

Sea Grant's Long Island Sound Lobster Initiative

Long Island Sound Disease & Mortality *Research Priorities*

Background

The Sea Grant Programs of Connecticut and New York, the National Oceanic and Atmospheric Administration, the Department of Commerce and the State of Connecticut Department of Environmental Protection jointly announced a special Request for Proposals in September 2000. Approximately \$3.5 million will be available to support research that seeks to reveal the causes of the lobster mortality events that occurred in the fall of 1998 in the western portion of Long Island Sound, and extensive shell disease observed in lobsters harvested in the eastern portion of LIS. This work is being coordinated by the Atlantic States Marine Fisheries Commission (ASMFC) Lobster Steering Committee – this is a subcommittee of the American Lobster Management Board and the Connecticut Department of Environmental Protection.

Disease & Toxicity



Photo courtesy of NYS Dept. of Env. Conservation

The specific areas for research include:

- Cause(s), progression and physiological effects of Shell Disease Syndrome in lobsters.
- Development of rapid, specific tests for the parasitic amoebae and other pathogens that might have caused the mortality events or shell disease syndrome.
- Pathogenesis of the parasitic amoeba and other recognized disease organisms (potentially causing the mortality event) for each life stage of the lobster or other organisms, such as crabs or sea urchins, that were observed to be affected at the same time.
- Development of *in vitro* culturing techniques for lobster parasitic amoeba.
- Development of tools or indices to define immunological and metabolic health in lobsters.

For additional information, contact:

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Anthropogenic & Environmental Impacts

- Determination of the role of toxic contaminants, including pesticides used for mosquito control, chlorination practices at sewage treatment plants, ambient levels of toxic contaminants in sediments and dredged materials and their connection, if any, with the lobster disease problems and abnormal lobster physiology.
- Determination of the effects of pesticide and other potential toxic contaminants on other marine organisms including crabs and sea urchins.
- Examination of the interplay of abiotic water quality variables (e.g. temperature) on the effects from anthropogenic inputs.
- Analysis of the role of fishing practices and bait use on exacerbating oxygen demand.
- Analysis of lobster tissues for presence and effects of contaminants.
- Evaluation of the role of hypoxia including related impacts such as ammonia and sulfide release from the sediments.



General Health

- Determination of the effect of the relative abundance and distribution of lobsters (i.e., overcrowding) on lobster health.
- Determination of the effect of changes in abundance of crustaceans (i.e., blue crabs, spider crabs, Japanese shore crabs) or other organisms on the health of lobsters, either through crowding or as a vector for disease or parasite transmission.
- Comparison of the health of LIS lobsters with lobsters in reference areas.



Photo courtesy of James Cook

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