Term of Reference for WG1 work on Microbiota

# Background

The microbiota is the wide variety of microorganisms that live in a certain environment. Fish Microbiota, could be considered as the communities of microorganisms in the fish environment. These communities are found in the water, in flocks, in biofilms, in the mucus of the fish itself and in the digestion system. The composition of these communities can be stable and act as barriers and health protectors but they also evolve depending on the dynamics of the environment. Parameters that influence the microbiota are temperature, pH, salinity, oxygen content, available feed, etc. Changes of these parameters in the fish environment is followed by an adaptation of the microbiota community to the new conditions. During the time adaptation to a new stable beneficial health protecting barrier, some unwanted opportunistic pathogens may find room to develop and hurt the fish. An example can be seen in trout farms: It is observed that 7-10 days after stressful for the fish event of environmental changes, there is often an increase of flavo-bacteria on juvenile trout, which can lead to 95% loss of the cohort, if not medicated.

# Question to be addressed:

**How can the knowledge of microbiota be used to increase welfare of the farmed fish and at the same time enable the farmer to generate more profit?**

Hypothetically, Microbial Resource Management could be a way to reduce the problems with flavo bacteria which would have a huge impact on fish welfare. The economy for the farmer would improve with less work, a higher survival rate and less costs for veterinary and antibiotics.

# Way forward

Recruit an expert to develop a report to address the question above by conducting a review/meta-analysis of relevant research.

Produce a recommendation to the Commission, which asks for more “applied” research in this field.

# Timeline, experts, and budget

* Timeline: February – June 2022
* Potential experts: Open call for experts
* Estimated Budget: € 2.000 to 3.000