The importance of oil spill response planning

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Abstract: This article considers the ecological and economic substantiation of oil response planning in the marine environment by the example of oil accidents in the World Ocean.

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Oil spills are the problem the world has to deal with since oil industry developed. Companies used to prepare only for possible oil spills (activities on spill prevention and training of spill response). This attitude was changed by the accident on the oil tanker Exxon Valdez that took place 27 years ago. Is it worth preparing to an accident of an extremely huge scale if the possibility of its occurrence is as trifling as 0.1% to 99.9%? It is, the history showed us. We can explicitly see the consequences of the Exxon Valdez accident which we are going to examine in this article.

The accident on the oil tanker Exxon Valdez happened in Prince William Sound in 1989. The tanker ran aground a reef that made a hole in the tanker and as a result 40900 tons of oil was spilled. The oil response was started only 30 hours after the accident happened. Such slow response led to the spreading of the oil over a large territory. The reason of the slow response was a complete unavailability of the crew to quick actions.

Before this accident, the area distinguished by its beauty and natural wealth, and environmental friendliness. It had the richest ecosystem in the north — a lot of fish, marine mammals and birds. The oil spill from the tanker Exxon Valdez became an economic disaster for the local people whose earnings were based on fishing. Commercial fishing as well as any commercial activity depending on water was shut down. Livelihood sources of 35000 people had been challenged.

This tragedy is one of the most devastating ecological disasters caused by a human. Over 1300 kilometers of the coast line was damaged, many lives were destroyed. The affected area beaches were covered with dead bodies of marine life: 500,000 birds, 3,000 sea nutria and many other marine animals — half of the Prince William Sound ecosystem.

Only 5% of the spilled oil was gathered. The beaches that were cleaned up by jets of hot water under the pressure became lifeless. And people who participated in the cleaning up lost their health (in 1989 11,000 people engaged in cleaning worked 8-12 hours a day, and each flow brought new portions of oil).

In March of 1994 law proceedings sentenced the Exxon Valdez to award $5 billion to fishing communities who suffered from the oil spill. After the accident the company changed the type of oil shipment and started using most reliable one: tankers were convoyed by large towboats to ensure the tankers stick their line, also these towboats are equipped with a better radar system. It all costs to Exxon $60 million per year. In 2008 the High Court changed $5 billion to $580 million and each fisherman received only $12 000 as a compensation.

The accident of the tanker entailed large-scale legislative activities: better oversight, application of the latest scientific developments, stricter penalties. In 1990 in response to the spill, the United States Congress passed the Oil Pollution Act which made oil companies the responsible parties in the event of a spill, and mandated that they have a detailed containment plan on hand, as well as cover all cleanup costs—up to $75 million in liabilities.

The population of sea otters and salmon is recovering very slowly. As for the killer whales, they are becoming extinct. Herring fishing is still closed.

Analyzing the consequences of this accident it is evident that any kind oil spill is one of the most challenging environmental problems for the solution since oil contains both heavy and volatile hydrocarbons (it was volatile hydrocarbons that caused irreparable harm to people engaged in cleaning up of the cost). Elimination is primarily associated with the localization of oil spills, to avoid further expanding of the area of contamination. The oil response is made with the use of special tools, such as oil gathering equipment, sorbent materials, and biological products. When accidents happen, as a rule, it is hardly possible to gather more than 10-15% of oil spilled into the sea.

Three statements became clear at this point of oil industry:
Firstly, prevention activity and preparations to timely spill response is cheaper than elimination of ecological and socio- economic consequences of an unexpected accident; secondly, an oil response to an oil spill of an unprecedented scale is not very efficient; thirdly, accidents happen despite the advanced technologies and the desire to operate trouble-free.

Different factors cause the accidents — technical, geological, weather and human factors. Sometimes there may be several factors. Often human factor is of high importance.

In today's world the problem of oil spills is gaining traction since oil companies are taking risks and exploring oil in oceans and seas. A timely oil response is of a great importance here which is why the companies must be prepared for large scale disasters and maintain the operational status of the equipment and the crew.

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