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TESTIMONY OF
REPRESENTATIVE ELISSA WRIGHT
STATE REPRESENTATIVE, 41ST DISTRICT

H.B. No. 6438, AN ACT RESTRICTING THE USE OF METHOPRENE AND RESMETHRIN
Environment Committee Public Hearing
February 25, 2013

Senator Myer, Representative Gentile, members of the Environment Committee, thank you for the opportunity to testify in support of *H.B. No. 6438, AN ACT RESTRICTING THE USE OF METHOPRENE AND RESMETHRIN*.

A dramatic lobster die-off in the fall of 1999 corresponded with the application of pesticides¹ for the control of mosquitoes that carried West Nile virus that summer. Subsequent to that event, lobsters in Long Island Sound, particularly from the central and western basins, have continued to suffer steady declines in population threatening this commercially-important species and our generations-old commercial lobster fishing industry. Connecticut lobster landings, for example, have decreased from 3.7 million pounds in 1998 to 440,000 pounds in 2009 and a historic low of 142,000 pounds in 2011, with the steepest declines occurring in the western basin. To put this in perspective, the Connecticut lobster industry, valued at over \$12 million at its peak in 1998 before the die-off, was valued at some \$2 million ten years later.

The decline of the lobster population in Long Island Sound following the catastrophic 1999 die-off has elevated concerns about: (1) harmful health effects of the mosquito pesticides methoprene² and resmethrin,³ which are toxic not only to mosquitoes but also to the lobster, and (2) effects of these

¹ The pesticides methoprene, malathion, resmethrin, and sumethrin were applied to the Western Long Island Sound watershed area during the summer of 1999 as part of an effort to control the mosquito vector of West Nile Virus.

² Methoprene is a pesticide that acts as a growth hormone that interrupts the insect's life at the juvenile stage and, when applied directly to standing water, kills mosquitoes.

³ Resmethrin is one of the family of pyrethroid insecticides. Applied through aerial spraying, it is used to kill adult mosquitoes by interfering with the normal function of the nervous system.

chemical compounds particularly on the embryos, larvae, and juvenile lobsters, singly or in binary combinations or in combination with other factors in the marine environment such as elevated temperatures, changes in salinity, and reductions in dissolved oxygen.

The results of laboratory studies suggest that methoprene is acutely toxic to stage II lobster larvae at 1 part per billion (ppb); bio-accumulates in the hepatopancreas (tomalley or liver/pancreas), nervous tissue, and epidermal cells of the adult lobster; and disrupts the physiological processes under endocrine control, for example the quality of the post-molt shell.⁴

Laboratory studies of the effects of exposure of adult lobsters to resmethrin suggest acute toxic effects at fourteen-day exposures of 0.75 ppb, and sublethal effects involving suppression of immune function (phagocytosis) and a significant increase in the stress-related hormone in lobsters, crustacean hyperglycemic hormone.

The authors of these studies surmised that the exposure of lobsters to methoprene and resmethrin may have contributed to the massive decline in lobster populations observed in Long Island Sound.

Recent chemical measurements of lobsters field-collected from the Sound southeast of Norwalk by the Marine Fisheries Division of the Department of Energy and Environmental Protection (DEEP) revealed the accumulation of resmethrin and methoprene in various tissues, specifically the hepatopancreas and reproductive organs of female animals studied.

Their results prompted DEEP to undertake a broader field study, currently in progress, to assess the response of lobsters taken from the field to both of these compounds, as well as several other pyrethroid insecticides, namely permethrin, bifenthrin and cyhalothrin, and to assess the applicability of laboratory findings to field conditions.

Based on our current understanding derived from the results of laboratory and field studies, there is sufficient evidence to restrict the use and application of methoprene and resmethrin for mosquito control within the coastal boundary, except as may be necessary to prevent an increasing threat of mosquito-borne disease as determined by the mosquito management coordinator at DEEP, based on an evaluation of mosquito and mosquito larvae surveillance by the Agricultural Experiment Station in accordance with the Mosquito Management Plan – at least until the results of additional studies show that such restrictions are not necessary.

In any event, if mosquito control is needed there are other insecticides based on non-toxic, naturally occurring substances, such as widely used bacteria Bti,⁵ which can effectively kill mosquito larvae and achieve a great reduction in mosquito populations without harming surrounding ecosystems.

Thank you very much for the opportunity to be heard on this issue today. I welcome any questions and comments that you might have.

⁴ Shell-diseased lobster molt more frequently as the animals seek to rid themselves of the diseased shells, making them vulnerable to predation and other opportunistic diseases in their “soft” post-molt condition. In addition, premature molting may cause declines in reproductive success of females and egg survival.

⁵ *Bacillus thuringiensis israelensis* (Bti).

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