

Sea Empress Cost-Benefit Project

This project was commissioned by the Agency in order to develop monetary estimates of the economic impacts arising from the Sea Empress oil spill and subsequent clean-up operation, identifying cost-effective risk mitigation measures to prevent future spills. The overall approach took the form of social cost-benefit analysis, but for some affected sectors, such as recreation, human health and environmental non-use, a benefit transfer approach was adopted in valuing non-market goods, based on previous surveys of "willingness to pay" to avoid similar impacts.

When the vessel ran aground, 72,000 tonnes of oil were spilt and 200Km of coastline were oiled. The area affected included two National Nature Reserves and a Marine Nature Reserve and much of the affected coastline was within the Pembrokeshire Coast National Park. The summarised costs of the incident revealed a total financial cost somewhere in the range of £52 million to £109 million and economic costs in the range of £50 million to £98 million, including between £3.6 million and £16.5 million in non-use values.

Longer term effects on the offshore marine community appeared to be minimal, with effects immediately after the spill being limited mainly to anemones and shrimps off Dale Fort. However, in the following weeks, large numbers of affected marine animals, mainly sediment-dwellers, were washed up. Limpets appeared to be one of the most heavily affected shore-based species with mortality up to 90% in places. This resulted in a flush of green algae due to lack of grazing by these molluscs. Experience from other oil spills suggests that it may take 10 to 15 years for the balance of grazers and algae to be restored at some sites. It was estimated that the total number of oiled birds was 47,600, the worst affected species being the common scoter.

Statistically it was estimated that another major oil spill involving tens of thousands of tonnes will occur in UK waters within the next 12 years, while at Milford Haven another disaster of this type would be expected within the next 50 years. Although the incident rates in UK and international waters were broadly comparable, the rate at Milford Haven was about twice the national average, accounting for nearly 25% of tanker incidents in UK waters. Given this level of risk, it was recommended that greater use is made of statistics gathered at both local and national levels to analyse the causes of incidents in order to provide a robust basis for developing risk reduction strategies. The development of such strategies should be given a high priority in view of the probability of another major disaster within 12 years.

Analysis of tanker incidents indicated that around 50% could be attributed to simple human error. If the likelihood of spills and associated costs are to be reduced, it would appear that improvements should first be directed towards reducing such error. Although more detailed work involving consultation with Milford Haven Harbour Authority and others would be required to develop an appropriately costed strategy, it is considered that significant improvements to traffic management, piloting standards and navigational aids could be achieved cost-effectively.

The Technical Report will be of interest to Agency staff and others likely to be involved in managing such incidents in the future.

This Technical Summary relates to information from project P2-100 contained in the following output:

Technical Report P119 Sea Empress cost-benefit analysis.

Internal status: Released to Regions
External status: Released to Public Domain

Copies of the report are available internally from Regional Information Centres and externally from Environment Agency Dissemination Centre, c/o WRc, Frankland Road, Swindon, Wiltshire, SN5 8YF (Tel: 01793 511711. Fax 01793 514562)

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