

Appel à communications
3^{ème} Colloque des Zones Ateliers
Les sciences à la rencontre de l'aménagement des territoires

14 – 16 octobre 2015
Campus Gérard-Mégie - 3 rue Michel-Ange
Paris

**Environmental Health Assessment of the Seine Estuary Using
Multiple Levels of Biological Organization**

Andrew Barrick, Amélie Châtel, Hanane Perrein-Ettajani, Mohammed Mouloud,
Patrick Gillet, Mélanie Bruneau, Isabelle Métais, Catherine Mouneyrac

Zone atelier : Seine – MMS EA 2160 Université Catholique de l'Ouest, 3, Place André Leroy,
49000 Angers (catherine.mouneyrac@uco.fr)

Session dans laquelle s'inscrit votre proposition de communication*

- Biodiversité et services écosystémiques
- Risques environnementaux
- Quand les scientifiques rencontrent les gestionnaires
- Communication ma thèse en 5 minutes
- Communication par affiche

***Merci de Cocher la case dans laquelle s'intègre votre proposition de communication**

RÉSUMÉ

It is estimated that the global economic scale of environmental damage due to anthropogenic activities in coastal zones and estuaries is approximately \$12.6 trillion per year. The Seine estuary is of particular concern as it is influenced by twenty-five percent of France's population and forty percent of the countries' industrial and agricultural runoff. The objective of project ECOTONES led by GIP Seine-Aval is to utilize a multi-disciplinary approach to assess the health status of two key invertebrates of estuary functioning: the bivalve *Scrobicularia plana* and the annelid *Hediste diversicolor*. The approach is based on endpoints at multiple levels of biological organization (population, individual, cellular and genetic) so as to estimate the overall health of these two species in the Seine estuary. For each biomarker studied (AChE, catalase, GST, LDH, SOD, TBARS, energy reserves) historical data obtained from samples collected in reference sites (Authie and Bourgneuf), served to determine i) the background assessment criteria (BAC), which indicates naturally occurring fluctuations of the biomarker and ii) the environmental assessment criteria (EAC), which is the cut off point for values where severe impact to the species are expected. The results of the collection

suggest that *Scrobicularia plana* has developed strategies to cope with the environmental stressors present in the Seine while *Nereis diversicolor* is severely impacted.

MOTS CLES

Background Assessment Criteria, Biomarkers, Environmental Assessment Criteria, *Nereis diversicolor*, *Scrobicularia plana*.