P3DM

Marine Participatory 3D Modeling

Marine Participatory 3-Dimensional Modeling (P3DM) is a community-based and stakeholder-led process, which integrates local spatial knowledge with bathymetry data to produce a physical 3D model of the seafloor assembled by mapping participants. A P3DM approach is recognized as socially engaging and a user-friendly tool that has been successfully used around the world to tackle a diversity of socio-environmental issues. In marine spatial planning, P3DM is being recognized as a tool that enables a collaborative process of generating spatial data with geographic accuracy while enabling a rich dialogue about the use of the marine environment. Therefore, it can be effective for stakeholder-led marine spatial planning.

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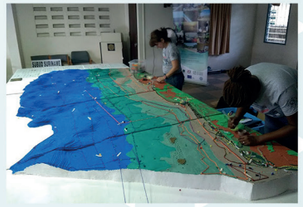
PARTICIPATORY
3-DIMENSIONAL MODELING OF THE COASTAL AND MARINE AREA OF
SURINAME

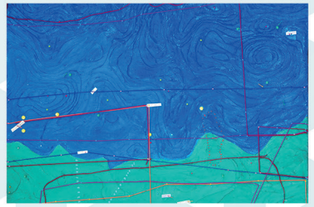
Marine Spatial Planning

Promoting integrated and participatory ocean governance in Suriname

The coastal and marine ecosystems of Suriname harbor a rich diversity of marine species of regional and global importance, support important fisheries and provide various ecosystem services. However, these environments are under threat due to increasing and more unsustainable use of natural resources. It is also unclear how, when and where conflicts among resource users exist. The EU-financed project: *"Promoting Integrated and Participatory Ocean Governance in Guyana and Suriname: the Eastern Gate to the Caribbean"* (2017-2020), aims to enhance the governance and protection of marine and coastal resources of Guyana and Suriname, through collaborative processes with all ocean stakeholders. This project is executed by WWF, the Nature Conservation Division of the Ministry of Spatial Planning, Land and Forest Management and Green Heritage Fund Suriname. While developing a participatory 3D-model of the coastal and marine area of Suriname, data gaps have been filled and an equal, open and a collaborative marine spatial planning process has been initiated.

P3DM IN SURINAME





The 3D model (dimensions 5 m x 2.3 m, scale 1:100,000) integrates topographic and bathymetric data representing the entire coastline of Suriname from 20 km inland to approximately 150 km offshore, with water depths ranging from 0 to 200 meters below sea level. The information plotted on the physical P3DM model was extracted by means of digital photography. The photos were processed into GIS layers and were subsequently validated with the stakeholders. This resulted in the present carefully examined map containing about 53 layers of information, falling into broader categories of natural features, fisheries, wildlife encounters, zones with environmental or social concern as well as coastal uses and infrastructure.

STAKEHOLDERS

The 3D model of the coastal and marine area was made possible through the participation and involvement of over a hundred individuals representing various stakeholder groups. Most of the mapping participants were fishermen from the coastal communities of Nieuw Nickerie, Totness, Boskamp, Nieuw Amsterdam and Galibi. Other stakeholders that contributed to the P3DM included industrial fishers (trawlers, longliners), farmers, NGO's, tour operators, etc. Local youth prepared the blank model. In this way, they learned about geography and important environmental features of the coastal zone of their country.

THE P3DM PROCESS

DEVELOPMENT OF THE LEGEND

The stakeholders agree on what information they consider relevant to map and what information they want to share.

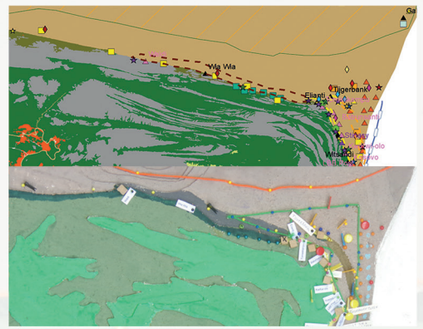
CONSTRUCTION BLANK MODEL

The blank relief model is prepared by local youth, who learn about geography and important environmental features of the coastal zone of the country.

MAPPING

The stakeholders' knowledge is mapped on the model in a structured way.

DIGITAL PROCESSING



Digital pictures are taken of the model. The pictures enter a GIS system and are georeferenced, digitized and the final map is produced.