Abstract

This paper describes environmental effects monitoring (EEM) plans for marine oil spills on Canada’s Atlantic Coast and a decision-making system for implementing them. Marine spills can be very large, involving many tens or even hundreds of thousands of barrels of oil, but the overwhelming majority of reportable spills are small, involving a few gallons to a few barrels each. The associated environmental risks and damages vary accordingly. EEM operations for large marine spills can be extremely costly, not only in financial terms, but in terms of manpower and logistic resources as well. For these reasons, when implementing EEM plans, it is important to match the monitoring strategy and level of effort to the spill size and level of environmental damage being caused. This paper describes a three-tiered system for implementing spill-EEM, in which the level of monitoring is linked to the type and size of spill; the spatial extent of the zone of contamination; and the type and magnitude of environmental damage.

EEM plans for offshore oil exploration and production (E&P) operations on Canada’s East Coast consider risks and impacts on a range of receptors including humans, wildlife, commercial fisheries and critical habitat. This paper illustrates the EEM implementation system (EEMIS) using plans for two very different types of receptors, namely: a) locally-nesting marine birds (including endangered species and protected stocks); and b) commercial fisheries (addresses the issues of closing and reopening of commercial fisheries during spills). Monitoring objectives, strategies, activities, parameters and outputs are described briefly for both receptor types. However, the discussion focuses on the EEMIS, monitoring efforts conducted at each monitoring tier; and criteria and standards for escalating from one monitoring tier to the next.

The method described here has been developed to address the industrial and environmental conditions of Eastern Canada. The differences in decision-making between production-related and tanker spills are discussed, as are the unique challenges of dealing with spills of both condensates and viscous oils. The linkages between EEM for routine E&P and for spills are also discussed.