

# Selective breeding – a driver for profitable and sustainable aquaculture productions

**Morten Rye**

Benchmark Genetics Norway, Bergen, Norway

Corresponding author, e-mail: [morten.rye@bmkgenetics.com](mailto:morten.rye@bmkgenetics.com)

## **ABSTRACT:**

Global aquaculture production, dominated by the Asian-Pacific region, continues to grow at a rapid rate. For many major farmed species, this growth is supported by extensive uptake of selective breeding through large-scale applied programs, which during the last decades has dramatically transformed aquaculture productions with regards to productivity, production efficacy, profitability, and improved animal welfare. This presentation highlights milestone achievements for major marine and freshwater finfish species and marine shrimp, focusing on recent advances as drivers for improved animal welfare and sustainable production. Until recently, these technologies have been mainly applied for salmonid species but hold promise as significant drivers for improved performance and hence sector sustainability across aquaculture, as recently demonstrated for tilapia and marine shrimp. Recent developments in genomics and the impact of uptake of genomic information facilitating marker-assisted selection (MAS) and genomic selection (GS) will be discussed.

## **KEYWORDS:**

Aquaculture; Selective breeding; Sustainable productions.