



Preliminary results about the colonization of sunken woods in shallow water in the Caribbean area: Influence of the environment

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In the framework of the GDRE DiWood (Diversity, Establishment, and Function of Organisms Associated with Marine Wood Falls), we began to investigate wood fall organisms in the Caribbean area in order to compare these results with those obtained in the West Pacific (BOA cruises), in the Mediterranean (Bionil and Medeco cruises) and the Arctic Sea (Hausgarten cruise).

The reason for such comparative studies is the lack of information about the diversity, biogeography, dispersal, and biology of chemosynthetic organisms (free-living microbes as well as microbe-invertebrate symbioses) that inhabit strongly fragmented island-type habitats in the world's oceans. The work proposed here will focus on the question of the biodiversity, establishment, and function of organisms associated with marine wood falls, in the Caribbean area. This program relies on conducting both field studies on natural systems and experiments in various environments, particularly around Guadeloupe (16°N 61.5W) West Indies where some densities of wood falls could occur.

Our experimental strategy is based on the deployment of wood parcels experimentally immersed, first, in a shallow water environment (1.5m depth in mangrove swamp). First results obtained using SEM and FISH observations are presented here showing that some of the organisms colonizing such woods possessed bacterial symbionts

as observed either in protozoans (*Vorticella*, *Zoothamnium*) and Bryozoans in which bacterial symbionts are extracellular and in one Nematode species in which bacteria are intracellularly located. In a second stage of our experimental strategy, we propose the deployment of wood parcels experimentally immersed between 600m and 2000m via anchors of Fish Aggregating Devices (FADs). Such fishing tools will permit us to localize and recover easily and cheaply the woods every 4-6 months.

In addition, a collaborative project under the frame of the DiWood GDRE aims at monitoring sulphide in situ at the woods interface during its decomposition. Preliminary short-term in situ measurements in shallow waters will be complemented by medium term deployment of miniaturized sensors newly designed for marine sulfidic environments. Thus, we will be able to investigate the colonization process by symbiotic organisms in relation to the environmental changes induced by wood decomposition and colonization.