



UMR 8187 LOG - Wimereux

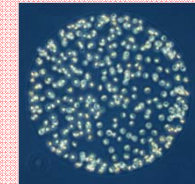


- Phytoplankton diversity & dynamics in marine, coastal, estuarine and freshwater systems
- Semi-automated detection and high resolution monitoring
- Phytoplankton physiology
- Phenology and determinism of phytoplankton blooms
- Effects of phytoplankton blooms on farmed fish

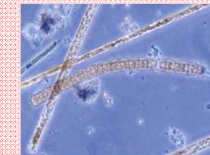
Model species/groups



Pseudo-nitzschia spp.



Phaeocystis globosa



Diatoms



Dinoflagellates



Mytilus edulis



Dicentrarchus labrax

Involved scientists (GdR)

Pr. Rachid Amara – Trophic relations & fish ecology

Dr. Luis Felipe Artigas – Phytoplankton dynamics and semi-automated detection

Dr. Elsa Breton – Phytoplankton diversity & dynamics

Dr. Lucie Courcot – SEM identification

Dr. Fabrice Lizon – Phytoplankton dynamics & physiology

Dr. Dorothee Vincent – Trophic relations & harmful effects

PhD Students : Nour Ali - Simon Bonato – Alice Delegrange

Other LOG scientists involved in phytoplankton studies

Pr. Urania Christaki – Microbial ecology and diversity

Pr. Sébastien Lefebvre – Phytoplankton dynamics & physiology

Sébastien Monchy – Microbial diversity & bio-informatics

PhD Students : Fabien Dufossé, Clément Georges





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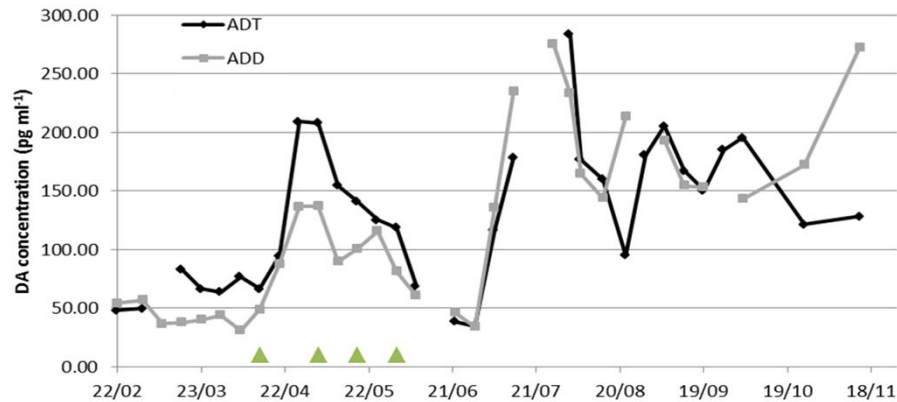
Listes des projets en cours

- DYMAPHY project (INTERREG IV A « 2 Seas Mers Zeeën » - 2010 - 2014) – Towards the development of a Dynamic observation system for the assessment of MARine water quality, based on PHYtoplankton analysis at high resolution, by combining multiple techniques – cross border collaboration (France-England & Netherlands) between LOG (CNRS-ULCO-UL1) – LISIC (ULCO) – IFREMER LER/BL – CEFAS – RWS) – [see poster Artigas et al.](#) – [see slides of IFREMER LER/BL](#)
- Collaboration between LOG & AquaNord S.A. fish farm (2012-2014)
 - Hydrobiological survey in a fish farm and domoic acid detection - *Pseudo-nitzschia* sp. and *Phaeocystis globosa* effects on juvenile sea bass health and growth – [see poster Delegrange et al.-1](#)
 - Exposure experiment - Limitation of the harmful effect of a phytoplankton bloom on farmed sea bass: mesocosm experiment – [see poster Delegrange et al.-2](#)
- Projet FRB – Région Nord Pas de Calais ICCARE : Impact des changements climatiques et anthropiques sur les communautés de protistes et leur productivité dans les écosystèmes côtiers » (2011-2013)
- Projet FRB – Région Nord Pas de Calais DEMO : La Diversité sous-explorée d'un système côtier bien étudié – la Manche orientale – Approche MétaGénomique (2013-2015)
- Travaux DCSMM (MSFD) – Bon État Écologique et Programme de Surveillance (Descripteur 1, 2 et 4 – Biodiversité, Espèces Invasives et Réseaux Trophiques)
- Travaux OSPAR – Groupes Biodiversité et Réseaux Trophiques (ICG-COBAM)
- Projet Phyto-IMAGE (U. Mons-LISIC-LOG-IFREMER - 2013-2015)
- Collaboration LOG – IFREMER de recherche Indicateurs Phytoplanktoniques (2013-2015)
- Projet CPER 2015-2017 MARCO - Recherches marines et littorales en Côte d'Opale : des milieux aux ressources, aux usages et à la qualité des produits aquatiques

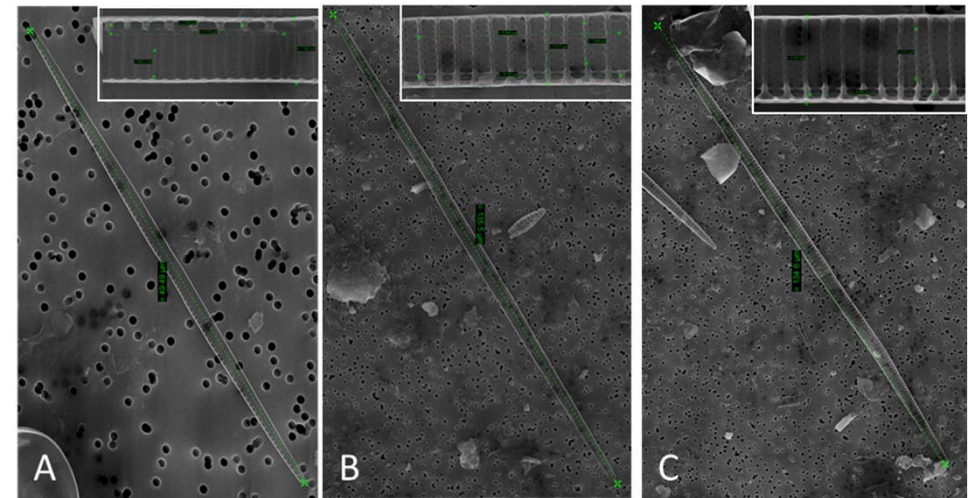
Domoic acid detection and producing species in the Southern North Sea (Dunkirk)

- *Pseudo-nitzschia* identification: SEM
- Domoic acid measurements : ELISA method

First record of *in-situ* DA production in the Southern North Sea (France)



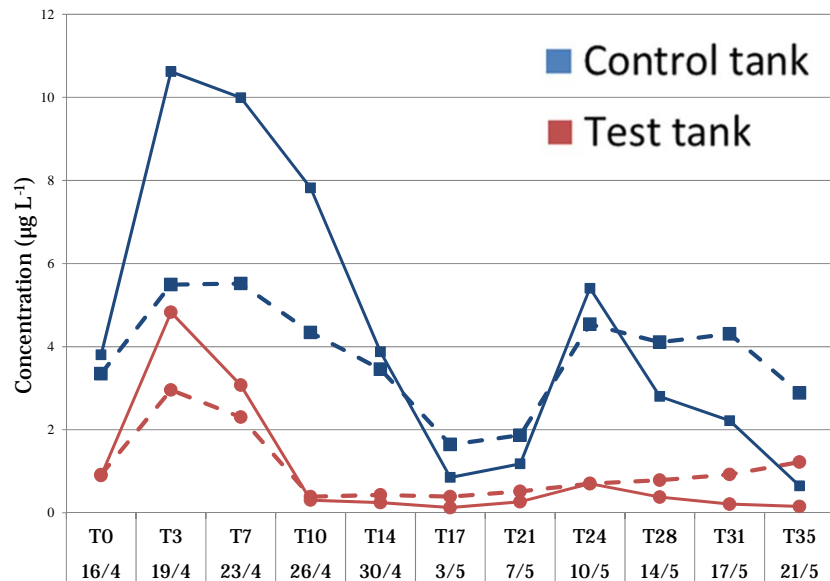
Total (black) and dissolved (grey) domoic acid concentration (pg mL⁻¹). Green triangles stands for SEM identified samples.



SEM pictures (© L. Courcot) of the 3 *Pseudo-nitzschia* species observed over the 2012 *in situ* survey . A. *P. delicatissima*, B. *P. pungens*, C. *P. fraudulenta*

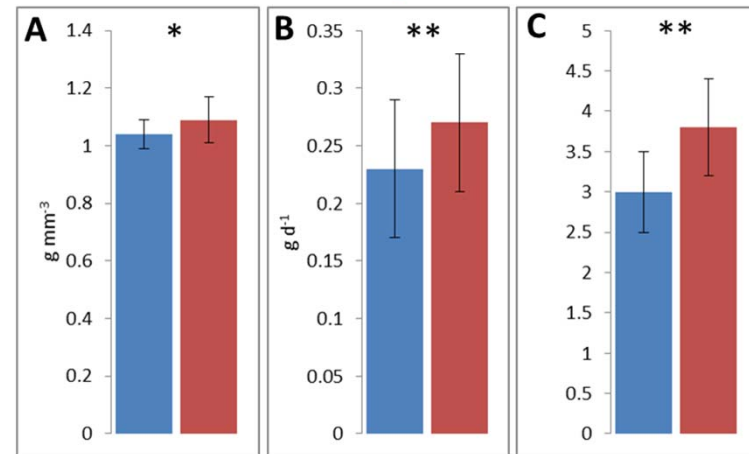
Mesocosm experiment (phytoplankton spring bloom and wane in 2013)
Mussels used as biofilters to dampen phytoplankton bloom impact on juvenile sea bass

Chlorophyll a and phaeopigments



Chlorophyll a (solid lines) and phaeopigment (dashed lines) concentrations ($\mu\text{g L}^{-1}$)

Juvenile sea bass growth and condition improvement



Sea bass Fulton condition index (A), integrated weight based growth rate (B) and RNA/DNA ratio (C) after 35 days experiment in control (blue) and in test tanks (red). **: highly significant difference ($p < 0.01$). *: significant difference ($p < 0.05$).