Connecticut Department of Energy & Environmental Protection

PERMIT TO COLLECT FISH, CRUSTACEANS AND AQUATIC ORGANISMS FOR SCIENTIFIC & EDUCATIONAL PURPOSES

Under the authority of Connecticut General Statutes, Sections 26-60 and 26-57, this permit is hereby granted by the Department of Energy & Environmental Protection to:

Organization/ Institution:	CT DEEP Volunteer Water Monitoring Program	**Vessel Name**	860-424-3091 **Work Phone**
Permittee:	Melissa Czarnowski		
Department:		**Home Port**	**Cell Phone**
Address:	79 Elm Street		DEEP.RBVProgram@ct.gov **Email Contact**
City, State, Zip Code:	Hartford, CT 06106	**Reg #**	

AUTHORIZED TO:

Species: Riffle-dwelling benthic macroinvertebrates

Location of Collection: Connecticut high gradient streams, statewide

Activities authorized: May use benthic macroinvertebrate collection equipment (such as rectangular-frame kick-nets) to sample approximately 100 - 150 streams per year. Permittee/subpermittees are authorized to collect up to three (3) specimens per species at each sampling site per year. Any freshwater mussels encountered shall be noted/photographed and then immediatly released.

Subpermittees: Certified local RBV coordinators and trained RBV program volunteers

Disposition of Specimens: Organisms not retained shall be returned to the stream of origin. Collected specimens shall be deposited at CT DEEP Monitoring Group Laboratory, located at 9 Windsor Ave, Windsor, CT.

Special Conditions:

1. Organisms collected under this permit **may not be sold,** exchanged or removed from the state.
2. This permit **does not** authorize the taking of specimens or eggs of state or federally listed species including striped bass.
3. Non-target species shall be released on site.
4. Any state listed species encountered during sampling shall be reported to Survey123 within five business days and included with the annual report.
5. Permission from landowners must be obtained prior to conducting project activities.
6. When sampling on DEEP property, the permittees shall notify the land manager at least 4 days in advance of visits.
7. This collection permit does not exempt the permittee from other DEEP regulations: Vehicles are required to park in designated parking areas and are prohibited in areas closed to vehicles. State Parks are open to walk-in access at sunrise, and vehicle traffic at 8:00 AM. State Forests are open one hour before sunrise. All areas are closed after sunset.
8. To prevent possible transmission of disease pathogens, all nets, footwear, and equipment used during this project shall be decontaminated between visits and between streams and wetlands according to NEPARC disinfection protocols (See attached page).
9. If mitten crabs are seen, please freeze or place the individual in alcohol and report using the DEEP MAIS Survey. If you are unable to capture it, please take a photo and report the details in the survey, or contact David.Molnar@ct.gov.
10. From September 1st - May 31st , permittees are encouraged to wear fluorescent orange clothing and/or fluorescent orange hats when in areas frequently hunted.

GENERAL CONDITIONS:

1. **THIS PERMIT DOES NOT AUTHORIZE THE TAKING OF COMMERCIAL SHELLFISH. Please contact the Dept. of Agriculture, Division of Aquaculture for more information at (203) 874-0696.**
2. All persons assisting in the collection of organisms authorized by this permit shall work under the direction of the permittee and carry a copy of this permit at all times.
3. A report of all organisms taken or captured shall be provided annually by January 15th or the expiration of the permit. This report shall include: numbers and species of all individuals handled, captured or taken. State/federally listed species shall be reported on a Special Animal Survey Form and submitted with a map of the site and photographs of the organism(s).
4. Such permit is subject to permission of the landowner on whose land or waters collecting or relocation takes place.
5. Collection of any federally protected species requires the permittee to hold and carry the proper federal permit along with this permit.
6. **All equipment or materials (e.g., traps, nets, markers, etc.) used to conduct the activities authorized by this permit shall be removed from study sites by the expiration date of this permit.**

Permit Number: SC-2629001
Permit Duration: March 7, 2026 - March 6, 2028
Expiration : 03/06/2028

Approved by:

Peter Aarrestad, Director, Fisheries Division
Date: 2/6/2026

cc:
- Law Enforcement
- Mike Beauchene, Fisheries Division
- Renee St. Amand, Fisheries Division
- Laura Saucier, Wildlife Division
- Laurie Fortin, Wildlife Division

Disinfection of Field Equipment to Minimize Risk of Spread of Chytridiomycosis and Ranavirus[1]

Importance of Disinfection

The spread of pathogens is a major threat to amphibians and reptiles worldwide.[2-5] This is particularly true for Ranavirus (RV) and *Batrachochytrium dendrobatidis* (Bd) responsible for chytridiomycosis. Humans can transmit diseases from one place to another and from one organism to another in a short amount of time and over distances the organisms cannot traverse. With the increasing spread of pathogens and reports of die-offs among amphibians and select reptiles worldwide, it is imperative that field biologists, researchers, hobbyists, and anyone interested in recreational herpetology-related field activities employ basic disinfecting procedures to prevent the spread of pathogens.

BEFORE LEAVING FOR THE FIELD

Although other chemicals are effective (see table), NEPARC recommends a 3% bleach solution to inactivate Bd and most RV's.[3-7] Concentrated bleach is inexpensive and readily available. However, diluted bleach solutions lose their potency if exposed to air, sunlight, or organic material, and should be discarded after 5 days if exposed.[8] To ensure maximum efficacy, prepare only as much solution as you will need for the sampling event.

Suggested equipment:

- Brushes for scrubbing and/or removing mud and vegetation from equipment.
- Hand sanitizers and antiseptic alcohol wipes.
- Handheld bottles and/or pump sprayers for applying bleach and water. Bring clean rinse water.

- Gloves for handling animals. These should be disinfected or discarded between animals.
- Plastic bags of different sizes: examining animals in bag minimizes contact.
- Prepare additional sets of equipment if sampling at multiple locations.
- Trash bags.

INSTRUCTIONS FOR LARGE EQUIPMENT

Brush off mud, wash with biodegradable soap, disinfect with bleach and rinse all exterior surfaces of boats, canoes, vehicles or trailers and their tires that may have come in contact with potentially affected water (e.g. stream or wetland).

AFTER EACH SAMPLING EVENT AND BEFORE MOVING TO THE NEXT SITE

1. Brush off mud and vegetation from field equipment (e.g., nets, buckets, boots). Soil or mud can reduce the effectiveness of the disinfection process.
2. Generously spray or immerse all items in bleach solution.
   - Bleach is highly toxic to aquatic organisms; stand at least 50 m from any natural water source.
   - Lab studies indicate 1 minute contact time to be sufficient to inactivate pathogens but NEPARC recommends 5 minutes in field situations.
3. Rinse bleached items with water to minimize damage to the equipment and to prevent exposing the next wetland to residual bleach.
4. Use alcohol wipes to disinfect calipers, measuring boards, and other sensitive equipment.

END OF THE DAY

After returning from the field, all equipment should be washed and thoroughly disinfected. If available, set up 2 buckets or large tubs: one with soapy water and one with 3% bleach solution.

Brush or scrub off any soil or vegetation. Immerse into soap, wash then rinse.

- Immerse in bleach and leave for 5 minutes. Rinse thoroughly with water.
- Hang equipment and gear, and allow them to air dry completely.

DISINFECTION OPTIONS FOR RANAVIRUS (RV) AND *BATRACHOCHYTRIUM DENDROBATIDIS* (*Bd*)

Although these chemicals were not developed specifically for RV or Bd, these recommendations represent the minimum concentration and contact time demonstrated as effective

	Clorox Bleach®	Nolvasan®	Virkon S®	Ethanol
Active Ingredient (AI)	Sodium hypochlorite	Chlorhexidine	Potassium peroxymonosulfate	Ethyl alcohol
Concentration of AI	6.0%	2.0%	20.4%	70.0%
Relative cost	$4.99/gal	$65.95/gal	$76.50/10 lb or $1.60/gal	$23.45/L or $88.83/gal
Min. Contact Time RV[9]/Bd[10]	1 min / 30 sec	1 min / not determined	1 min / 20 sec	1 min[11] / 20 sec
Min. Concentration RV[9]/Bd[10]	3.0% / 1.0%	0.75% / not determined	1.0% / 1.0%	70% / 70%
Effective dilution ratio for both RV and Bd	1:32 dilution (bleach:water) for 3% solution using 6% concentration of household bleach.	1:127 (Nolvasan®: water) for 0.75% solution (RV only)	1 scoop (1.3 oz) or 1 tablet per gal of water	Effective when applied undiluted (70%)
Toxicity to Humans	• Vapor may cause severe irritation or damage to eyes and skin • Harmful if swallowed	• May be fatal if inhaled • Avoid breathing spray mist • Causes irreversible eye damage • Harmful if swallowed	• Harmful if swallowed • Irritating to respiratory system and skin • May cause serious eye damage	• May be fatal if swallowed or inhaled • Can damage liver, kidneys and nervous system by repeated or prolonged exposure • May be absorbed through skin. Repeated or prolonged contact can cause eye irritation or dermatitis[12]
Toxicity to Amphibians	• Fatal at high concentrations	• Safe for short durations [13]	• Non-toxic [14]	• May destroy mucus and wax resulting in dehydration and microbial infection[11]
Effects on Equipment	• Corrodes metals • Will fade colors and break down cloth fibers	• None reported	• Safe on fabric • May cause pitting on galvanized or soft metal if not rinsed with water	• May damage rubber and plastics • May cause deterioration of glues[12]

Special Instructions:

• Remove debris from equipment prior to treatment.[15] • Wear safety glasses and gloves when handling chemicals. • Water pH can affect chemicals; all information in this table assumes the use of tap or municipal water. • Keep out of lakes, streams, or ponds; stand at least 50 m from any natural water source. • Do not clean equipment or dispose of waste solutions at field sites. • For disposal, follow local, state, and federal guidelines.

Bleach: Inactivated by organic material. • Inactivated by sunlight. • If in an opaque container, diluted bleach will last 1 month[16]. If exposed to sunlight or air, it will only last 5 days.

Nolvasan: Can be inactivated by organic material.[15] • Store at room temperature in sealed container.[17] • Dilute concentrate with water of pH 5-7.[18] • Remains stable for 1 week if dilute with tap water, and for up to 6 weeks if diluted with deionized water.[17] • Use concentrate within 36 months.[17] • Toxic to fish.[18]

Virkon-S: Store at room temperature.[19] • Keep solution away from extreme cold or heat. • Shelf life for tablets is 2 years and for powder is 3 years. • Remains stable for 1 week if diluted with tap water.

Ethanol: Highly flammable. • Use and store in a well ventilated area. • Evaporation may diminish effective concentration.[12,18]

Citations for Disinfection of Field Equipment to Minimize Risk of Spread of Chytridiomycosis and Ranavirus

1. This information has been compiled in part from Miller, D. L., and M. J. Gray. 2009. Southeastern Partners in Amphibian and Reptile Conservation, Disease, Pathogens and Parasites Task Team, Information Sheet #10.

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3. Picco, A.M., J.L. Brunner, and J.P. Collins. 2007. Susceptibility of the endangered California tiger salamander, *Ambystoma californiense*, to *Ranavirus* infection. Journal of Wildlife Diseases 43:286-290.

4. Picco, A.M. and J.P. Collins. 2008. Amphibian commerce as a likely source of pathogen pollution. Conservation Biology 22:1582-1589.

5. St-Amour,V., W.M. Wong, T.W.J. Garner, and D. Lesbarreres. 2008. Anthropogenic influence on prevalence of two amphibian pathogens. Emerging Infectious Diseases 14:1175-1176.

6. Bryan L., C.A. Baldwin, M.J. Gray, and D.L. Miller. 2009. Efficacy of select disinfectants at inactivating *Ranavirus*. Diseases of Aquatic Organisms 84:89-94.

7a. Johnson, M. and R. Speare. 2003. Survival of *Batrachochytrium dendrobatidis* in water: quarantine and control implications. Emerging Infectious Diseases 9:922-925.

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8. Green, D.E., M.J. Gray and D.L. Miller. 2009. Disease monitoring and biosecurity. p 481-506. *In*: Amphibian Ecology and Conservation: A Handbook of Techniques. C.K. Dodd (ed.). Oxford University Press, Oxford, United Kingdom.

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Citations for Disinfection of Field Equipment to Minimize Risk of Spread of Chytridiomycosis and Ranavirus (Continued)

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