

ARMISTIQ

Action A Traitements tertiaires intensifs

Réunion de projet

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Choix des STEPs

- **ASE1-PA** : Filtration sur sable + ozonation + Charbon actif (pilote)
⇒ *Bernières sur Mer (14), Novembre 2010 à juin 2011*

- **ASE2-PA** : BRM suivi d'un pilote d'oxydation avancée (O3/H2O2/UV)
⇒ *Ollainville (91), Novembre-Décembre 2011*

- **ASE3-PA** : Pilote d'oxydation avancée en aval d'un FAS
⇒ *Bernières sur Mer (14), Septembre-Octobre 2011*

Avancement des analyses

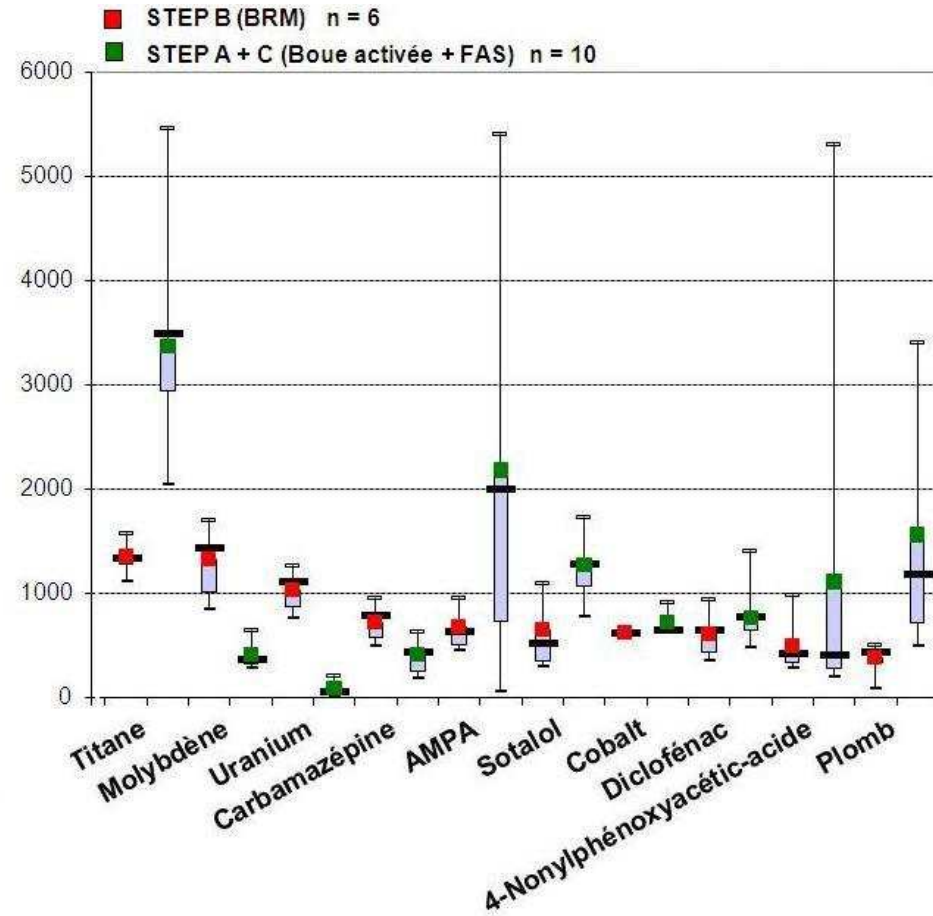
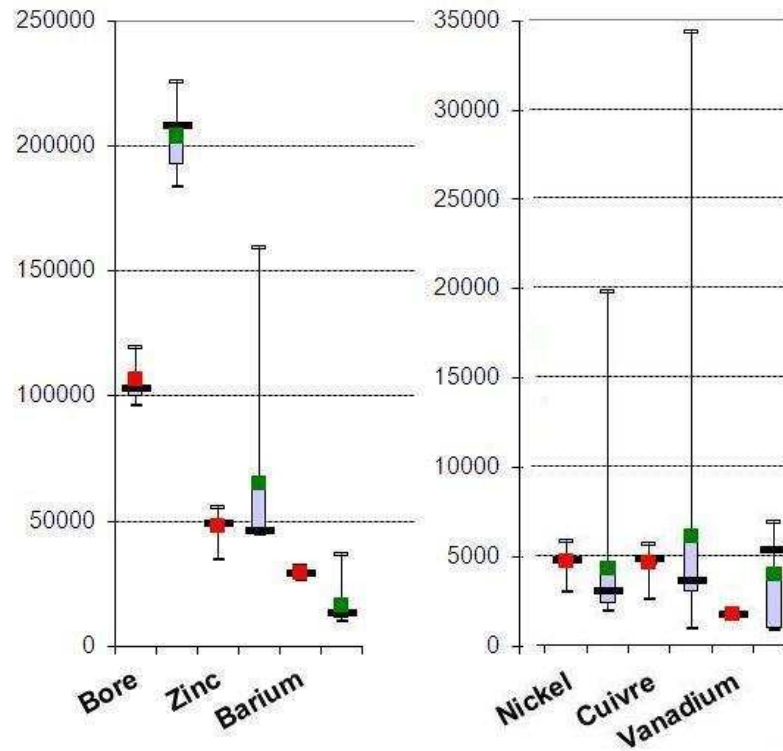
- Résultats quasiment complets (merci !)
- Manquent seulement :
 - CIRSEE : AMQ 41 (ASE1-PA4 Bernières, seulement Echibioteb)
 - LPTC : AMQ-115 et AMQ-124 (ASE2-PA2 et 4), seulement 4 NP2EO et 4NP respectivement
 - Tous : AMQ-125 (boue BRM ASE2-PA4)

Avancement livrables

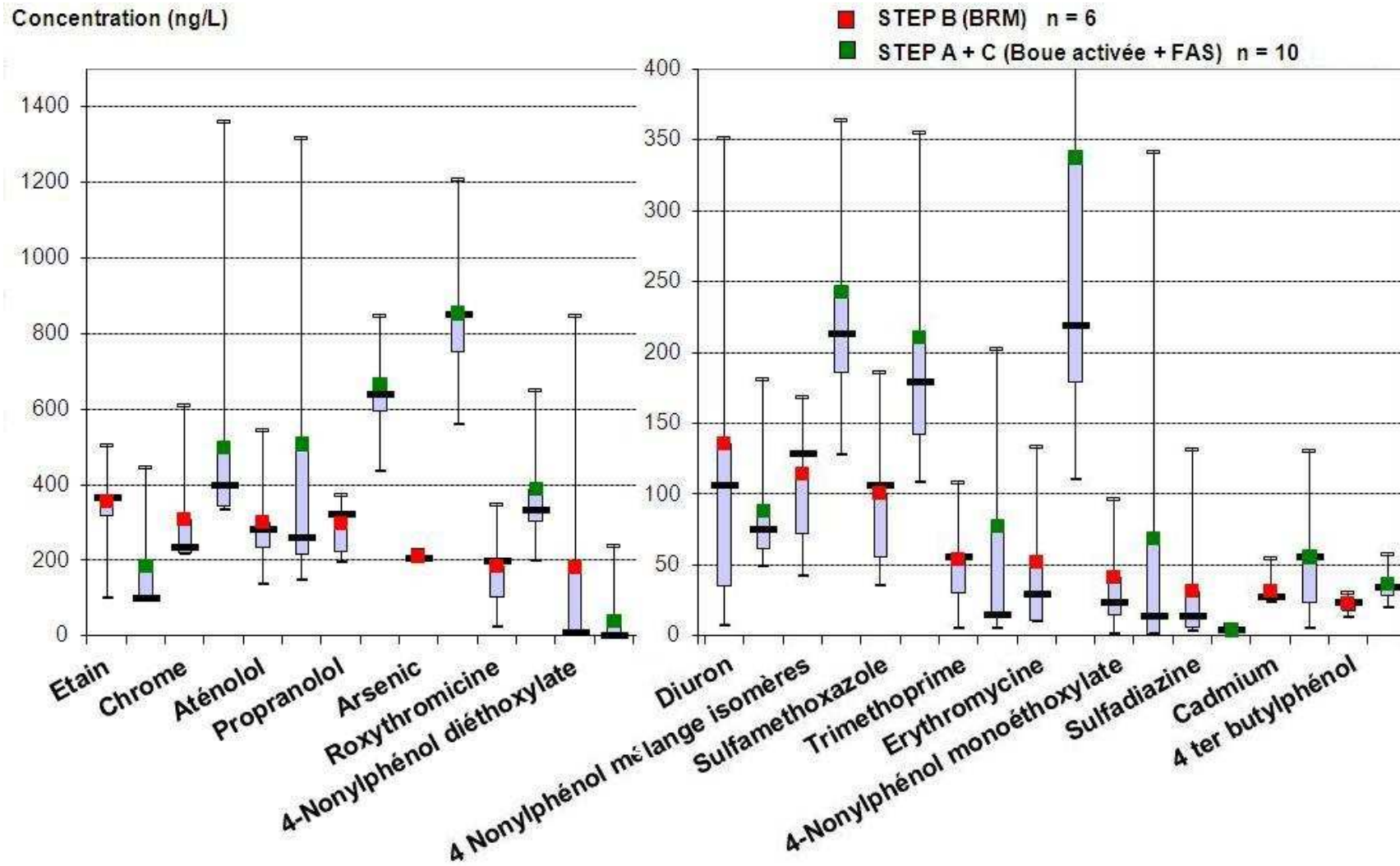
- Livrable A2 “Acquisition de connaissances sur les points d’amélioration des traitements avancés intensifs pour la réduction de micropolluants ; évaluations économique et environnementale” en cours de finalisation (partie technique)
- Parties économique et environnementale prévues pour le premier semestre 2013

Quality of the inlet water

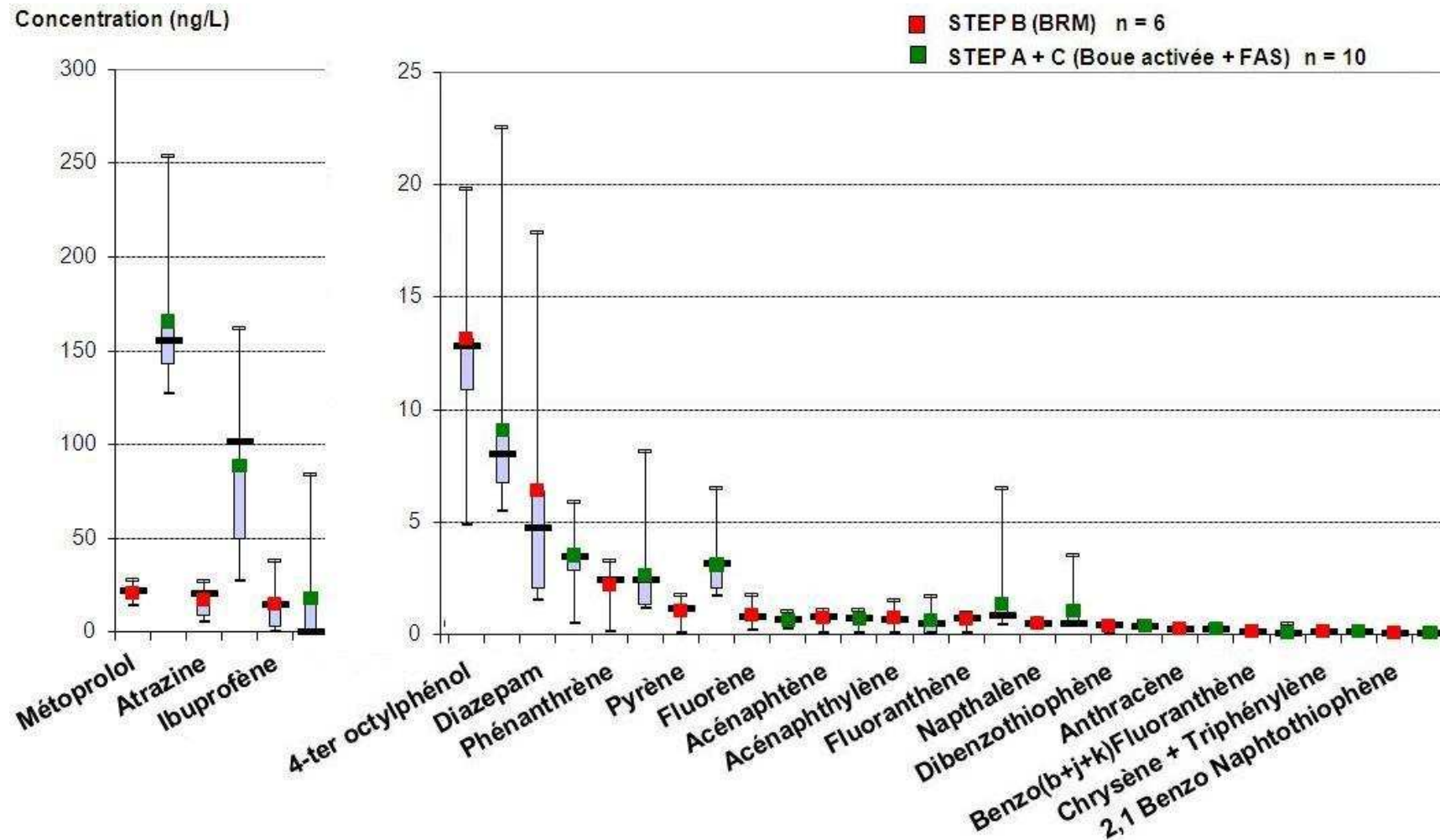
Concentration (ng/L)



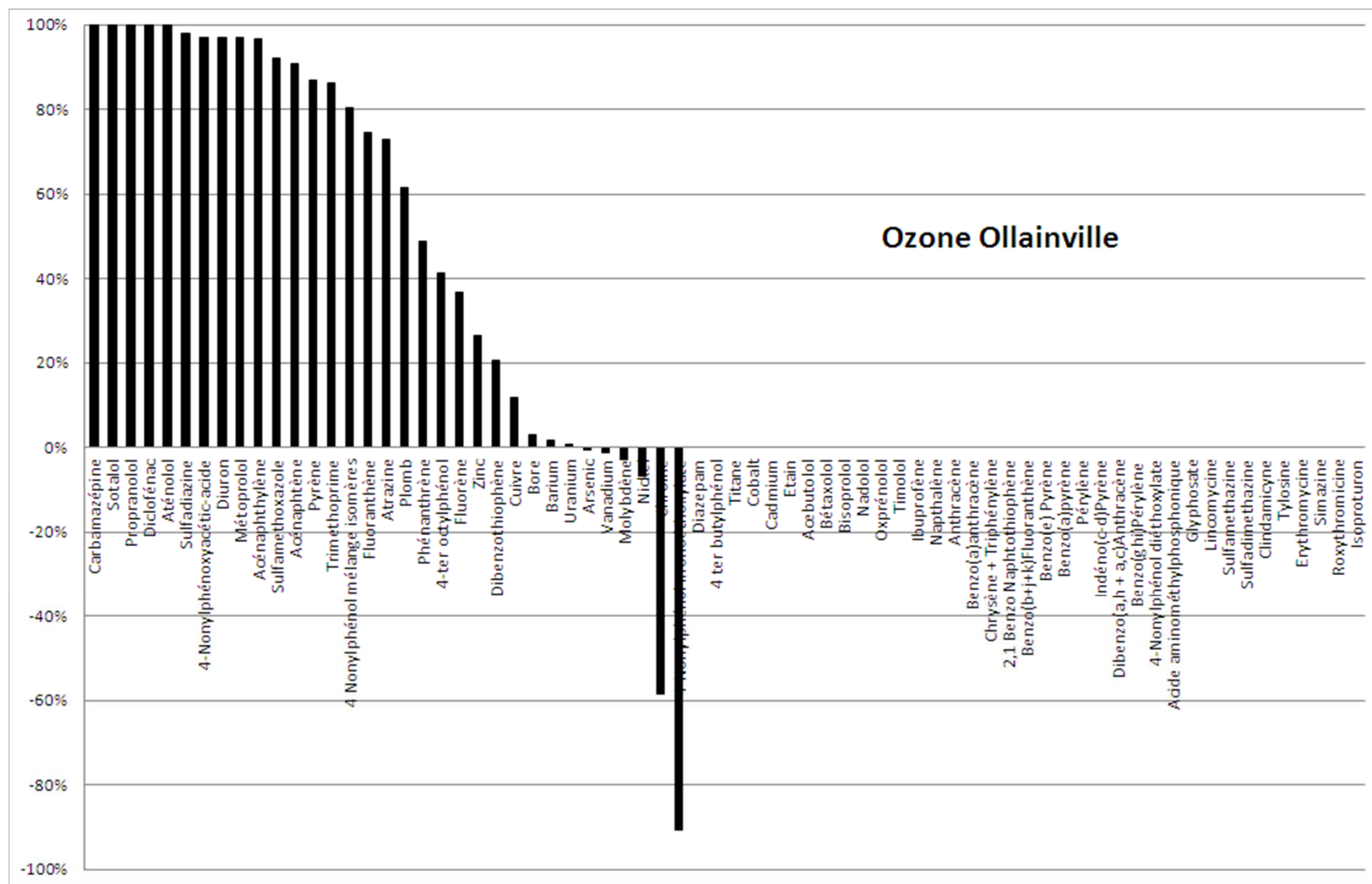
Quality of the inlet water



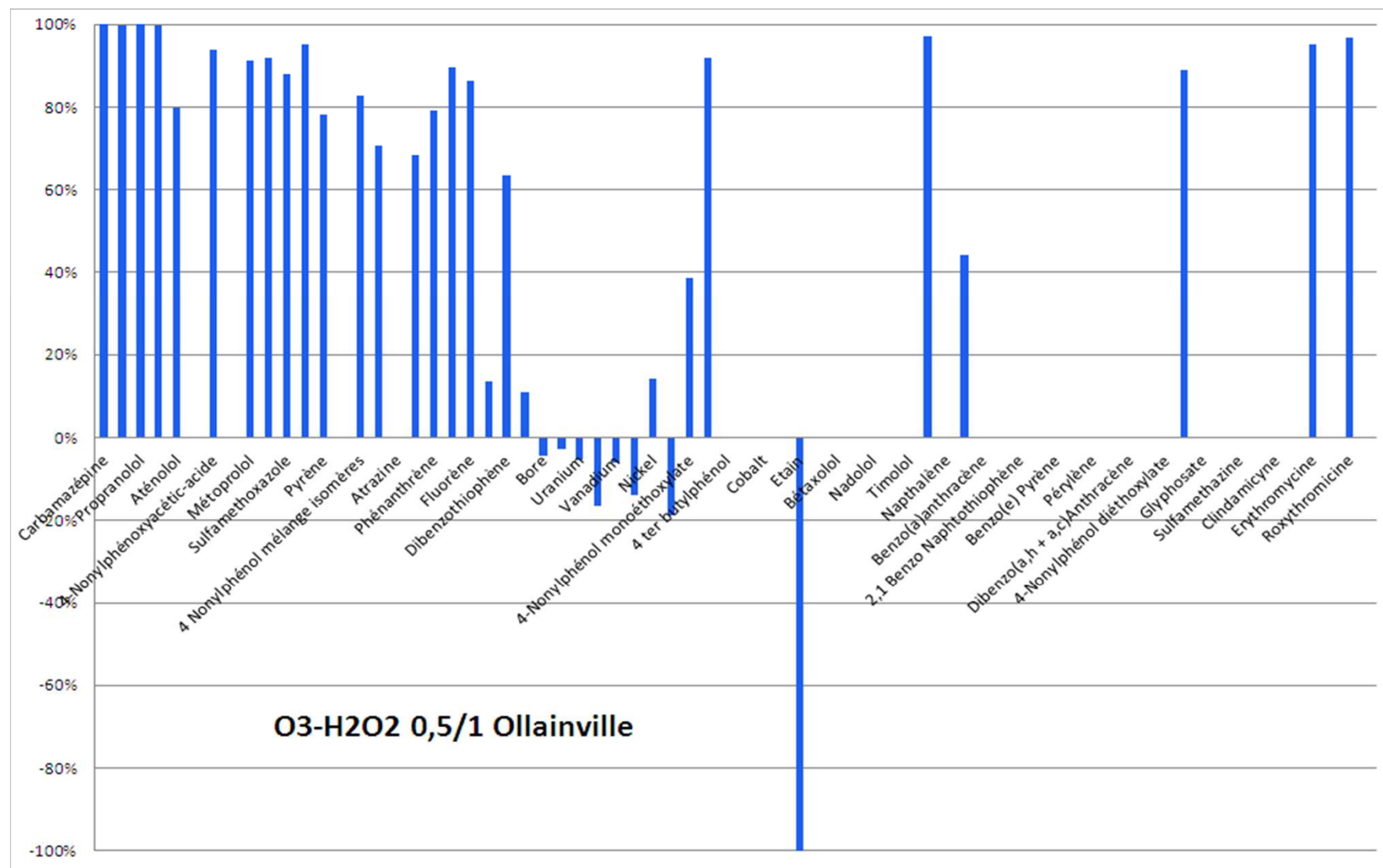
Quality of the inlet water



Profil résultats POA



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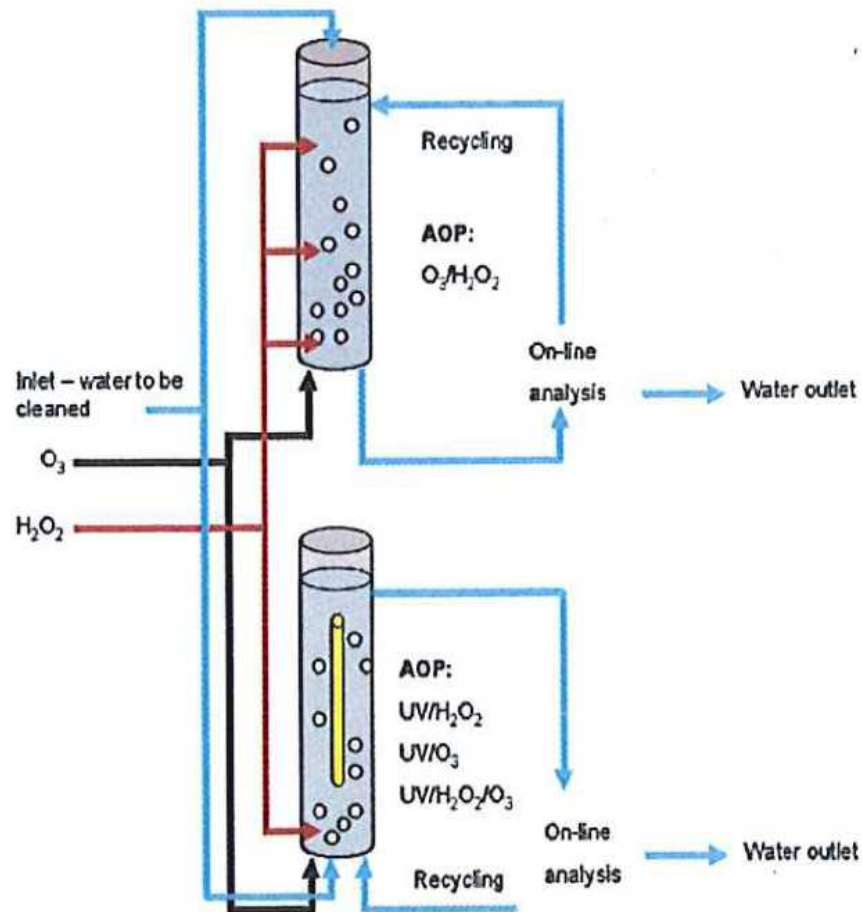


Conclusions

- ▶ Activated carbon lifespan evaluated : still efficient () after 6 months functioning 24/24 h (adsorption & biological activity) quelles molec
- ▶ Advanced oxidation processes optimise removal of most of the pesticides and antibiotics sauf certains (Ozone alone >98% for betablockers removal) ou ozone suffisante et gly et AMPA
- ▶ Environmental impact, cost, toxicity & by-products are currently being studied
- ▶ For smaller plants, extensive treatments, currently being evaluated, could be an interesting option

Advanced oxidation processes (AOP) pilot

Two parallel treatment lines : $O_3/H_2O_2/UV$



Elements integrated in a conventional ship container

Granular activated carbon pilot

- ▶ Material : Filtrasorb-400
- ▶ Filtration speed : 5 m/h
- ▶ Water flow : 60 L/h controlled with a floating tap
- ▶ Retro-cleaning with air & water : 1/week
- ▶ Pilot after sand filter + ozone full scale & directly after sand filter
- ▶ Pilot operating 24/24 h during 6 months
- ▶ Sampling : Day 2, Week 3, Month 3 & Month 6



Operating conditions AOP pilot

Condition	Description	Ozone dose (gO ₃ /m ³)	H ₂ O ₂ dose (mg/L)	UV dose (mJ/cm ²)	Contact time (min)
I	Ozone alone	5	0	0	2,71
II.1	Ozone peroxide 0,5/1	5	1,8	0	2,71
II.2	Ozone peroxide 1/1	5	3,5	0	2,71
II.3	Ozone peroxide 1,5/1	5	5,3	0	2,71
III.1	Ozone UV 1	5	0	398	5
III.2	Ozone UV 2	5	0	795	10
IV.1	UV peroxide 1	0	5	795	10
IV.2	UV peroxide 2	0	10	795	10

Ozone, peroxide and UV doses selected according to bibliographical review