**Objectives**

- Enhancing aquatic research utilizing AI applications
- Leveraging EOSC for developing, training, and deploying AI models
- Online data stream analysis in distributed environments
- Facilitate collaboration among research infrastructures to share images and AI applications
- Developing best practices for delivering image processing services

**Roadmap**

**Quality & Risk management plan**
- Development guidelines
- Data management plan
- Development roadmap
- EOSC & AI4EU integration plan
- Update of the development roadmap

**AI deployment, Operation plan**
- Business Model analysis, Sustainability
- Best practices for image analysis

**Full Scale Services**
- Best practices for AI service creation and operation
- Validation of prototype services

**Use Cases**

- **Eight internal** and **three external** AI-based image analysis use cases in aquatic sciences

  - **Marine Ecosystem Monitoring**
    - Ecosystem monitoring utilizing video imagery
    - (EMSO ERIC, UPC, IFREMER, MI)

  - **Underwater Noise Identification**
    - Identification of sound events from acoustic recordings using spectrograms
    - (VLIZ)

  - **Satellite-Derived Bathymetry**
    - Forecasting underwater depth across varied oceanographic condition
    - (ICMAN, CSIC)

  - **Marine Litter Assessment**
    - Monitoring system for aquatic litter pollution using drones
    - (DFKI, MARIS, OGS)

  - **Oil Spill Detection**
    - Detection of oil spill from satellite images
    - (CMCC, OrbitalEOS, UNITN)

  - **Beach Monitoring**
    - Posidonia oceanica berms and rip-currents detection from beach monitoring systems
    - (SOCIB)

  - **Cold Water Coral Reefs**
    - Identification of recoveries, degradation of the habitat or anomalous mortality events
    - (IEO, CSIC)

  - **Zooscan – EcoTaxa Pipeline**
    - Taxonomic identification of zooplankton using Zooscan
    - (Sorbonne Université)

  - **FlowCam Phytoplankton Identification**
    - Taxonomic identification of phytoplankton using FlowCAM images
    - (VLIZ)

  - **Freshwater Diatoms Identification**
    - Diatom-based bioindication service using automatic pattern recognition from microscopic images
    - (UL-LIEC)

  - **Fish Otoliths**
    - Identification of the age of fishes from otoliths images
    - (DTU)

**iMagine Platform Architecture**

**iMagine Consortium**

- **Project time**: Sep. 2022 – Aug. 2025 (36 months)
- **24 partners from 11 countries**: Belgium, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Slovakia, Spain, and Turkey

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