

Chapter 11: Troubleshooting



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Troubleshooting

(Equipment)

Airline tubing	
Question	The tubing is very hard to fit over the plastic aquarium parts, what should I do?
Answer	If tubing does not fit over parts, it might help to dip the end of the tub in very hot water. This will momentarily soften the plastic allowing you to slide the tubing over the part. Also, tubing can be carefully stretched by heating the ends, and then inserting a rigid object like a pair of scissors into the end. Tight tubing will fit, but it might require time and patience. Silicone airline tubing can also be used as it is a softer material and easier to use.
Airstone	
Question	Where do I position the air stone?
Answer	The air stone aeration system produces large volume of bubbles. These bubbles can interfere with the filter operation by filling the motor with air and causing it to “air lock” and fail. For this reason, there should be at least 4 inches between the air stone and the filter.
Aquarium lid	
Question	Should I get a lid for my aquarium?
Answer	Yes, it is better to cover the aquarium with some material which can prevent objects from falling in and provide the reduced light levels that fish prefer. Foam, screen, and plastic have all been used as lid materials with success. Purchased lids for the aquarium can also work.
Chiller	
Question	What should I do if my chiller dies?
Answer	<ul style="list-style-type: none"> • Make sure all of your insulation is still in place. If your front insulation has been removed you must place it back on temporarily to keep your water cold. • You should always have at least 4 frozen gallons of water on hand. Make sure all labels and glue are removed and the top is secure. In an emergency, float the jugs in the aquarium to maintain the temperature. Replace/rotate as necessary. • Contact the chiller company to replace your broken chiller. If you have a Tradewind chiller it should be under warranty.

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Filter	
Question	Trout are being sucked into the filter, how can I prevent this?
Answer	Place a filter max pre-filter sponge on the intake of your filter system. You can also use stockings; however, they need cleaned regularly. The filter max pre-filter also provides good surface area for beneficial bacteria.
Question	What is Chemi-pure used for?
Answer	<p>It is a replacement for the charcoal in the Fluval filter. You should change the carbon packets around late January – early February. As your fish 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 packets in the filter media trays. Don't change all media baskets at once. Do one level at a time over a period of a few weeks.</p>
Lights for the aquarium	
Question	Is this something you recommend? Is there a type of light that you suggest we purchase?
Answer	Lights are not necessary. They are not needed at all during the egg or sac fry stages; however, if you wish to have a light you can use a traditional aquarium light bar. Make sure the light has an aquarium grade bulb.
Insulation	
Question	Does my aquarium need insulation?
Answer	Insulation provides a dark, more stable environment for classroom trout. Insulation also reduces the amount of energy needed to maintain water temperature, ultimately prolonging the live of the chiller.
Question	What kind of insulation can I use?
Answer	Foam board, two layers of bubble wrap and shipping material; cardboard. The most popular is foam board. It can be purchased at any hardware store. ALL sides of the aquarium should be covered (BOTTOM, SIDES AND TOP)

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Net breeder	
Question	Can I make my own net breeder?
Answer	Yes, many TIC participants have developed their own net breeders, aquarium set-ups. For examples please visit the “Extras” portion of the aquarium resource guide.
Question	Do I have to weigh down my breeder basket?
Answer	If the net is attached on the outside of the box, you should not have had a problem. Some teachers install the net on the inside – and in that case, you need to place a marble or something to keep the net from floating
Other equipment	
Question	Besides the equipment on our list, what other items can be placed in our aquariums?
Answer	Driftwood that has been thoroughly rinsed, dried or baked; additional airstone and pump; additional filter; aquaponics/hydroponics
Powerhead	
Question	How do I set-up the Aqua 20 Powerhead?
Answer	Anchor the powerhead to the side of the aquarium, $\frac{3}{4}$ way to the bottom of the aquarium. YES, the powerhead can be submerged.
Power failure	
Question	What happens if there is a power failure? How much time do I have?
Answer	<p>Brook trout, although stressed, they can survive in temperatures up to 60-62 degrees Fahrenheit.</p> <ul style="list-style-type: none"> • Make sure all of your insulation is still in place. If your front insulation has been removed you must place it back on temporarily to keep your water cold. • You should always have at least 4 frozen gallons of water on hand. Make sure all labels and glue are removed and the top is secure. In an emergency, float the jugs in the aquarium to maintain the temperature. Replace/rotate as necessary. As long other parameters are in line and traffic is reduced a gradual temperature shift will not stress the fish. • I would suggest to have a battery powered air pump as a backup to provide aeration to the aquarium during the power outage

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Ammonia spikes	
Question	What do I do in a case where I have ammonia spikes?
Answer	<p>Refer to the “nitrogen cycle” and “ammonia” section of this resource guide. Directions are found there.</p> <p>When was your last partial water change, fish can always use some fresh water?</p>
Aquarium cycling	
Question	Our aquarium is still not cycled, what can we do?
Answer	<p>New York classrooms tested Microbe Lift Special Blend and Microbe Lift Nite-Out II. These products have live nitrifying bacteria which help cycle aquariums. Many Pennsylvania teachers have used both of these products and had great results.</p> <p>Benefits: Live nitrifying bacteria (not spores); establish nitrogen cycle down to 50 degrees F (<i>growth slows in lower temperatures</i>); the two products used together can instantly cycle aquariums and keep them in balance.</p> <p>Drawback: smell (only for a short period of time)</p> <p>Many teachers have had also had success using StressZyme or BioZyme, but others have not.</p>
Black film	
Question	What is the black film on the sides of my aquarium?
Answer	<p>The black film is probably charcoal dust. Be sure to thoroughly wash all the charcoal dust out of the filter charcoal bags before putting them in your filter.</p>
Cloudy water	
Question	What is the main reason for cloudy water?
Answer	<p>This is most likely a result of a bacterial bloom associated with the beneficial bacteria. Indicates excess of decaying matter. This could be from dead fish, excess food, or a filtration problem. Conduct a small water change while also vacuuming the bottom of the aquarium. Make sure your filter is working properly. Clean filter components if needed, with aged water, a quick rinse of particulates on the bio media to limit the destruction of the beneficial bacteria. Do not use soap or any chemicals to clean filter parts. Decrease the amount of food fed.</p>

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Goldfish for aquarium cycling	
Question	Do I need goldfish to start my nitrogen cycle? If I start late, should I use more goldfish?
Answer	You should not use any type of other fish begin your aquarium cycle. Adding your biological enhancer (e.g. Microbe Lift Special blend Or StressZyme) as per directions will help your process. The aquarium cycle will begin after your trout hatch and begin to produce waste. Room temperature water will speed the cycling process as bacteria will multiple faster at higher temperatures.
Green slime	
Question	My aquarium is coated with a green slime. What is this? What should I do?
Answer	Green film or slime indicates algal growth. This will not harm trout. Some teachers let it alone. It can be removed using a SOAP FREE sponge or similar tool. To prevent further growth limit light entering the aquarium. Foam insulation may prevent this from happening.
Nitrites and Nitrates	
Question	What do I do in a case where I have nitrite spikes?
Answer	Refer to the “nitrogen cycle” and “ammonia” section of this resource guide. Directions are found there. When was your last partial water change, fish can always use some fresh water?
pH	
Question	How do you lower/raise the pH of your water?
Answer	Brook trout can live in a pH as low as 6.0 and up to 8.2; however, these levels are extreme. If your trout are NOT showing signs of stress (i.e. swimming strangely, darting back & forth or acting lethargic), DO NOT adjust with pH levels. If you try to adjust pH levels using chemicals or other items, you might stress your fish even more. When concerns about pH arise, consider your water source; items in your aquarium and anything else that might be causing a change. Again, if the change is not drastic and constantly fluctuating, leave it alone. Regular water changes will keep the parameters stable with your source water. DO NOT try to adjust pH, hardness and alkalinity unless your release site is extremely different from your aquarium source water. The stability of your parameters is much more important than matching “normal” readings.

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Washing hands	
Question	Should students wash hands <i>before</i> touching aquarium water?
Answer	<p>Students should rinse their hands thoroughly before working in or around the aquarium WHITHOUT SOAP. Simply use warm tap water to rinse hands and nothing else. You would also do this when rinsing nets, buckets and wiping down the inside of the aquarium.</p> <p><i>Moisturizers, skin care products and natural oils may harm your trout.</i></p>

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Sac Fry/Aelvin	
Questions	My sac-fry are lying on their side and not moving, are they dead?
Answer	This is nothing to be concerned about. At this stage trout are relatively immobile/still. It will take approximately 28 days from their hatch date to fully consume their yolk sac and begin to search for food. Sac fry that have just hatched from the egg will be immobile; however, in a few days you will begin to see more activity.

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Bloated bellies					
Question	Our trout have bloated bellies and we have already lost a few, what is going on and what do we do?				
Answer	<p>Make sure they are not FULL of food first. If it their bellies are not enlarged because of feeding, they may have a systemic bacterial infection. Bacteria are always present whether in an aquarium or stream. When trout are stressed bacteria take over, very similar to our typical cold. If not caught and treated it spreads throughout the trout population.</p> <p>What to do:</p> <ol style="list-style-type: none"> 1. Decrease stress levels on trout by: <ol style="list-style-type: none"> a) Place the front insulation cover back on your aquarium b) Take them off of food for a day or two c) Decrease the water temperature SLOWLY d) Add salt as general tonic to recommended dosage per page 34 e) Conduct a STATIC SALT BATH, per page 40 <p><u>Instructions:</u></p> <ol style="list-style-type: none"> 1. Make sure you remove dead trout ASAP. Any fungus growing on dead fish will spread to other trout in the aquarium. 2. Having a small amount of salt in the aquarium will reduce stress and allow the normal body function to fight off the infection, If severe follow step 2 3. Make a “static salt bath treatment”: SEE “trout care: stressed trout” section for recipe. The salt bath helps get rid of bacterial issues and is used as an osmoregulatory (osmosis balancing of your trout) aid to relieve stress. <p>Potential causes for infection:</p> <ol style="list-style-type: none"> a) If there is damage to skin caused by handling, abrasions, or chemical damage (<i>i.e. high ammonia levels, nitrite levels or considerable changes in pH</i>) b) Stress. When normal defenses are down because of stress fish will become infected. (<i>This is similar to when we catch a cold or other diseases if we are “run-down”.</i>) <p>Fish can become stressed for a variety of reasons</p> <table border="1"> <tr> <td>1)Poor water quality; over crowding</td><td>2)Temperature;</td></tr> <tr> <td>3)Too much handling (<i>i.e. several feeding times, daily water monitoring, cleaning & changes, constant student activity around aquarium</i>);</td><td>4) If bacterial colonies increase substantially as a result of increased levels of decomposing matter. This is typically occurring when the disease begins to spread and infects all trout.</td></tr> </table>	1)Poor water quality; over crowding	2)Temperature;	3)Too much handling (<i>i.e. several feeding times, daily water monitoring, cleaning & changes, constant student activity around aquarium</i>);	4) If bacterial colonies increase substantially as a result of increased levels of decomposing matter. This is typically occurring when the disease begins to spread and infects all trout.
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Deformations and not eating	
Question	Some of my hatched trout are not eating - Some of my trout are deformed. Is this normal?
Answer	Yes. During the growth process, some fish will die. Some fish may survive initially only to die later because they never begin to eat. Other fish will be deformed, and very often will also die as a result of this. This is a natural part of fish reproduction. It is not normal, however, for very many or most of the fish to die. If this is the case, there may be a problem with the aquarium environment.
Egg shells	
Question	My fish have hatched, what should I do with the eggs?
Answer	The discarded egg shells will decompose naturally in time. If they appear to be hosting fungal growth, they should be removed and disposed of. Just as with living eggs, they might turn opaque white, or may take on a fuzzy appearance. If this is the case, please remove them.
Emergencies	
Question	What do I do with my eggs or fish in an emergency?
Answer	<p>Eggs:</p> <ol style="list-style-type: none"> 1. Prepare a bucket of water using aquarium water or one of your aged buckets of water, add in small frozen water bottles and a bait aerator. 2. Place your hatching basket of eggs into the bucket while you take care of the situation 3. Take care not to place your eggs into the bucket of water until it is within 1-2 degrees of the aquarium water. Be sure to do the same when returning the eggs back to the aquarium. <p>Fry/fingerlings:</p> <ol style="list-style-type: none"> 1. You should prepare a bucket the same way as you would do for an “egg emergency”. 2. Be sure you always have plenty of frozen water containers on hand in case your chiller breaks. 3. Never add regular tap water ice cubes directly to the aquarium. Chlorine is lethal to trout. 4. Some teachers create ice cubes using their aquarium water; however, make sure they are labeled some way so that they are not used in drinks...

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Emergency Plan	
Question	How can I inform custodians, or other teachers, about what to do if there is an emergency while I am away?
Answer	<ul style="list-style-type: none"> • Provide basic information about your aquarium requirements to all teachers and custodians. • Custodians should know that your aquarium always needs power. • Place a sheet of paper (in a visible location) that describes emergency procedures • Have plenty of frozen water containers. Place the location of these containers in the “emergency procedure form” • Emergency form example: Aquarium Emergency Procedure: In the event of a power outage, leak, or refrigeration system failure, or any other aquarium problem, please contact me: _____ Phone number: _____ If you cannot reach me, please try calling: Contact: _____ Phone number: _____ <p>In the event of a power outage: The trout in this aquarium need cold water to survive, and the chiller next to/under the aquarium maintains the temperature. If possible, all aquarium 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 help keep it cool. Even with the ice, the aquarium needs electricity as soon as possible.</p> <p>In the event of a serious leak: A serious leak can be stopped by unplugging all equipment. Any leaking tubes should be placed in the aquarium or in a bucket. After the water is cleaned up, the leak source can be fixed. If there are more than 4 inches of water left in the aquarium, the fish can survive. Do not add water to the aquarium if this is the case. Lots of tap water, or water that is too warm, will kill trout. If there is very little water in the aquarium, add only enough water from the buckets below the aquarium to let the pump work again. If the leak is fixed, turn on all devices before you leave.</p>

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Hatching basket	
Question	When should we release the trout out of the hatching basket?
Answer	Trout should remain in the basket as long as possible, even if some start to jump out on their own. Once the trout are able to swim freely and are strong enough to navigate the currents of the aquarium, you can release them. After the trout have been actively feeding for a week or two, they should be ready to venture out into the aquarium.
Question	How do I let the trout out of the basket when it is time?
Answer	Gently remove the basket from the sides of the aquarium and slowly lower it to the bottom of the aquarium. Let the trout swim out from here. Some trout to remain in the protection of the basket for a few days. Make sure the basket is empty before taking it out of the aquarium.
Mixing species of trout	
Question	Can I mix species of trout?
Answer	No, the different trout species may not be compatible. The risk of cannibalism among young fish (under ½ year of age) is greatly increased with species mixing.
Mortality	
Question	I had a huge die-off, why?
Answer	<p>Death is a natural part of fish development. In nature, female trout lay 500-1,200 eggs with only 1-2% surviving. You should 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> <ol style="list-style-type: none"> 1. During the egg stage and hatching 2. During the “button up” stage. This is when trout have absorbed their yolk sac and learn to feed. Some trout never learn to feed and simply die of starvation. <p>Make sure you remove any eggs/fish that have died. These fish can spread bacterial infection if left unattended. If one or two trout seem to be acting strange or appear abnormal you should remove these fish, as they can spread infections they may have.</p>

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Mortality continued	
Question	What if I come in and many of the trout have died? What do I do?
Answer	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, NO SOAP.
	7. Use the siphon to clean gravel while you remove water from the aquarium (50% of water).
	8. Drain the filter, clean the filter media and replace at least one charcoal filter.
	9. Refill aquarium with aged water (if you have to use water that has not had time to age, use a de-chlorinating product).
	10. Provide time for chiller to cool water to a temperature within 1-2 degrees of bucket water.
	11. Add BioZyme, Stress Zyme, or Tap Safe, etc. if on hand, or as soon as possible.
	12. Place trout back into the aquarium
	13. The next day, add more Stress Zyme.
	14. Perform water testing to recheck levels, another partial water change may be needed if levels have not been corrected.
“Pop-eye”	
Question	I have a trout whose eyes are popping out and appears to have internal hemorrhaging.
Answer	<p>Remove “infected” trout ASAP. These symptoms are not normal for trout. Bulging eyes are known as “Pop-eye”, which is not an actual disease, but rather a symptom of internal problems. Most often “pop-eye” is a result of too much handling or drastic water quality changes.</p> <p>Fluid accumulation behind the eyes could be a result of a few different issues:</p> <ol style="list-style-type: none"> Systemic bacterial infection Internal disorders (tumors, gas bubble disease etc.) Water quality issues: Increased nitrogen levels cause gas bubble disease. Pop-eye occurs when nitrogen enters the trout blood stream. A clue = bubbles on the surface of water. <p>Recommendations:</p> <ol style="list-style-type: none"> Check water quality parameters (sample from near the bottom of the aquarium) Increase dissolved oxygen: arrange filter outtake so it creates a “mini waterfall” <ol style="list-style-type: none"> Aeration on water surface rids aquarium of toxic gases. It also eliminates the possibility of low D.O. levels being the culprit. Conduct small water change (5-10 gallons) <p>The information above was collected from: http://en.allexperts.com/q/Freshwater-Aquarium Also, check out this article that was a link on their website http://flippersandfins.net/pop-eye.htm</p>

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Release stream and release site	
Question	When do I release my trout?
Answer	<p>Your trout release date is determined by the size of your trout, the average size of released fingerlings is 1 ½ to 2 ½ inches. It is also determined by the transportation funding you have and the availability of a substitute teacher (if you need one). Most TIC classrooms release their trout in March, April or May.</p>
Question	How do I plan a release/what should I do on my release day?
Answer	<p>All teachers plan their own release day, often with the help of their program partner.</p> <p>Ideas of activities to do on release day:</p> <ul style="list-style-type: none"> a) Stream study b) Habitat study c) Tree planting d) Run stations (stream study; water quality station; forestry station; habitat station; watershed station; terrarium building; water cycle; amphibian/vernal pool station etc.) <p>The release day is your opportunity to creatively incorporate hands-on, out of class education, public awareness of coldwater resources, community projects and a sense of interconnectedness within the community and its watersheds.</p> <p>Some teachers involve other agencies/organizations in their day:</p> <ul style="list-style-type: none"> a) Universities b) Department of Conservation and Natural Resources (parks and forestry) c) Penn State Cooperative Extension d) Watershed Associations e) Trout Unlimited (casting/fishing/fly tying) f) Master gardener groups <p>The list goes on and on. Sign up on the TIC yahoo group to discuss release days and much more on the forum.</p> <ul style="list-style-type: none"> 1. Go to www.yahoo.com 2. Once there, scroll down on the left side to “Yahoo groups” 3. Click on “yahoo groups” 4. On this page type in Trout In the Classroom in the provided box 5. Once there click on join now (provide the necessary information)

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White dots	
Question	Our trout have small white dots on their belly. One individual speculated that it may be ich. Is that possible? If so, what do you recommend to treat it?
Answer	<p>Based on your description it could be Ich.</p> <p><u>Here is some further information on Ich:</u></p> <p><i>What is Ich?</i></p> <p>Ich (ick) is the most common disease of freshwater aquarium fish. Ich is a protozoan disease, often called 'white spot disease'. The scientific name for the disease is ichthyophthiriasis and the causing agent is Ichthyophthirius multifiliis. It is wide spread in freshwater fish, but is more common in aquarium fish.</p> <p><i>Why fish get Ich?</i></p> <p>Many experts feel it is present in the environment of most aquariums. In fact, just about every aquarium fish will come in contact with ich at several times in its life. Because it is so widespread, most fish have developed a good immune response against the disease to allow them to fight it off before it ever causes symptoms. Captive fish that develop ich usually get the disease when they are stressed. Stress lowers immune responses and that is when ich will take over.</p> <p>The Ich parasite is dormant in the aquarium itself. 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, which in turn keeps their population under control. The unexpected appearance of Ich without new arrival fish is usually caused by deteriorating water parameters which weaken the fish’s immune system. Nevertheless the parasite has to be present in order for the disease to break out.</p> <p><i>Identifying Ich:</i></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. The disease will eventually death.</p> <p>Facts from: http://www.algone.com/ich.php ; http://peteducation.com/article.cfm?c=16+2160&aid=2421)</p> <p><u>What do I do if my trout have ich:</u></p> <ul style="list-style-type: none"> • You need to remove your trout. Conduct a therapeutic salt treatment should be conducted on stressed/ill trout Go to “Trout Care stressed trout section” • You should then drain your aquarium, clean all gravel, sponges including your filter sponges as you would at the end of the year. • Refill your aquarium with treated water or stream water. • Place your trout back into the aquarium

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