

Speaking in favor of:

Raised Bill No. 254

AN ACT RESTRICTING THE APPLICATION OF FERTILIZERS THAT CONTAIN PHOSPHATE

- Section 1.
- a. prohibited= phosphate-containing fertilizer to *established lawn*.
 - b. prohibited= phosphate-containing fertilizer application *between Nov 15 and April 1*
 - c. prohibited= phosphate-containing fertilizer application within *20 feet of a watercourse*.
 - d. *Merchant Requirements; Separation and Signage*.
 - e. Commissioner of Agriculture may adopt regulations for implementation.
 - f. *Civil Penalty* of \$500.00 for violation.

The Science is clear on this Issue. Phosphorus is not needed on an established lawn, and is damaging to lake and reservoir ecosystems.

- Phosphorus addition is very rarely needed on an *established lawn*.
- Phosphorus is the primary material that *accelerates the eutrophication* of inland waters, with an array of consequences including water quality and habitat degradation, and algae blooms (especially Cyanobacteria which can produce taste and odor compounds and potent cyanotoxins). Other factors influence *what kind of algae grows and how much accumulates*, but it is phosphorus that limits *how much algae grows*.
- There are a variety of phosphorus sources to lakes and reservoirs. Many are difficult to control. Application of P-containing fertilizer is a source to inland waters that is controllable.

- **Phosphorus-free lawn fertilizers are readily available from several competing manufacturers.**

One suggested modification/addition to the Raised Bill No. 254 is to provide a procedure to account for the rare situation where a phosphorus deficiency exists on an established lawn. Perhaps through the “Commissioner of Agriculture Regulations”, a soil test by a certified lab, or other means.

Currently, it is difficult for communities to manage specific Connecticut Watersheds to reduce phosphorus runoff due to application of P-containing lawn fertilizer, largely due to the broad language in Connecticut Public Act No. 09-229. A “Draft Ordinance” prepared by Columbia, Connecticut to protect its lake resource was very well crafted to prohibit application of P-containing fertilizer to established lawns in a specific, vulnerable watershed overlay zone. It included well defined exclusions (vegetable gardens, etc.). It included an exception for establishing a new lawn via seed or sod (when P is needed for root development). However, legal counsel advised the Town that the Draft Ordinance did not comply with Public Act No. 09-229.

Attached:

Draft Ordinance: Town of Columbia

ORDINANCE TO DISCOURAGE THE GROWTH OF ALGAE IN COLUMBIA LAKE

Public Act No. 09-229

**AN ACT CONCERNING MILK PRODUCERS, MILK AND MILK PRODUCTS,
AGRICULTURAL NOT-FOR-PROFIT ORGANIZATIONS AND THE MODERNIZATION
OF CONNECTICUT FERTILIZER LAW.**

“No political subdivision of the state shall enact or attempt to enforce any ordinance or regulation respecting the registration, packaging, labeling, sale, storage, distribution, *use or application of a fertilizer...*”

Summary

- Phosphorus application to established lawns is not needed by the lawn, with rare exceptions that could be addressed.
- Phosphorus-free lawn fertilizer products are now readily available, from several competing manufacturers.
- Phosphorus is the plant nutrient that causes eutrophication of inland lakes and reservoirs, with a variety of adverse habitat and water quality impacts.

Raised Bill No. 254: AN ACT RESTRICTING THE APPLICATION OF FERTILIZERS THAT CONTAIN PHOSPHATE will help to protect the quality and ecological integrity of Connecticut's Inland Water Resources, while not having an adverse impact on residential turf management.

An alternative to passing of Raised Bill No. 254 is to clarify the intent of PA 09-229, and to enable a "Political Subdivision of the State" to enact a local ordinance that restricts P-containing fertilizer application to an established lawn in a specific and vulnerable watershed area.

ATTACHMENTS:

Draft Ordinance: Town of Columbia

ORDINANCE TO DISCOURAGE THE GROWTH OF ALGAE IN COLUMBIA LAKE

Resume: Robert (Bob) Kortmann, Ph.D.

**TOWN OF COLUMBIA ORDINANCE TO
DISCOURAGE THE GROWTH OF ALGAE IN COLUMBIA LAKE**

DRAFT 09/19/11

SECTION 1. Purpose

This ordinance has been developed with the purpose to discourage the growth of algae in the waters of Columbia Lake by regulating the use of Lawn Fertilizers containing phosphorus in the areas designated as Lake Protection Zones 'A,' 'B,' and 'C.' as defined in the Town of Columbia Lake Watershed Management Plan.

SECTION 2. Definitions

As used in this Ordinance, the following terms are given definitions as follows:

- Lawn: means noncrop land planted in closely mowed, managed grasses, including, but not limited to, residential and commercial residential property, parks, and recreation areas.. Turf does not mean hayland, hay or some other form of agricultural production.
- Lawn Fertilizer: means any fertilizer whether distributed by a property owner, renter or commercial entity, distributed for a non-agricultural use on Lawns. Lawn Fertilizer does not include fertilizer products intended primarily for gardening, tree, shrub and indoor plant application.
- Town or The Town: means municipal government of the town of Columbia, Connecticut.
- Violation: means failure to comply with and adhere to the rules and regulations set forth in this Ordinance

SECTION 3. Lawn Fertilizer Use Restriction

A person shall not apply a Lawn Fertilizer containing more than zero percent phosphorous to Lawns located in Lake Protection Zones 'A,' 'B,' and 'C' as defined in the Town of Columbia Lake Watershed Management Plan, except under the following condition:

Condition 1: the property owner or an agent of the property owner is attempting to grow a new Lawn via seed or sod procedures.

SECTION 4. Conflicts

In any case where this article or any regulation enacted herein is found to be in conflict with any provision of the Public Health Code or any State Statute, Provision or Regulation, the more restrictive shall apply.

SECTION 5. Enforcement / Penalties

Any property owner found in Violation shall be issued a \$250 fine made payable to the Town. A fine shall be assessed for each Violation. Fine amounts may be increased at the discretion of the Columbia Board of Selectmen.

SECTION 6. Right of Appeal

Any property owner who has been found in Violation and has been issued a fine by a representative of the Town shall have the right to appeal said fine to the Town Administrator. He/she shall review the matter upon consultation with appropriate Town staff and render a decision on the matter to the appellant.

SECTION 7. Effective Date

Upon ratification by a Columbia Town Meeting, this Ordinance shall become effective fifteen (15) days following the publication in a newspaper having general circulation in the Town.

Ordinance # _____ Adopted at a Town Meeting Held on (Date)

Published on (Date) in the (Newspaper)

Ordinance # _____ becomes effective on (Date)

Robert W. Kortmann, Ph.D.

1974 B.S. Cook College - Rutgers University –High Honors/ Cook Scholar
Environmental Science and Education; Comprehensive Science Teaching Certificate
1977 M.S. University of Connecticut - Limnology - Plant Ecology
1981 Ph.D. University of Connecticut - Limnology - Ecology

Dr. Kortmann is the founder and principal investigator of Ecosystem Consulting Service, Inc. and directs all research, consulting, and implementation projects. His undergraduate training included a comprehensive environmental science curriculum, advanced biological sciences, and education certification. While at Rutgers, Dr. Kortmann conducted an honors research project dealing with the chemistry of aquatic systems in agricultural watersheds, research regarding intertidal zonation as effected by navigation, and coral reef research at the East Indies Laboratory, St. Croix. Dr. Kortmann was a George H. Cook Scholar and graduated with high honors from Cook College-Rutgers University in 1974.

Dr. Kortmann completed his graduate training at the University of Connecticut. His master's and doctorate programs were interdisciplinary, with work in the Department of Biological Sciences, School of Engineering, and Natural Resources. Dr. Kortmann's research focused on the chemistry of lake-watershed ecosystems, mathematical models, and eutrophication.

Dr. Kortmann and E.C.S., Inc. have conducted cooperative research projects with Environmental Engineering Companies, Water Utility Companies, University of Connecticut, Kent State University, Canada Ministry for the Environment, and Regulatory Agencies. Dr. Kortmann has been an invited participant at AWWA-RF Workshops, AWWA-WQTC Sunday Seminars, and has received several research publication awards. Dr. Kortmann taught aquatic biology and chemistry at the Hartford Graduate Center (R.P.I.), published a handbook on lake management (IWR- US Department of the Interior) and a variety of journal articles, and made presentations at numerous international professional meetings. Dr. Kortmann and ECS, Inc. have performed lake and reservoir restoration projects throughout the United States, Canada, and as far away as Sao Paulo, Brazil.

Innovations:

- Invented a dialysis method to analyze the chemical content of sediment-interstitial water
- Invented/developed Hydrologic Flow Routing technologies (U.S. Patent)
- Invented/Developed Layer Aeration Technology (U.S. Patent) (Environmental Technology Innovation Award for Layer Aeration from the EPA)
- Invented/Developed DownFlow Oxygenation Technology (U.S. Patent)
- Winter Thermal Treatment Techniques
- Non-Chemical Disinfection Technology (Patent Application in prep)
- Pneumatic Diffuser Apparatus (Patent Application in prep)
- Wind, Solar, and Wind-Solar Hybrid Aeration and Circulation Methods (Patent Pending)

ECS, Inc. received the Lake Restoration Project Award for innovative restoration techniques employed at Lake Waramaug, CT (Hypolimnetic Nutrient Inactivation with no chemical addition).

Selected Publications:

- Kortmann, R.W. 1980. Benthic and atmospheric contributions to the nutrient budgets of a soft-water lake. *Limnology and Oceanography* 25(2): 229-33.
- Kortmann, R.W. 1981. Functional relationships between nutrient dynamics, oxidation-reduction capacity, and eutrophication in a soft-water lake. *University of Connecticut. Ph.D. Dissertation.*
- Kortmann, R.W., G.W. Knoecklein, C.H. Bonnell, 1994. Aeration of Stratified Lakes: Theory and Practice. *Lake and Reservoir Management Journal*, 8(2):99-120.
- Kortmann, R.W. and P.H. Rich, 1994. Lake Ecosystem Energetics: The missing management link. *Lake and Reservoir Management Journal*, 8(2):77-97.
- Kortmann, R.W., "Managing Reservoir/Watershed Systems", *WaterSearch*, Vol. 5. Summer, 1987. AWWA.
- Kortmann, R.W. 1988. Utility of Layer Aeration for Reservoir and Lake Management. *Lake and Reservoir Management Journal* 4(2):35-50.
- Kortmann, R.W. "Raw Water Quality Control: An Overview of Reservoir Management Techniques". *Journal New England Water Works Association*, April 1989.
Awards: Dexter Brackett Meritorious Paper Award, *New England AWWA*
Quaternary Transatlantic Award-1990 *Institution of Water and Env.Management* (England).
- Kortmann, R.W. 1990. Thermal Stratification in Reservoirs: Causes, Consequences, Management Techniques. Proceedings *AWWA-WQTC*, San Diego, November 1990.
Invited Contribution to AWWA Sunday Seminar.
- Kortmann, R.W. Lake ecosystem energetics: The ecology of raw water quality management.. *AWWA-1994 WQTC*, Nov. 6-10, 1994. pp. 1897-1925. San Francisco, CA.
- Kortmann, R.W. 1994. Oligotrophication of Lake Shenipsit by Layer Aeration. *Lake and Reservoir Management Journal*, 9(1)94-97.
- Kortmann, R.W. 1984. The utility of a hydrograph flowstage phosphorus loading model. *Lake and Reservoir Management - Practical Applications. Lake and Reservoir Management Journal* pp. 173-179.
- Jokinen, E.H., J.Guerette, and R.W. Kortmann, 1982. The natural history of an ovoviviparous snail, *Viviparus georgianus* (Lea), in a soft-water eutrophic lake. *Freshwater Invertebrate Biology* 1(4): 2-17.
- Kortmann, R.W., D.E. Henry, A. Kuether, and S. Kaufman. 1982. Epilimnetic nutrient loading by metalimnetic erosion and resultant algal responses in Lake Waramaug, Conn. *Hydrobiologia* 92: 501-10.
- Kortmann, R.W. and D.D. Henry, 1987. "Mirrors of the Landscape: An Introduction to Lake Management". Conn. *Institute of Water Resources*, US Dept. of the Interior, Univ. of Conn., Storrs, CT. 103 pp.
- Kortmann, R.W. 1988. Utility of Layer Aeration for Reservoir and Lake Management. *Lake and Reservoir Management Journal* 4(2):35-50.
- Kortmann, R.W. 1989. Putting Stormwater to Maximum Use. *LakeLine* April 1988
- Kortmann, R.W. 1994. Lake Waramaug 1975-1993...What we've learned. *Lake and Reservoir Management Journal*, 9(1):65-71.
- Kortmann, R.W. 1994. Oligotrophication of Lake Shenipsit by Layer Aeration. *Lake and Reservoir Management Journal*, 9(1)94-97.

Research Grants Awarded

Institute of Water Resources - University of Connecticut *In vitro* fluorimetry for water supply reservoir monitoring. Research Participants: University of Connecticut, Regional Water Authority, Ecosystem Consulting Service, Inc. Grant co-Authored by: Peter H. Rich, Ph.D. and R.W. Kortmann, Ph.D

USEPA Research Grant: Section 314: Clean Water Act: Phase III Mechanisms of Restoration at Lake Waramaug, CT, Innovative Hypolimnetic Management Approaches.

Research Participants: Kent State University, University of Connecticut, ECS, Inc.

Grant Authored by: R.W. Kortmann, Ph.D

EPA Region I Clean Lakes Project Award 1992

Selected Major Projects

- Annual Management of Source Water Reservoirs- Connecticut Water Company 1982-present
- Annual Management of Source Water Reservoirs- Aquarion Water Company 1994-present
- Oklahoma Water Resources Board- Consultant for Reservoir Management and Restoration
- Projecto Guarapiranga- Limnological Consultant to the World Bank Project, Sao Paulo, Brazil
- Lake Waramaug Restoration Project 1979-present
- Hypolimnetic Aeration- City of Norfolk, VA Reservoirs; Hodgson Reservoir, Revenna, OH
- Layer Aeration: Lake Oswego, Oregon; Wanaque Reservoir, North Jersey District Water Supply Commission; Glendola Reservoir, NJ American Water Company; Brick Township NJ Reservoir; Oradell Reservoir, United Water Company; Pennichuck Water Supply Reservoirs, NH; Ledyard Reservoir, Groton, CT; Bear Creek Reservoir, Lakewood, CO; City Lake, Tuscon, AZ; Culver Lake, NJ; Lake Rockwell Reservoir, Akron, OH; Glen Reservoir, SCCRWA, CT; Third Lake, IL; Minersville Reservoir, PA; Truro Reservoir, Nova Scotia, Canada.
- Flow Routing Projects: Lake Rockwell Reservoir, Akron; Pennichuck Water Supply Reservoirs; Coos Bay Reservoirs, Coos Bay, Oregon; Reservoir 6, MDC, CT;

Professional Memberships

American Water Works Association (AWWA)

AWWA Sections: Connecticut, New England, NY, Chesapeake, Virginia, New Jersey

North American Lake Management Society (NALMS)

American Society of Limnology and Oceanography (ASLO)

American Fisheries Society

Past Member: **State Advisory Board - Institute of Water Resources – CT**