ESTIMATED OIL DISPERSION MODEL

20 November 2002

The two forecasts for the winds indicated different trajectories for the oil. The wind predictions from the US Navy indicate that, if the wind continues in the same direction and speed after the forecast, released oil would make landfall between 41^{o} 25'N and 41^{o} 40'N near Viana do Castelo, Portugal (Figure 1). The wind forecast from the Virtual Buoy SP08 indicates a more northern landfall between Corrubedo and Vigo in Spain (between 42^{o} 12'N and 42^{o} 27'N, Figure 4). Thus, while there is considerable uncertainty in the weather forecasts, both indicate movement toward the coast with landfall in about 8 days.

Based on the Navy forecast and if, after the forecast period, the wind blows from the northwest, the oil would make landfall north of Figueira da Foz in Portugal in about 9 ½ days (Figure 2). However, the forecast from the Virtual Buoy SP08 indicates a more northern landfall between Vigo and Porto after 10-16 days. This would be a worst case scenario with respect to shoreline oiling.

If the wind blows from the southwest after the forecast period, the oil would likely make landfall in northwest Spain (Figures 3 and 6 for the Navy and Virtual Buoy forecasts, respectively). The present information (i.e., the wind forecasts) suggests that the wind would need to change to (from the) south in order for oil to travel up into the Bay of Biscayne. Also, easterly winds from any quadrant would hold the oil offshore. Of course, the winds will likely change speed and direction over the period of time being simulated (after the forecast period). Thus, the wind predictions are the key assumption. Unfortunately, wind forecasts are not accurate more than 5 days into the future.

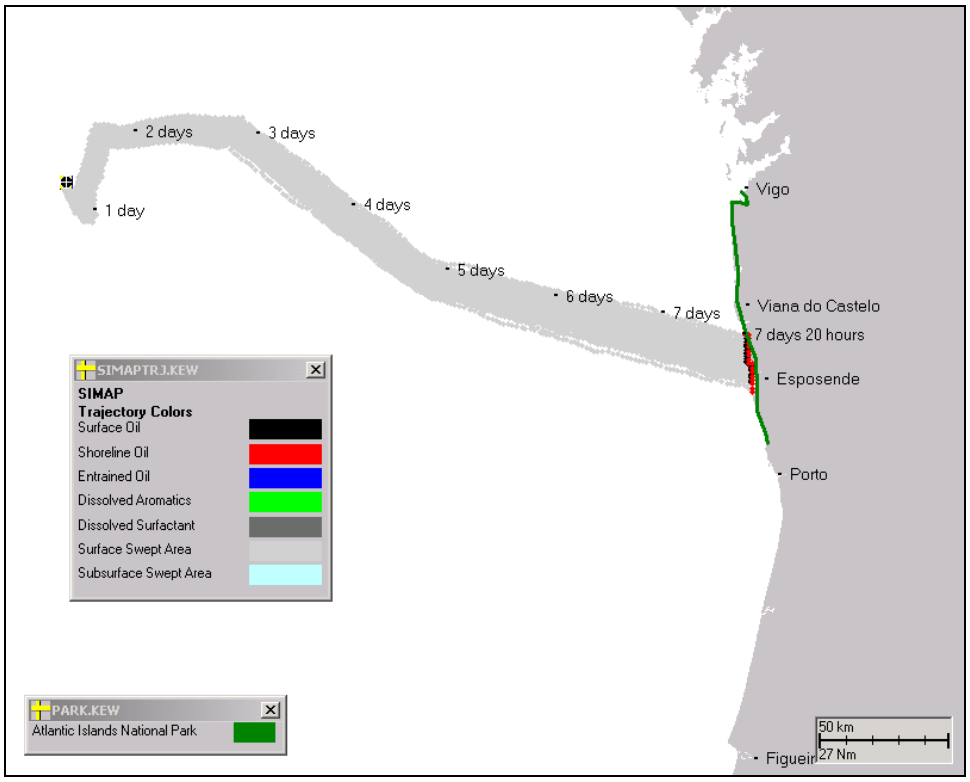

Figure 1. Surface Release, trajectory of surface oil only. Assuming last forecasted wind peed and direction from the U.S. Navy is continued in the future, 28 knots from the west.

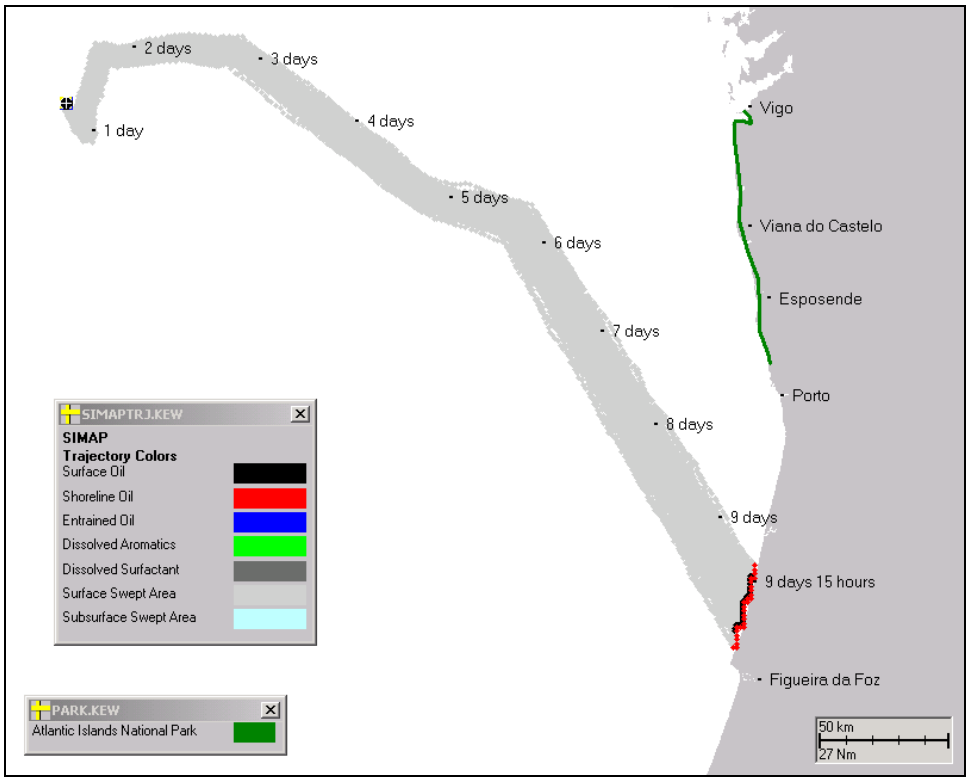

Figure 2. Surface Release, trajectory of surface oil only. Assuming last forecasted wind speed from the U.S. Navy is continued in the future (28 knots) but the wind direction is from the NW.

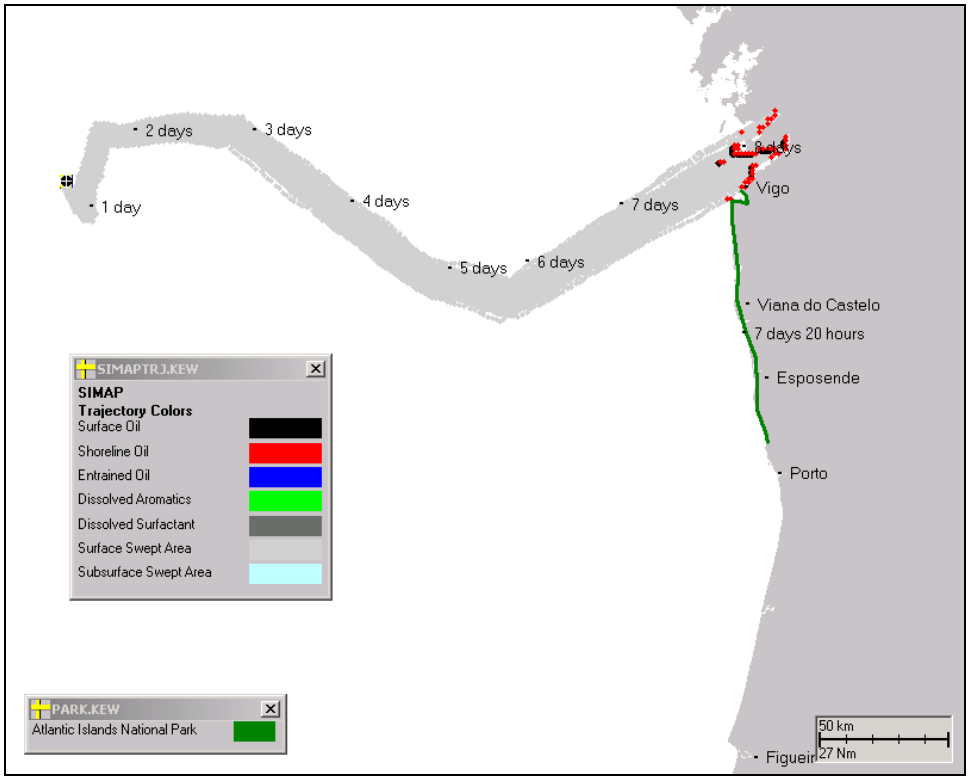

Figure 3. Surface Release, trajectory of surface oil only. Assuming last forecasted wind speed from the U.S. Navy is continued in the future (28 knots) but the wind direction is from the SW.

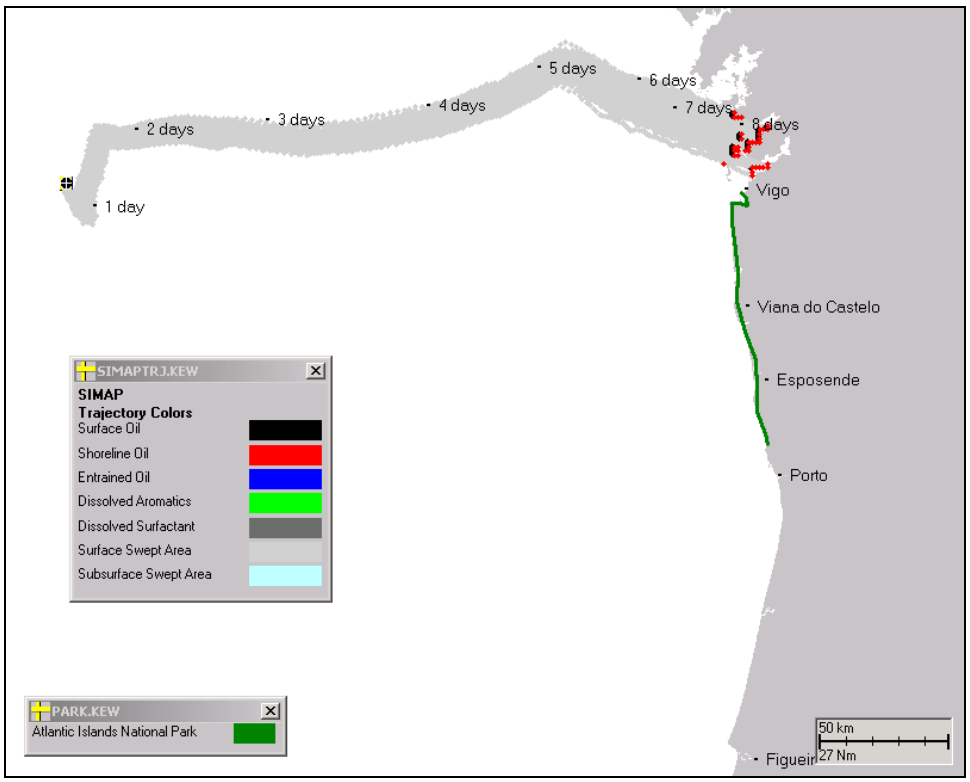

Figure 4. Surface Release, trajectory of surface oil only. Assuming last forecasted wind speed and direction from the Virtual Buoy SP08 is continued in the future, 10 knots from the west.

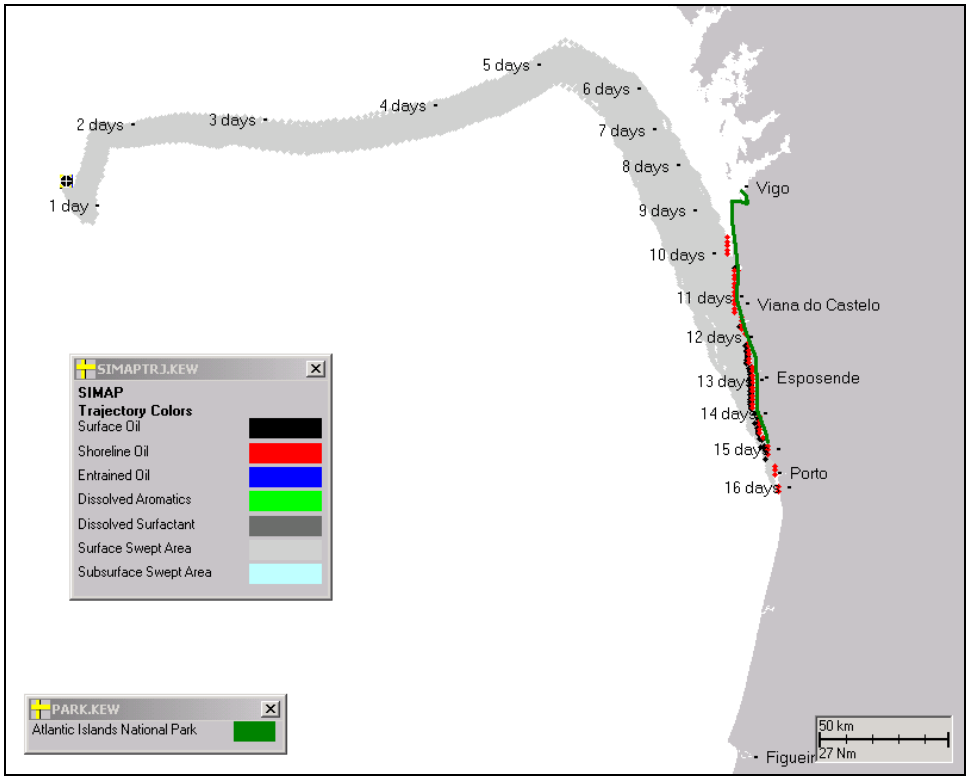

Figure 5. Surface Release, trajectory of surface oil only. Assuming last forecasted wind speed from the Virtual Buoy SP08 is continued in the future (10 knots) but the wind direction is from the NW.

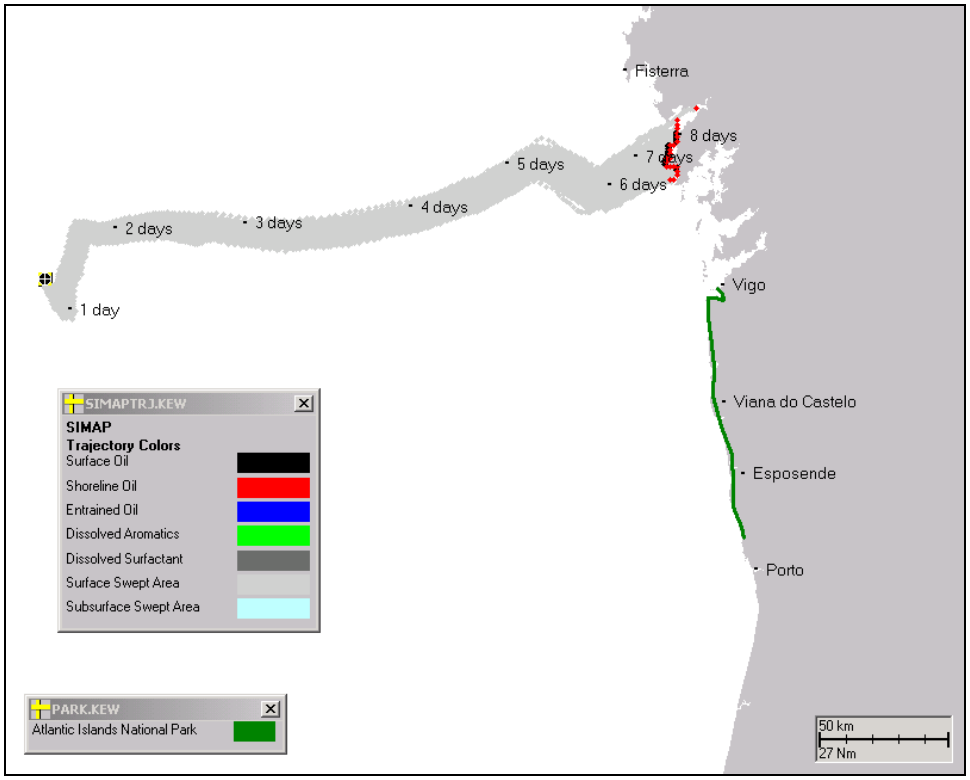

Figure 6. Surface Release, trajectory of surface oil only. Assuming last forecasted wind speed from the Virtual Buoy SP08 is continued in the future (10 knots) but the wind direction is from the SW.