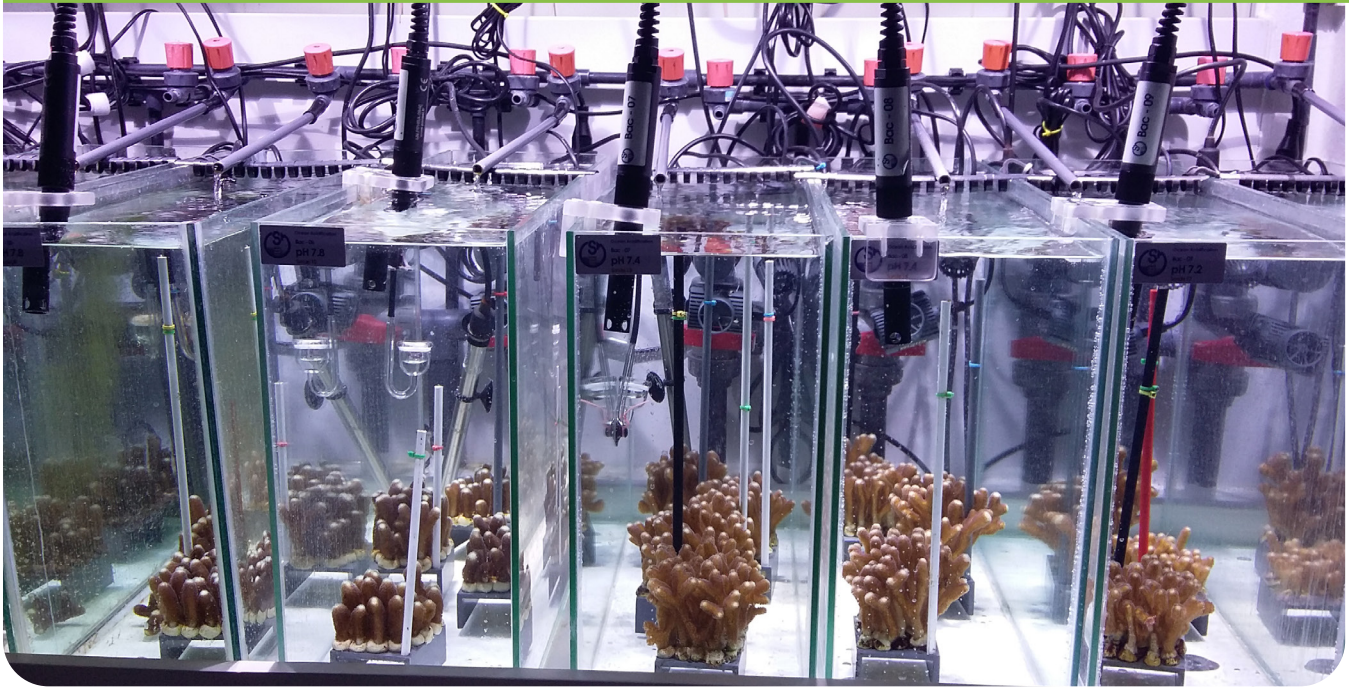


AQUALABO

Smart water solutions

AQUACULTURE



Aqualabo has customers in the aquaculture field for long time as we already produced, 20 years ago, handheld DO meters in our range. However, our presence in this market is more intense since 2012 with more requests from France, Scandinavia, Feroe Islands and Chile.

The reason is that optical DO sensor was becoming popular but prices were still too high for fish farmers, Aqualabo came to this market with more competitive solution. Other reason is that fish farmers and systems integrators were looking for a sensor that can be integrated directly to PLC to control aeration system. Our full Modbus open protocol was a good way to reduce cost and make direct integration to PLC.

Our first reference in France was in a perch fish farm, a system integrator was using a Siemens PLC and was looking for optical sensors. Then we made businesses with distributors and integrators all over the world.





Today AQUALABO can target fish farming industry in different ways:

- Business with **fish farms**: for small installations, the point of contact is the owner. For big groups, we can talk with automation / process manager.
- Business with **system integrators**: we have good relations with companies that build instrumentation and process system for fish farmers. They like our open protocol.
- Business with **equipment provider**: underwater camera system, feeding system, blowing/aeration system, all equipment manufacturer in the field of fish farm may have interest to update their system with a water quality option. They like our open protocol, good price, and capacity to OEM so they can really integrate this option in their package and this is a way from them to differentiate their offer.
- Business with **engineering companies**: like WWTP, some companies build turnkey fish farms and need to integrate an instrumentation package. They like our complete offer.
- **IoT / logger companies**: these companies want to offer more connected solution to the fish farming industry. They like our package that includes solutions for calibration, maintenance, etc...
- **Distributor / sub-distributor** of instrumentation companies that usually target classic water markets (WTP, WWTP), but also want to open their businesses to other markets.
- **Research institutes / School and Marine Aquariums**.

STAR PRODUCTS FOR THIS MARKET

DO sensor / advantages: Digital technology (data security), optical, open protocol, available in stainless steel or titanium, cable length up to 100 meters, replaceable caps but no timer, low power, possibility to add a brush auto cleaning system.

Conductivity / salinity / advantages: Digital technology (data security), open protocol, two technologies available (4 electrodes or toroidal), low power.

pH / advantages: Digital technology (data security), open protocol, cartridge system so no need to replace complete sensor after 2 years, only consumable part, low power.

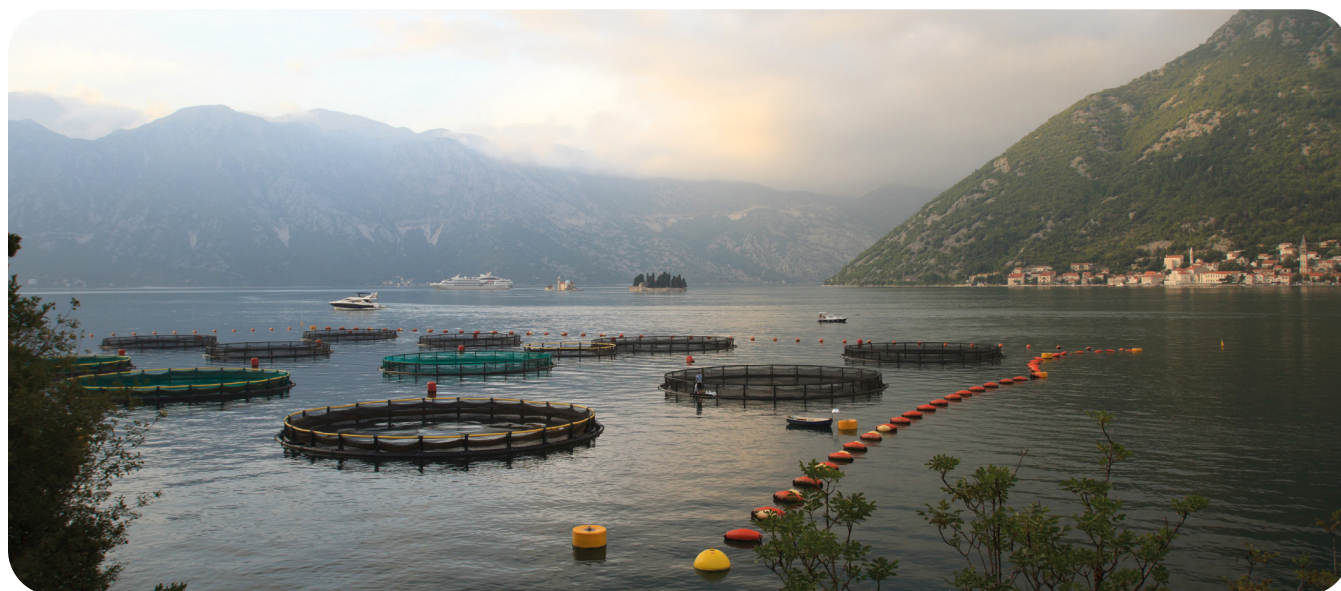
NTU / advantages: Digital technology (data security), very few competitor on market, open protocol, low power, well adapted range (0 to 4000 NTU), possibility to add a brush auto cleaning system.

Controllers that can be used: S200 and ACTEON 5000

Handheld: ODEON. Advantages: can be used with photometer module to measure nitrate (sea water method available). ODEON can log data of the sensors for measurement campaigns.

Other option: Aqua Connect to use a wireless Lora network if fish farmers do not want to have too many cables in farm. Can also be used for a small fish farms that requires quick installation.

Computer software, CALSENS, for calibration and to help integrators for the integration of the protocol of communication.



REFERENCES

Name	Country	Type	Products	Comment
Tassal	Australia	Fish farmer	DO, pH sensors	
Labolytic	Norway	Distributor	All	
Innovasea Akvakultur	Norway	Equipment	CTZN	
BB Aqua	Scotland	System integrator	DO sensors	
Wsense	Italy	Equipment	Tripod (sensor)	Underwater camera manufacturer
Zunibal	Spain	Equipment	Conductivity, DO, NTU sensors	Buoy manufacturer for fishfarming
Feeding Systems	Spain	Equipment	Do sensor	Fishfarm feeder manufacturer
Water proved	Germany	Engineering	All online	Turnkey RAS system
Libellium	Spain	IoT	sensors	
Smalle Technologies	Spain	Distributor + lot	sensors	Real time monitoring provider
Centre Scientifique de Monaco	Monaco	research centre	DO, pH sensors	study of global warming
COFA	France	Distributor	All (DO, pH, NTU, Odéon, etc..)	
Institut océanographique Paul Ricard	France	research centre	DO sensors + AquaConnect IoT LoRa solution	study of global warming
ISETA : Institut des Sciences de l'Environnement d'Annecy	France	higher education institute - aquaculture school	DO sensors	Real-time measurement installation to train students
Salmoniculture de la Selle	France	Fish farmer	DO sensors	Real time monitoring with automated regulation
LUCAS PERCHES	France	Fish farmer	DO sensors	Real time monitoring for manual regulation
STEB	France	Briton Federation for Trout Farms	Portable controllers ODEON + sensors DO/ pH/ORP/Conductivity/T	Monthly checks on various Fishfarmings
ASIALOR	France	Fish farmer	DO sensors	Real time monitoring for manual regulation
INNOV AQUACULTURE	New Caledonia	Distributor	DO & CTZN sensors	Real time monitoring on shrimp farms
LES TRUITES DU SCORF	France	Fish Farmer	DO Sensors	Real time monitoring
OCEANOPOLIS	France	Marine Aquarium	Portable ODEON + Sensors + PHOTOPOD	Daily checks