



# Antimicrobial resistance surveillance in Belgian fish: a first initiative

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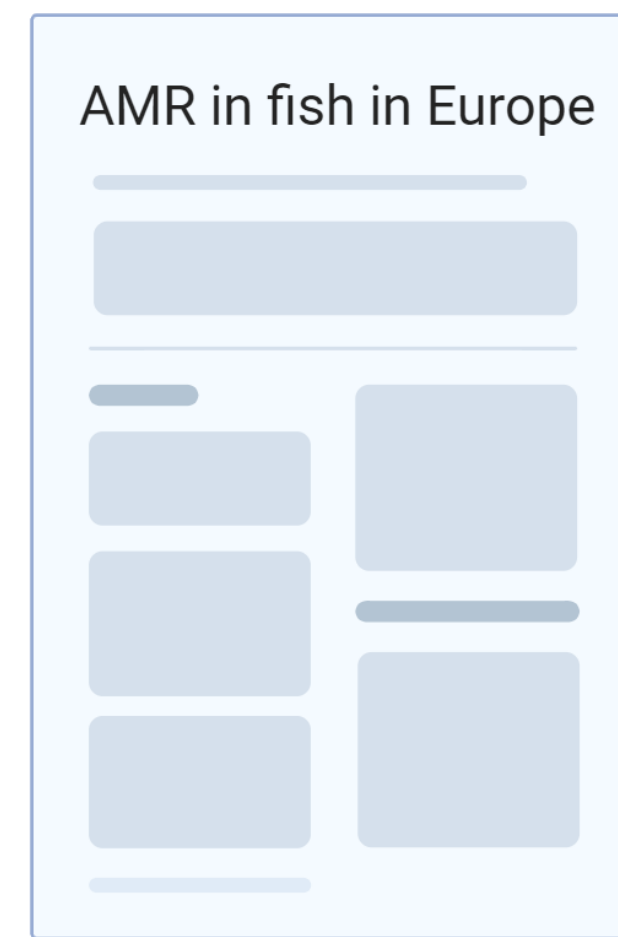
## Antimicrobial use and resistance in Belgian aquaculture

- ➔ **No vaccines for fish:** Farmers rely on antimicrobials to treat fish diseases.
- ➔ **Off-label antibiotic use:** No antibiotics are authorized for aquaculture, so veterinarians use those for other species.
- ➔ **Monitoring by 2027:** Antimicrobial resistance (AMR) and antimicrobial use (AMU) monitoring in food-producing fish will begin as per EU regulations.

## Objectives

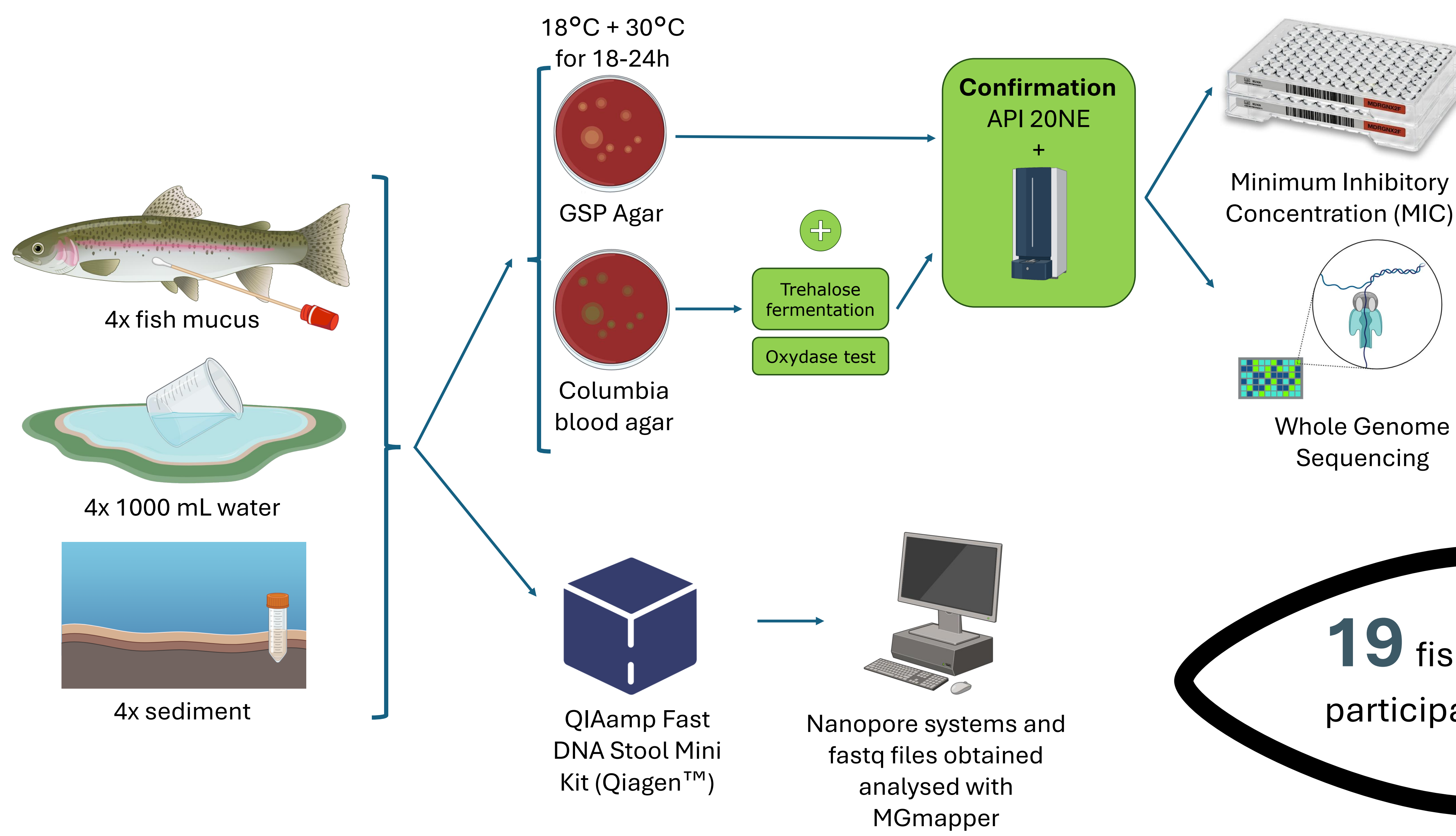
- ➔ **Quantify AMR and AMU** in Belgian aquaculture.
- ➔ **Identify public health risks** linked to AMR in aquatic animals.
- ➔ **Support national monitoring** of AMR and AMU in aquaculture.

## WP 1: Literature review



Assessment of **zoonotic** and **pathogenic** bacteria of public health concern in **European fish**, focusing on **antimicrobial resistance**, potential transmission to humans, and detection methods.

## WP 2.1 + 2.2: Phenotypic vs metagenomic tests for the assessment of antimicrobial resistance in aquaculture



### Methodology:

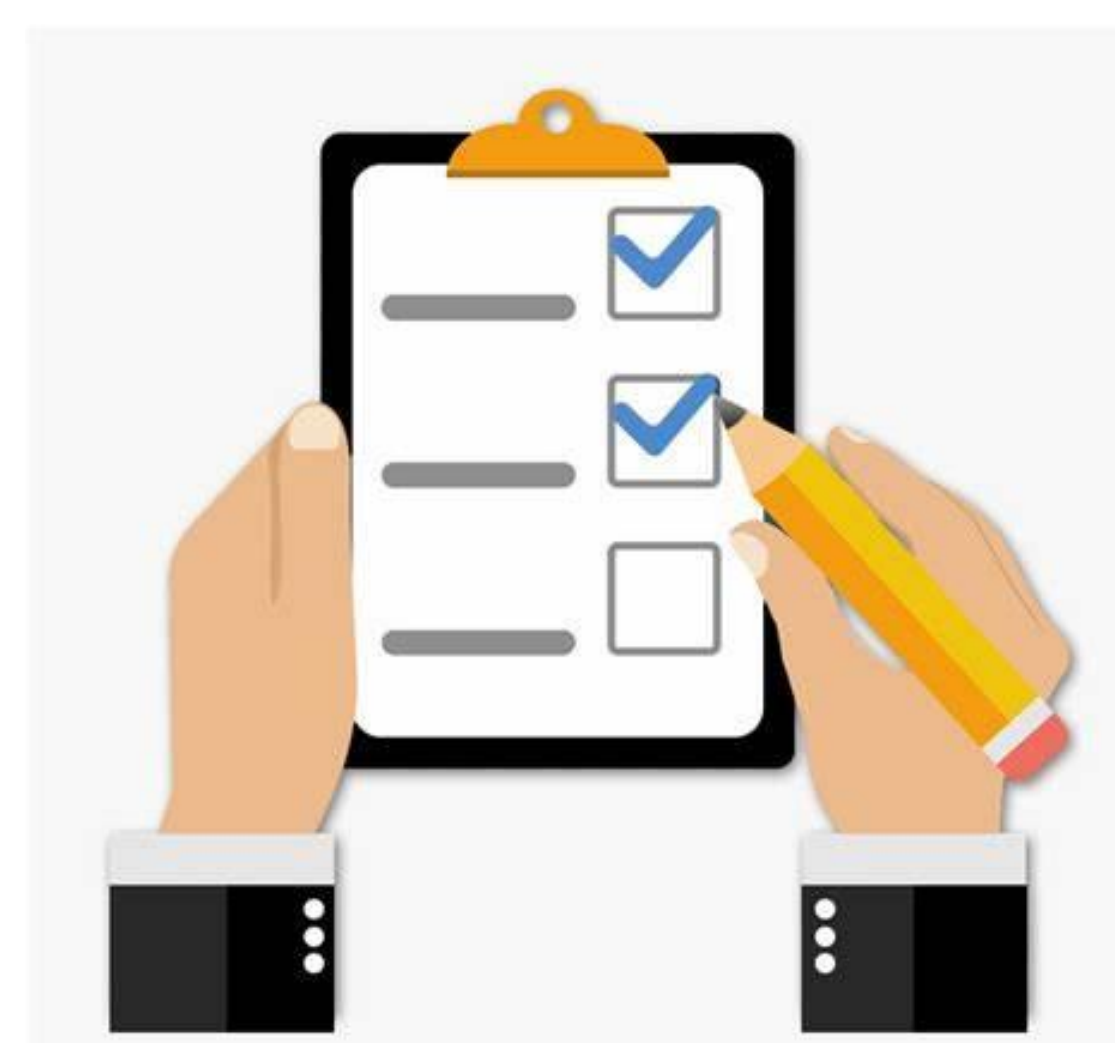
- Sample Collection:** Conducted biannually for two years.
- Isolation of *Aeromonas* spp.**
- Phenotypic and Genomic analysis:**
  - MIC Testing: Sensititre plates.
  - Whole-Genome Sequencing: Nanopore systems.
- Metagenomic analysis:**
  - Reads aligned to reference database using MGmapper.



## Why *Aeromonas* spp.?

- Widely distributed
- Versatile metabolic & virulence capabilities
- Host and habitat flexibility
- AMR Indicator
- Consistent Detection
- Global Surveillance

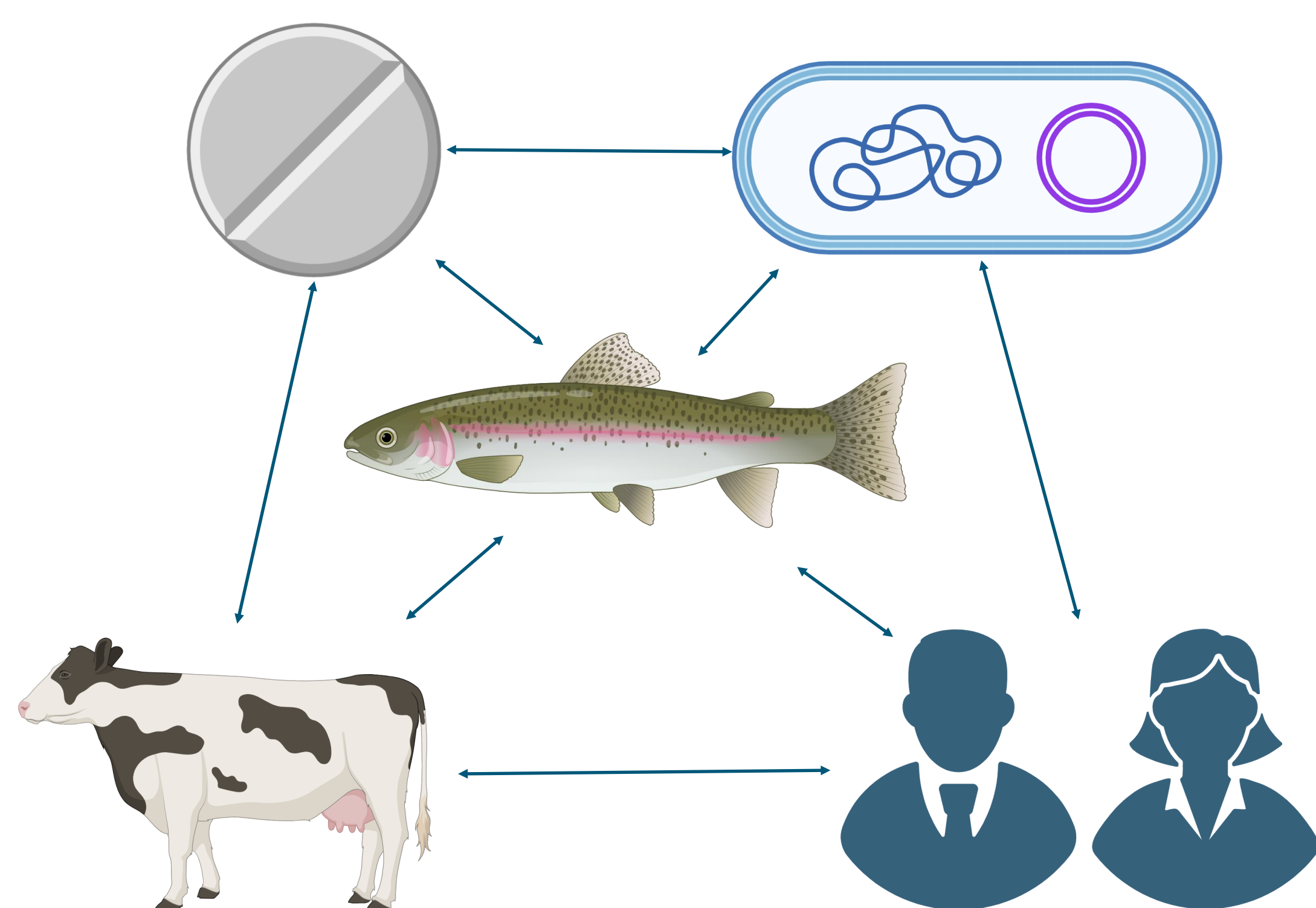
## WP 2.3: Antimicrobial products used in aquaculture



### Surveys:

- ➔ **Fish Farmers:** Management practices, farm organization, and use of antimicrobials and biocides in treating fish and water.
- ➔ **Veterinarians:** Prescribing behaviors and conditions under which antimicrobials and other products are used in aquaculture.

## WP 3: Potential risk factors and key drivers of AMR



➔ **Link between the use of antimicrobials and biocides and resistance**

➔ **Cross-species impact**

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