

# Introduction of biotechnology and its application in fisheries

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# Introduction to biotechnology

- **Biotechnology** is the use of an organism, or a component of an organism or other biological system, to make a product or process.
- Many forms of modern biotechnology rely on DNA technology.
- **DNA technology** is the sequencing, analysis, and cutting-and-pasting of DNA.
- Common forms of DNA technology include **DNA sequencing, polymerase chain reaction, DNA cloning, and gel electrophoresis.**
- Biotechnology inventions can raise new practical concerns and ethical questions that must be addressed with informed input from all of society.

# Application in fisheries

- Transgenic fish for higher growth, colour enhancement and disease resistance.
- Gene expression studies using qPCR and transcriptomics to understand physiology of commercial traits.
- Genetic engineering for commercial traits using RNAi and CRISPR-Cas technology.
- Disease diagnosis using nucleic acid based and immunological techniques.

- Vaccines including DNA vaccines
- Use of DNA barcoding and molecular markers for identification of species, population, stock etc.
- Quantitative trait loci and marker assisted selection
- Water and soil probiotics.
- Nutraceuticals including hormones for maturation and growth, immunostimulants, feeding supplements, attractants and colour enhancers.
- Bioactive compounds and nutraceuticals from aquatic organism for human use.

# References

<https://www.khanacademy.org/science/biology/biotech-dna-technology/intro-to-biotech-tutorial/a/intro-to-biotechnology>