

# Finding the Optimum Route for Safety, Consumption and Costs

*A series of very intense storms swept across the North Atlantic Ocean during the first half of 2014, bringing periods of strong gale to storm force conditions and extremely high waves—affecting routes to and from the English Channel.*

One particular voyage from Rotterdam, Netherlands to Bayonne, New Jersey set off in early February. The captain initially intended to sail via the English Channel, RL 40N 030W, RL 40N 073W, directly to Bayonne.

**StormGeo Route Analysts considered several route options including:**

**1.** Via English Channel, but with course and speed adjustments for best handling in heavy conditions while exiting the channel. A route further south and east of the master's intended route was then suggested to avoid heavier storm conditions and 10+ meter head waves forecast as the vessel crossed the Bay of Biscay.

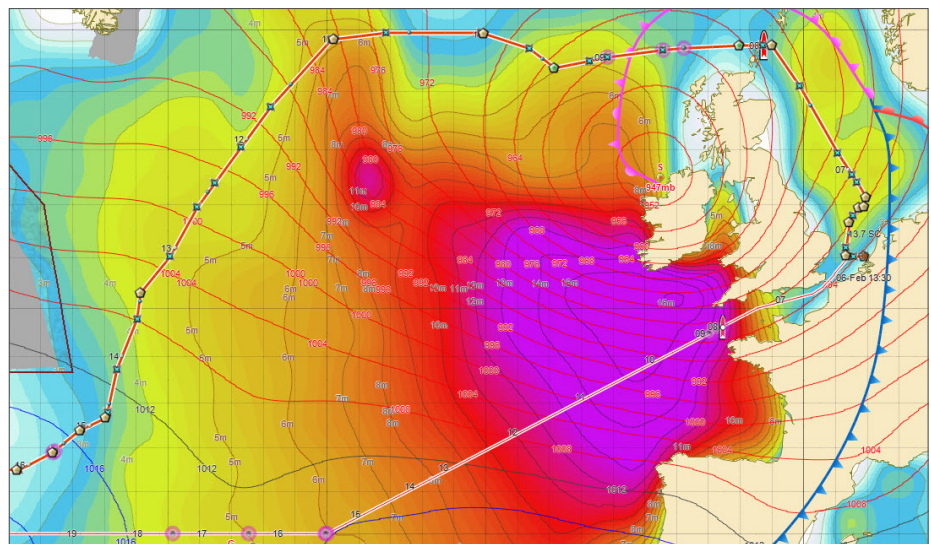
**2.** Via English Channel, but adjusting course and speed while remaining east of 002W, in order to allow heavy conditions to ease across the western English Channel before heading west across the north Atlantic.

**3.** Via Fair Isle, GC 55N 035W, GC 38N 045W (north of Flemish Cap), and RL abeam Nantucket Light. This route option selected by the captain had the advantage of passing north of forecast storm centers and the heaviest significant wave conditions across the north Atlantic.

The graphic below depicts the actual route sailed north of Scotland (the top red track) compared to the master's initially intended route via the English Channel (bottom track). If the vessel had remained on its intended track, she would have encountered several days of strong gale westerly conditions and 11–13 meter significant waves in the western approaches of the channel, likely losing about two days while waiting for better weather.

With these considerations, the optimum route—accounting for forecast weather conditions, fuel and overall steaming time—was identified.

The End of Voyage report showed a savings of 71 hours, 92 MT of fuel (274 MT CO<sub>2</sub>) and three hire days. Based on the 2014 market rates, the economic benefit would be approximately \$100,000 USD. ♦



*Original route shown below, sailing through storm. StormGeo optimized route shown above.*