

DEVELOPING CONTINGENCY PLANNING TOOLS TO ADDRESS WETLAND LOSS, AGEING INFRASTRUCTURE, AND OIL SPILL RISK IN LOUISIANA

Charlie Henry and Robert Pavia,
NOAA Office of Response and Restoration/Hazardous Materials Response Division
7600 Sand Point Way NE, Seattle, Washington 98115

Scott A. Zengel, Zachary Nixon, and Chris Locke
Research Planning, Inc.
1121 Park Street, Columbia, South Carolina 29201

Karolien Debusschere
Office of the Governor
Louisiana Oil Spill Coordinator's Office
150 Third Street 4th Floor, Baton Rouge, Louisiana

ABSTRACT: *The National Oceanic and Atmospheric Administration (NOAA) is working in partnership with the State of Louisiana to focus on the oil pollution threat resulting from coastal land loss. With land loss, oil production and transportation infrastructure in coastal Louisiana is at increasing risk of damage from natural hazards and human activities. In response, a demonstration project was developed for contingency planning that assesses these concerns. The project identifies structures at risk, ranks them according to weighted considerations, and provides a trajectory analysis for released oil should an incident occur.*

Introduction

NOAA's Office of Response and Restoration is working in partnership with the State of Louisiana's Department of Natural Resources (LDNR) and the Office of the Governor's Oil Spill Coordinator's Office (LOSCO) to focus on the oil pollution threat resulting from coastal land loss. The identified threat comes from erosion and subsidence of coastal environments putting above ground facilities and buried or once-buried pipelines at risk. Oil spills can result from the catastrophic impacts of storm events, long-term subsidence, and coastal erosion. The risks include economic and natural resource loss from spills and chronic releases from abandoned oil facilities.

Louisiana loses 25 square miles of coastal land each year. These coastal marshes are home to abundant natural resources and support valuable recreational and commercial fisheries and tourism industries. This land loss has also been identified as a direct threat to over 30,000 oil wells and associated oil infrastructure located in the Louisiana coastal zone. Physical hazards to these facilities come from erosion and subsidence, putting aboveground facilities and buried or once-buried pipelines at risk for physical damage. The consequences of such hazards include economic and natural resource loss from petroleum spills and chronic releases, as well as damage to the facilities themselves.

The goal of this contingency planning effort was to help planners and managers develop strategies for reducing the economic and natural resource impacts from these risks by identifying hazards and vulnerability associated with oil production and transportation infrastructure, map zones of oil

spill risk from threatened infrastructure, and develop a risk assessment framework for identifying and mitigating infrastructure at the highest risk. Incorporated into the strategy was a characterization of habitat sensitivity such as that used in the NOAA Environmental Sensitivity Indexes. With this combination of hazard and vulnerability information, it will be possible to develop maps of infrastructure risk as the first step to developing mitigation strategies and techniques.

Demonstration project

A demonstration project is currently in development and will be used to test and refine the study concept. The demonstration project extends from the Bayou Lafourche Corridor in the east across Terrebonne Bay to the westernmost extent of the Isles Derniers, and from the Gulf of Mexico north to the northernmost extent of large coastal lakes and bays. Figure 1 shows the location of the demonstration (or pilot) project. The project has been divided into five separate tasks. In general, risk can be thought of as a function of both hazards and consequences. The first three tasks focus on the development of an overall oil spill hazard index for all types of facilities, or separate hazard indexes for separate classes of facilities. The fourth task integrates the hazard index with spatial data representing ecological importance to derive information about the consequences of oil spills to specific areas and total risk. The fifth task will be the development of an oil spill trajectory analysis planning tool for the analysis of oil spill threats.

Final comments

The demonstration (or pilot) study had not been completed on the date that papers were required to be submitted for inclusion at the present conference. The project completion date is projected for the end of December 2002. The authors have submitted this prospective for publication in the conference proceedings with the goal of presenting the latest contingency planning science and technology at the 2003 International Oil Spill Conference. The presentation at the conference will show the results of the demonstration study.

Acknowledgements

The authors would like to express specific recognition to those who conceived of this project and have provided the coordination and funding to create a demonstration study: David Kennedy, Chief of the NOAA Office of Response and Restoration; Jack Caldwell, Secretary of LDNR; and Katherine Vaughan, Deputy Secretary of LDNR.

Biography

Charlie Henry is the NOAA Scientific Support Coordinator (SSC) for Texas, Louisiana, Mississippi, Alabama, and the Florida panhandle. Henry has a Master of Science degree in Marine Science from Louisiana State University and 17 years experience related to oil and chemical spill response.

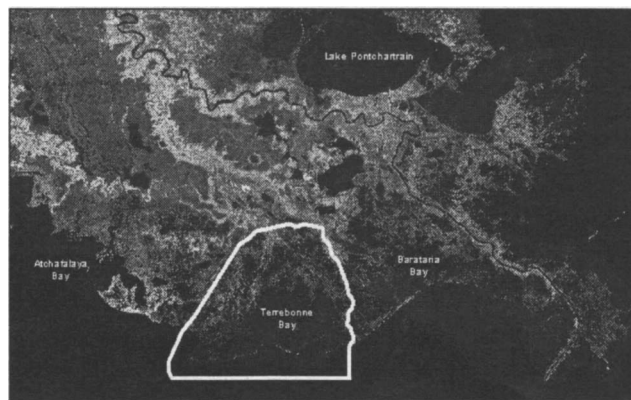


Figure 1. Proposed pilot study area.