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ABSTRACT

NUMERICAL MODELING AS AN ENVIRONMENTAL TOOL

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The combination of the drive towards cost-effectiveness in the oil and gas industries and the increase in economic growth and physical development within the Caribbean islands has profound and complex implications for the environment. Much of the oil and gas and physical development activities occur in coastal areas within the Caribbean, which are rich in natural resources. These areas include coastal waters and marine plants and animals that are likely to undergo significant stress due to these activities. Sustainable environmental management can contribute in mitigating adverse effects. Numerical Modeling is a powerful tool that can assist in assessing impacts on the quality of the coastal environment. It can simulate relevant physical processes without the expense of field deployments. Model results can be verified by straightforward field measurements. Applying Numerical Modeling for predicting impacts on the quality of the coastal environment within the Caribbean should become common practice in the

oil and gas industry, and in environmental management groups, other energy sectors, environmental government agencies and other relevant stakeholders. Rapid advances are occurring in computer technology and in numerical modeling techniques, giving greater accuracy and a wider range of applications. Utilization of numerical models as a tool for the assessment of environmental impacts should be promoted throughout the Caribbean.