



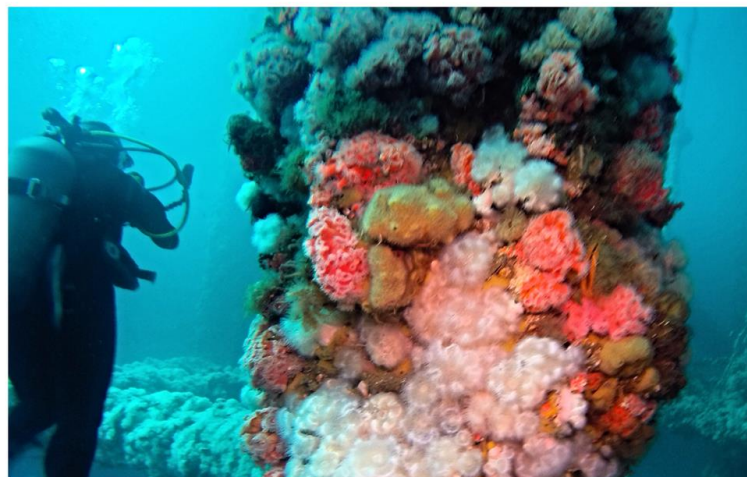
## Workshop

# “Effect of Marine Growth on Offshore Structures: challenges from design to maintenance”

June 15<sup>th</sup> 2015, Université de Nantes

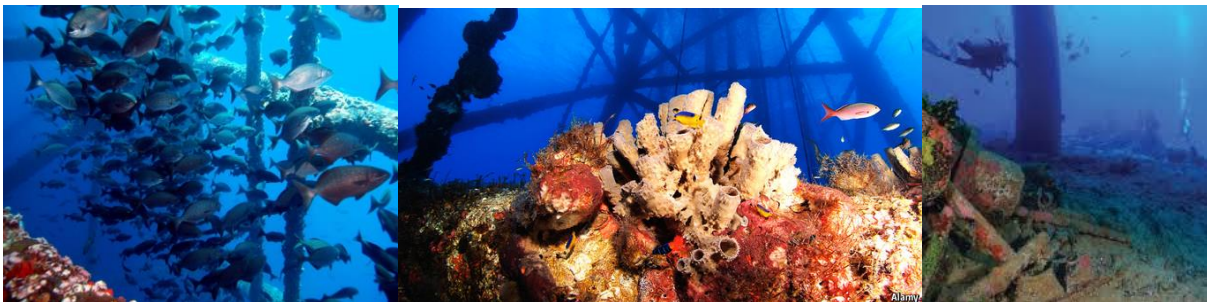
*Amphithéâtre Louis Pasteur, UFR Sciences et Techniques*

organized by  **IXEAD** a society of Université de Nantes



Actual challenges for design and requalification of offshore structures through optimization and reassessment process draws attention to the importance of updating information about the structural safety. One of the most important phases during the design or re-assessment level is (re)evaluation of environmental loads and resistance modeling concerning the state of bio-colonization, structural damage, and corrosion. The random nature of biofouling and the uncertainty inherent to biological processes make modeling of environmental loading complicated. Biofouling is a complex phenomenon involving a diversity of marine species which constitute communities whose growth dynamic is driven by physical and biological processes. It has many negative impacts on offshore structures such as loading excess, structures occlusion, increase in drag coefficient, and corrosion. Therefore, it represents a challenge for engineers with respect to design and maintenance programs. Several standardized methods of inspections and *in-situ* measurements of the marine growth have been developed to obtain relevant information about species composition, percentage of cover, weight, average thickness and surface roughness allowing for the determination of structural design as well as establishment of cleaning and maintenance strategies. Bio-colonization processes show spatial and temporal variations related to several environmental factors (water temperature, hydrodynamics, turbidity, distance from the shore, bottom characteristics, etc.) acting at regional and local scales. However, the results are often more qualitative than quantitative and suffer of a lack of consistent modeling for structural engineers excepted when big data base are available. Cost-effective safety management of offshore structures involves allocating the optimal amount of resources to periodical inspections and maintenance activities in order to control risks (expected life of the structure).

This workshop presents existing results and knowledge for this field of research which is an interdisciplinary domain. Methodologies for measurement and modeling are reminded and the lectures will highlight the main issues and remaining challenges



European researchers and specialists will address key questions:

**14h30-14h50** Introduction: *Why a workshop on marine growth effects on offshore structures: brief review of effects and stakes*, By Franck SCHOEFS, Université de Nantes, IUML, WEAMEC

**14h50-15h20** (including questions): *Marine growth on fixed offshore structures: feedback, practice and challenges*, by Ove Tobias GUDMESTAD, University of Stavanger, Norway.

**15h20-15h50** *Marine growth considerations related to marine risers and possibly aquaculture fish farms*, by Bernt Johan LEIRA, Norwegian University of Science and Technology Trondheim, Norway.

**15h50-16h20** *Life in the Fast Lane: Biofouling of floating artificial structures in high tidal flow environments*, Elisabeth COOK, Scottish Association for Marine Science, Scotland.

**16h20-16h50** *From MG modeling to structural reliability assessment: a probabilistic approach*, Laurent BARILLE, Université de Nantes, IUML, WEAMEC, France, Hamed AMERYOUN, STX France Solutions, France.

**16h50-17h20** *Specific practical and scientific challenges in warm seas: the case of Gulf of Guinea*, Franck SCHOEFS, Université de Nantes, IUML, WEAMEC, France.

**17h20-17h45** Conclusions by the lecturers and Christian BERHAULT, Ecole Centrale de Nantes, IUML, WEAMEC, France.

Registration is mandatory before June 11<sup>th</sup>: <http://marinegrowth15.sciencesconf.org/>



*Organized by*

