TROUT UNLIMITED

# TROUT IN THE CLASSROOM

## HANDBOOK

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# WHAT IS TROUT IN THE CLASSROOM?

Trout in the Classroom (TIC) introduces students to the concepts of ecology, population biology, water quality, fish anatomy and conservation. During a TIC program, teachers and students raise trout from eggs to fingerling in their classrooms. Trout Unlimited and the Wyoming Game and Fish Department work with educators to provide them with trout eggs, curriculum, and support. The curriculum is designed to meet Wyoming science education standards and provide students STEAM experience. TIC is ideal for students in 5th to 8th grade.

During this program, Wyoming students will:

- Monitor tank water quality and learn about water systems
- Learn about fish biology and physiology
- Grow an appreciation for aquatic habitats and learn about ecosystems
- Develop conservation ethics

Each teacher can tailor the program to fit their curriculum needs. The Wyoming Game and Fish Department and Trout Unlimited provide a set of interdisciplinary lesson plans that can be used to fit a variety of learning standards and learning styles.

# PROGRAM CONTACTS

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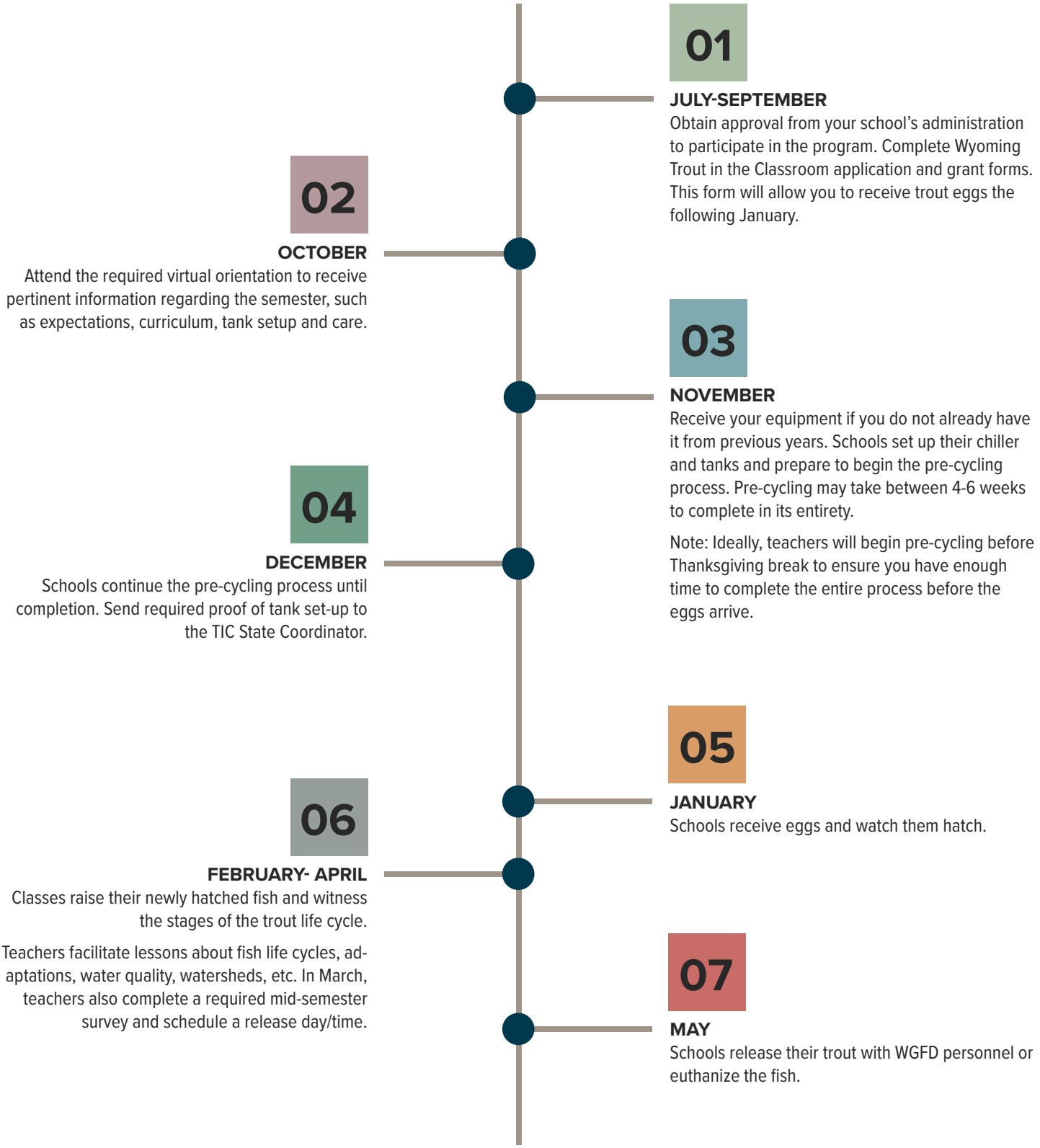
# HOW TO GET INVOLVED

**Initial startup**

1. Seek approval from your school administration.
2. Complete the TIC application form.
3. WGFD will confirm school participation status and order equipment.
4. WGFD will confirm the egg distribution plan with schools.
5. Attend the virtual TIC teacher orientation.
6. Review curriculum.
7. Receive equipment.
8. Receive eggs.
9. Start raising trout in your classroom!

# PROGRAM TIMELINE



**01**

**JULY-SEPTEMBER**

Obtain approval from your school's administration to participate in the program. Complete Wyoming Trout in the Classroom application and grant forms. This form will allow you to receive trout eggs the following January.

**02**

**OCTOBER**

Attend the required virtual orientation to receive pertinent information regarding the semester, such as expectations, curriculum, tank setup and care.

**03**

**NOVEMBER**

Receive your equipment if you do not already have it from previous years. Schools set up their chiller and tanks and prepare to begin the pre-cycling process. Pre-cycling may take between 4-6 weeks to complete in its entirety.

Note: Ideally, teachers will begin pre-cycling before Thanksgiving break to ensure you have enough time to complete the entire process before the eggs arrive.

**04**

**DECEMBER**

Schools continue the pre-cycling process until completion. Send required proof of tank set-up to the TIC State Coordinator.

**05**

**JANUARY**

Schools receive eggs and watch them hatch.

**06**

**FEBRUARY- APRIL**

Classes raise their newly hatched fish and witness the stages of the trout life cycle.

Teachers facilitate lessons about fish life cycles, adaptations, water quality, watersheds, etc. In March, teachers also complete a required mid-semester survey and schedule a release day/time.

**07**

**MAY**

Schools release their trout with WGFD personnel or euthanize the fish.

# PROGRAM INFORMATION

The set-up timeline can be accessed here:
www.troutintheclassroom.org/technical-information/start-a-program/timeline/

### Receiving eggs and food

1. The Wyoming Game and Fish Department supplies the eggs and fish feed to the participating TIC classrooms. Eggs for Wyoming TIC will come from WGFD's Dubois Hatchery.
2. Teachers complete both the program and grant application.
3. The TIC Selection Committee reviews applications and notifies teachers of participation status by late September.
4. Game and Fish and Trout Unlimited work with teachers to acquire the appropriate equipment to complete the program and confirm the day they will receive eggs.
5. Teachers pick up eggs from regional offices, or Trout Unlimited volunteers distribute eggs from regional offices to schools. This will be coordinated with teachers.
6. The Game and Fish Education Team confirms with the school that they have received their eggs and that their tank is set up.

# EQUIPMENT

Most of the equipment you will be using can be found at https://www.thatpetplace.com/trout-in-the-classroom. The Wyoming TIC State Coordinator will work with teachers individually to determine what equipment they will need, and place the order for them. If you ever find yourself having questions about equipment or need a replacement, please reach out to the Wyoming TIC State Coordinator at katie.schlafke@wyo.gov.

Any remaining pieces of equipment can be found at local hardware stores, local pet stores or online. Below you will find a chart telling you which items will be purchased from That Pet Place and which items will be found from other sources. The chart also indicates which items need to be replaced annually. You will find the item numbers from equipment pieces found at That Pet Place, just in case you need to replace individual items.

**Ordering from That Pet Place**

If purchasing your own equipment from That Pet Place, you will purchase either Kit #1 or Kit #3. The difference in the kit is the filter. In Kit #1, the filter that comes with it sits on the floor. In Kit #3, the filter that comes with it goes on the back of the tank. It really comes down to the preference of the teacher and what you want your setup to be like.

On the website for That Pet Place, you will find pricing for Kit #1 and #3, in addition to a replacement kit and variations of Kit #1 and #3. You will also find shipping information.

| PURCHASED FROM THATPETPLACE.COM | | | | |
|---|---|---|---|---|
| EQUIPMENT | QUANTITY | ITEM NUMBER | FIRST YEAR | ANNUALLY |
| Aqua Euro USA ¼ hp Chiller | 1 | 253983 | ✓ | |
| Fluval 406 Canister Filter | 1 | 256342 | ✓ | |
| AquaClear 110 Power Filter | | 215378 | ✓ | |
| Whisper 60 Air Pump | 1 | 205754 | ✓ | |
| 10” Aqua Mist Add-a-Stone | 1 | 212520 | ✓ | ✓ |
| 8’ Flexible Airline Tubing ST-8 | 1 | 212445 | ✓ | |
| Fusion Check Valve 1 pk. | 1 | 240195 | ✓ | ✓ |
| Net Breeder | 1 | 204233 | ✓ | |
| Battery Operated Digital Thermometer | 1 | 209362 | ✓ | |
| 8” Net w/ Long Handle | 1 | 212526 | ✓ | |
| Micro-Lift Special Blend 16 oz. | 2 | 243424 | ✓ | ✓ |
| Nite-Out II 16 oz. | 2 | 243555 | ✓ | ✓ |
| NovAqua Plus Water Conditioner 16 oz. | 1 | 214299 | ✓ | ✓ |
| Mag Drive Water Pump 700 GPH | 1 | 206397 | ✓ | |

| PURCHASED FROM THATPETPLACE.COM | | | | |
|---|---|---|---|---|
| EQUIPMENT | QUANTITY | ITEM NUMBER | FIRST YEAR | ANNUALLY |
| ¾” Clear Flexible Tubing | 15 | 204177 | ✓ | |
| Reducing Bushing MPT x FPT - .75in. X .75in. | 1 | 199448 | ✓ | |
| Female insert Adapter FPT x Insert - .75 in. X .75 in. | 1 | 278257 | ✓ | |
| Stainless Steel Hose Clamp ½” to 1” | 5 | 241595 | ✓ | |
| Freshwater Master Test Kit | 1 | 199591 | ✓ | ✓ |
| GH & KH Hardness Test Kit for FW | 1 | 199678 | ✓ | ✓ |
| Lees Squeeze Bulb Ultra Gravel Vac. With on/off Valve | 1 | 253080 | ✓ | |
| Shallow Creek Pebbles 5 lb. | 2 | 268724 | ✓ | |
| Eshopps Return Jet for Output of Chiller Water | 1 | 250869 | ✓ | |
| Teflon Tape | 1 | 199328 | ✓ | |
| Chemi-Pure 5 oz. Filter Media (carbon) | 2 | 196393 | ✓ | ✓ |

# EQUIPMENT SETUP

**Follow video instructions by scanning the QR code or using the link:** https://www.youtube.com/watch?v=6GBTem7_GlQ

### Let's begin

Unpack all materials and compare them to shipping lists. Ensure that nothing is missing or broken. Check plastic pieces, particularly the filter components, for cracks.

Place the tank away from heat, excessive light, and activity. If next to a window, ensure that the shade is down until the fry swim around or there is some protection around the tank. Do not put the tank next to an active radiator. Because a filled tank will be top-heavy, place it away from areas where students might accidentally bump into it. Clean out any dirt inside the tank with a wet paper towel. **Do not use soap or any cleaning chemicals**; residue from these compounds can persist in the aquarium and harm your trout.

Locate the electrical outlet and plug the power strip into it. The outlet should be close enough to the tank that all electric devices can reach it. Ideally, it should be right behind or underneath the tank. Turn the power strip off.

Insulation is crucial to maintaining a stable environment for your trout and minimizing wear on your chiller.

### Set up your chiller

Place the chiller to the side of or below the tank, with the front facing out. There should be at least 4 inches of space on every side of the chiller for proper airflow. Open the plastic bag with chiller parts and remove two water nozzles for a flow-through chiller. Screw these in place on the chiller, and tighten them by hand. You may carefully tighten these further with pliers, but be mindful of the limitations of the plastic.

Measure the length of chiller tubing that will reach from the chiller to the bottom of the tank without stress or kinks. Be generous with length because a tube can always be shorter but not longer. Cut this length of tubing and slide one end over the chiller input nozzle. Measure a similar tubing length for the chiller's output nozzle and cut this piece. Attach this piece of tubing by sliding it over the chiller output nozzle. Tight tubing can be more flexible by dipping it in hot water. You may need to remove the nozzle, too. Depending on the chiller design, there may not be any specific input or output side.

Next, slide the metal clamp over the tube to the nozzle on the chiller. Screw the clamp in place over the end of the tube so that the outer edge of the clamp and the tube are matched. The clamp should be tight but not forced.

Remove the pump from its box and locate the plastic adapter nozzle for the pump. Screw this nozzle in place, and slide the other end of the input chiller tube over the nozzle on the pump. This connection does not need a clamp. Install the pump filter if one is included but not attached. Place the pump inside the tank and put the pump power cord near the power strip.

### Prep & set up your gravel

**Please note:** *the use of gravel is optional.* Rinse your pea-size gravel two or three times to remove all dust. Then, layer it 1"—2" thick on the bottom of the aquarium. If you prefer to keep the gravel away from the pump and airstone, you can cover just part of the bottom.

### Set up your filter

Unpack and assemble the filter according to the included directions. Place it on the back side of the tank if it is a hanging filter. Ensure the filter intake tube is as close to the tank bottom as possible. Cover the intake for your filter with some sort of mesh or net that will keep the fry from getting sucked into your filter (plastic net bags and pantyhose are popular materials for this). Secure the mesh with an aquarium-safe method, such as a rubber band. Canister filters can be placed next to or underneath the tank and hooked in line with a flow-through chiller. Place the filter power cord near the power strip.

### Set up your air stone and air pump

Unpack the airstone, air pump, and airstone tube. Attach one end of the airstone tube to the airstone and the other to the air pump. Place the air pump on the ground near the power strip. The air pump's rubber feet should be on the ground to prevent excessive noise. Place the airstone in the tank, away from the filter intake tube. You may choose to use a check valve to prevent the backflow of water in the airstone tube. To do this, cut the air tubing and use the check valve to connect the two pieces. Air should push the flap and compress the spring inside the valve.

### Assemble your egg baskets

Assemble the hatching basket by stretching the net over the outside of the plastic frame or carefully securing the net to the inside of the frame. Bend the metal clips to hang the basket on the tank wall.

### Fill your tank with water

Fill the tank with tap water using any clean container or tubing. The water level should be no more than 2 inches from the top of the tank but not so close that it might spill. Use a cup to fill the filter chamber with water until it overflows into the tank.

### Check for any mistakes, plug everything in

Plug in all electrical cords using the power strip, but keep the power off. Once everything is plugged in, stand back from the tank to double-check all connections and ensure that everything is ready for operation. The output tube should be secure; a student can hold this tube in place. Have some paper towels on hand in the event of a leak.

Turn on the power strip and check for leaks on the chiller. The bubbler should be creating a large volume of small bubbles. The chiller may beep and is now warming up. Remove the output hose from the water carefully to ensure good water flow. The filter should become much quieter after all the air is pushed out of the system.

Adjust the chiller temperature to the appropriate setting. You may have to wait a few minutes before the chiller begins operating fully. You may hear the chiller fan or compressor operating in a few minutes. You must allow any chlorine in your tap water to dissipate for the next 48 hours.

Now that you know everything is set up correctly, turn off your chiller, allow your water to get to room temperature, and begin the pre-cycling process.

## Start pre-cycling your tank

Pre-cycling your tank is arguably one of the most important steps to having a successful tank throughout the semester. It is recommended to pre-cycle your tank for 4-6 weeks prior to receiving your trout eggs. Follow the instructions below to properly conduct the pre-cycling process.

National TIC has done its best to provide a standard protocol for pre-cycling; however, each tank setup is ultimately unique. Many variables cannot be controlled, such as your classroom temperature, water quality, sources of bacteria, etc. For the protocol they provided below to be successful, water quality monitoring is critical, and you may (likely will) need to adjust the protocol based on those readings.

Day 1 - Having your chiller on for the 4-6 weeks prior to receiving your eggs is not necessary. In fact, the good bacteria you want to establish in your tank will form more quickly with water at room temperature. Please conduct the following pre-cycling process with room-temperature water. Test the water chemistry of your tank (pH, ammonia, nitrites, nitrates and KH) and record the values. It is unlikely that you will have any readings for ammonia, nitrite, and nitrate at this point but it is nonetheless important to check. High readings could indicate a problem with your water source that needs to be addressed before moving forward. Add a full dose of each of the Special Blend, Nite Out II, and NovAqua Plus for a 55-gallon tank, as well as a small pinch of fish food. A generic fish food flake, like TetraMin, will work.

Day 3 - Measure your water parameters. Add ½ dose of Special Blend, Nite Out II, and a small pinch of fish food to your tank.

Day 5 - Measure your water parameters. Add ½ dose of Special Blend, Nite Out II, and a small pinch of fish food to your tank.

Day 7 - Measure your water parameters. Add ½ dose of Special Blend, Nite Out II, and a small pinch of fish food to your tank.

Day 9 - Measure your water parameters. Add ½ dose of Special Blend, Nite Out II to your tank.

Day 11 - Measure you water parameters. Add a full dose of Nite Out II to your tank.

Day 13 - Measure your water parameters. Water quality should be sufficient to add eggs/ trout (0 Ammonia, 0 Nitrite, <50 ppm for Nitrate, pH should be 6.5-8.5). If the water quality meets these criteria, add a full dose of Special Blend and Nite Out II when adding the eggs/fish.

Day 14 and going forward until eggs arrive - Test the water quality every other day and add Nite Out II as needed (this helps with Ammonia and Nitrites). You'll need to feed the good bacteria you've now established in your tank. Add a small pinch of fish food every other day, and continue to measure the water parameters. When you add fish food and the ammonia and nitrite stay below ~1 ppm, you know you have a cycled fish tank ready for trout!

When making water changes, add NovAqua Plus (tap water conditioner) to any new water entering the tank before dumping it in. Then add Special Blend and Nite Out II directly to the tank.

A pre-cycled tank should not require the addition of Special Blend Bacteria.

Do not let the ammonia or nitrite concentration rise above 5 ppm. If either concentration rises above 5 ppm, make water changes to lower the concentration.

Do not let the pH drop below 7.0. If it does, do a partial water change to bring the pH back up. A pH value that is declining is often an indication of a KH level that is too low. Add baking soda if needed.

## Prepare for your egg delivery

One week before egg delivery - Turn on the chiller, setting the temperature to 48-52 degrees. This is the optimal temperature for eggs/ trout, and you'll want to keep your water around these temperatures for the entire semester. Test the water for pH, ammonia, nitrite, nitrate, carbonate hardness (KH) and general hardness (GH). The pH of the tank should be stable within a range of 7.0 – 7.6 for optimum reproduction of the bacteria. If the pH of your tap water falls outside this range your fish will still do well as long as you keep the pH stable. Fluctuations in pH level can cause fish mortality.

24 hours before egg delivery - Using the digital thermometer, check to see that the water temperature is at the desired level; 48-52 degrees F. Turn ON the air pump/air stone. Check the breeder basket. Make sure that water flowing from the filter and bubbles flowing from the aerator will not disturb the resting eggs. If necessary, redirect flows or reposition the tray.

Egg delivery day - the WGFD Dubois hatchery will supply written instructions for egg care. Familiarize yourself with the information provided on egg care and acclimation provided in this handbook on page 10.

# EGG ACCLIMATION & CARE

Please review the information below to ensure your eggs have a smooth transition into your tank.

### Q: What do I do with the eggs once I receive them?

A: Your 150 Rainbow Trout eggs have been wrapped in wet paper towels inside a small plastic tupperware container.

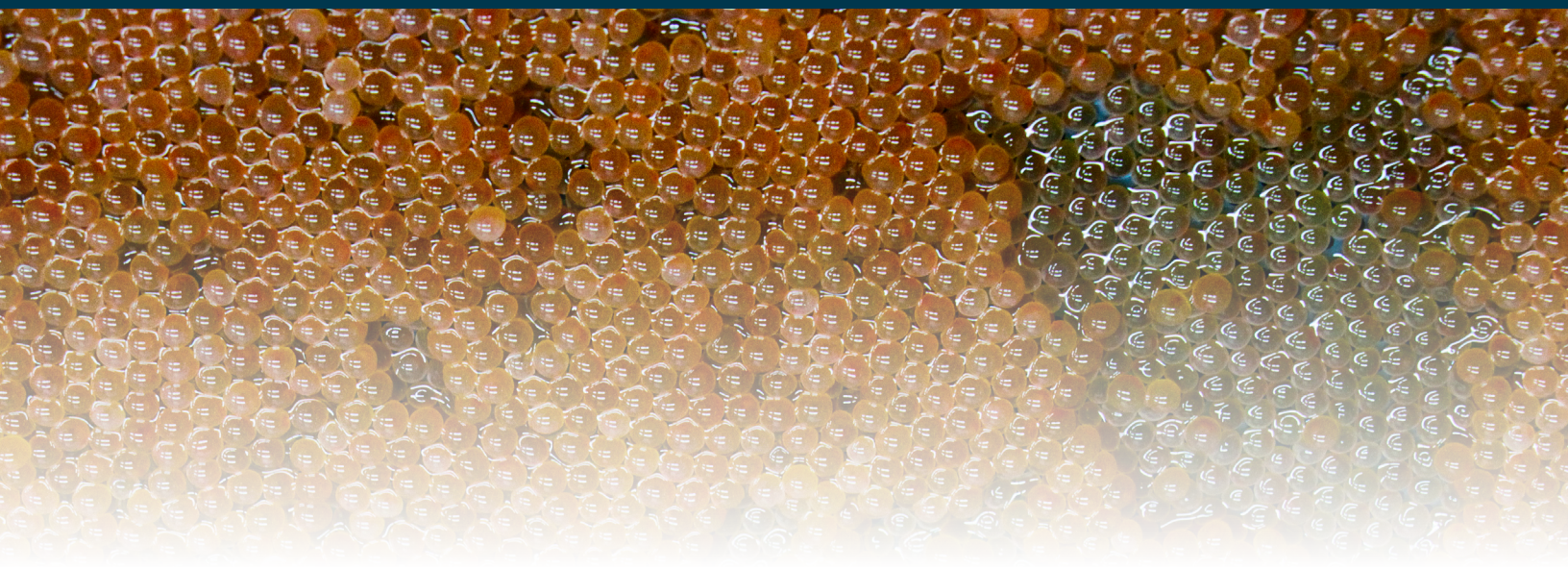
1. DO NOT open the tupperware container. As soon as you open the container and release the oxygen trapped inside, any moisture that is ridden with ammonia becomes even more toxic.
2. Float the container of eggs in your aquarium water for 30 minutes to acclimate the temperature.
3. After 30 minutes, carefully open your container and transfer the eggs from the container to your egg basket by slowly unwrapping the paper towel and gently placing the eggs into the basket's bottom.
4. Your egg basket should rest on the rim of your tank, with the bottom half submerged so that your eggs are underwater. Egg baskets help with water flow and prevent fungus growth.

### Q: What do we do once they're in the egg basket?

A: Once your eggs are safe and submerged in your egg basket, it's time to wait patiently until they hatch! We highly encourage teachers and their students to keep and eye on the water temperature, chiller, and aerator during this process. If you're able, take daily water temperature readings to try to maintain a tank water temperature of 48-52 degrees F.

### Q: Do I need to feed my eggs?

A: **Do not feed your eggs.** After your eggs hatch, they will emerge as sac-fry. Sac-fry are small (about an inch long and the width of a fingernail) and have a sac attached to their undersides. These sacs store essential nutrients your trout need to survive, so no extra feeding is needed. However, you must feed them regularly once their sac is fully absorbed. Information on feeding instructions will also been provided to you.



# EGG MAINTENANCE

- Eyed eggs are identifiable by their characteristic dark spots—each trout's two eyes.
- Movement during egg delivery can weaken the outer layer of the shell and cause weak spots or broken areas. These spots are vulnerable to fungal infection. White spots are a fungus that spreads really fast. If possible, pick out spotted eggs twice a day - especially check last thing on Friday afternoon before leaving for the week-end. Remove all eggs with white spots.
- Keep the eggs and freshly hatched fry in a dark environment as much as possible. As the fish swim up for food, more light exposure is acceptable.
- White spots are a fungus that spreads really fast. If possible, pick out spotted eggs twice a day—especially check last thing on Friday afternoon before leaving for the weekend (the Alaska Department of Fish and Game has an excellent explanation for the fungus.)
- The outer shell must remain translucent; eggs with any opaque spots (or fully opaque) will not develop.
- Uniform cloudiness can be okay, it might be just the trout development. The TIC folks in southwestern Virginia have made a great video about how to do this carefully and effectively.

**Hatching**

- Most trout will hatch within 2-3 days of first egg hatching.
- Some eggs will not hatch properly, and some alevin may not fully emerge from the egg. Remove any leftover eggs (or isolate them—these likely will not hatch).
- Leftover shells float to the top of the tank or in the basket, and fish enzymes break down these shells and create foam—this is normal.
- Scrub the sides of the tank with an aquarium sponge to loosen this foam.
- During this alevin phase, you may feel a jelly-like fungal growth around the inside tank surfaces and hatching basket. If you find this, wipe or scrape the surfaces with a sponge to send it through the sterilization and filtration system.
- When the eggs hatch, alevin will lie on their sides, with their egg sacs still attached. Alevin receive nutrients from this sac.
- Soon, they will "right" themselves but remain low in the basket. As the egg sac is consumed, the alevin begin to rise. Please see Trout Feeding for instructions on when to begin, the quantity, and the frequency of feeding.
- Eventually, they will swim up over the basket edge into the larger area of the tank.

# TROUT TANK AND CARE

**Alevin (sac fry) Stage - 1-3 weeks**

- The length of time at this stage depends on the water temperature; warmer water causes fry to develop faster. Use a digital thermometer daily to ensure the in-tank temperature is 48-52 degrees. Chiller consoles are notoriously inaccurate.
- Look for your odd trout and heart development, etc.
- Some alevin don't survive, and this is perfectly normal.

**Swim-up stage - One week or less**

- As yolk sacs disappear, some trout will start swimming around looking for food. When you see the first trout swim up in the hatching basket or out of hatching basket, start feeding. We usually wait for 60% or more swim-up behavior before feeding starts.
- This is when you can remove the darkening cover from your tank – at this point, UV light will not hurt the fish.
- Feed trout by spreading a minuscule amount of food (size 0) near any swimming trout. Overfeeding will cause fish health and water quality issues.
- Now is an excellent time to "boost" your tank's nitrifying bacteria with a shot of Special Blend and Nite Out II, which can be added once a week.
- Now is also the moment to add mesh or pantyhose around your filter intake, to make sure that your fry don't get sucked into your filter.
- Once all fry are swimming up and have been eating, unhook the basket and drop it to the bottom of the tank. Strong, adventurous fish will swim out and timid, weaker fish will hide for a few more days until they are stronger.
- Some fry don't survive or learn to feed properly for various reasons. This is perfectly normal.

**Fry Stage - 6-8 Weeks**

- Feeding will vary (Please see feeding instructions on page 14). Try to ensure all of the fish are eating. This may require feeding on two separate sides of the tank. In general, feed small pinches 2-3 times per day.
- Every couple of days, carefully remove the mesh or pantyhose from your filter intake and shake out any debris collected (and let it get sucked up into the filter). Doing this will keep your filter motor from working too hard and minimize guck.
- Some trout never learn to feed and will die. Non-feeding fish are called "pinheads"—big heads, little bodies. Remove these trout as they will not develop.
- Every TIC classroom sees this mortality spike with the pinheads—it is very normal.
- Remove any leftover food collected in one area 5-10 minutes later.
- A turkey baster is a great way to vacuum up extra food and waste. Continued leftovers mean you are overfeeding, which can cause problems with ammonia levels.

**Parr Stage - (the rest of the time)**

- Look for parr marks on the trout.
- Small water changes with a siphon can happen daily, with a 20% change at the end of each week.
- Clean the tank 15 minutes after feeding.
- Always keep track of your water chemistry—water testing can help you with this.
  - If any levels seem high, do a big water change (20% or more).
- Be careful to watch the temperature during water changes, and don't let the tank temperature fluctuate more than 5 degrees.
- In an emergency, clean water is more critical than temperature stability.
- Cannibalism can occur—the big fish do eat the little fish. If cannibalism is becoming an issue, then feed more often to assuage hunger.
- Be sure to clean more often and change water if you feed more often.

**What should you do if you have a major die-off?**
*See the troubleshooting section for more detailed information*

- Remove healthy fish first and put them in a reserve water bucket (with treated water), no matter its temperature and use a battery-operated aerator or tank's airstone in the bucket.
  - You may also add one small, clean ice pack to the bucket.
- Remove as much water from the tank as possible (roughly 80%).
- Leave pump and filter intake covered.
- Clean the tank with a clean scrub sponge, removing as much crud as possible and suck up gunk with a turkey baster.
- Refill the tank with water and treat it with water conditioners (Stress Coat, Special Blend, Nite Out II, Tap Safe, etc.)
- Cool the water with ice or freeze packs.
- Replace at least one charcoal filter.
- Place the fish back in the tank.
- The next day, add more Special Blend, Nite Out II and/or Stress Coat.

# FEEDING INSTRUCTIONS

Along with the 150 Rainbow Trout eggs, you will also receive a paper bag with fish food of various sizes that are labeled individually in Ziplock bags. Please review the information below for proper feeding instructions.

**Q: Do I need to feed my eggs?**

A: NO. Do not feed your eggs.

**Q: When should I start feeding my trout?**

A: After your eggs hatch, they will emerge as sac-fry. Sac-fry are small (about an inch long and the width of a fingernail) and have a sac attached to their undersides. These sacs store essential nutrients your trout need to survive, so no extra feeding is needed. However, you must feed them regularly once their sac is fully absorbed.

**Q: Can I feed my trout other forms of fish food?**

A: Only feed your trout the fish food provided to you by the WGFD. Deviating from our protocols is not allowed as this risks the trout's health and goes against our Chapter 33 permit.

**Q: Where should I store my trout food until it needs to be used?**

A: The trout food is perishable, so the bags will need to be kept sealed and stored in a cool, dark place like a refrigerator if possible.

**Q: When it is time to start feeding my trout, how often should I feed them?**

A: The size and amount of food you feed your trout will change as they grow. The information and tools we have provided below will assist you in measuring the amount of feed you will need. It is important to follow these feeding guidelines as overfeeding and underfeeding can both cause serious problems to the trout. Underfeeding risks starvation, and overfeeding can lead to serious ammonia issues. Please carefully read and follow the detailed guidelines below that have been provided from the TIC website.

### When to feed

**IMPORTANT:** Your trout food has been packaged into five different sizes: #0, #1, #2, 1.2mm, and 1.5mm feed. Start feeding with the bag that is marked "0".

| SIZE | INSTRUCTIONS |
|---|---|
| Size 0 feed | After your eggs hatch, they will emerge as sac-fry. Sac-fry do not require any additional feeding for roughly 7-14 days after they have hatched. Sac-fry feed from their yolk-sac as they stay relatively low, at the bottom of the egg basket.<br>As yolk sacs disappear, some trout will start swimming around looking for food. When you see the first trout swim up in the egg basket or out of the egg basket, you can start providing miniscule amounts of size 0 feed near any swimming trout. We usually wait for 60% or more swim-up behavior before feeding starts.<br>At first, much of this food will go un-eaten, but by providing it to the developing fish, it will be there when they are hungry. Food must be available to fry when they first want to eat; however, you must also remember that at first they are feeding on microscopic organisms in the tank that we cannot see or detect. This will provide some of their early nutrition.<br>**NOTE:** There will be a small mortality rate as the fish start to feed. This is normal and expected as some hatchlings never begin eating and will pass away. |
| Size 1 feed | Switch to size 1 feed when you have run out of size 0. |
| Size 2 feed | Switch to size 2 feed when you have run out of size 1. |
| Size 1.2mm feed | Switch to size 1.2mm feed when you have run out of size 2. |
| Size 1.5mm feed | Switch to size 1.5mm feed when you have run out of size 1.2mm. |

### How much to feed

***Please refer to the feeding spreadsheet that has/ will be sent out via email.*** This spreadsheet was created by our WGFD Fish Culturists for you to use.

Once you open up the spreadsheet:

1. Click on the "File" tab and make your own copy of the file by renaming the file and saving to the destination of your choice.
2. ONLY two pieces of data are needed
    a. An approximate number of the trout in your tank
    b. The date you start(ed) feeding your trout.

To calculate feed amounts for your trout:

1. Edit the yellow highlighted date to reflect the first day you started feeding your fish. The date cells will automatically populate.
2. Edit the yellow highlighted "no. fish" box. This is your estimated population size. Everyone started with 150 eggs.
3. Daily feed amounts will show up in column "F". To convert to grams, simply multiply your pounds by 453.6. Weigh the food using a digital scale, preferably to the thousandths place.

### Notes

- Try your best to remove any food from the water that the trout have not consumed within 15 minutes. Leftover food that sits in the tank for too long can lead to ammonia issues in the water and contribute to trout mortality. Leftover food can be easily removed using a small dip net or turkey baster.
- It is better to feed less food, more often, than a lot of food all at once. This may mean feeding the trout very small amounts of food 2-3 times per day - just make sure that the total amount of feed they receive is adequate to their growth stage.
- Many classrooms may enlist the assistance of additional help, such as school janitors or security staff, to feed the fish on the weekends and holidays. They, like most of us, often become fans of the trout and soon spend extra time watching, and perhaps feeding the trout. People with different schedules are often unaware that others are also feeding the trout, leading to overfeeding. Teachers may want to warn other school staff about overfeeding, or have a sheet of paper near the tank so they can track how often the fish have been fed.

# CRISIS NOTES

## READ BEFORE TROUT TRAGEDY OCCURS

- When adding new water, treat all the water with water conditioners, such as Amquel and Novaqua.
- Change the water if:
    - All fish are not moving and are gathered at the bottom of the tank.
    - All fish are lethargic.
    - Your fish are unresponsive to food.
- During the first few weeks, initial ammonia spikes from overfeeding are likely. Water changes and some water conditioners are the only solution.
- It is also good to "boost" your tank with Special Blend and Nite out II as often as once a week.
- If you change your filter media, only change one section at a time, allowing the bacteria from the remaining section to colonize the new media. Do not change the ceramic media.

# GENERAL NOTES

- Once your trout have started eating, siphon-vacuum your tank every 2-3 weeks. Be sure to carefully remove the detritus that accumulates at the bottom of your tank.
- In five months, fry will be ready to release!

**Additional Resources from Trout Unlimited**

Feeding Guidelines

Vacation Planning

Ammonia and Trout

Equipment Maintenance

Nitrogen Cycle

Dissolved Oxygen

Water Hardness

Troubleshooting FAQ

# TROUT RELEASE AND DISPOSAL

**Trout Releasing/Stocking**

To release your fish, you must coordinate with the Wyoming TIC State Coordinator, Katie Schlafke, katie.schlafke@wyo.gov. During the stocking, a WGFD employee must supervise the release. Trout may only be released in preapproved locations that are determined by WGFD.

**Trout Euthanasia and Disposal**

- Please contact WY TIC's state coordinator, Katie Schlafke, at katie.schlafke@wyo.gov for guidelines.

**Chapter 33 Permit**

Trout in the Classroom operates under a Chapter 33 Scientific Research, Educational or Special Purpose permit from the Wyoming Game and Fish Department. In order to possess live wildlife of any kind (in this case trout) a person must hold such a permit. The Trout in the Classroom permit requires that eggs and fish are fully contained within the aquaria associated with the application and only removed when dead or on the day of transport for the approved release with the Game and Fish. Fish or eggs cannot be moved from one aquarium to another (even if it is to another Trout in the Classroom aquaria). On the day of release, fish must be transported under the direction of the applicant teacher and may only be released on the approved date and location under the direction of a Wyoming Game and Fish Department employee. Applicant teachers are responsible for adherence to all aspects of the Chapter 33 Permit.

# DON'T LET IT LOOSE

Remember, your Rainbow Trout are Wyoming wildlife and serve as a classroom tool - NOT a classroom pet.

The Rainbow Trout you raise can only be released under the supervision of the WGFD through our permit, whereas pets at home (like goldfish) should never be released. Please visit the Don't Let it Loose website to learn more and help us send the right message to your students. www.dontletitloose.com

# END OF YEAR CLEAN-UP

**For end-of-year clean-up, scan the QR code or use the link:**
www.troutintheclassroom.org/technical-information/equipment/end-of-year-clean-up/

# FREQUENTLY ASKED QUESTIONS

Please see frequently asked questions here. To join the TIC teacher community, please click here.

# LESSON PLANS AND RESOURCES

**For lesson plans and resources, scan the QR code or use the link:** bit.ly/TIC-handbookresources