



US Army Corps
of Engineers
Waterways Experiment
Station

Zebra Mussel Research Technical Notes

Section 2 — Control Methods

Technical Note ZMR-2-06

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Vendors that Provide Services and Equipment for Zebra Mussel Control

Background and purpose Zebra mussel infestations are a serious menace to industries that use raw water for operational purposes. These tiny molluscs grow and reproduce quickly, usually reach extremely high densities, and can affect public facilities by clogging pipes and interfering with equipment operation. The purpose of this note is to provide a list of vendors, with addresses and telephone numbers, that provide equipment and services that can be used to reduce problems caused by zebra mussels.

Additional information This technical note was written by Ms. Karen Gunnison, Kalamazoo College. Contact Dr. Andrew C. Miller, U.S. Army Engineer Waterways Experiment Station (WES), (601) 634-2141, for additional information. Dr. Ed Theriot, WES, (601) 634-2678, is Manager of the Zebra Mussel Research Program.

Description Address and telephone numbers of vendors that distribute cleaning equipment, chemicals, or provide inspection services pertaining to zebra mussel infestations have been entered on an information retrieval system that can be used on IBM personal computers or compatible systems. If available, information on costs of the equipment or procedures are listed, as well as the names of individuals with experience with a particular method. The data can be listed or searched by company name, or type of method (for example, antifoulant coating, biocide, biocide application equipment, or filters). Currently more than 40 companies are included in the system, and as information becomes available more will be added.

The companies included in the data base are organized by the following types of products or services that they provide:

- **Antifoulant coatings.** Materials that can be applied to surfaces to prevent the attachment of adult zebra mussels.
- **Antifoulant inserts.** Sheets of material impregnated with a toxic material to cover surfaces, preventing the attachment of adult zebra mussels.
- **Biocides.** Materials that are toxic to zebra mussels, and often to other aquatic organisms.
- **Biocide application equipment.** Devices that automatically release a measured amount of toxic material, such as chlorine, to the treated area.

- **Biocide generators.** Devices that produce toxic materials (ozone for example) used in water treatment.
- **Control and inspection service.** Teams that visit sites to perform inspection, cleaning, or biocide application.
- **Filters.** Screening devices coupled with a backwash system to remove bacteria, algae, and zebra mussels.
- **Inspection devices.** Automated systems equipped with cameras and monitors to locate infestations.
- **Mechanical cleaning equipment.** Devices operated manually, including pumps, pigs, scrapers, and brushes.
- **Monitoring devices.** Equipment used to obtain information on water quality (some zebra mussel control methods could affect water quality) and to check for the presence of recently settled zebra mussels.
- **Uncategorized.** Miscellaneous equipment that does not fit into the above categories.

Acres International
140 John James Audubon Parkway
Amherst, NY 14228-1180
(716) 689-3737

This company offers field monitoring programs for veligers and adults, mollusc identification, training of site personnel, and evaluation of strategies designed specifically for the control of zebra mussels.

Aim Trading Company
21 Bishops Road
St. Catharines, Ontario, Canada L2M 1T8
(416) 934-0830

The Filtomat self-cleaning filter is composed of a coarse strainer to trap large particles, a filtration compartment with a dirt collector, and a hydraulic motor chamber as well as a backwash system to remove all collected particles.

Allen Marine Services, Inc. (AMS)
3623 Eggert Road
P.O. Box 86
Orchard Park, NY 14127
(716) 662-9229

AMS offers inspections, maintenance, and repairs to water intakes for industrial and municipal systems in New York and the Great Lakes system. The company has experience in cleaning and removing zebra mussels with a variety of methods.

Aquatic Sciences, Inc.
P.O. Box 2205, Station B
St. Catharines, Ontario, Canada L2M 6P6
(416) 641-0941

This company has a remotely operated, video-inspection system designed to execute internal inspections of offshore pipelines where manned access is impossible. This particular device was custom made for Aquatic Sciences, Inc. Contact Bill Sherwood, Aquatic Sciences, Inc., for more information.

Betz Industrial
4636 Somerton Road
Trevose, PA 19053
(215) 355-3300

This treatment is designed to eliminate zebra mussels as veligers, before they grow to a fouling size, through seasonal Clam-trol applications. A permit from the U.S. Environmental Protection Agency (EPA) will be required to use this product.

Biofouling & Corrosion Control, Ltd
23 Shepherd Street
Sheffield S3 7BA
0742-751776

This company provides a number of anti-fouling systems used in seawater. This particular system may be successful in eliminating zebra mussel problems locally in freshwater.

Blume Worldwide Services
246 Mamaroneck Road
Scarsdale, NY 10583-7242
(914) 723-6185

This system adds cupric ions (to freshwater) to kill veligers and prevent attachment of adult zebra mussels.

Calgon Corporation
Water Management Division
P.O. Box 1346
Pittsburgh, PA 15230
(412) 777-8000

This biocide appears to kill zebra mussels when added to water in sufficient quantities. It also reduces alum usage, the amount of treatment residuals to the lagoon, and the soluble aluminum in the plant effluent and improves the Stability Index. Individual users must obtain EPA approval.

Cancoppas, Ltd.
1045 South Service Road, West
Oakville, Ontario, Canada L6L 6K3
(416) 847-2740

The flowmeter can be placed in a water channel to provide a profile of the water flow. The system may also provide liquid samples and a variety of information on water quality.

Capital Controls Company, Inc.
P.O. Box 211
Colmar, PA 18915
(800) 523-2553

This company provides water quality monitors as well as generators that produce sodium hypochlorite and ozone, substances that are toxic to zebra mussels.

Chemline Plastics, Ltd.
55 Guardsman Road
Thornhill, Ontario, Canada L3T 6L2
(416) 889-7890

This product consists of a sheet of polyethylene that is impregnated with chlorine.

Chugoku Marine Paints, Ltd.
1610 Engineers Road
Belle Chasse, LA 70037
(504) 392-4817

This product forms a slippery surface of nontoxic silicon resin that may be applied to a wide variety of surfaces such as metals and concrete. A slick surface will weaken the attachment of zebra mussels.

Commercial Diving and Marine Services
890 Georgia Avenue
Marysville, MI 48040
(800) 722-0879

This company uses inspection devices and divers to monitor zebra mussel infestation in the Great Lakes. They also repair pipelines and water-intake systems.

CTI Industries
Coatings Division
P.O. Box 580669
Houston, TX 77258-0669
(713) 333-9415

This product may be applied to steel, aluminum, concrete, or other surfaces that will be placed either above or below water. After application, it cures to form a hard, water-resistant coating. Although originally designed to prevent corrosion, this product could help reduce infestations since zebra mussels . . .

Decoking Descaling Technology, Inc.
Box 70
Lacombe, Alberta, Canada TOC ISO
(403) 346-7444

This company provides the equipment and crew necessary to clean piping systems that are infested with zebra mussels.

Diversey, Inc.
2645 Royal Windsor Drive
Mississauga, Ontario, Canada L5J 1L1

This company installs chemical dosing and control systems and supplies sodium and potassium hypochlorite to treat zebra mussel infestations.

Econometrics, Inc.
130 West Main Street
Silverdale, PA 18962
(800) 755-2904

This system can be used to feed chlorine, sulfur dioxide, ammonia, or carbon dioxide at a variety of rates. It may be operated by manual or automatic control.

Filtomat
40 N. Van Brunt Street
Englewood, NJ 07631
(201) 568-3311

This automatic self-cleaning water filter is designed to remove sand, algae, silt, leaves, microbiological growth, and zebra mussels from water used in cooling, processing, and intake systems.

Fischer & Porter
Worldwide Headquarters
125 E. County Line Road
Warminster, PA 18974
(800) 421-3411

This system adds acid and sodium chlorite to a measured solution of chlorine for use in zebra mussel control. Chlorine dioxide is used in water treatment and is superior to chlorine in primary disinfection and residual maintenance.

Fuji America, Inc.
Dept. T
4044 Yancey Road
Charlotte, NC 28217
(704) 527-3854

This automatic backflushing filtration system is designed to flush water through its filters when filtration pressure reaches a predetermined level.

Garlock, Inc.
602 N. 10th Street
P.O. Box 648
Camden, NJ 08101-0648
(609) 964-0370

These polyethylene sheets can be molded into a variety of forms and are very resistant to abrasion and corrosion that remove anti-foulant coatings. This product prevents the adhesion of zebra mussels and has received EPA toxicity testing.

Grace Diving Enterprises
P.O. Box 374
North Olmsted, OH 44070
(216) 459-9664 or (216) 777-2769

This service includes diver-operated procedures that will later include chemicals or bio-defouling of affected facilities (after EPA approval).

Henkel Corporation
Emery Group/Ozone Technology
11501 Goldcoast Drive
Cincinnati, OH 45249
(513) 530-7702

This product is designed for use in water treatment. It is built in conjunction with a water-cooling system. Technical assistance is available from the Henkel Corporation.

Hi-Tek Chemical Corporation
106 Taft Avenue
Hempstead, New York 11550
(516) 538-0400

Epcotek 2000 is a nontoxic epoxy resin combined with copper to form an anti-fouling coating that may be applied to concrete, aluminum, steel, and glass-reinforced polymers. The U.S. Army Engineer District, Detroit, has recently coated a boat with this compound. Contact Dick Dobler, Detroit District.

Hydrobotics Engineering Canada, Inc.
20-520 Westney Road South
Ajax, Ontario, Canada L1S 6W6
(416) 428-2300

This company offers four ROVs with different power levels. Each includes a video camera and lighting system, and the more expensive versions include video overlay cameras.

Hydrodynamics Corporation
P.O. Box 667
Highway 10E
Bogalusa, LA 70429-0667
(504) 735-0600

This descaler unit prevents new scale deposits and removes existing deposits in pipes, boilers, water towers, heat exchange units, and potable domestic water systems by accelerating the suspended particles through an intensified controlled magnetic field.

Industrial Plastics Canada, Ltd.
P.O. Box 93
625 Industrial Drive
Fort Erie, Ontario, Canada L2H 9Z9
(416) 871-0412

This company provides valves, metering pumps, fittings, and other materials used for biocide application.

International Paints, Ltd.
19500 Trans Canada Highway
Baie d'Urfe, Quebec, Canada H9X 3S8
(514) 457-4155

This nontoxic coating (Intersleek) forms a low-energy surface that weakens the attachment of adult zebra mussels.

J. J. Downs Industrial Plastics, Inc.
243 Bering Avenue
Toronto, Ontario, Canada M8Z 3A5
(416) 236-1884

This thermoplastic system is designed to collect representative samples of organisms or biological agents present in pipes or other diverted water sources. This product is specifically manufactured for the sampling of zebra mussel larvae.

Kansai Paint (America), Inc.
1211 Avenue of the Americas, 42nd Floor
New York, NY 10036
(212) 704-6857 or (800) 235-BIOX

This product forms a film that weakens zebra mussel attachments so that the animals may be removed with low-velocity water.

Lakos Plum Creek
1911 North Helm Avenue
Fresno, CA 93727
(209) 255-1601

This company offers self-cleaning pump-intake screens that may protect pumps and water systems from clogging due to zebra mussels and separators that remove solids through centrifugal action. Both products could reduce zebra mussel larvae in raw water systems.

Metcon Sales and Engineering, Ltd.
328 North Rivermede Road, Unit #9
Concord, Ontario, Canada L4K 3N5
(416) 738-2355

These products offer automatic and measured chlorination and are designed to control zebra mussels.

Modern Process Systems, Inc.
8282 Old Siegen Lane (Near Airline)
Baton Rouge, LA 70810
(504) 766-4080

This unit is auto-paced and has auto switchover capabilities.

Nalco Chemical Company
One Nalco Center
Naperville, IL 60563-1198
(312) 961-9500

The Acti-brom products are chlorine enhancers designed to minimize the amount of chlorine required to prevent macrofouling. These products pose less threat to the environment than do other biocides.

NASCENT (North American Scientific Enterprises)
36 East Main Street
Canton, NY 13617
(315) 379-5844

These visual aid programs include microscope photographs of zebra mussels at various stages in their life cycles as well as the damage they may cause. Background text is provided with the slides.

NLB Corp.
29830-T Beck Road
Wixom, MI 48393-2824
(800) 394-4587 or (313) 624-5555, ext. 7

This company offers normal water-jetting systems that perform at pressures as high as 20,000 psi as well as intense jetting systems that reach 36,000 psi.

Olin Corporation
120 Long Ridge Road
Stamford, CT 06904-1355
(203) 356-2000

The Pulsar II is an automatic chlorine feeder that uses dry pellets and is designed for swimming pool treatment. Presumably in some situations it could be used for zebra mussel control.

OREC
3840 North 40th Ave.
Phoenix, Arizona 85019-3613
(602) 272-2681

This product will eliminate zebra mussels and veligers through the introduction of ozone to water. Ozone is known to be toxic to fish and other aquatic organisms and, therefore, ozonators should be used in conjunction with degasification systems.

Pilkington Controlled Release Systems, Ltd.
23/24 Colomendy Industrial Estate
Denbigh/Clwyd LL16 5TA; North Wales UK
0745 814678/814707
0745 815511

This product dissolves in water to release copper ions that prevent attachment and perhaps kill zebra mussels.

Pipeline Pigging Products, Inc.
P.O. Box 692005-300
Houston, TX 77269
(713) 351-6688 or (800) 242-7997

This company produces Poly Pigs — a type of internal cleaning device — in various styles designed for drying, wiping, or scraping pipes of all sizes.

Proctor & Redfern, Ltd.
Consulting Engineers and Scientists
379 Dundas Street
London, Ontario, Canada N6B 1V5
(519) 673-0510

This company provides a number of water supply, treatment, and distribution systems for industries.

ProMinent Fluid Controls, Inc.
P.O. Box 4549
740 Vista Drive
Pittsburgh, PA 15205
(412) 787-2484

This system measures redox potential, pH, chlorine residual, chlorine dioxide, electrolytic conductivity, and ozone. It is included with removal equipment because of the need to monitor water quality during the treatment of zebra mussels.

Robar Machine, Inc.
2611 East 40th Street
Chattanooga, Tennessee 37407
(615) 867-4717

This company sells racks for microscope slides, settling plates, and other samplers specific for zebra mussels.

Ronningen-Petter
9151 Shaver Road
P.O. Box 188
Portage, MI 49081-0188
(616) 323-1313

This system is designed so that filtering can be continued while some of the filters are cleared of debris and organisms. Backwashing these filters can be completely automated.

S. P. Kinney Engineers, Inc.
P.O. Box 445
Carnegie, PA 15106-0445
(412) 276-4600

These automatic self-cleaning strainers have been used by many industries to remove animals such as the zebra mussel and the Asiatic clam from their water systems.

Taprogge America Corporation
The Plaza Building
100 Crossways Park West
Woodbury, NY 11797
(516) 921-5200

These products are designed to reduce the amount of scaling and fouling in tubes, increasing the performance of condensers and heat exchangers.

VITCO Corporation
802 Walnut Street
P.O. Box 525
Waterford, PA 16441
(814) 796-6739

In preliminary testing, this product appeared to reduce the adhesion of zebra mussels to hard surfaces. If effective, glass lining could potentially be applied to pump internals, valves, grating, or internal pipe sleeves.

York Fluid Controls, Ltd.
2 Westwyn Court
Brampton, Ontario, Canada L6T 4T5
(416) 454-4013

This is an hydraulically driven, high-flow portable submersible pump that incorporates a suction manifold. This type of pump has been used by Ontario Hydro and others for zebra mussel removal. Contact Dick Lowther, Ontario Hydro, (416) 592-8771, for information on the use of this equipment.