

## **Economic Impact of the 2005 Red Tide Event: Project Description and Some Preliminary results**

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The 2005 bloom of *Alexandrium fundyense* was the most widespread and intense since a hurricane in 1972 spread the toxic algae throughout southern New England waters. Shellfish beds in Massachusetts, Maine, and New Hampshire, as well as 15,000 square miles of federal waters, were closed for more than a month at the peak of the seafood harvesting season. Economists for the shellfish industry and the state of Massachusetts estimated that the bloom cost the seafood industry \$2.7 million per week in lost revenues. NOAA has declared the event a “commercial fisheries failure,” which may allow fishermen to receive federal emergency assistance.

Research on the economic impact of red tide events on the fishing industry is sparse. Existing impact assessments are often rough estimates based on limited observation or hypothetical events. We do not have a good understanding of the issue and it is widely believed that a significant event will recur in 2006 due to the deposition of large quantities of cysts in sediment of New England waters. The objective of the research is to develop a systematic analysis of the 2005 event using empirical data from the shellfish industry to improve our understanding of the full effects on the seafood market. Results of the study will provide useful information for policymakers and the public in managing future events and in obtaining a more accurate assessment of the economic impact of red tide events.

The study will be based on two sets of data. First, we will examine Massachusetts Division of Marine Fisheries’ records on shellfish area closures and openings. The records provide a detailed description of the spatial distribution of red tide effected areas over time (April 27 – August 19, 2005). Next, we will construct a project database including daily quantity and value records of landings by ports of relevant shellfish species from 2000 to 2005. The shellfish data will be extracted from NMFS database supplemented by State data where available.

Combining the two data sets, we will develop time-series and cross-sectional analysis of the 2005 red tide event using econometric techniques. A baseline pattern of price and quantity changes over different seasons and across different ports will be established using 2000-2004 data. The red tide impact on the shellfish industry will be assessed by comparing the 2005 price and quantity data with the baseline. Over the course of the

event, the affected areas expand and then contract. We will examine price and quantity changes at various neighboring locations. The spatial analysis of the dynamics of price and quantity adjustments will enable us to identify alternative market supply channels. Using data from the last quarter of 2005, we will also examine if any long-lasting effects exist due to consumers' concern of seafood safety.

We are at the early stage of this research and will present some preliminary results. The figure below depicts the sharp decline in shellfish landings in 2005.

