



INTRODUCTION TO THE ZEQUANOX METHOD FOR THE CONTROL OF DREISSENA POLYMORPHA



ECOWATER TECHNOLOGIES, S.L.
Mediterrani, 16 46980-Paterna -VALENCIA
Real,41 11300- La Línea de la Concepción-CADIZ

Tlf.: +34960815545 +34 622677255 +34 622623723 Email: ecowatervalencia@gmail.com
Web: <https://ecowaterinnova.weebly.com/>



METHODOLOGY AND APPLICATION ZEQUANOX

The following pages contain the guide through which we will perform the necessary tasks to obtain the maximum performance of Zequanox, both in open and closed systems.

The precise information will be obtained through the data obtained through the manager of the installation of one part and another, those obtained or collected by ECOWATER TECHNOLOGIES, S.L. , by own means or third parties.

The phases in which we develop any ZEQUANOX project are those described in this table:

Phases

- ❖ **INFORMATION.-** Data on structures, body of water, fauna, flora and environmental conditions. Graphic Documentation
- ❖ **ANALYSIS.-** Study of the information and its assessment.
- ❖ **DIAGNOSIS.-** Technical conclusions regarding the location of critical points, dosage, appropriate periods of application.
- ❖ **PROJECT.-** Presentation of the technical and economic study. (Except for initial biobox tests)
- ❖ **APPLICATION.-** Work plan. Technical requirements. Execution
- ❖ **CONTROL.-** Observation phase and measurement of results.
- ❖ **FOLLOW-UP.-** Monitoring plan. Status report
- ❖ **MAINTENANCE.-** System maintenance plan.
- ❖ **TRAINING.-** Training of the personnel of the system management entity.

- 1) **Preliminary Information.-** Updated data on the conditions of the system to be treated:
- 2) **Underwater Prospecting.- (Only in open Water systems)** Prospecting of the funds and shorelines of reservoirs in the areas called Risk. It consists of the mapping and division of the different areas in which the colonization has an important presence. From the cartography obtained, the areas of action and application of Zequanox will be established, by means of bounded water columns and the structures necessary to carry out the control operations.
- 3) **STRUCTURAL DATA.** Dimensions and materials (Irrigation Systems)
- 4) **RESERVATORIES OR BOXES OF THE MAIN TAKE.** Dimensions. Material
- 5) **MAIN PIPE.** Dimensions. Material. Flow
- 6) **7) RAFTS.** Dimensions. Material. Capacity.



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1) Water physicochemical data

Water samples from the area to be treated must be provided by the managing entity and presented in fully sanitized and closed containers. ECOWATER TECHNOLOGIES.SL could carry out this task, prior agreement with the managing entity.

Chemical parameters	Pollution indicating
pH	
OD dissolved oxygen	
Turbidity	
Biodegradable organic matter: Biochemical Oxygen Demand (BOD5)	.
Oxidizable materials: Chemical Oxygen Demand (COD)	
Total nitrogen	.
Total phosphorus	
Anions: chlorides-nitrates -nitrites -phosphates-sulfides -cyanides -fluorides	.

1) Lentic Ecosystem. Sampling of species. Fauna and Flora

The species to which we will submit the selectivity test will be those that permanently inhabit the body of water. If this is the case, this mission will be provided by the managing entity or delegate to Technoymar Soluciones, and they must be prepared to carry out the test in perfect conditions. Some examples:



Tent: *Cyprinus carpio*



Lucio: *Esox lucius*



Lucioperca: *Sander lucioperca*



Barbo: *Barbus barbus*



Percasol: *Lepomis gibbosus*



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a) **Analysis.- Study of the information and its assessment**

The data obtained during the informative process will be processed by the Technical Department of Ecowater Technologies.

During this phase, technical contrasts will be made with the managing entity in order to adjust the parameters that, due to their nature, could present some doubts about their specificity.

Diagnosis.- Technical conclusions regarding the location of critical points, dosage, appropriate periods of application. Ecowater Technologies will present a report to the managing entity on the suitability of the application of ZEQUANOX, in the zones:

- a) **Critical Zone.** Structures severely affected by colonization of D.p. The action will aim to clear the presence of individuals that affect the normal development of the operational functions of the affected unit or area. An intensive treatment will be applied according to the specifications contained in the diagnosis phase.
- b) **Control Zone.-** Body of water with proliferation of larvae and adults in the settlement phase. This area will be contrasted by underwater observation with observation and measurement device
- c) **Prevention Zone.-** That for which the D.p. Access the systems. Since these areas are generally outside the scope of control of the management entity of the system, the study will be presented for information purposes for greater scope.
- d) **3) Project.- Presentation of the technical and economic study. (Except for initial biobox tests)**

The presentation of the project will take place once the system manager has concluded that the preceding phases are adjusted to the real needs. It contains the details of the application, the work plan, the ideal time of the application, the detailed costs of the operation and the general conditions of the operation by means of a commercial service contract. Aplicación. Plan de trabajo. Necesidades técnicas. Ejecución

e) **Control.- Observation phase and measurement of results.**

This process starts immediately after the end of the application process. A series of observations and measurements will take place over a period of three weeks to verify that the control process of the D.p. It is happening as planned.



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f) Follow-up - Follow-up plan. Status report

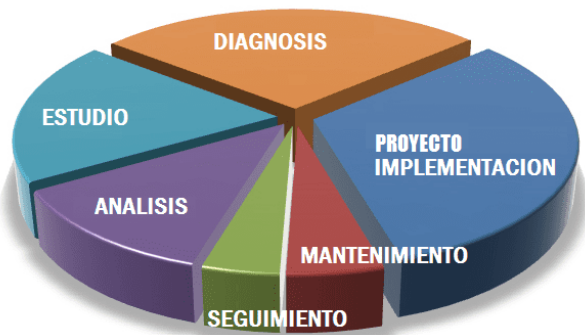
Periodically, (3 times a year) observations will be made on the different strategically located sampling plates in order to observe the evolution of larvae and adults. This process will indicate the levels of application of maintenance doses.

g) Maintenance.- System maintenance plan.

The control of D.polymorpha. It must be permanent. This starts the annual maintenance program whose characteristics will be defined after observing the FOLLOW-UP program indicators.

h) Training.- Training of the personnel of the management entity of the system.

ECOWATER TECHNOLOGIES, S.L. , will train the personnel that the system manager indicates so that the MONITORING AND MAINTENANCE processes are developed by these people according to MBI standards. You can only handle and apply the ZEQUANOX product, accredited personnel.



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FORM

ESTABLISHMENT INFORMATION

Legal person Physical person Public Private

Corporate name of the establishment:

Name of the legal representative:

NIF/CIF: Tlf/Fax:/.....

E-Mail:

Web.....

INFORMACION GENERAL DE LA INSTALACION

GENERAL INFRASTRUCTURE INFORMATION

.....
.....
.....
.....

Have you used or used any means of control for the zebra mussel ?: (Short description)

.....
.....
.....
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QUESTIONNAIRE

(Information necessary for the evaluation of treatment that would be applied on the affected system)

The information requested to carry out a treatment evaluation with Zequanox is kept confidential. Any other information that you consider appropriate to complement this questionnaire will help us to make a correct opinion.

1. ¿Could you tell us the level of accumulation of Dreissena polymorpha in the installation? Do you have a method to set this level?

Answer:

2. What level of control you want to set the installation? (Intensive shock treatment, drastic reduction of the colonies or treatment within 24 weeks gradual reduction of colony size and larvae).

Answer:

3. In the event that the installation was very infected, would you like full control in the first treatment? (Keep in mind the amount of waste that would be released).

Answer:

4. How long (months / weeks) the water temperature is that above 15 ° C annually (average estimate)

Answer:

5. What is the average flow rate (m³/seg or other variable)?

Answer:

6. What is the minimum flow that could take place for 2 hours?

Answer:

7. What is the minimum flow that could take place for 6 hours?

Answer:

8. What is the possibility of keeping static the system for 2 hours, once every two weeks when the water temperature is above 15°C?

Answer:

9. What is the possibility of keeping static the system for 6 hours once a year, if possible by the end of summer?

Answer:



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10. Approximate residence time of water in the approximate total affected system (time from the start point to the discharge system) or static water volume system (drains, pipes, manholes)

Answer:

.Approximate pressure and system specifications (construction materials, etc.)

Answer:

11. Do you have a port to inject the product into the system located near the head or in a logical location to provide the control product?

Answer:

12. Is there electrical outlet (energy), water and space for product mix and application equipment?

Answer:

13. Do you have a port to carry out the sampling stream down the application for sampling and monitoring location? (Ideally near a drain in the floor).

Answer:

14. Are there areas in sections that have not been infested with zebra mussels?

Answer:

15. Where does the system collect water?

Answer:

16. Can describe the characteristics of the reservoir or water source

Answer:

17. Describe the pumping station (number of pumps, pre-pumping tank, dimensions, etc.)

Answer:

18. Size and location of the filter screens. (If you can provide a drawing, it would be positive)

Answer:

19. From the pumping zone, to the discharge zone, what is the diameter of the pipe

Answer:

20. What is the length of the pipe?

Answer:

21. What is the flow rate in the pipe?

Answer:

22. b) Residence time for the flow from the pumping station to the discharge point?

Answer:



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