

**PA Trout In the Classroom:**

**Troubleshooting**

## FILTER

<b>Question</b>	Trout are being sucked into the filter; how can I prevent this?
<b>Answer</b>	Place a filter max pre-filter sponge on the intake of the filter system. Use nylon stockings; clean regularly. The filter max pre-filter provides good surface area for beneficial bacteria.
<b>Question</b>	What is Chemi-pure used for?
<b>Answer</b>	<p>It is a replacement for charcoal in the Fluval filter. Change the carbon packets around late April/early May. As trout grow, ammonia and/or nitrite levels may increase. These packets help alleviate these issues.</p> <p>Do not remove the carbon from the mesh bag. Place each carbon packet in the filter media trays. Do not change all media baskets at once. Do one level at a time over a period of a few weeks.</p>

## AQUARIUM LIGHTS

<b>Question</b>	Is this recommended? If so, is there a suggested type/brand?
<b>Answer</b>	Lights are not necessary and are not needed during the egg or sac fry stages. If a light is preferred, use a traditional aquarium light bar. Use an aquarium-grade bulb.

## INSULATION PANELS

<b>Question</b>	Does my aquarium need insulation?
<b>Answer</b>	Insulation provides a dark, stable environment for classroom trout and reduces the amount of energy needed to maintain water temperature.
<b>Question</b>	What kind of insulation can I use?
<b>Answer</b>	Foamboard or two layers of bubble wrap with shipping material such as cardboard. The most popular is foamboard. It can be purchased at any hardware store. All sides of the aquarium should be covered including the bottom and top.

## NET BREEDER

<b>Question</b>	Can I make my own net breeder?
<b>Answer</b>	Many TIC participants have developed their own net breeders and aquarium set-ups. The more your eggs can spread out, the better. Larger egg basket designs work best.
<b>Question</b>	Do I have to weigh down my breeder basket?
<b>Answer</b>	If the net is attached to the outside of the box, there should be no need for weight. Some teachers install the net on the inside. In that case, place a marble or small weight to prevent the net from floating

## MISCELLANEOUS EQUIPMENT

<b>Question</b>	Besides the equipment listed, what other items can be placed in the aquarium?
<b>Answer</b>	Driftwood that has been thoroughly rinsed, dried or baked, an additional air stone and pump, an additional filter, and/or aquaponic/hydroponic features.

## POWERHEAD

<b>Question</b>	How do I set up the Aqua 20 Powerhead?
<b>Answer</b>	Anchor the powerhead to the side of the aquarium, three quarters of the way to the bottom of the aquarium. The powerhead can be submerged.

## POWER FAILURE

<b>Question</b>	What happens if there is a power failure? How much time do I have?
<b>Answer</b>	<p>Trout, although stressed, can survive in temperatures up to 60-62 degrees Fahrenheit.</p> <ul style="list-style-type: none"> <li>• Ensure insulation panels are in place. If the front insulation panel has been removed replace it temporarily to keep the water cold.</li> <li>• Always have at least four gallons of frozen water available. Ensure all labels and glue are removed and the top is secure. If the temperature increases, float the jugs in the aquarium to maintain a cool temperature. Replace/rotate as necessary. So long as other parameters are stable and traffic is reduced, a gradual temperature shift will not stress the trout.</li> <li>• Have a battery powered air pump as a backup to provide aeration during a power outage</li> </ul>

### AMMONIA SPIKES

**Question**

What do I do in a case where I have ammonia spikes?

**Answer**

Refer to the “nitrogen cycle” and “ammonia” in the water quality PATIC document.

Conduct partial water change.

### AQUARIUM CYCLING

**Question**

Our aquarium is still not cycled, what can we do?

**Answer**

New York classrooms tested Microbe Lift Special Blend and Microbe Lift Nite-Out II. These products have living nitrifying bacteria to help cycle aquariums. Many, but not all, Pennsylvania teachers have used both products with great results.

Live nitrifying bacteria (not spores); establish nitrogen cycle down to 50 degrees F (*growth slows in lower temperatures*). Used together, the products can instantly cycle aquariums and stabilize the parameters.

Note: There may be some short-term odor associated with the use.

### BLACK FILM

**Question**

What is the black film on the sides of my aquarium?

**Answer**

The black film is likely charcoal dust. Thoroughly wash the charcoal dust out of the filter charcoal bags before putting them in the filter.

### CLOUDY WATER

**Question**

What is the main reason for cloudy water?

**Answer**

Likely it is a result of a bacterial bloom associated with the beneficial bacteria indicating an excess of decaying matter. This could be from dead fish, excess food, or a filtration problem. Conduct a small water change and vacuum the bottom of the aquarium.

Check the filter is working properly. Clean filter components with aged water. A quick rinse of particulates on the bio media limits the destruction of the beneficial bacteria. Do not use soap or chemicals to clean filter parts. Decrease food amounts.

## USE OF GOLDFISH FOR AQUARIUM CYCLING

<b>Question</b>	Do I need goldfish to start my nitrogen cycle? If I start late, should I use more goldfish?
<b>Answer</b>	<p>Avoid using any other type of fish during the aquarium cycle. Adding biological enhancer (e.g. Microbe Lift Special Blend or StressZyme) as per directions will enhance the process. The aquarium cycle will begin after the trout hatch and produce waste.</p> <p>Room temperature water will speed the cycling process as bacteria will multiple faster at higher temperatures.</p>
<b>Green slime</b>	
<b>Question</b>	My aquarium is coated with a green slime. What is this? What should I do?
<b>Answer</b>	<p>Green film or slime indicates algal growth and will not harm trout. Some teachers let it alone. It can be removed using a clean, soap-free sponge or similar tool. To prevent further growth, limit light exposure to the aquarium. Foam insulation may help block light.</p>
<b>Nitrites and Nitrates</b>	
<b>Question</b>	What do I do in the case I have nitrite spikes?
<b>Answer</b>	<p>Refer to the “nitrogen cycle” and “ammonia” in the PATIC water quality document</p> <p>Conduct partial water change.</p>
<b>pH</b>	
<b>Question</b>	How do you lower/raise the pH of your water?
<b>Answer</b>	<p>Trout can live in a pH as low as 6.0 and up to 8.2; however, these levels are extreme. If trout show no signs of stress (i.e. swimming strangely, darting back and forth or lethargic), do not adjust pH levels. Adjusting pH levels using chemicals or other items may cause trout stress.</p> <p>When concerns about pH arise, consider the water source, items in the aquarium, or recent change to aquarium conditions. If the change is not drastic or constantly fluctuating, let it alone. Regular water changes will keep the parameters stable with source water. Do not adjust pH, hardness, or alkalinity unless the release site is extremely different from aquarium source water. The stability of water parameters is more important than matching “normal” readings.</p>

### WASHING HANDS

<b>Question</b>	Should students wash their hands <i>before</i> touching aquarium water?
<b>Answer</b>	Students should thoroughly <b>rinse</b> their hands with only warm tap water before working in or around the aquarium or handling the nets, buckets or equipment. Do not use soap.  Moisturizers, hand sanitizers, and medical products will harm trout.

### SAC FRY/AELVIN MOVEMENT

<b>Questions</b>	Sac-fry are lying on their side and not moving. Are they dead?
<b>Answer</b>	This is not concerning. At this stage trout are relatively immobile/still. It will take approximately 28 days from hatch to fully consume the yolk sac and begin searching for food. Sac fry that have just hatched will be immobile, but, in a few days, they will become active.

### DEFORMATION/NOT EATING AFTER HATCH

<b>Question</b>	Some of my hatched trout are not eating, and some are deformed. Is this normal?
<b>Answer</b>	During the growth process, some trout will die initially at hatch, and some will die later because they never learn to eat. Trout may be deformed, and very often will die as a result. This is a natural part of trout reproduction. It is not normal for many or most trout to die. If this is the case, there may be a problem with the aquarium ecosystem.

### EGGSHELLS

<b>Question</b>	The trout have hatched. What should I do with the eggs?
<b>Answer</b>	The discarded eggshells will decompose naturally in time. If they appear to be hosting fungal growth, they should be removed and disposed. Remove eggshells that turn opaque white or appear fuzzy.

## WHITE DOTS

<b>Question</b>	Our trout have small white dots on their belly that may be Ich. How can we treat Ich?
<b>Answer</b>	<p>White dots on trout could indicate Ich infestation.</p> <p><b><i>What is Ich?</i></b></p> <p>Ich (ick) is the most common disease of freshwater aquarium fish. Ich, ichthyophthiriasis, is a protozoan disease often called 'white spot disease'. It is widespread in freshwater fish but most common in aquarium fish.</p> <p><b><i>Why fish get Ich?</i></b></p> <p>Many experts feel it is present in the environment of most aquariums. In fact, just about every aquarium fish will encounter Ich. As such, most fish have developed a good immune response against the disease. Stress lowers immune responses resulting in higher risk of Ich outbreak.</p> <p>The Ich parasite lies dormant in the aquarium. Healthy fish can live with a balanced host– parasite relationship for a long time. The healthier the fish; the more difficult it becomes for the parasite to re-produce thereby controlling parasitic populations. The unexpected appearance of Ich without newly introduced fish is usually caused by deteriorating water parameters that weaken the fish immune systems.</p> <p><b><i>Identifying Ich:</i></b></p> <p>Symptoms of Ich include: ‘salt grain-like’ white spots; rubbing against decorations; breathing difficulties; loss of appetite; increased mucus layer (washed off slime coat); cloudy eyes; frayed fins; and abnormal swimming behavior. Untreated the disease can result in death.</p> <p>Facts from:  <a href="http://www.algone.com/ich.php">http://www.algone.com/ich.php</a>  <a href="http://peteducation.com/article.cfm?c=16+2160&amp;aid=2421">http://peteducation.com/article.cfm?c=16+2160&amp;aid=2421</a></p> <p><b><u>What do I do if my trout have ich:</u></b></p> <ul style="list-style-type: none"> <li>• Remove affected trout. Conduct a therapeutic salt treatment on stressed/ill trout</li> <li>• Drain the aquarium, clean all gravel and sponges including the filter sponges following the end of the year cleaning protocols</li> <li>• Refill the aquarium with treated water or stream water.</li> <li>• Return trout to the aquarium</li> </ul>

## EMERGENCIES

Question	What do I do with eggs or trout in an emergency?
Answer	<p><b>Eggs:</b></p> <ul style="list-style-type: none"><li>• Prepare a bucket of water using aquarium water or an aged bucket of water. Add a small, frozen water bottle with the label and glue removed and a bait aerator.</li><li>• Place the hatching basket of eggs into the bucket while the situation is handled.<ul style="list-style-type: none"><li>• Avoid placing the eggs into the bucket of water until it is within one to two degrees of the aquarium water. Be sure to do the same when returning the eggs back to the aquarium.</li></ul></li></ul> <p><b>Fry/fingerlings:</b></p> <ul style="list-style-type: none"><li>• Prepare a bucket as described above for an “egg emergency”.</li><li>• Ensure there are plenty of frozen water containers on hand in case the chiller malfunctions.</li><li>• Always use dechlorinated ice cubes. Chlorine is toxic to trout.</li><li>• If using aquarium water to freeze ice cubes, ensure they are well labeled so as not to be used in drinks.</li></ul>



## EMERGENCY PLAN

<b>Question</b>	How can I inform custodians and staff about what to do if there is an emergency while I am away?
<b>Answer</b>	<ul style="list-style-type: none"><li>• Provide basic information about aquarium requirements to all teachers and custodians</li><li>• Inform that the aquarium always needs power</li><li>• Place the emergency protocol in a visible place and advise staff of the location</li><li>• Have plenty of frozen water containers. Indicate the location of these containers in the emergency protocol.</li></ul> <p><b>Example of a Aquarium Emergency Protocol:</b></p> <p>In the event of a power outage, leak, cooling system failure, or aquarium issue, please contact me: Phone number: If you cannot reach me, please contact: Contact: Phone number:</p> <p><b>In the event of a power outage:</b> The trout require cold water to survive, and the chiller next to/under the aquarium maintains the temperature. If possible, all equipment must be plugged in. If the electricity must be off for maintenance or construction, please contact me as soon as possible. If I cannot be contacted, please place the frozen containers of ice, located ____, in the aquarium to keep water temperatures cool. Even with the ice, the aquarium needs electricity returned as soon as possible.</p> <p><b>In the event of a leak:</b> A leak may be stopped by unplugging all equipment. Place leaking tubes in the aquarium or in a bucket. The leak source can be fixed after cleanup. Trout can survive in a minimum of four inches of water. Do not add water to the aquarium if there is four or more inches of water remaining in the aquarium. Tap water and warm water will negatively affect the trout and aquarium ecosystem. If there is very little water in the aquarium, add only enough water from the buckets below the aquarium to allow pumps to function. When the leak is fixed, turn on all devices before leaving.</p>

HATCHING BASKET	
<b>Question</b>	When should we release the trout out of the hatching basket?
<b>Answer</b>	Trout should remain in the basket as long as possible even if some jump out on their own. Release trout once they can swim freely and are strong enough to navigate the currents of the aquarium. After the trout have been actively feeding for a week or two, they will be ready to venture out into the aquarium.
<b>Question</b>	How do I let the trout out of the basket when it is time?
<b>Answer</b>	Gently remove the basket from the sides of the aquarium and slowly lower it to the bottom. Allow the trout to swim out. Some trout may remain in the protection of the basket for a few days. Ensure the basket is empty before removing it from the aquarium.
Mortality	
<b>Question</b>	Why was there a huge die-off?
<b>Answer</b>	<p>Death is a natural part of fish development. In nature, female trout lay 500-1,200 eggs with only 1-2% surviving. Expect to lose eggs and trout throughout the year. The exact survival rate is variable and based on many factors. A sudden spike in mortality may indicate aquarium water quality issues, bacterial infection, or sabotage.</p> <p>There are two naturally high mortality periods:</p> <ul style="list-style-type: none"> <li>• During the egg stage and hatching</li> <li>• During the “button up” stage when trout have absorbed the yolk sac and learn to feed. Some trout never learn to feed and starve.</li> </ul> <p>Remove dead eggs/trout to limit the spread of bacterial infection. If one or two trout act strangely or appear abnormal, remove these fish to avoid spread of infection.</p>

<b>Question</b>	What if I come in and many of the trout have died? What do I do?
<b>Answer</b>	1. Put a battery-operated aerator or aquarium air stone in a clean bucket.
	2. Add a few containers with frozen water.
	3. Add Stress Zyme to the bucket. Follow package instructions.
	4. Place remaining trout into the water bucket with frozen water containers and aerator.
	5. Perform water testing to determine the cause of the mortality
	6. Scrub down the sides of the aquarium using a clean sponge with no soap.
	7. Use the siphon to clean gravel while removing water from the aquarium (50% of water).
	8. Drain the filter, clean the filter media, and replace at least one charcoal filter.
	9. Refill the aquarium with aged water. Use a de-chlorinating product if water has not had time to age.
	10. Provide time for chiller to cool water to a temperature within one to two degrees of bucket water temperature.
	11. Add BioZyme, Stress Zyme, or Tap Safe as soon as possible.
	12. Return trout to the aquarium.
	13. Add more Stress Zyme the next day.
	14. Perform water testing to recheck levels. Another partial water change may be needed if levels have not been corrected.
<b>“Pop-eye”</b>	
<b>Question</b>	I have a trout whose eyes are popping out and appears to have internal hemorrhaging.

<b>Answer</b>	<p>Immediately remove infected trout. These symptoms are not normal for trout. Bulging eyes are known as “pop-eye” caused by fluid accumulation.</p> <p>Fluid accumulation behind the eyes could result from:</p> <ul style="list-style-type: none"> <li>• Systemic bacterial infection</li> <li>• Overhandling of the trout</li> <li>• Internal disorders (tumors, gas bubble disease, etc.)</li> <li>• Water quality issues. Increased nitrogen levels cause gas bubble disease. Pop-eye occurs when nitrogen enters the trout bloodstream. Bubbles on the surface of water is an indicator.</li> </ul> <p>Recommendations:</p> <ul style="list-style-type: none"> <li>✓ Check water quality parameters by sampling from the bottom of the aquarium.</li> <li>✓ Increase dissolved oxygen. Arrange the filter outtake to create a “mini waterfall”.</li> <li>✓ Aeration on the water surface rids aquarium of toxic gases and eliminates the possibility of low dissolved oxygen levels.</li> <li>✓ Conduct small water change (5-10 gallons)</li> </ul> <p><a href="http://en.allexperts.com/q/Freshwater-Aquarium">http://en.allexperts.com/q/Freshwater-Aquarium</a></p>
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