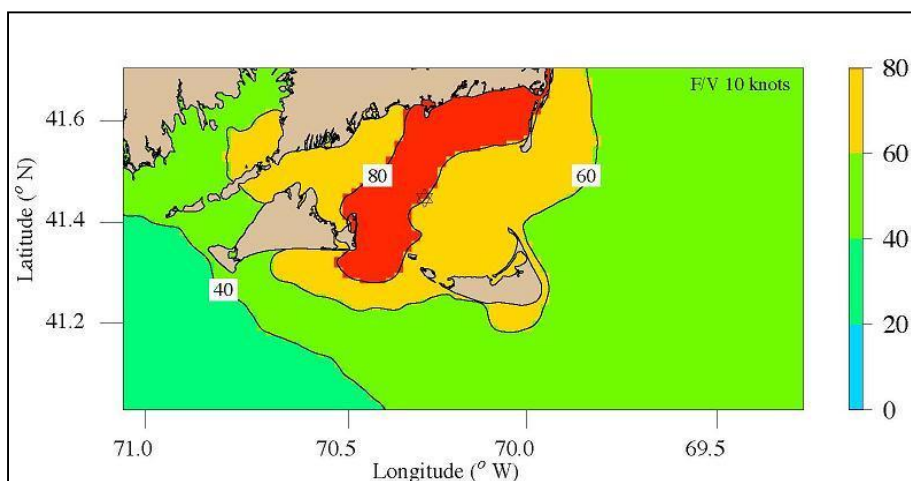


## ***New Ocean and Weather Models Hope to Prevent Tragedy***

On January 26th, 2007, the Lady of Grace, a fishing vessel based out of New Bedford, capsized and sank, killing all four fishermen aboard. At the time, the Coast Guard investigators assigned to the case were unsure as to the cause of the incident, as no other vessel had radio contact with the Lady of Grace, and no one saw the boat sink. More than a year later, investigators announced that due to the weather conditions on the day of incident, the cause of the sinking was likely excessive ice buildup on the rigging of the boat. This made the Lady of Grace, making it top-heavy and causing it to capsize. The Lady of Grace was one of almost 200 commercial fishing vessels that have been lost in the Northeast during the past 15 years.

In the wake of this tragedy, Dr. Changsheng Chen, along with Drs. Brian Rothschild and Robert Beardsley, have developed a new, integrated model that is able accurately predict icing conditions up to three days in the future. The Northeast Coastal Ocean Forecast System (NECOFS) uses a mix of ocean and weather models. This includes the Finite-Volume Coastal Ocean Model (FVCOM), developed by Dr. Chen's research group,



An image from the FVCOM model.

which predicts icing potential, wind speed, and water temperature. What sets this model apart is its high resolution. Currently, the National Weather Service only has icing forecasting capabilities over

broad areas; NECOFS is better able to forecast in a smaller area within a large body of water. Technology such as this would be extremely useful for fisherman. For example, it would allow sailors to see in greater detail areas with high icing potential, and in turn, chart a different course.

NECOFS also has many other potential applications. The United States Coast Guard is planning on incorporating the NECOFS system in their search and rescue methods. Current models are good for open water areas, but not as useful for rescues closer to the shore. The model is currently being adapted for use with the Coast Guard's existing forecasting system. FVCOM was also used during the 2008 Summer Olympic Games in Beijing, China to predict the tidal currents in the sailing sites, allowing for a more level playing field for the athletes.