

## **CHAPTER 17. AQUATIC NUISANCE SPECIES (ANS) AND DISEASE CONTROL PROTOCOLS**

Reprinted from the WVDNR Wildlife Resources Section ANS Disinfect Policy - July 2007

### **Overview**

Recent concerns over the introduction of aquatic nuisance species, fish-related diseases, and non-endemic genotypes of native aquatic species has led to the development of procedures and guidelines to aid in the control of these potentially deleterious organisms. These guidelines follow accepted protocols currently implemented by many state and federal natural resources agencies. The goal of these procedures and guidelines is to protect the aquatic species inhabiting all of West Virginia public waters. It is the public policy of the State of West Virginia that the wildlife resources as defined as wild birds, wild animals, game and fur-bearing animals, fish (including minnows), reptiles, amphibians, mollusks, crustaceans, and all forms of aquatic life used fish bait whether dead or alive (20-1-2)) shall be protected for the use and enjoyment of all citizens of this State (20-2-1). These procedures and guidelines are intended to be an integral component of the management of fish and other aquatic resources as established in the agency's mission.

For more information about aquatic nuisance species prevention, see <http://www.protectyourwaters.net/>

### **Section A. Required Disinfectant Tasks of All Equipment**

These tasks are required for all WVDNR staff, as well as any governmental agency, individual, or private company operating in West Virginia public waters under the authority of a WVDNR issued scientific collecting permit (20-2-50) or as a WVDNR cooperator.

#### **Part 1. All Boats including Electrofishing Boats**

All WV Water Bodies: Bilge areas and live wells must be drained before leaving water body, as well as all trash (plastics, woody, etc.) removed from boat. Props and trailers must be inspected and all mud, aquatic plants, and animals must be removed. Prior to next use, live wells must be disinfected using the appropriate techniques.

Water Bodies of Special Interest: Bilge areas and live wells must be drained before leaving water body, as well as all trash (plastics, woody, etc.) removed from boat. Props and trailers must be inspected and all mud, aquatic plants, and animals must be removed. Prior to leaving the immediate area of the water body, live wells, bilge areas,

and other exposed boat and trailer surfaces must be disinfected using the appropriate techniques.

## **Part 2. Field Sampling and Laboratory Equipment**

Gill, hoop, and other nets must be cleaned and allowed to air dry in an area not in proximity to a public water body. Dip nets, boots, measuring boards, *etc.* must be disinfected between uses. Balances, counter tops, cutting tools, and other laboratory equipment must be disinfected between uses or if moved within or between a facilities.

## **Part 3. Fish or Other Aquatic Species Stocking Equipment**

All hauling tanks must be disinfected following each transportation event. Disinfection of stocking tanks will not be allowed at a WVDNR hatchery unless a disinfecting area has been developed. No non-disinfected equipment will be allowed on any WVDNR warmwater hatchery and hatchery personnel will deny entry to any who did not disinfect their equipment. Only hatchery dip nets are allowed to be used on any WVDNR warmwater hatchery. All non-hatchery dip nets must remain in the vehicle.

Water used for hauling tanks must be acquired at the individual WVDNR warmwater hatchery, or as assigned by WVDNR warmwater hatchery staff. If broodstock are being transported into a WVDNR warmwater hatchery, fish will be removed from the stock tank and treated by WVDNR warmwater hatchery staff. Water will be treated with a chlorine solution and disposed at a developed disinfecting area. No untreated water will be disposed at WVDNR warmwater hatchery facility. All broodstock must be treated while in transport from collecting water body to a WVDNR warmwater hatchery facility.

## **Part 4. Other Equipment**

Care must be given to the cleaning and disinfection of other equipment, outerwear (*i.e.*, waders and wading boots), *etc.* Thus, it is dependent on individual staff to be cognitive of their responsibility.

## **Part 5. Record Keeping**

A log of the use and disinfection of boats and fish stocking equipment must be maintained.

## **Section B. Water Bodies of Special Interest**

- A. All Great Lakes, Potomac River sub-basin water bodies, as well as the Ohio and Kanawha Rivers and any water body within a Great Lake bordering state
- B. Any water body within a state experiencing VHS or other fish disease problem
- C. Any water body experiencing a fish kill

- D. Any water body known to be inhabited by zebra mussels, silver and bighead carp, rough goby, and other recognized injurious species

## **Section C. Selection of Surface Disinfectants**

### ***Reprinted from CDFA-Biosecurity-Selection and Use of Surface Disinfectants***

Selection of an appropriate surface disinfectant is governed by several factors including the type of surface to be disinfected, temperature, weather conditions, effectiveness against specific disease causing organisms, and time required for the disinfectant to inactivate the agent. The efficacy of most disinfectants is impaired by the presence of organic material and thorough cleaning prior to their application is critical.

### **Precautions**

*When using surface disinfectants, always:*

- Follow label directions regarding use and safety precautions,
- Take proper precautions to protect the environment and ensure that no one is injured,
- Devices and coverings for protecting the hands, skin, nose, mouth, and eyes should be worn when indicated by the product label.

## **Glossary of Biosecurity Terminology**

**Disinfectant:** a substance that destroys harmful microorganisms. According to the Environmental Protection Agency (USEPA), a disinfectant destroys 100% of the vegetative (actually growing) bacteria of a certain species under specified conditions. However, disinfectant does not include efficacy against fungi, viruses, *Mycobacterium tuberculosis* or bacterial spores (unless specifically tested against those organisms with USEPA approved methods).

**Sanitizer:** reduces vegetative cells, but not the spores of, bacteria to a safe level as may be judged by public health requirements (by reduction of 99.9% of vegetative bacteria).

**Virucide:** kills or inactivates viruses. For USEPA label claims, USEPA accepted protocols must be used in testing specific viruses.

**Sporicide:** kills all microorganisms including bacterial endospores, a very resistant form of certain microorganisms, which develop as a means of survival under adverse conditions.

**Fungicide:** kills or inactivates fungi. For USEPA label claims, USEPA accepted protocols must be used in testing specific fungi.

**Bactericide:** kills or inactivates bacteria. For USEPA label claims, USEPA accepted protocols must be used in testing specific bacteria.

**Detergent:** Cleansing agents that assist in the removal of soils by emulsifying grease and suspending dirt particles.

**Disinfectant detergent:** Combination product for one-step cleaning, disinfecting, and deodorizing.

**Tuberculocidal:** kills *Mycobacterium tuberculosis*, an acid fast bacterium which is generally more difficult to kill than most bacteria. Making label claims for tuberculocidal activity requires testing under specific USEPA guidelines.

**Material Safety Data Sheet (MSDS):** Informational sheet describing properties, usages, and safety concerns of a material or product.

## **Selected Surface Disinfectants**

### **Potassium peroxymonosulfate – Virkon S®**

**Instructions for use:** Use a 1% solution (1.3 oz. / gallon water).

**Advantages:** Bactericidal, virucidal, and fungicidal. Solution stable for 7 days. This is a U.S. Environmental Protection Agency Registered Farm disinfectant with label claims against FMD virus.

**Disadvantages:** Powder is irritating to eyes, mucous membranes and respiratory tract. Do not ingest. Do not immerse metal for longer than 10 minutes.

### **Sodium hypochlorite (household bleach, 6% of sodium hypochlorite)**

#### **Instructions for use:**

- 1) Clean before disinfecting hard surfaces.
- 2) Allow a mixture of 3/4 cup bleach/gallon of water (higher concentrations should be used when high levels of organic matter are present) to contact surface for 10 minutes, and then rinse with water.
- 3) Once mixed with water, bleach breaks down quickly – replace disinfecting solutions daily.
- 4) Mix in well-ventilated area and wear gloves.

**Advantages:** Bactericidal, virucidal.

**Disadvantages:** Wear gloves when applying; skin, eye, nose and throat irritant when concentrate inhaled; ingestion can cause esophageal injury, stomach irritation, prolonged nausea, and vomiting. Household bleach forms toxic gas when mixed with ammonia or vinegar - Do not mix with other cleaners.

**Alcohol (ethanol and isopropyl 70-95%)**

**Instructions for use:** Disinfect hard surfaces by direct application.

**Advantages:** Bactericidal, tuberculocidal, fungicidal.

**Disadvantages:** No action against spores or non-enveloped viruses; no detergency; flammable (store in closed container away from sources of ignition); eye irritation and damage; irritating if vapor inhaled; prolonged skin contact will cause irritation.

**Quaternary ammoniums with bis-n-tributyltin oxide - Roccal®- D Plus**

**Instructions for use:**

- 1) Use to clean and disinfect hard surfaces on farms, veterinary clinics, animal facilities, and vehicles. Useful for boot baths.
- 2) Apply diluted Roccal® mixture (½ounce/gallon water) by immersion or flushing solution over surfaces, allow to stand 10 minutes prior to rinsing. To clean heavily soiled areas, use up to 1½ ounce Roccal®/gallon water.
- 3) Boot baths use 1 ounce Roccal®/gallon water.
- 4) Change daily and anytime bath is visibly soiled.

**Advantages:** Bactericidal, fungicidal; one-step soapless disinfectant detergent; effective in the presence of organic soil; non- corrosive to many surfaces; safe to use in immediate vicinity of animals.

**Disadvantages:** Concentrate is corrosive to tissues; causes eye damage and skin irritation; do not get in eyes, on skin, or on clothing; harmful/fatal if swallowed.

**Chlorhexidine diacetate - Nolvasan®-S**

**Instructions for use:**

- 1) Disinfection of veterinary and farm premises; *some formulations appropriate for hand washing (Nolvasan® Skin and Wound Cleanser or Surgical Scrub).*
- 2) For inanimate objects: dilute 3 ounces/gallon of water; for farm and veterinary premises dilute 1 ounce/gallon of water.

**Advantages:** Bactericidal, virucidal.

**Disadvantages:** Not effective against spore-forming bacteria; do not contaminate water or food with disinfectant; harmful if swallowed; irritating to eye and mucous membranes.

**Quaternary ammonium chloride - Spectrasol®**

**Instructions for use:** Use on hard, nonporous surfaces at a dilution of 1 ounce Spectrasol®/gallon of water.

**Advantages:** Bactericidal, virucidal, and fungicidal. One-step cleaning and disinfectant; hard water or organic soil (5% load) does not affect efficacy of disinfectant.

**Suggested Disinfectant Concentrations**

Table 17-1. Suggested Bio-disinfectant Concentrations

	Disinfectant		
Quantity of Water	5.25% Chlorine (Bleach)	Virkon®S	Net-Dip™
Gallons	Fluid Ounces	Ounces	Fluid Ounces
1	2	2	1
5	3	7	5
10	5	14	10
25	11	34	25
50	22	67	50
100	44	134	100
<b>Contact Time</b>	10 minutes	30 minutes	10 minutes
		Metals-10 minutes	
<b>Application</b>	Soaking	Soaking/Misting	Cleaning