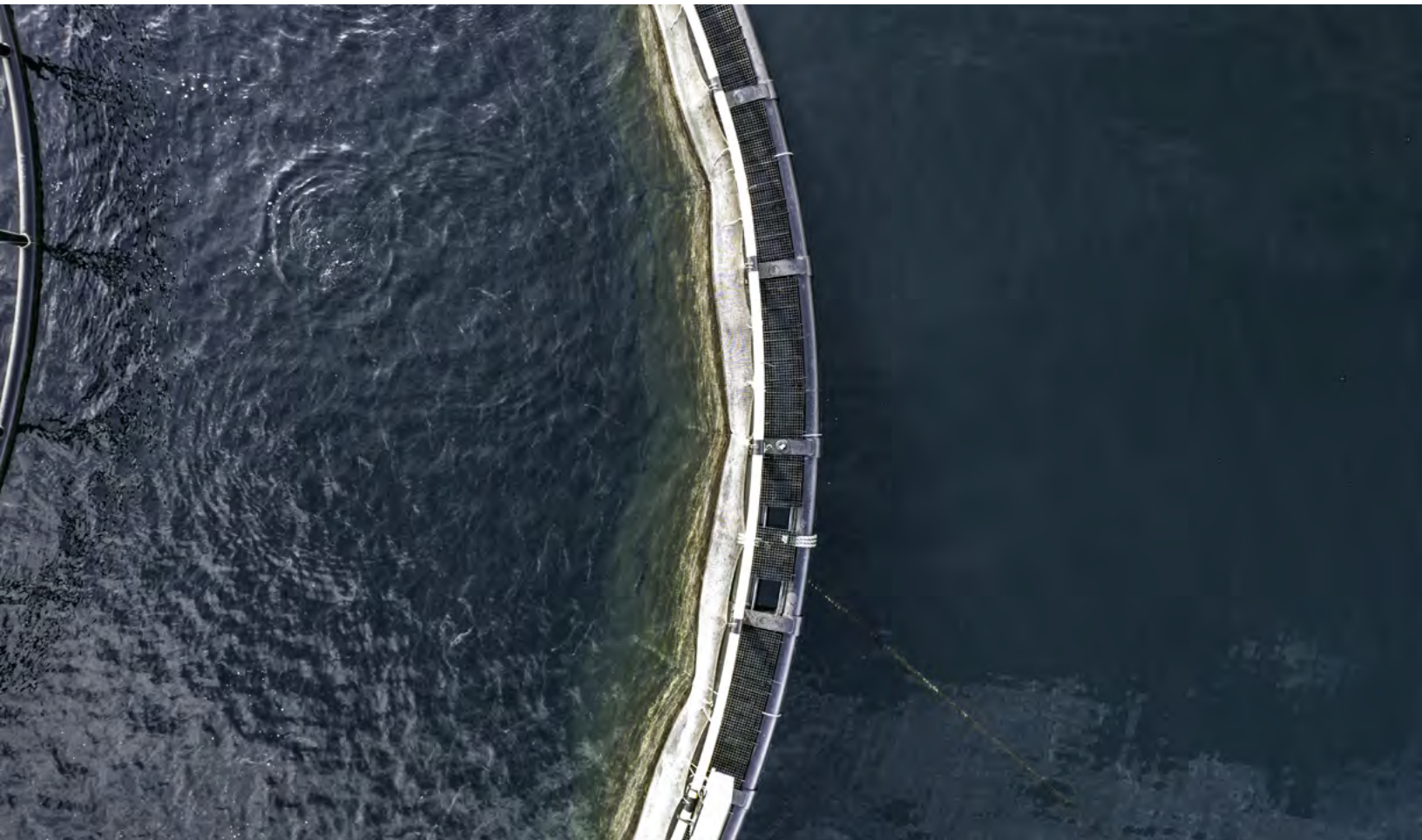
Xelect Limited is a privately-owned company based in St Andrews, Scotland (Registration Number SC438223). We are one of only two significant independent aquaculture genetics service and breeding programme management companies worldwide.

The company employs a highly skilled team of aquaculture specialists and scientists and has its own laboratory and research facilities, including DNA sequencing capacities (see www.xelect-genetics.com). We are trusted to manage breeding programmes for a wide range of aquaculture species in order to meet the production needs of some of the leading names in the industry. Xelect has extensive experience with every major aquaculture species.

We currently have full management control and/or support programmes in Australia, Canada, Chile, Croatia, Greece, New Zealand, Madagascar, Malaysia, Mexico, Switzerland, Vietnam and the United Kingdom.

We have recently launched Xelect BioAudit to apply our extensive know-how on aquaculture operations, including broodstock genetics, to offer biological due diligence for Mergers and Acquisitions. Recent projects include:

- A high profile due diligence project arising from an anti-competition ruling of the Commission of the European Union.
- Providing buy-side expert advice to the Sovereign Wealth Fund of a very large and prominent Middle Eastern country in relation to the purchase of prawn and fish farms.



Key personnel



Prof. Ian A Johnston FRSE, CEO and co-founder

Ian is a world leading researcher in fish physiology and genetics and one of the most cited authors in aquaculture. Prior to founding Xelect he was Director of the Scottish Oceans Institute, University of St Andrews and held several other senior management positions at national and international levels, working extensively with the European aquaculture industry. Ian will lead the due diligence team.



Dr. Tom Ashton, Operations Director and co-founder

Tom has a broad range of experience across aquaculture, genetics and project management.



Dr. José Mota-Velasco, Senior Aquaculture Specialist Breeding Programme Manager. José is an experienced aquaculture genetics professional with over 10 years working for Landcatch/Hendrix Genetics.



Dr. Marie Smedley, Senior Aquaculture Specialist and Breeding Programme Manager. Marie has commercial experience working with producers such as MOWI and Biomar and has a broad range of computer analytical and fish husbandry skills.



Dr. Stelios Kyriakidis, specialist in bioinformatics and computational science with a PhD from the University of Dundee, Scotland.



Dr. Mark Looseley, senior quantitative geneticist with a PhD from the University of St Andrews and 8 years' experience in applied genetics.



Dr. Rachael Wilbourn, Laboratory Manager with over 10 years' experience in a range of molecular biology techniques such as DNA/RNA extraction, PCR/qPCR, genotyping and next generation sequencing.

