

Oil Spill Damages: Delaware Commercial Fisheries

Project Overview

The commercial fishing industry represents an important part of Delaware's marine economy. With annual revenues (as of 2018) of approximately \$12 million, Delaware's commercial fisheries extend from the southern tip of the Delmarva Peninsula to the southern coast of New Jersey, with most of the fishing activity occurring just south of the mouth of the Delaware Bay, as shown in Exhibit 1.

An oil spill occurring off the Mid-Atlantic coast has the potential to severely impact Delaware's fishing industry. In the aftermath of a spill, fisheries frequented by the industry may be temporarily closed, leading to significant reductions in landings revenue. Demand for seafood produced by Delaware's fishing industry may also decline following a spill due to safety concerns among consumers.

To better understand potential oil spill impacts for Delaware's fishing industry, DNREC examined the potential landings impacts of several hypothetical surface spills occurring off Delaware's coast, defined according to spill size, season of the year during which the spill occurs, and whether mitigation measures such as mechanical removal are implemented to minimize spill impacts.

Results for these five spill scenarios provide key insights into the findings of the analysis:

Scenario 1: 200,000-barrel spill in the summer, without mitigation measures

Scenario 2: 200,000-barrel spill in the summer, with mitigation measures

Scenario 3: 126-barrel spill in the summer, without mitigation measures

Scenario 4: 200,000-barrel spill in the winter, without mitigation measures

Scenario 5: 2,240-barrel spill in the summer, without mitigation measures

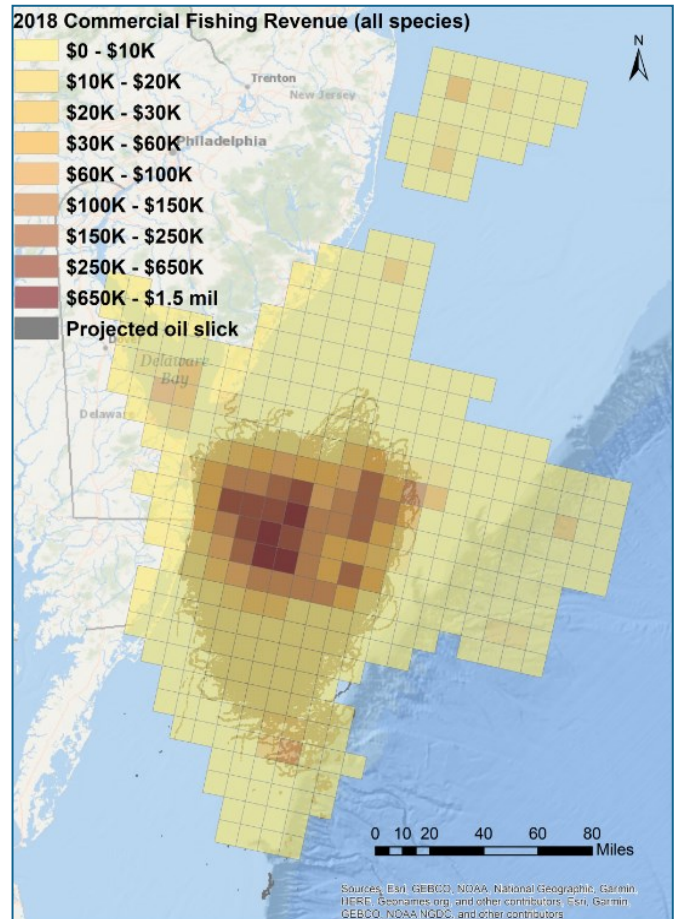


Exhibit 1. Illustration of Overlay Analysis

Approach for Assessing Oil Spill Impacts

To assess the commercial fisheries impacts of the spill scenarios identified above, the projected surface slick for each scenario was overlaid on gridded geospatial data depicting the distribution of commercial fishery landings. For example, in the spill scenario shown in Exhibit 1, the oil slick (represented by the gray shading covering approximately 4,500 square miles) overlaps the area of high commercial fishing activity due east of Delaware Bay and extends southward to waters off the coasts of Maryland and Virginia.

For areas where oiling is projected to occur, the analysis assumed the closure of the fishery in that area. Based on the fishery closures associated with past spills, the assumed duration of closure was expressed as a range and varied with the size of the spill, with larger spills resulting in longer closures. For example, the assumed duration of closure for a 200,000-barrel spill was assumed to be 3 to 12 months, while the closure related to a 126-barrel spill was assumed to be 1 to 3 weeks.

Estimated Damages to Delaware Commercial Fisheries

Exhibit 2 presents the estimates of lost commercial fishing landings revenue by spill scenario. For each scenario, revenue losses are presented as a range, consistent with the range of closure durations specified for each scenario. The results shown in the exhibit highlight that commercial fishery losses are significantly higher under the larger (200,000 barrel) spill scenarios than under the scenarios involving lower spill volumes, with losses under the 200,000-barrel, unmitigated summer spill ranging from \$3.4 million to \$11.3 million. For both the 2,240-barrel and 126-barrel unmitigated summer spills, losses to Delaware's commercial fisheries are significantly lower, varying between \$0.1 to \$0.5 million for the 2,240-barrel scenario and close to \$0 for the 126-barrel scenario. The higher damages under the 200,000-spill scenarios are due to a more widespread oil slick and longer fisheries closures under these scenarios.

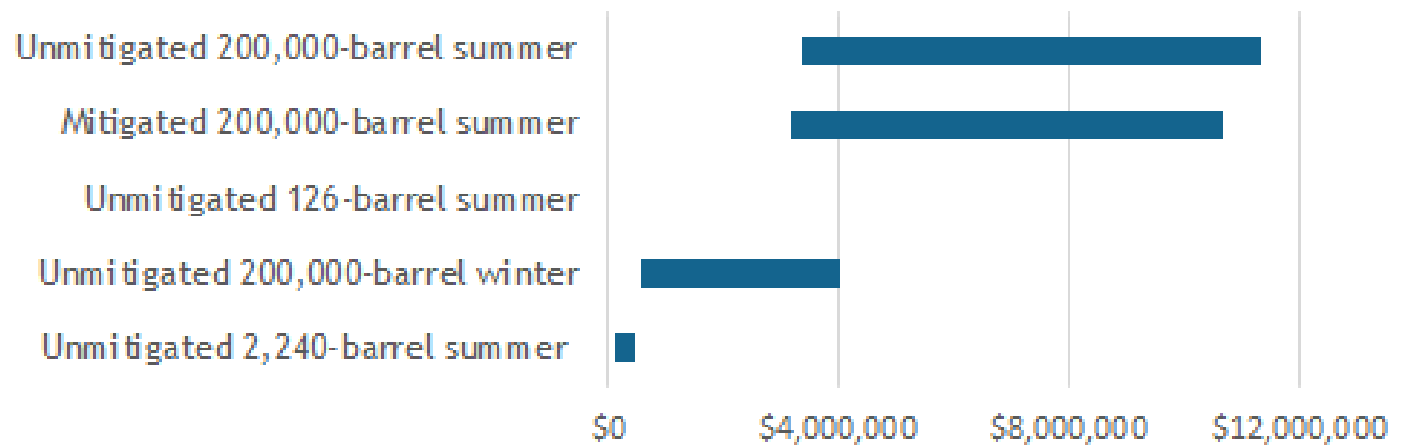
The damage estimates in Exhibit 2 also illustrate that lost commercial fishing revenues are likely to be higher for spills occurring during the summer than for spills in the winter. This reflects the timing of the open commercial fishing seasons for Delaware's more profitable fisheries (e.g., blue crab, which is open from the beginning of March through November).

In addition, based on the oil spill modeling conducted for the analysis, spilled oil from the 200,000-barrel unmitigated *summer* spill would travel directly into the fishing grounds frequented by Delaware's commercial fishing industry, whereas the spill modeling for the *winter* scenario projected spilled oil to travel away from these areas due to differences in wind and currents.

Based on the results in Exhibit 2, mitigation measures would not significantly reduce damages to Delaware's commercial fishing industry under the 200,000-barrel summer scenario. With mitigation measures implemented, the estimated losses to Delaware's commercial fishing industry are roughly 6 percent less than under the unmitigated scenario. Although these results suggest that mitigation would not significantly lessen impacts to Delaware's commercial fishing industry, this conclusion may not hold for other resources.

Additional details on DNREC's analysis of spill impacts to Delaware's commercial fisheries, including results for additional oil spill scenarios, are available in the [full oil spill risk assessment report](#).

Exhibit 2. Lost Commercial Fishing Revenue



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