GAIN Green Aquaculture Intensification

SUMMER SCHOOL

GAIN IMS – Data Hub
Italian Case Study

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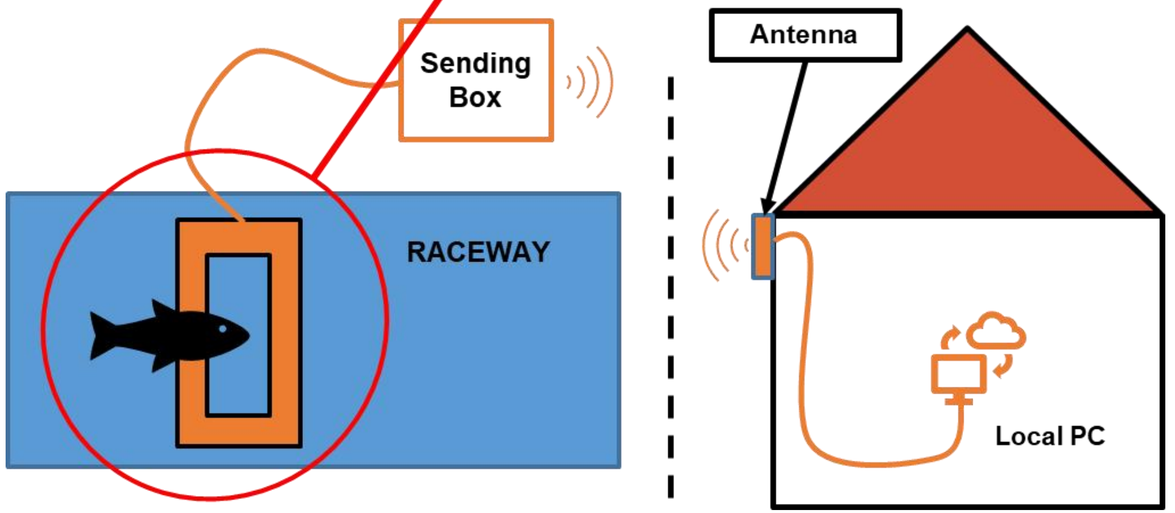
This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773330 (GAIN)

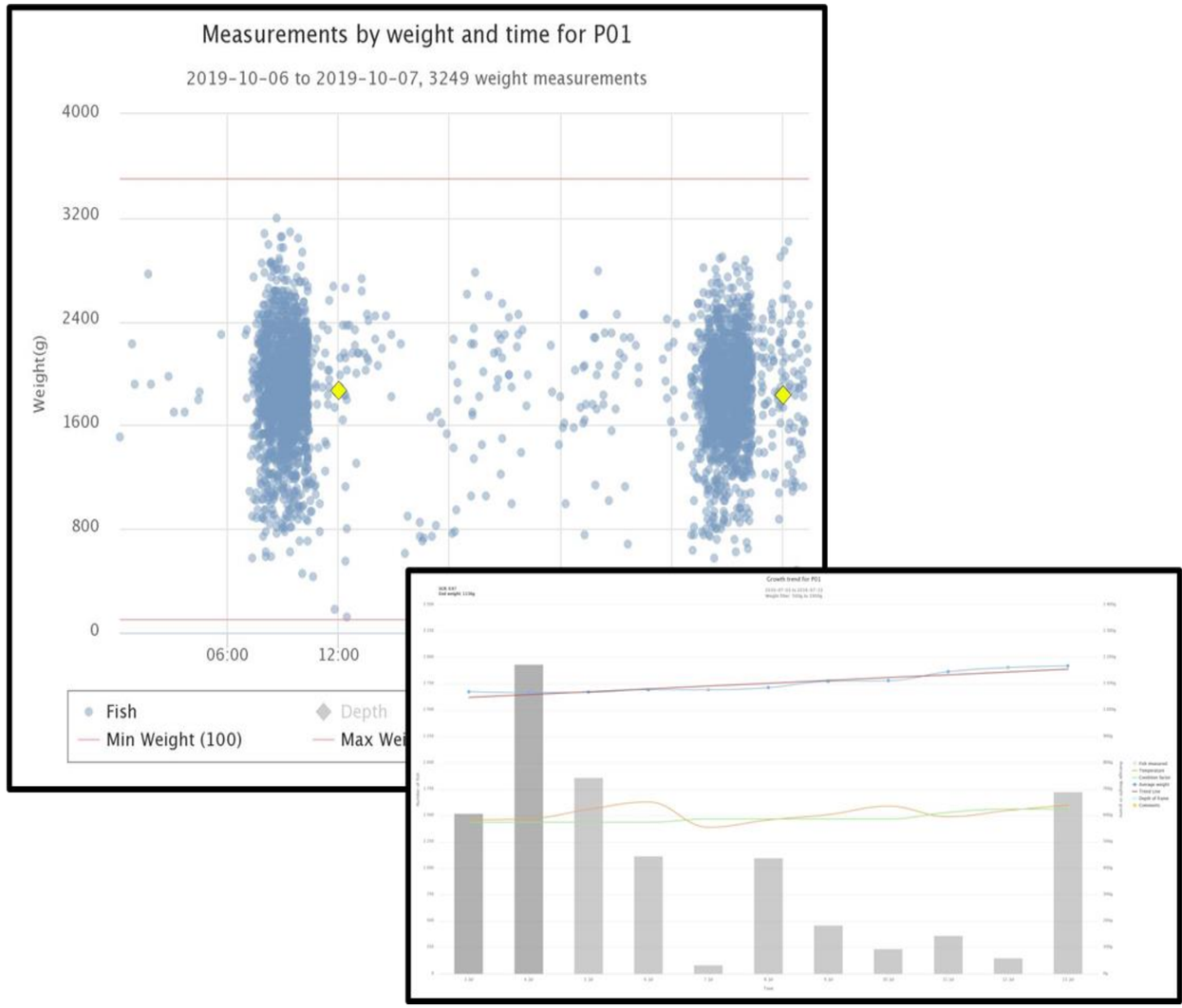
GAIN devices test – Biomass Daily

- Producer: Vaki Ltd / Reseller: Aquatrade Srl
- Infra-Red Sensor: 80 x 80 cm frame
- Remote Transmission: sending box + antennas
- Cloud connection: local pc connected to internet
- Designed for and used in the salmon industry (cages): here applied to trout farming in raceways



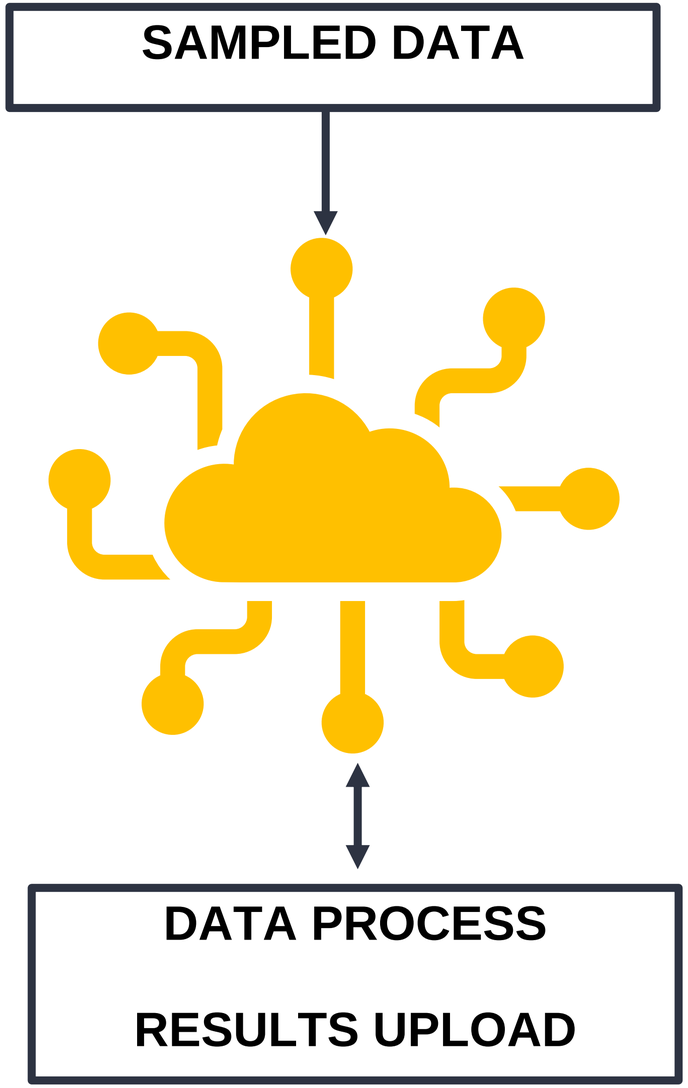
GAIN devices test – Data Collection

- Human-Machine Interface
  - Web access - User/Password
  - Dashboard real-time updated
  - Intuitive graphics already present
  - and raw data
- Available Data
  - Daily average weight
  - Detection number
  - Individual Weight measurements
  - Condition factor



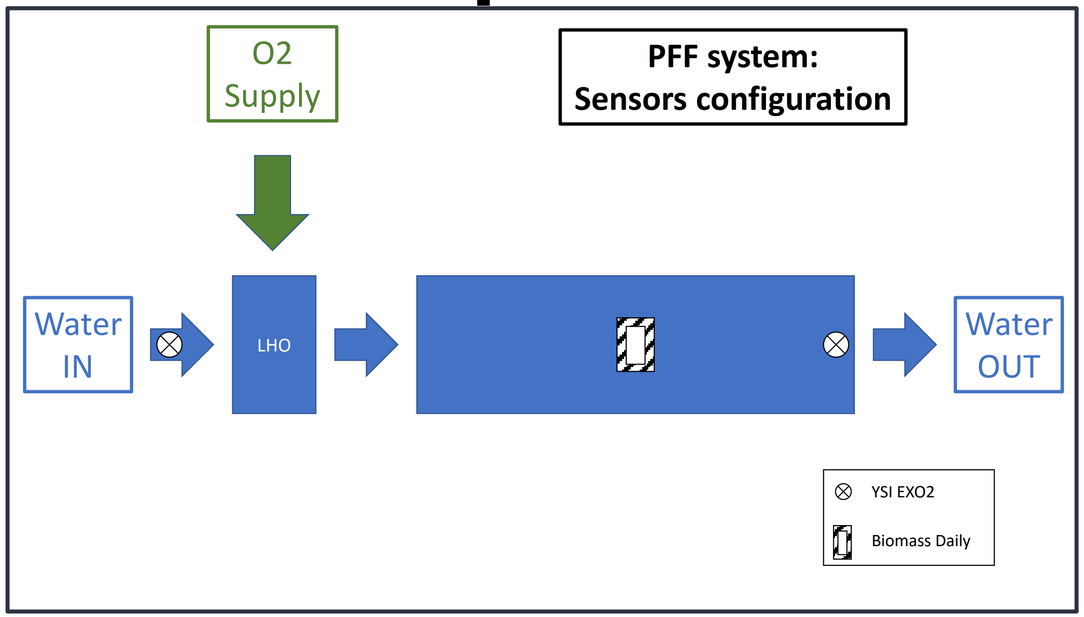
GAIN devices test – Data Collection

- Raw data
  - Daily average weight
  - Detection number
  - Individual Weight measurements
  - Condition factor
- Data pipeline to/from GAIN IMS
  - Data format
  - Data Upload
  - Data Download and process
  - Results Upload

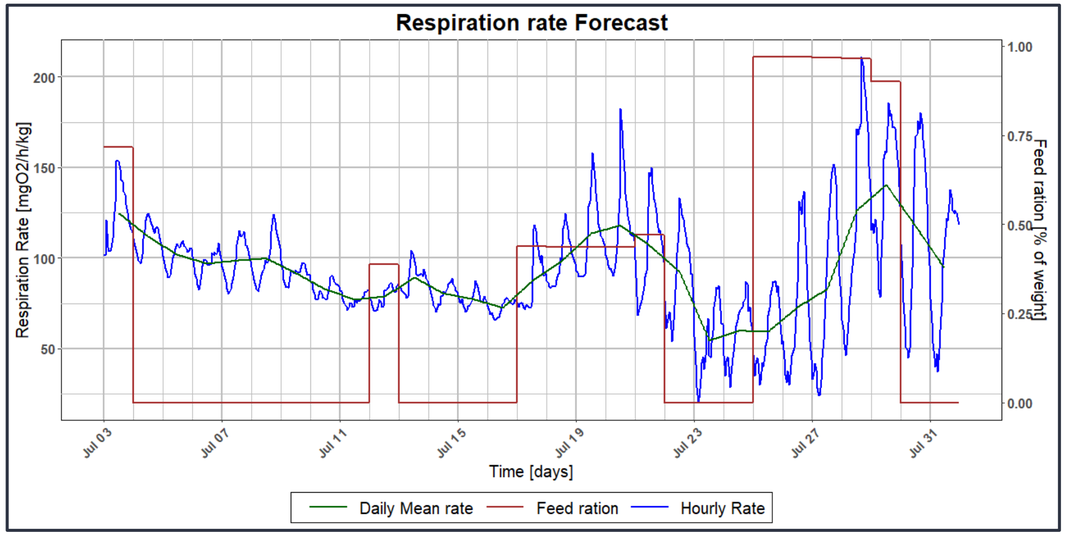


GAIN devices test – Data use – Example 1

- Experimental setup
  - Environmental probes for DO
  - **Average daily Weight estimated by Biomass Daily**
  - DO mass balance model
  - Data assimilation (Kalman Filter) of DO in the raceway

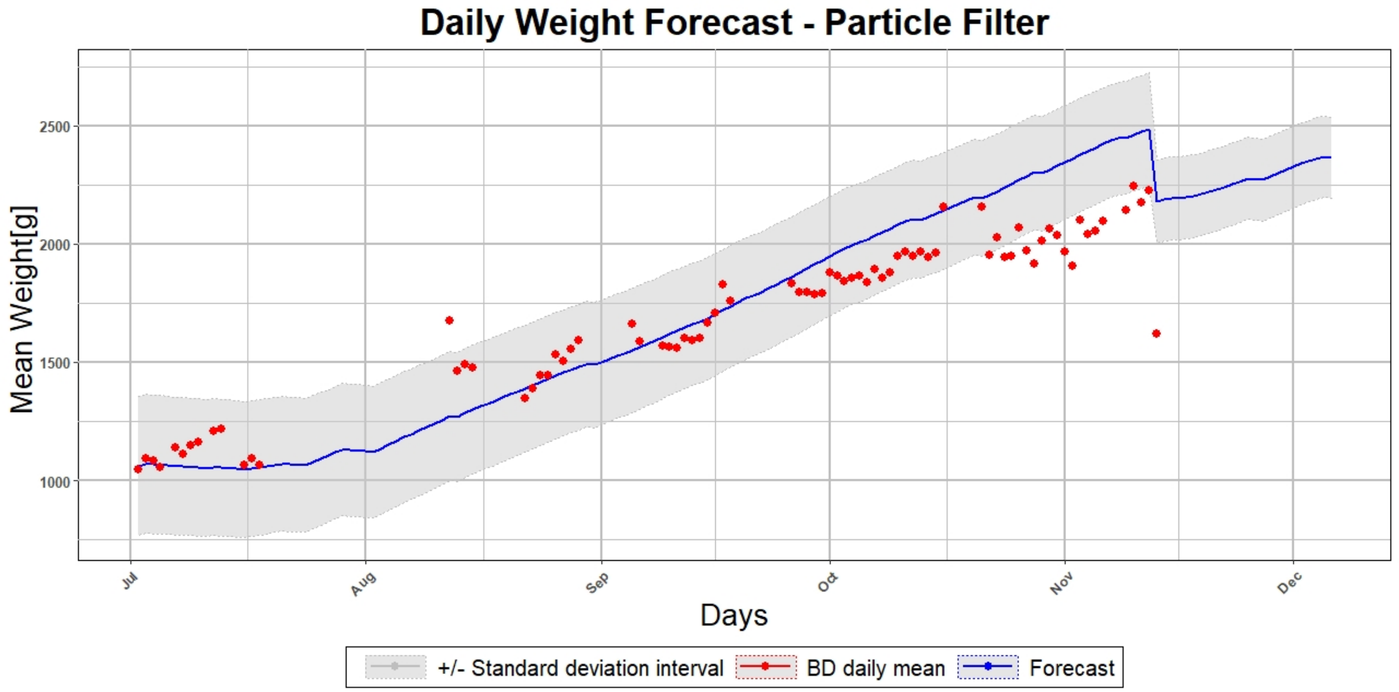


- Results
  - Hourly forecasts
  - Oxygen demand
  - Oxygen concentration



GAIN devices test – Data use – Example 2

- Experimental setup
  - Amount of feed supplied
  - Temperature
  - Bioenergetic growth model
  - **Daily assimilation (Particle filter) of average weight measured by BD**
- Results
  - Daily forecasts of average weight
- Next step
  - DA with **Population model**



GAIN devices test – IMS benefits

- Centralized data => **Interactions**
  - Shared used between partners
  - Shared used between various scientists from one partner
- Data **available anywhere**
  - Accessible through web
  - Useful for demonstrations or work sessions
- Farmer interaction
  - GUI **user-friendly**
  - **Higher credibility** of the results