Resource efficient aquaculture systems and technologies

World-class fish material through patented selective breeding
Luke's aquaculture know-how available for you

**BIOLOGY** - Genetics and breeding programs • Fish eggs • Fish health development • Feed development

**Broodstock management**
Our scientists have improved the fish material by patented selective breeding methods for rainbow trout and European whitefish Coregonus lupus. You can purchase the entire selective breeding program or broodstock groups, and the expertise and education of broodstock management is also at your disposal. Luke has long term experience in aquaculture production of cool water fish species to maintain the genetic diversity of endangered fish populations.

**Fish health development**
In co-operation with the Finnish fish health authorities and research organizations, we develop methods for treating fish diseases. Furthermore, in our breeding programmes, we also create strains that are more resistant to fish diseases.

**Fish eggs**
We sell fish eggs and fingerlings from our fish farms to our domestic and international customers. Our most sold fishes are rainbow trout and whitefish. Seasonally, we also provide eggs of salmon, trout, arctic char and grayling.

**Feed development**
Based on scientific research and feeding trials, we provide solutions for animal feed for the end-users' needs. The feed development consists of, for example, nutrition, sustainability, and cost-efficiency. Novel products focus on biomass side streams.

**QUALITY AND SAFETY** - Quality food chain • Food safety

**Food safety**
Food safety is a combination of experienced breeding, healthy fish material, adequate technology and feed, ethical production methods, and skilled employees. Food safety is maintained also by HACCP which covers the whole process up to the transportation of the fish to the retail. The system includes regular tests of e.g. feed, fish, temperature, and water quality.

**Fish value chain**
Aquaculture and its inputs (water, feed…) form the first point of the fish value chain. Understanding of the whole chain, its actors, markets, consumption and interaction with legislative and controlling authorities is fundamental for high quality, sustainable, efficient and profitable entrepreneurship in aquaculture business.

**Training and research**
Luke provides expertise in planning and installing of new aquatic systems as well as in re-modelling and updating existing systems for more efficient and sustainable production. Training is an important part of starting or further developing the aquaculture production. We coach our clients in all our areas of expertise - biological, technical and management - for them to perform even better in the aquaculture business. Luke conducts high quality research and is a well desired partner in international research projects. Our customer offering is always based on research results.

**TECHNOLOGY** - Equipment • Waste and side stream management • Processing

**Feasibility**
A feasibility study always precedes planning of larger aquaculture units. It covers technical, biological and economical evaluation of selected or other options. It is necessary to analyze the local and global markets, price competitiveness and required resources, and to plan the establishment of the pilot farm.

**Technology**
The size of recirculation aquaculture systems (RAS) varies a lot, but the trend is towards larger farms. RAS has many benefits: lower nutrient impact to the environment, lower water consumption, and market-friendly timing of harvest. Luke has knowledge of the system for both scientific and commercial use. Furthermore, we provide computational methods for fish breeding and digitalized fish recording as well as mating and selection technology.

**Waste and side streams**
For us, sustainability means lowest possible negative impact to the environment. Proper management of waste and waste water provides possibilities to recycle the nutrients e.g. for agriculture needs or as raw material to bioenergy. Some of the side streams of a fish farm are suitable for animal feed.

**ECONOMICS** - Management • Profitability • Efficiency • Market analysis

**Profitability**
It is essential to do economical calculations to balance the expenses and the changing market price, and to find more efficient and less expensive solutions to cut the costs without making compromises to the quality and safety or increasing negative impact to the environment.

**Process efficiency**
Aquaculture is an efficient way to produce food "Fish in : Fish Out". Not only for profitability, but also for food quality and safety, the whole production process has to be kept sustainable by its inputs and impact to the environment and energy use.

**Market analysis**
Market analysis defines the key customers in the food value chain as well as their expectations on price and quality. It is necessary to follow the market trends, find new customers and alternative market channels to maintain the ability to adjust to the market changes.
Luke’s high quality aquatic products and research collaboration has reached numerous countries, such as China, USA, Vietnam, Russia, Germany and France. Our research based products are available for you, too. Please let us know your needs, and we are happy to tailor the best aquatic solutions for you.

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