SANTA CLARA VALLEY
HABITAT AGENCY

Version March 15, 2021

Aquatic Invasive Species and Aquatic Pathogen Decontamination Guidelines

Santa Clara Valley Habitat Agency Protocol for Aquatic Invasive Species (AIS) and aquatic pathogen decontamination when in contact with ponds, creeks, rivers, and wetlands

Any previously prescribed AIS and aquatic pathogen decontamination protocol specified in permits shall be adhered to and take precedent over the measures outlined below.

New Zealand mud snails (*Potamopyrgus antipodarum*), Chytrid fungus (*Batrachochytrium dendrobatidis*), and Ranavirus have been documented in Santa Clara County and it is critical that these guidelines be followed to reduce further spread of these detrimental AIS and aquatic pathogens. New Zealand mud snails, Chytrid fungus, and Ranavirus have the potential to decimate populations of native amphibian and fish species if preventive actions are not implemented.

In an effort to minimize the spread of AIS and aquatic pathogens all Habitat Agency staff and Contractors in contact with ponds, creeks, rivers and wetlands (e.g., biologists, engineers, construction and biological site monitors, and surveyors) must adhere to the most current guidance for equipment decontamination and sanitization provided by the appropriate Wildlife Agencies at the time of activity implementation. Guidance may require that all materials that come in contact with water, including boot and tire treads, be cleaned of all organic matter and scrubbed with an appropriate sanitizing solution. Care should be taken so that all traces of the disinfectant are removed before entering the next work site. Employees should follow the guidance outlined below for disinfecting equipment and clothing before/after entering creeks, rivers, ponds, wetlands, floodplains, or any other wet or muddy habitats that could harbor AIS or aquatic pathogens.

1. General protocols

- Cleaning and sanitation are required before entering work areas including creeks, rivers, ponds, wetlands, floodplains, or any other wet or muddy habitats that could harbor AIS or aquatic pathogens to prevent introduction of contamination from other locations.

- Cleaning and sanitation are required between leaving a waterbody and entering a new waterbody to prevent pathogen spread to other locations. A good rule of thumb to follow is any time the name of the waterbody is different, gear should be decontaminated (e.g. between Pacheco Creek and Coyote Creek or any tributary).
- For locations known or highly suspected to be contaminated with AIS or aquatic pathogens, use dedicated equipment that is only used at contaminated sites. Store this equipment separately from equipment used at other sites.

2. Sanitizing footwear, waders, equipment, and tools

- Before arrival at a new waterbody, equipment and tools must be appropriately sanitized (see #5 Procedures below).

3. Worker training

- Appropriate trainings on AIS and aquatic pathogens and how to prevent their spread by following approved sanitation procedures will be provided as a component of other Habitat Agency trainings. Additionally, trainings may be requested from a qualified biologist.

4. Minimize unnecessary movement of AIS

- When practical, begin work upstream/upslope and work downstream/downslope to encourage the practice of working from low risk to high risk areas. This avoids transporting pathogens and AIS to non-infested upstream/upslope areas.

5. Procedures for sanitizing tools, surfaces, and footwear

- Surfaces, tools, and footwear should be clean and sanitized before use. Wood handles on tools should be sealed with a waterproof coating to make them easier to sanitize. Options for sanitization and decontamination include a chemical soak, hot water soak, or freezing. See below for details on specific protocols.

Option 1: Chemical soak

- Before decontaminating, remove all soil and organic material (roots, sap, *etc.*) from the surface of nets, buckets and equipment that have come in contact with water or mud. If necessary, use a detergent solution and brush to scrub off surface contaminants. The sanitizing agent may also be used as a detergent solution. A screwdriver, wire brush, hoof pick, or similar implement may be needed to clean soil out of crevices or shoe treads. Brushes and other implements used to help remove soil need to be cleaned and decontaminated after use.
- Soak gear in GS High Dilution Disinfectant 256 (2.5 oz. per gallon of water) for 10 minutes. Appropriate guidelines should be followed regarding appropriate handling and disposal of this chemical. The following personal protective equipment should be used while handling this chemical: splash goggles, face shield, Tychem apron, chemical-resistant gloves, and rubber boots.
- Ensure that all items being decontaminated are fully submerged in the chemical treatment for the entire 10 minutes of contact time.

- Wading boots, nets, waders, tools, *etc.* should then be rinsed clean after exposure to chemical treatment. By all practicable means, decontamination should be completed in an area where the sanitizing solution can be disposed of safely. If decontamination must be completed in the field, sanitize gear in an area that is at least 100 feet from aquatic features, storm drains, wetlands, or other sensitive habitat. Care should be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
- When disposing of the sanitizing solution in the field, neutralize the chemical solution with the addition of bentonite clay (12 Tbsp. per gallon of water) thoroughly mix this solution several times before pouring it out on the ground. The bentonite clay will neutralize the quaternary ammonium in 3-5 hours.
- Used sanitizing solution (liquids, *etc.*) should be disposed of safely at an appropriate disposal site.
- Transport contaminated equipment in sealed plastic bags and keep separate from clean gear.

Option 2: Hot water soak

- Scrub gear with a stiff-bristled brush to remove all organisms. Thoroughly brush small crevices such as boot laces, seams, net corners, *etc.*
- Immerse equipment in 140° F or hotter water. If necessary, weigh it down to ensure it remains immersed.
- Soak in 140° F or hotter water for 15 minutes.

Option 3: Freeze and dilute chemical treatment

- Scrub gear with a stiff-bristled brush to remove all organisms. Thoroughly brush small crevices such as boot laces, seams, net corners, *etc.*
- Place in a freezer 32°F or colder for a minimum of 8 hours.
- Following the safety procedures included in "Option 1: Chemical soak" above, soak gear in GS High Dilution Disinfectant 256 (0.1 oz. per gallon of water) for 30 seconds.
- All gear should then be rinsed clean after exposure to chemical treatment.

Reporting Aquatic Invasive Species and Pathogens

If you suspect you have found New Zealand mudsnails, quagga mussels, zebra mussels, Chytrid fungus, Ranavirus, or other AIS or pathogens, please immediately notify a qualified biologist connected with the Habitat Agency. Please provide your contact information, specific location of discovery, and photographs of the organisms (if possible).

References

California Department of Fish and Wildlife, Aquatic Invasive Species Disinfection/Decontamination Protocols (Northern Region). 2016.

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USDA Forest Service and Bureau of Land Management. Preventing Spread of Aquatic Invasive Organisms Common to the USDA Forest Service Pacific Northwest Region and Oregon BLM Operational Guidelines for 2016 Fire Activities. 2016.

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Speare, R., L. Berger, L. F. Skerratt, R. A. Alford, D. Mendez, S. Cashins, N. Kenyon, K. Hauselberger, and J. J. L. Rowley. 2004. Hygiene protocol for handling amphibians in field studies. Amphibian Disease Group, James Cook University, Townsville 4811, Australia. http://www.jcu.edu.au/school/phtm/PHTM/frogs/field-hygiene.pdf

Stout, J. B., Avila, B., and E. Fetherman. 2016. Efficacy of commercially available quaternary ammonium compounds for controlling New Zealand Mudsnails *Potamopyrgus antipodarum.* North American Journal of Fisheries Management 36:277–284.