

Does the marine macrobenthos community recover after an oil spill? 10 years since the Nissos Amorgos disaster in Venezuelan Gulf, Caribbean Sea

Severeyn H, García de Severeyn Y, Nava M and Morales F
University of Zulia, Venezuela

In 1997, 25,000 barrels of petroleum were spilled along 40 Km of marine coasts in Venezuelan Gulf, where we carried out, two years before, benthonic macro invertebrates (BMI) inventories. In order to monitor the ecosystem "recovery", we repeated inventories five (2003) and 10 years (2011) later. Before the spill, the BMI community was constituted by 75 species: 30 gastropod mollusks (GM), 28 bivalve mollusks (BM), 11 annelids (A) and 6 crustaceans (C). After five years this conformation became 27GM, 26BM, 5A and 3C. Although diversity only decreased 16% (12 species), the composition changed: out of the 75 MIB before the spill, only reappeared 31% (10BM, 9GM, 3A and 1C). This meant a reduction of 69% of the originally present species (OPS). After 10 years, the diversity increased 1.76 times (122 species: 48BM, 36GM, 19C and 17A, plus 2 new Echinoderm species. Out of these 122 species only 36 were OPS (16BM, 15GM, 4C and 1A). Therefore, 52% of the OPS remain without returning. Our results contradict the classic theory of marine ecosystem recovery affected by oil spills, ie. *To return to its "original condition" are required 2-3 years*. Indeed, this investigation indicates that recovery of Caño Sagua BMI community will take at least one more decade. But, will the BMI return to their original condition? The probability is extremely low. The most likely scenario will be, at a time difficult to estimate, a new assemblage of BMI species in equilibrium, with a mixture of OPS and new ones. This means that, in terms of the original ecosystem condition, BMI will never recover since its trophic structure never will be the same.

Biography

Hector Severeyn was the first biologist of Universidad del Zulia (1983), completed a Master in Science (1990) and a Doctoral degree (1993) at The University of Maryland, College Park, USA., and postdoctoral positions at Texas A&M University, College Station, USA (1998) and Florida Institute of Technology, USA (2010-2011). At present is a Emeritus Professor of University of Zulia and member of the Editorial Board of the scientific journal CIENCIA. He has published more than 40 scientific papers and attended to more than 100 congress, conferences and meetings around the world.

hectorsevereyn@yahoo.com