

## **Oil Spill Trajectory Models: What They Are, How They Are Created, How They Are Used**

An Oil Spill Trajectory Model is a computer generated prediction of the possible fate and behavior of an oil slick on the surface of the ocean. Information on ocean currents, wind speed and direction, and oil type are the main data input to the software that generates the model. These models are used for preparedness training in exercises that drill a specific response scenario. In an actual oil spill response trajectory models are generated early on to help guide response operations. The models are then updated frequently using visual and remote sensing observations of the oil slick, wind and ocean conditions.

GNOME (General NOAA Operational Modeling Environment) is the oil spill trajectory model used by OR&R Emergency Response Division (ERD) responders during an oil spill. ERD trajectory modelers use GNOME in Diagnostic Mode to set up custom scenarios quickly. In Standard Mode, anyone can use GNOME (with a Location File) to:

**PREDICT** how wind, currents, and other processes might move and spread oil spilled on the water.

**LEARN** how predicted oil trajectories are affected by inexactness ("uncertainty") in current and wind observations and forecasts.

**SEE** how spilled oil is predicted to change chemically and physically ("weather") during the time that it remains on the water surface.