

# **H. 706:An act relating to banning the use of neonicotinoid pesticides.**

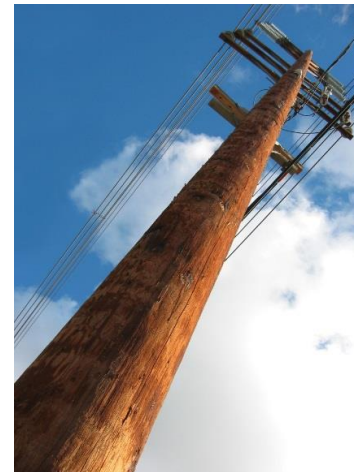
**House Committee on Agriculture, Food Resiliency, and Forestry**

TESTIMONY February 22,2024

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# PESTICIDE ANALYSIS IN SUPPORT OF ENFORCEMENT OF PESTICIDE REGULATIONS IN VERMONT

- SPILLS, MISUSE, DRIFT
- WATER, SOIL, VEGETATION,
- AND ANYTHING ELSE!



*Sunday*

FEBRUARY 16, 1997

\$1.75

# StarTribune

NEWSPAPER OF THE TWIN CITIES

[www.startribune.com](http://www.startribune.com)

## Frog research puts spotlight on pesticides

*Other possible causes  
of deformities explored*

SNOWMOB









**INVESTIGATIONS INTO THE CAUSES OF AMPHIBIAN  
MALFORMATIONS IN THE LAKE CHAMPLAIN BASIN  
OF NEW ENGLAND**

SEPTEMBER 30, 2002

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
VERMONT DEPARTMENT OF AGRICULTURE, FOOD AND MARKETS  
FORT ENVIRONMENTAL LABORATORIES  
MIDDLEBURY COLLEGE

# CONCLUSION

- NO EVIDENCE IT WAS RELATED TO PESTICIDES
- BUT....FOUND ATRAZINE IN LAKE CHAMPLAIN  
IN TRACE AMOUNTS TOP TO BOTTOM YEAR-ROUND



# SURFACE WATER MONITORING



Nat Shambaugh



**Vermont Agency Of  
Agriculture, Food & Markets**



## GENERALLY:

- SOME PESTICIDE RUNOFF IS AN INEVITABLE EFFECT OF PESTICIDE USE
- WORST 'PROBLEM' LEVELS OCCUR IN SMALL WATERBODIES WHEN LARGE RAINSTORMS OCCUR SHORTLY AFTER APPLICATION

# WHEN SHOULD WE WORRY?



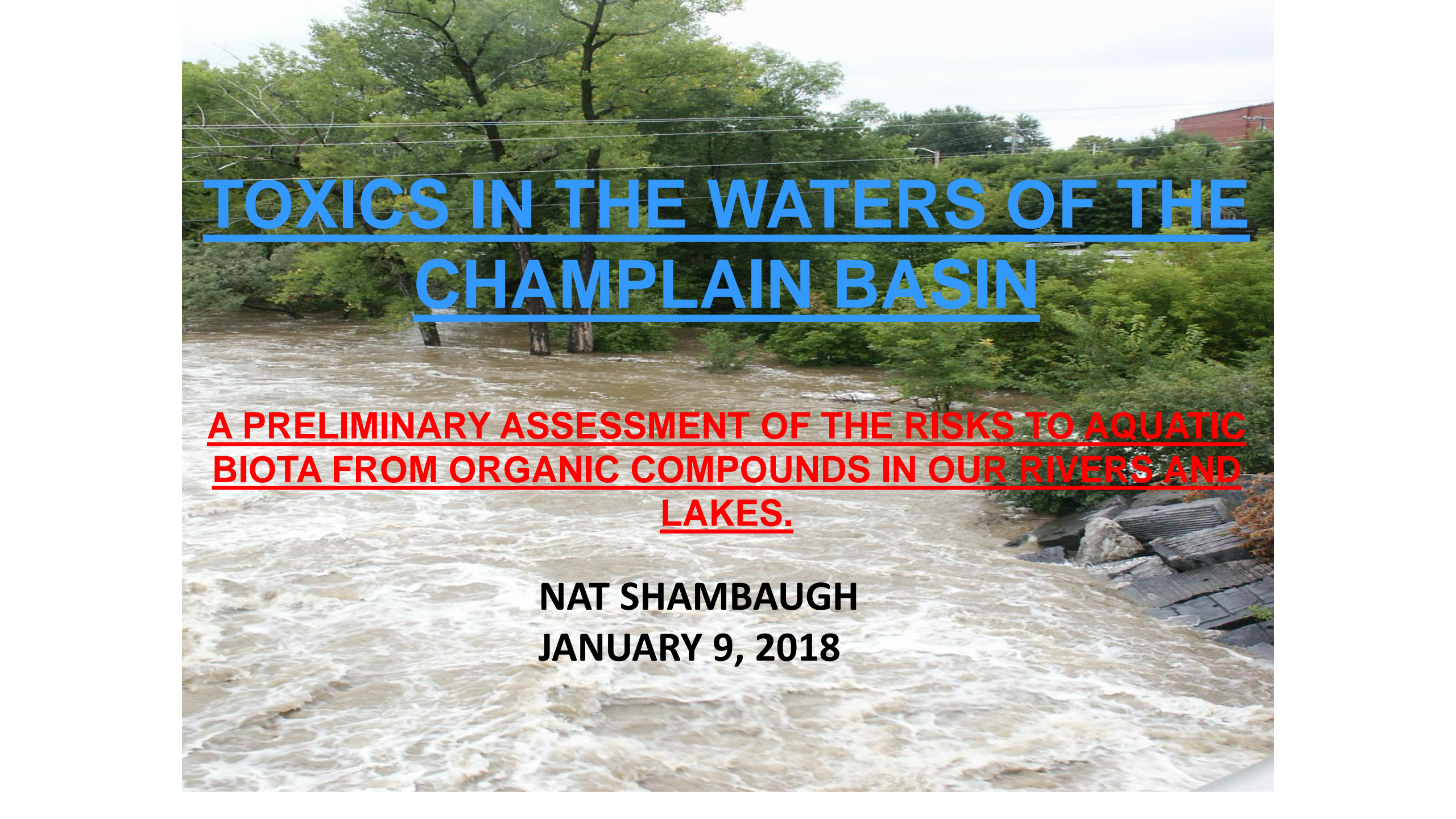
# **Organic Contaminants of Emerging Concern in the Lake Champlain Basin: A Review of Current Knowledge, 2016.**

**Nathaniel Shambaugh**  
[natsh@myfairpoint.net](mailto:natsh@myfairpoint.net)

**December 29, 2016**

**\*Lake Champlain Basin Program Technical Report # 85.**  
[\*\*http://www.lcbp.org/media-center/publications-library/technical-reports/\*\*](http://www.lcbp.org/media-center/publications-library/technical-reports/)  
**Funded by Lake Champlain Basin Program and NEWIPCC**





# TOXICS IN THE WATERS OF THE CHAMPLAIN BASIN

A PRELIMINARY ASSESSMENT OF THE RISKS TO AQUATIC  
BIOTA FROM ORGANIC COMPOUNDS IN OUR RIVERS AND  
LAKES.

**NAT SHAMBAUGH**  
**JANUARY 9, 2018**

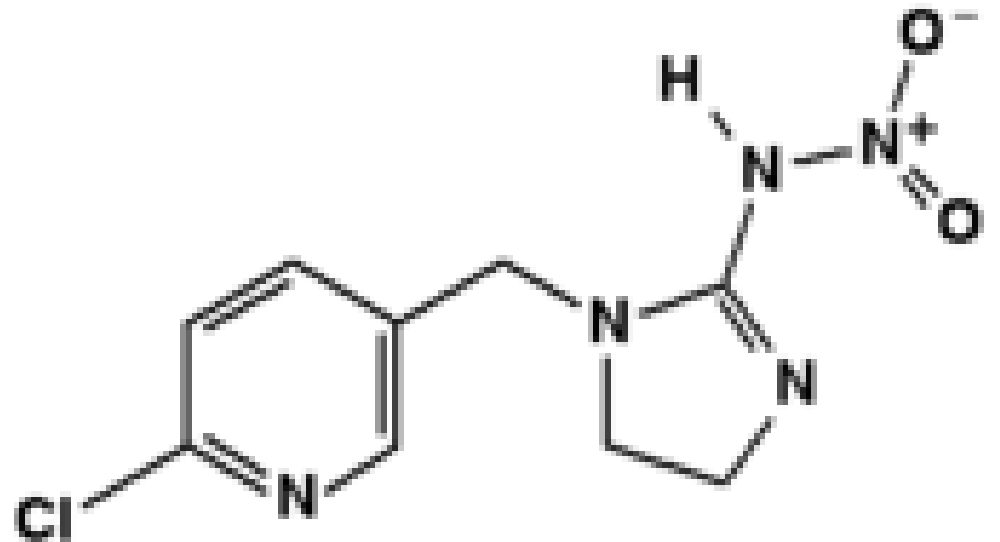


# NEONICOTINOID SEED TREATMENT

- SEEDS COATED WITH NEONICS BEFORE PLANTING  
(90+% OF CORN AND SOY SEEDS IN U.S.)
- **SYSTEMIC; TRAVELS THRUOUT PLANT VIA SAP, MAKING ENTIRE PLANT TOXIC**
- **MINIMALLY TOXIC TO HUMANS AND OTHER MAMMALS**
- SMALL AMOUNT ON SEED SUFFICIENT TO PROTECT PLANT DURING GROWTH
- **AVOIDS NEED FOR LARGE SCALE PESTICIDE SPRAYING**
- CONVENIENT
- **SOMETIMES A PROTECTION BENEFIT, BUT NOT ALWAYS!**
- **POLLEN & NECTAR ALSO TOXIC!**
- VERY POTENT SO DON'T NEED TO USE MUCH

# NEONICOTINOID CHEMISTRY

- POLAR AND **WATER SOLUBLE**
- PERSISTANT (STABLE)
- **90+ PERCENT FROM SEED TREATMENT DOES NOT GO INTO PLANT**
- BINDS TO SOIL AND TRAVELS TO GROUND/SURFACE WATER



# SYSTEMIC (NEONICOTINOID) INSECTICIDES

- POTENTIALLY **TOXIC TO POLLINATORS** VIA POLLEN AND NECTAR
- POTENTIALLY **TOXIC TO AQUATIC INSECTS** IN STREAMS IF GETS INTO WATER VIA DRIFT, RUNOFF, SUBSURFACE FLOW
- **PERSISTS** FROM ONE YEAR TO NEXT
- **FOUND IN WATER, SOIL, POLLEN IN VERMONT**

# DIAMIDE INSECTICIDES

- CHEMICAL NAMES: CHLORANTRANILIPROLE and CYANTRANILIPROLE
- PROPOSED AS REPLACEMENT FOR NEONICS FOR TREATED SEED
- CURRENTLY: CHLORANTRANILIPROLE SEED TREATMENT USED ON CORN WITH OR WITHOUT CLOTHIANIDIN



# NEONICS VS. DIAMIDES

- BOTH ARE SYSTEMIC INSECTICIDES:
  - designed to make the plant itself toxic to insects
- NEONICS INTRODUCED IN 1990'S, DIAMIDES ~ 2010
- **BOTH ARE STABLE AND LIKELY TO CONTAMINATE GROUND AND SURFACE WATER**
- **NEONICS ARE MORE TOXIC TO HONEYBEES**
- **DIAMIDES ARE MORE TOXIC TO MONARCH LARVAE (and other butterflies)**
- **DIAMIDES ARE SIMILAR OR MORE TOXIC TO AQUATIC INSECTS**

## ***Monarch Butterfly (*Danaus plexippus*) Life-Stage Risks from Foliar and Seed-Treatment Insecticides***

Environmental Toxicology and Chemistry—Volume 40, Number 6—pp. 1761–1777, 2021

### **MONARCH LARVAE LC50**

CHLORANTRANILIPROLE	<b>0.0016 ug/g</b> leaf tissue
IMIDICLOPRID	<b>0.13 ug/g</b> leaf tissue

### ***Pesticide Contamination of Milkweeds Across the Agricultural, Urban, and Open Spaces of Low-Elevation Northern California***

Frontiers in Ecology and Evolution

June 2020 | Volume 8 | Article 162

***“Chlorantraniliprole in particular was identified in 91% of our samples and found to exceed a tested LD<sub>50</sub> for monarchs in 58 out of 227 samples”***

# VERMONT POLLEN DATA

- VAAFPM tested pollen and found clothianidin at levels of concern
- UVM tested pollen and found clothianidin at greater than level of concern

# SEED TREATMENTS (in general)

- CONTRARY TO “Integrated Pest Management”
- Pesticides should only be used when needed
- Farmers shouldn’t be forced by seed dealers to use something they don’t want or need
- VAAFM, Agricultural Innovation Board, and seed dealers have had years to come up with a mechanism to use only when needed.
- Now is time to remove neonics from prophylactic use!
- Cannot preserve biodiversity (30 x30), or promote regenerative agric. if putting insecticides and fungicides into ground constantly



## SEED TREATMENTS

YOU HAVE HEARD ABOUT CONCERN FOR  
HONEYBEES AND WILD POLLINATORS

but....

AQUATIC INSECTS ARE JUST AS MUCH OF AN  
ISSUE (base of aquatic food chain)

# CLOTHIANIDIN AQUATIC INSECT TOXICITY

(very toxic to midges, mayflies and aquatic beetles)

- **LC50**: Concentration which will kill 50% of organisms in a given time
- **LOAEC**: Lowest Observable Adverse Effect Concentration (**0.05 ppb**)  
(think physiology or behavioral effects)

## VERMONT STREAM RESULTS (from VAAF<sub>M</sub> monitoring)\* (2022-2023)

- LOAEC exceeded in Jewett Brook in 63% (14 of 22) of samples
- LOAEC exceeded in Hungerford Brook: 31% (4 of 13) of samples
- LOAEC exceeded in Mill River: 18% (2 of 11) of samples
  
- LC50 exceeded in Mill River: 9% (1 of 11) samples (4.54 ppb, 2x the LC50)

\* Atrazine and metolachlor too, but that's another story....

# Neonics why they need to go? summary

- **Toxic to honeybees and wild pollinators. Clothianidin found in pollen in Vermont at greater than LOAEC** (from VAAFMM data and Alger testimony)
- Levels toxic to aquatic insects **FOUND IN VERMONT**, the base of the food aquatic food chain
- **Persistent** in soil and plants
- **Water soluble, mobile**...getting into our surface waters from:
  - Dust
  - Water runoff
  - Soil runoff
  - Tile drain effluent
- **High concentration** pulses with rainstorms shortly after planting
- Potential secondary effects on fish, insect eating birds and bats

“Vermont should be prepared to exert regulatory oversight to take corrective actions **when treated articles present unacceptable risks to the environment, pollinators or human health.** \*

As such, authority over treated articles is needed.”

*\*My emphasis*

IT IS CLEAR THAT NEONIC TREATED SEEDS PRESENT  
AN UNACCEPTABLE RISK TO POLLINATORS AND THE  
ENVIRONMENT...BASED ON VERMONT DATA!



H. 706 is necessary next step in ongoing process to make sure we use as little pesticide as necessary. Not the final word....

- **Exemptions exist in bill if issues come up, and plenty of time before enactment to tweak if needed.**
- With New York on board with phase-out, seed companies will change their supply system, or loose business.
- KEEP VAAFM BMP requirement; needed for all treated seeds, not just neonics
- As per NY, farm by farm exemptions, not blanket exemption
- As per NY, require pest risk assessment report



***WHEN ARE WE GOING TO SAY  
ENOUGH IS ENOUGH?***



**“THINK FIRST SPRAY LAST”**

(Maine Board of Pesticide Regulation)