



Final Conference “Water in the circular economy -
Innovations for urban water treatment”

Reuse, Recovery and Resource efficiency,
Innovations in urban wastewater treatment

Brussels, 30th May 2017

aquaBio, Reuse of water

Montserrat Batlle, Adasa Sistemas

www.r3water.eu

This project has received funding from
the European Union's Seventh Programme
for research, technological development and
demonstration under
grant agreement No 619093



Need

- Guarantee the water safety and quality.
- Water quality monitoring can help to this and specifically the aquaBio regarding microbiological parameters.



Sewage leak detection



Uses in reclaimed water



Recreational water (bathing)



Drinking water

Approach



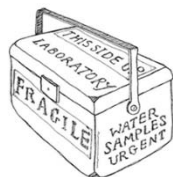
- Continuous and simultaneous measurement of *E. coli* and Total Coliforms
- Methodology: Defined Substrate Technology[®] (DST[®])
- Measurement principle:
 - Fluorimetric for *E. coli* detection
 - Colorimetric for Total Coliforms detection
- Range: 0 – 10⁸ MPN

Value proposition

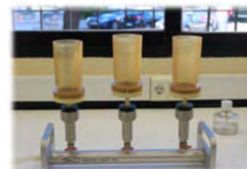
Traditional monitoring



Sampling



Transport



Filtration



Seed



Incubation



Counting

From 24 to 96 h

aquaBio



From 3 to 12 h

Continuously

Benefits



Early warning in case of the water reclamation plant malfunctioning.



Efficient production of reclaimed water, avoiding overdosing of disinfection chemicals and excess of UV power consumption.



Production of fit-for-purpose reclaimed water, according to the intended water quality for the reuse in irrigation of vegetables, wood crops, golf courses or other industrial uses.

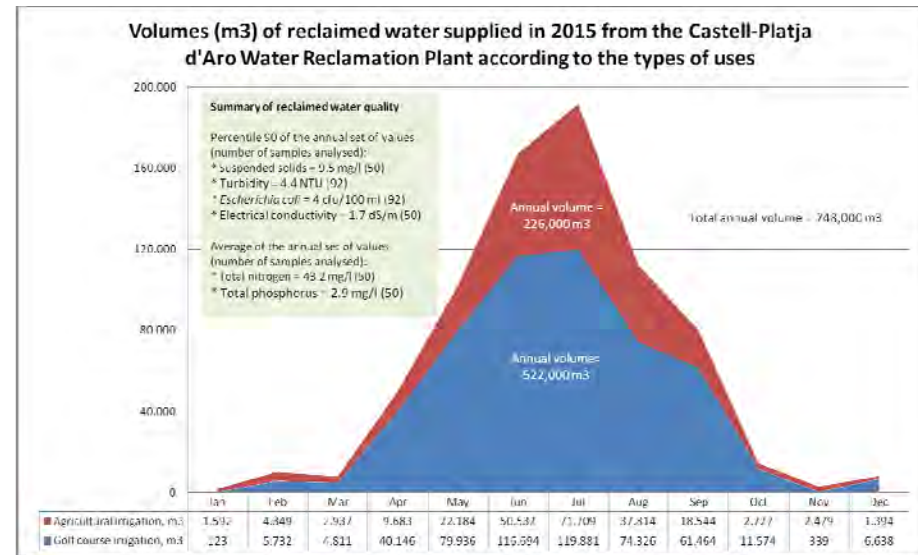
CASE STUDY: Castell d’Aro Water reclamation plant



Castell-Platja d’Aro WWTP.

35.000 m³/day, and 175.000 p.e..

The tertiary treatment is designed for a 15.000 m³/day flow.



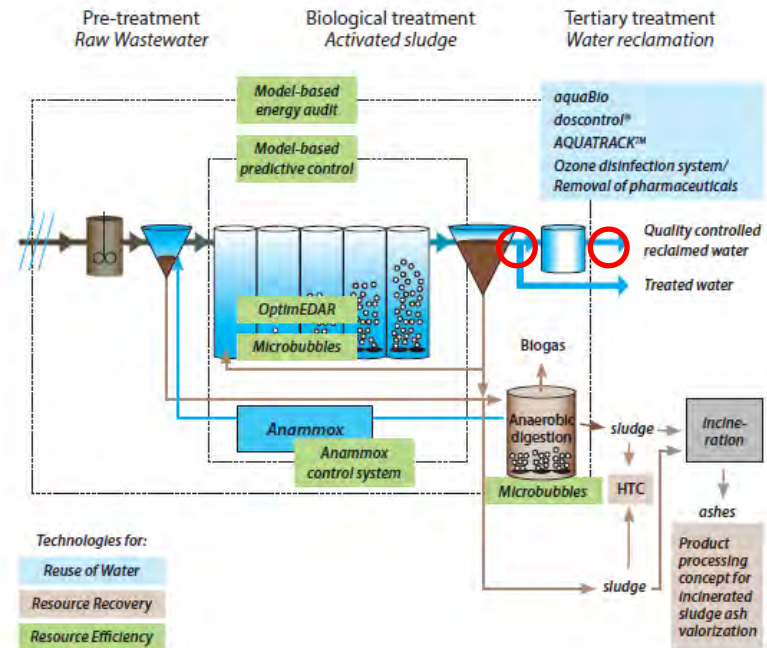
Reclaimed water users :2 golf courses, one pitch & putt facility and 2 agricultural irrigation communities (corn and orchard products). **On-demand production**, with a buffer storage of 325 m³



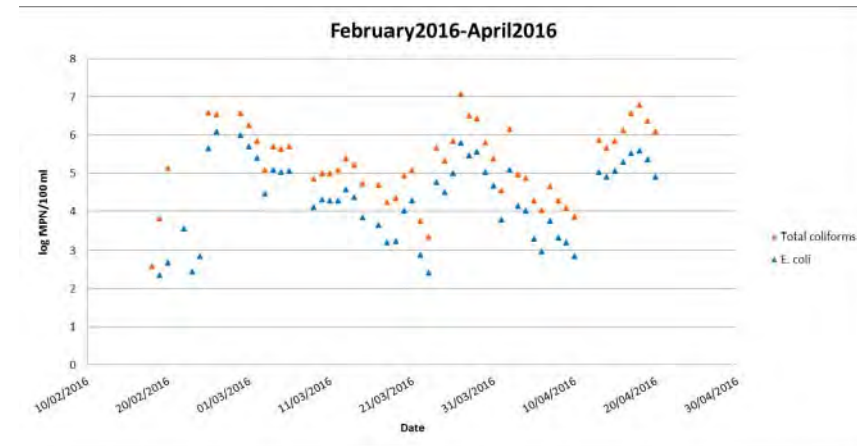
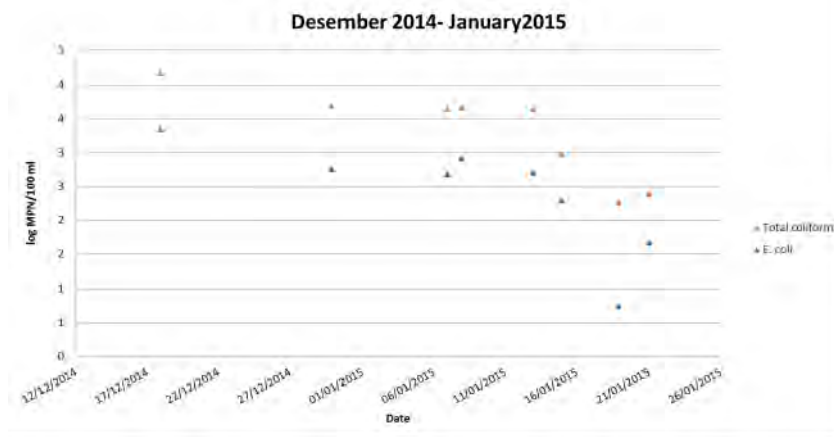
Castell-Platja d'Aro WRP.



CASE STUDY: Castell d'Aro Water reclamation plant

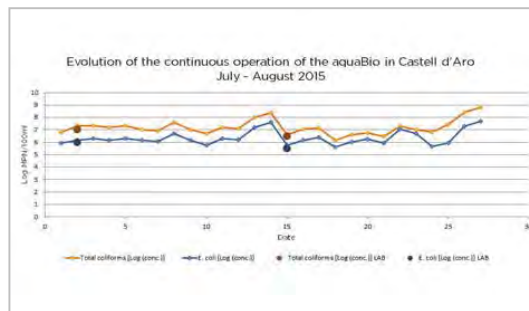
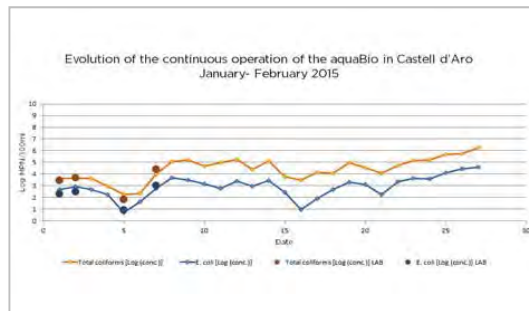


Results

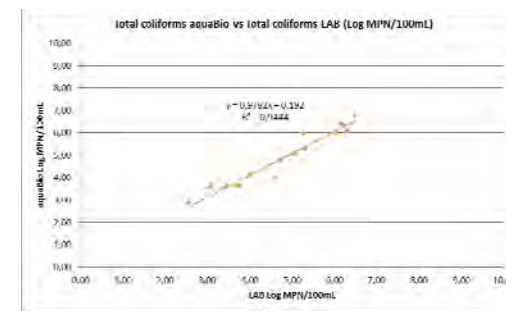
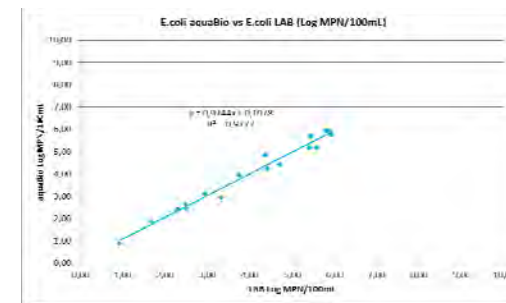


aquaBio adaptation to on demand water reuse: connected to a digital input (floodgate) and by time.

Results

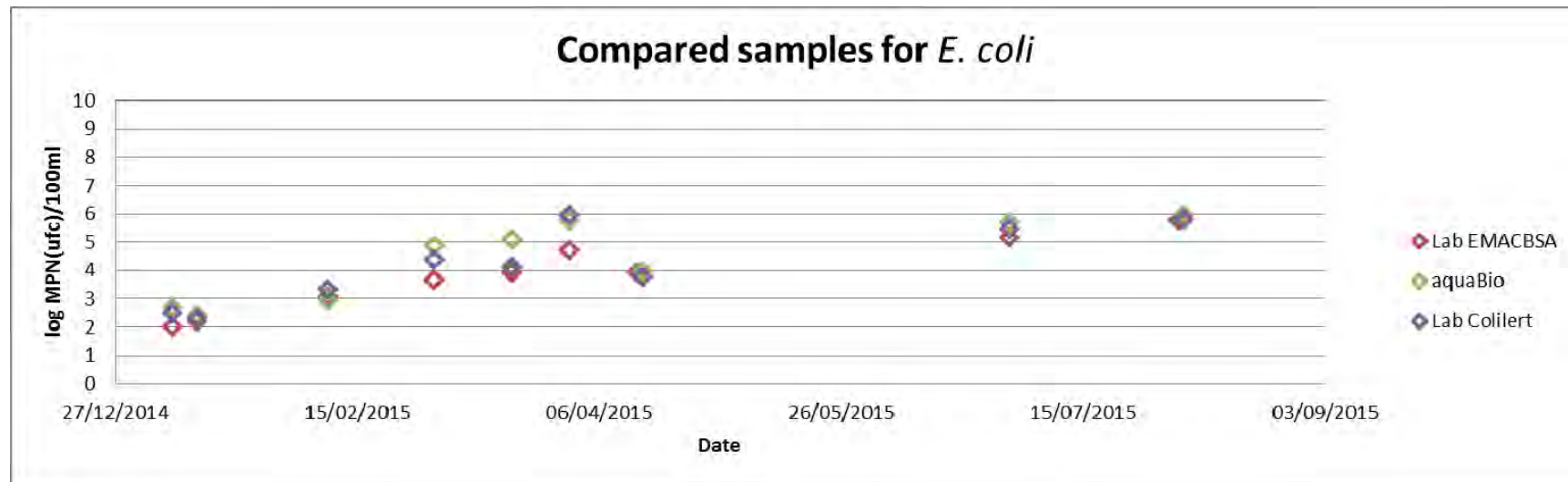


Samples taken during the operational period.



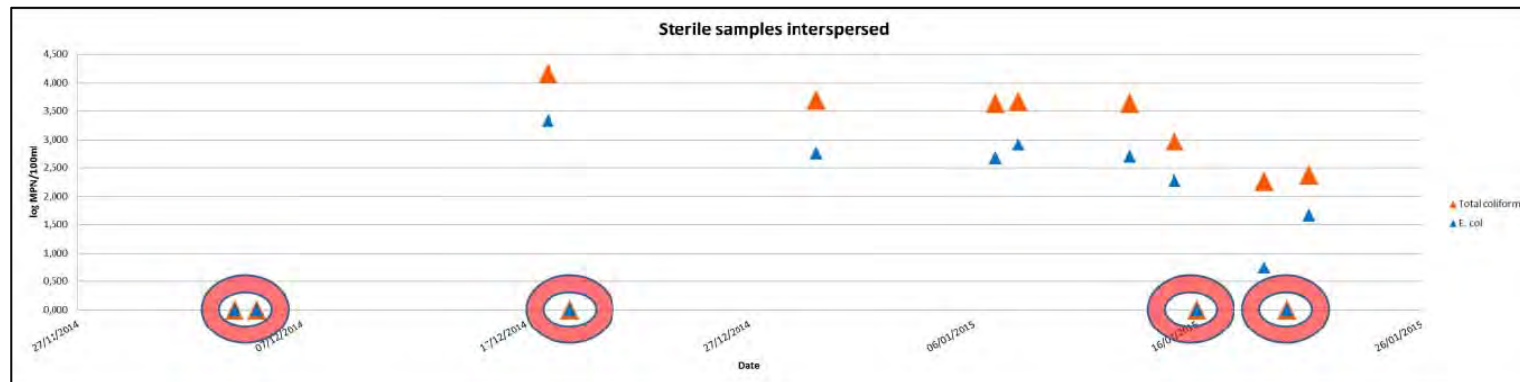
Correlation between samples analysed by the aquaBio and laboratory (colilert-18[®])

Results



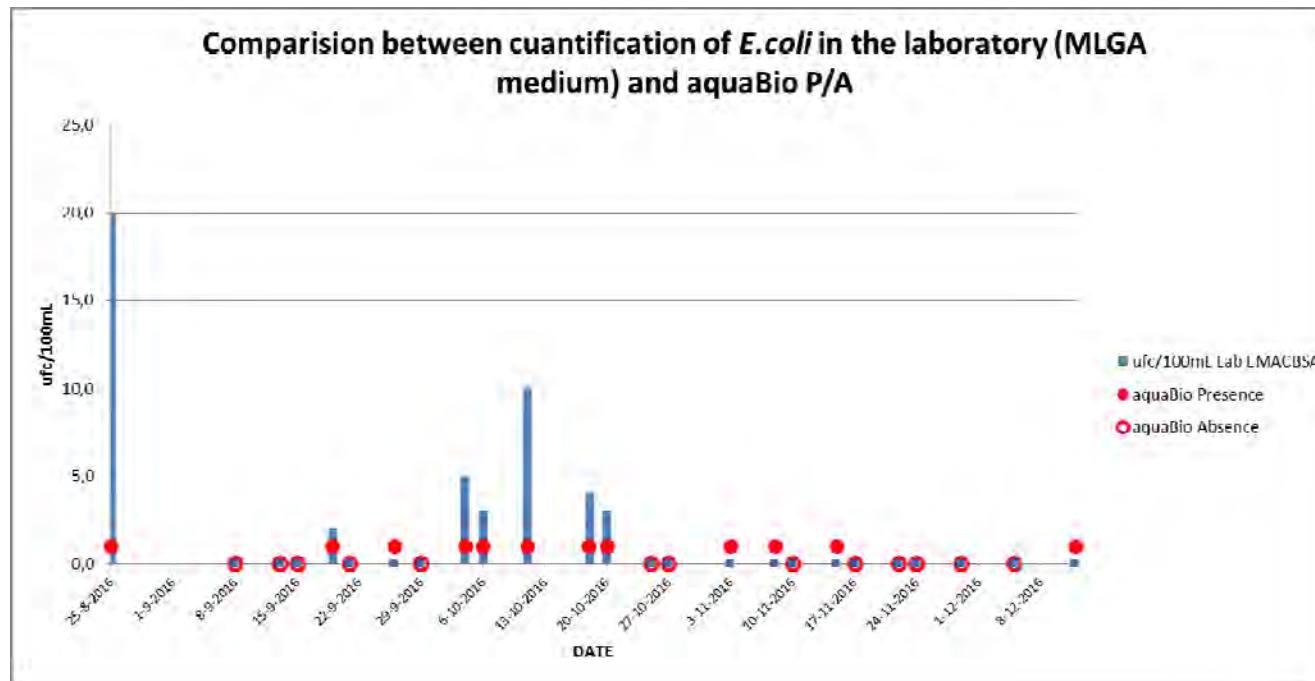
E. coli is underestimated with the MLGA method, this fact has been reported in several publications about comparisons with different methods (FRICKER C.R., 2008).

Results



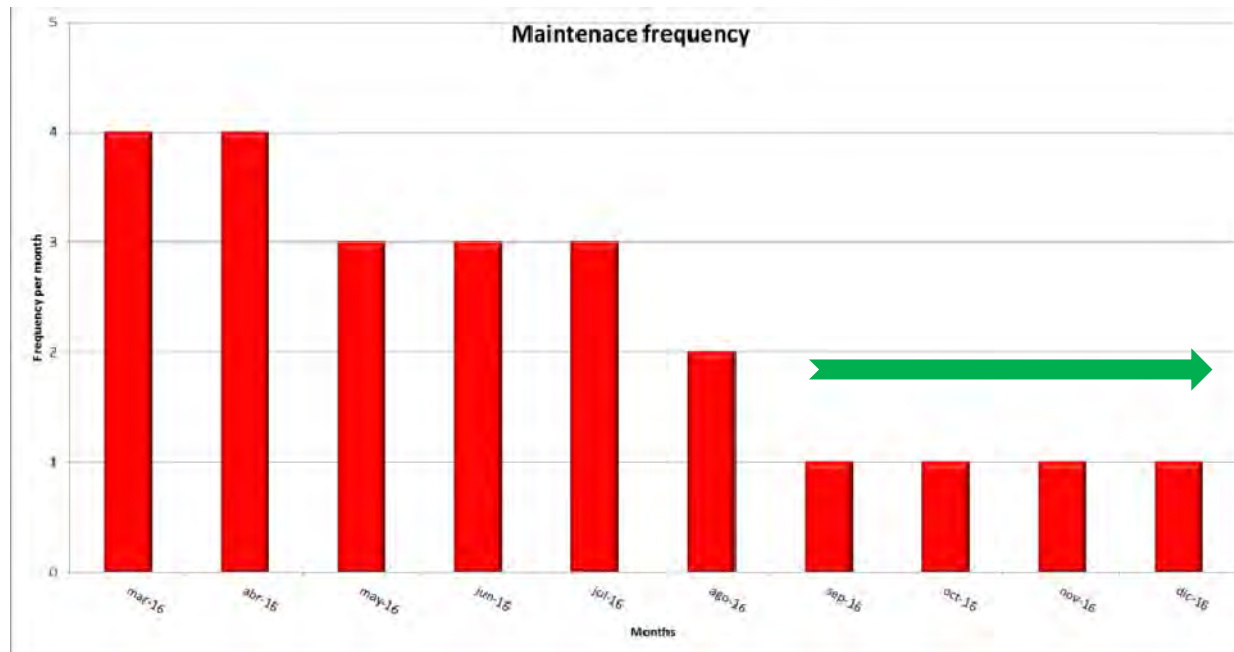
Sterile samples interspersed during operational period.

Results



aquaBio adaptation to chlorinated water at the outlet detecting presence absence.

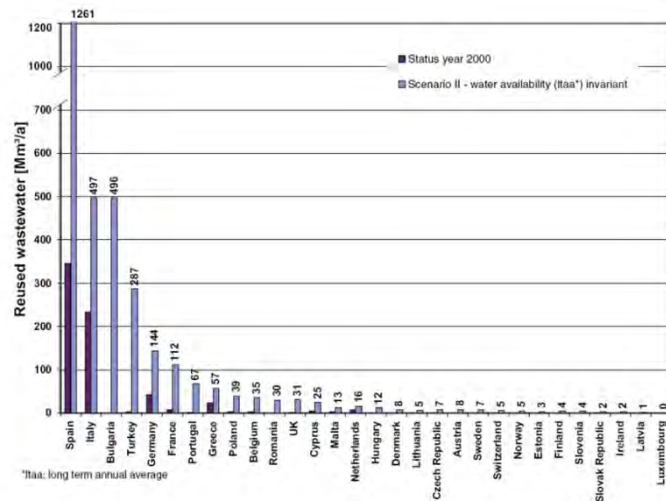
Results



Increased autonomy and decreased operational costs.

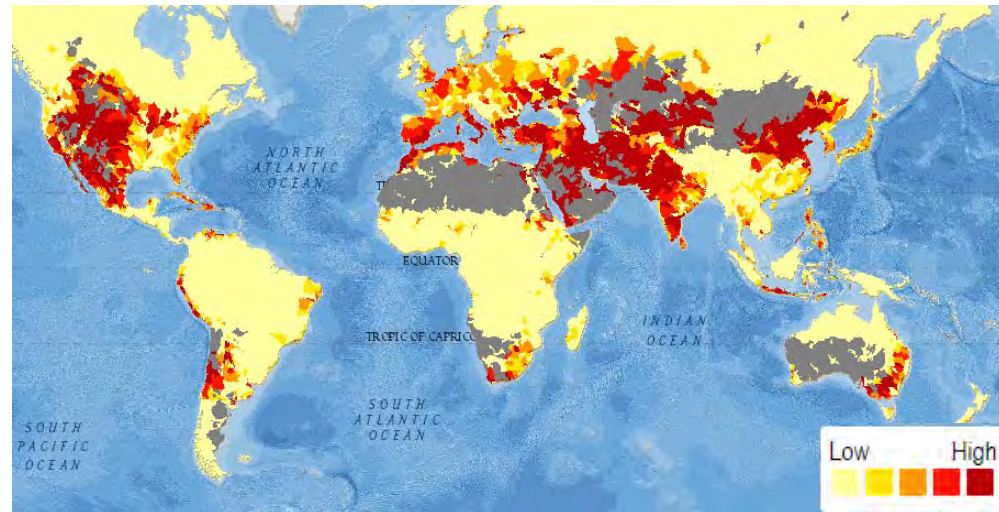
Market potential

- Water reclamation. Worldwide market potential regarding water reuse = WATER SCARCITY



Model output for wastewater reuse potential of European countries with a projection horizon 2025 (TYP SA, 2013).

- Bathing water.
- Drinking water.



Source: World resources institute (Water Risk Atlas). Projected change in water stress (Value in year 2030 business as usual)

Conclusions

- Direct measurement of the Total coliforms and *E. Coli* , not an estimation or indirect measurement.
- Reliability
- Focus on high autonomy and reduced maintenance
- Increasing market



**THANK YOU FOR
YOUR
ATTENTION**

mbattle@adasistemas.com

www.adasistemas.com

www.adasaproducts.com