



Moving towards Precision Breeding in European Aquaculture

What are we focusing on?

As the world's population grows, so does the demand for high-quality seafood. Aquaculture is our solution, but it faces challenges like infectious diseases and climate change. Precision breeding has a big role to play in ensuring a sustainable and prosperous future for aquaculture.



AQUA-FAANG's Contribution

We generated extensive datasets to identify functional regions in the genomes of the six most important farmed fish used in European aquaculture; *Atlantic Salmon*, *Common Carp*, *European Seabass*, *Gilthead Seabream*, *Rainbow Trout* & *Turbot*. These "functional" regions control vital traits, from development to immune response.



Genome Functional Annotation

Our approach involves genome functional annotation using advanced DNA sequencing. We've explored different sample types across six fish species, from embryonic development to immune stimulation. Nearly 5,000 new sequencing datasets capture gene expression and genome element activation or repression.



Advancing Precision Breeding



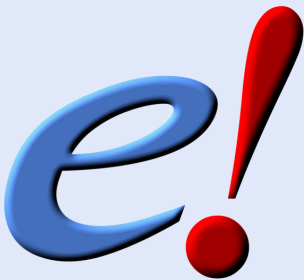
Our datasets add multiple layers of genetic insight. For the first time, researchers can prioritize genetic variants with a high probability of impacting traits in target species. This information fuels the development of new, more accurate genetic tools for breeding.

Empowering Genome Editing

Genome editing is a tool with great potential to enhance aquaculture sustainability. AQUA-FAANG data identifies high-priority regions for editing, allowing scientists to make precise genetic changes. This holds promise not just for research but also for future applications in aquaculture practice.



Global Data Sharing



We share all our data openly through the Ensembl Genome Browser. This platform empowers researchers and aquaculture breeding companies worldwide to explore functional regions of interest and integrate AQUA-FAANG annotations into their work.

Advancing European Aquaculture

Overall, our results boost European aquaculture by enabling precision breeding for optimal traits, enhancing disease resistance, and fostering global collaboration. These advances drive sustainability, efficiency, and profitability in the aquaculture sector.



KEEN TO LEARN MORE?

The final conference of AQUA-FAANG will be held in Edinburgh, UK, between 11-13 October 2023 & will be livestreamed online .