

Results of Long Island Sound Lobster Research are Presented

Participants gathered at Stony Brook University for the 4th Annual Long Island Sound Lobster Health Symposium in October 2004 to learn about the results of the three-year research program into the causes of the 1999 lobster mass mortality in Long Island Sound. This meeting was attended by just over 200 participants from the lobster industry, resource management agencies, research and environmental communities, and the general public. Speakers presented the results from monitoring programs and 17 research projects that addressed the status of lobster populations, the response to changes in the habitat quality, lobster response to disease, stress, and toxic sources. Participants also heard the results of two independent desk studies to model contaminant flow in Long Island Sound.

Research results support the preliminary suspicion that LIS lobsters were subject to substantial stress, and several factors worked together, synergistically, to cause the mass mortalities in the western basin. Researchers described a “snowball” effect arising from environmental, climatic, and oceanographic factors, which caused sufficient stress to lobsters up to a point where their immune systems were overwhelmed by these sustained, rapidly changing, and increasingly lethal conditions.

A 2°C rise in bottom water temperature lies at the core of this phenomenon, and it was a key stress factor that created a hostile environment for lobsters. This anomaly was compounded by other factors, most notably an hypoxia event and a pronounced salinity stratification resulting after the passage of a hurricane and its heavy rains. All of these factors, collectively, are believed to have pushed the lobster population beyond its physiological tolerance limits. These conditions would have caused lobsters to die, even in the absence of pesticide spraying in 1999, although the harmful effects of pesticides were not completely ruled out.



Dr. Anthony Calabrese (center), past Chair of the LIS Committee for Lobster Disease and Research receives original artwork at the 2004 lobster symposium to recognize his leadership. Pictured are Connecticut Sea Grant Director Dr. Edward Monahan (r.) and NYSG's Lobster Outreach Coordinator, Antoinette Clemetson (l.)
Photo by Paul C. Focazio

The pesticide, malathion, could not have played a major role in causing lobster mortalities in 1999. However, the model identified areas within LIS (mostly coastal embayments in the western basin), where specific pesticides (e.g., sumithrin) might have built-up to lethal concentrations, and may have weakened lobsters further, and made them more susceptible to disease and the hostile habitat. The combined effect of the pyrethroids resmethrin and sumithrin is not understood and should be studied.

A special issue of the *Journal of Shellfish Research* is being published as a technical report and more information can be obtained by visiting the website www.seagrant.sunysb.edu/LILobsters, or contacting Antoinette Clemetson (631.727.3910 Ext 4).

— Antoinette Clemetson