Oil Spill Damages to Coastal Recreation in Delaware

Project Overview

Visitors to Delaware's coastline enjoy a variety of recreational activities including beach use, recreational fishing and recreational boating. Each year, beach visitors enjoy 4.8 million days at Delaware's beaches, recreational anglers spend over 940,000 days fishing along Delaware's coastline, and recreational boaters enjoy 11 million days in the state's coastal waters. The bulk of visitor traffic is focused on Atlantic resort towns such as Rehoboth Beach and Dewey Beach, though a number of quieter venues are also on Delaware Bay.

An oil spill occurring off the Mid-Atlantic coast has the potential to severely impact recreation along Delaware's coastline. In the aftermath of a spill, beaches and fishing sites may be temporarily closed, leading to significant reductions in visitation. Tourists may also amend future plans to travel to the state's coastline following a spill, even if closures and cleanup efforts are limited to a few weeks.

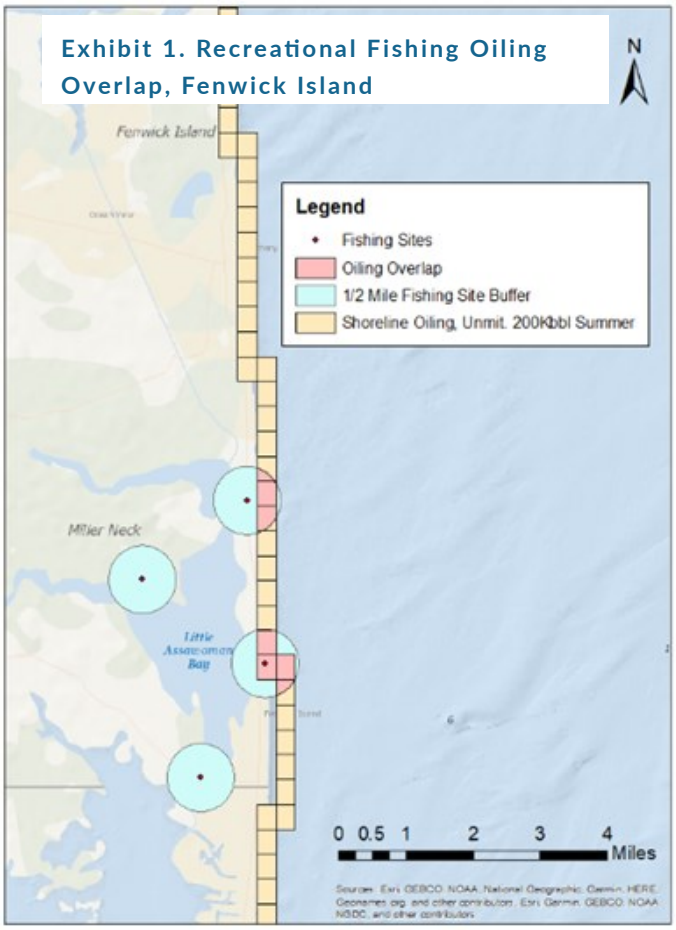
To better understand the potential impacts of an oil spill on coastal recreation in Delaware, DNREC examined the reduction in visitor days for several hypothetical surface spills occurring off Delaware's coast and the corresponding losses in consumer welfare. The hypothetical spills examined vary according to spill size, season of the year, and whether mitigation measures such as mechanical removal are implemented to minimize spill impacts.

Approach for Assessing Recreational Impacts

To assess recreational impacts for different spill scenarios, the projected shoreline oiling and surface slick for each scenario was overlaid on geospatial data for key locations for each recreation category: beach use, fishing, and boating. For example, in the spill scenario shown in Exhibit 1, the shoreline oiling (represented by the yellow cells) overlaps the recreational fishing sites located on Fenwick Island, but not those located in the back bay area.

For areas with projected oiling above thresholds of concern, the analysis assumed reductions in recreational user days in that area. Based on reductions in recreational activity associated with past spills, the assumed reduction in user days varied according to the size of the spill, with larger spills resulting in more significant reductions.

For example, the reduction in beach use and recreational fishing for sites oiled by a 200,000-bbl spill was assumed to be 36% in the first three months following a spill and 13% for the subsequent nine months, while the assumed closure for a 126-bbl spill was just 11% in the first three months following the spill. Reductions in recreational use were valued according to estimates in the literature.



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

Estimates of Recreational Losses

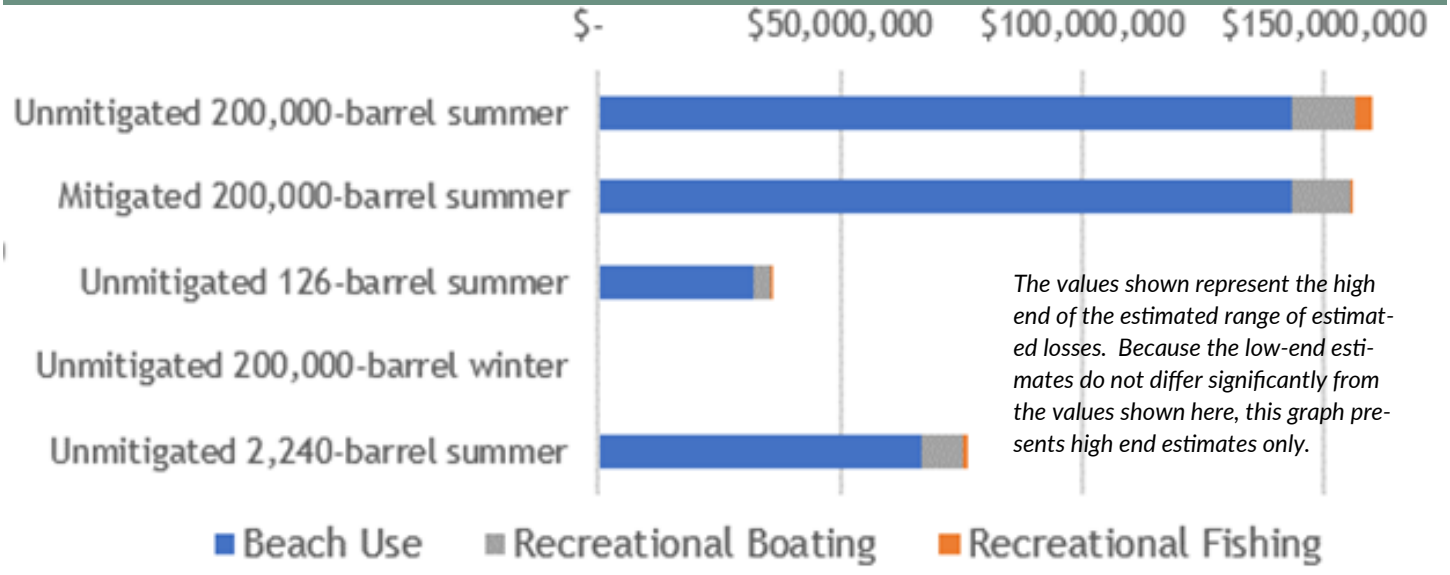
Exhibit 2 presents the estimates of lost recreation use value by spill scenario. Although reductions in recreational activity may also affect employment, GDP, and household income within Delaware, these effects are assessed in a separate analysis. For each scenario, worst-case losses are presented for each of the three recreation categories, consistent with the expected reductions in user activity specified for each scenario. Losses under all scenarios are highest for beach use, followed by recreational boating and then recreational fishing, due to differences in user day reductions across the three categories. The results shown in the exhibit highlight that recreational losses are significantly higher under the larger (200,000-bbl) spill scenarios than under scenarios involving lower spill volumes, with losses under the 200,000-bbl, unmitigated summer spill at approximately $160 million. For reference, this $160 million in lost use value corresponds to 3.4 million lost beach user days, 172,000 lost fishing days, and 444,000 lost boating days. For both the 2,240-bbl and 126-bbl unmitigated summer spills, worst-case losses are lower, varying from $76 million for the 2,240-bbl scenario to $36 million for the 126-bbl scenario.

The higher damages under the 200,000-bbl scenarios are due to more widespread oiling and more significant usage reductions under these scenarios.

The damage estimates in Exhibit 2 also illustrate that lost recreation use value is likely to be highest for spills occurring during the summer. This reflects seasonal differences in the popularity of coastal recreation in Delaware (for example, 60% of beach use occurs in the summer season). In addition, based on the oil spill modeling conducted for the analysis, spilled oil from the 200,000-bbl unmitigated *summer* spill would travel directly into the shoreline and coastal waters frequented by Delaware's recreational users, whereas the spill modeling for the *winter* scenario projected that spilled oil would 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 recreational damages under the 200,000-bbl summer scenario. This conclusion may not hold for other resources. Additional details on DNREC's analysis of oil spill impacts to Delaware's economy are available in the full oil spill risk assessment report.

Exhibit 2. Lost Recreational Use Value



The values shown represent the high end of the estimated range of estimated losses. Because the low-end estimates do not differ significantly from the values shown here, this graph presents high end estimates only.

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