

Pesticides

Effects of Pesticides of Lobster Health: Trace Level Measurements and Toxicological Assessment at Environmentally Realistic Concentrations

Anne E. McElroy, Marine Sciences Research Center, Stony Brook University, Stony Brook, New York. Co-investigator: Bruce J. Brownawell, Marine Sciences Research Center, Stony Brook University.

McElroy and Brownawell will address the potential link between pesticide use and lobster mortality. They will measure mortality and immune response in larval and juvenile lobsters exposed to levels of pesticides (Malathion, Methoprene, and selected pyrethroids such as Anvil and Scourge) that are likely to occur in the environment. The team will also develop ways to measure levels of these pesticides and their breakdown products in seawater, sediment, and possibly lobster tissues. They are particularly interested in sampling water after storm events when concentrations may be highest. The results of this study should provide a strong indication whether or not pesticide use is likely to contribute to degraded lobster health in Long Island Sound. This study will also shed light on the effects of temperature on the immune response of young lobsters.

Administrator: New York Sea Grant

Determination of the toxicity and sublethal effects of selected pesticides on the American Lobster (*Homarus americanus*)

Sylvain De Guise, University of Connecticut, Storrs. Co-investigators: Richard A. French, University of Connecticut, and Christopher Perkins, University of Connecticut

The research team will expose lobsters to Malathion, Resmethrin, and Methoprene, three pesticides used in the region to control mosquitoes after West Nile virus was found. The subtle effects of low levels of pesticide exposures on lobster immune system will be measured, in addition to high-level exposures, to determine toxicity.

Administrator: Connecticut Sea Grant



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Long Island Sound Lobster Research Initiative is a research collaboration of National Oceanic Atmosphere Administration's (NOAA) National Marine Fisheries Service, Connecticut Department of Environmental Protection, and the Sea Grant Programs in New York and Connecticut.



Bringing Science to the Shore

Acute Effects of Methoprene on Survival, Cuticular Morphogenesis and Shell Biosynthesis in the American Lobster, *Homarus americanus*

Michael N. Horst, Mercer University School of Medicine, Macon GA, et al.

This study will include participation from researchers at universities in four states. Horst has hypothesized that Methoprene could kill lobsters and cause biochemical changes in juvenile and adult lobsters. His team will study the effects a range of doses of the chemical have on nerve, skin, pancreatic cells, and shell formation.

Administrator: Connecticut Sea Grant

Hormonal Responses of Lobsters to Stresses of Western LIS

Hans Laufer, Department of Molecular & Cell Biology, University of Connecticut, Storrs, Connecticut, et al.

This multi-disciplinary research team led by Laufer will assess the effects of long-term stresses (including heat, Methoprene, and infection) on the growth, maturation and reproduction processes of lobsters. Lobsters from Western Long Island Sound exposed to known stress factors, as well as those infected by the paramoeba will be compared to field collected lobsters. The hypothesis is that elevated temperature and pesticide levels can alter lobster endocrinology leading to adverse effects on growth, molting and ultimately, survival. This project measures several endocrine levels in response to laboratory manipulation of temperature and pesticide levels.

Administrator: Connecticut Department of Environmental Protection

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