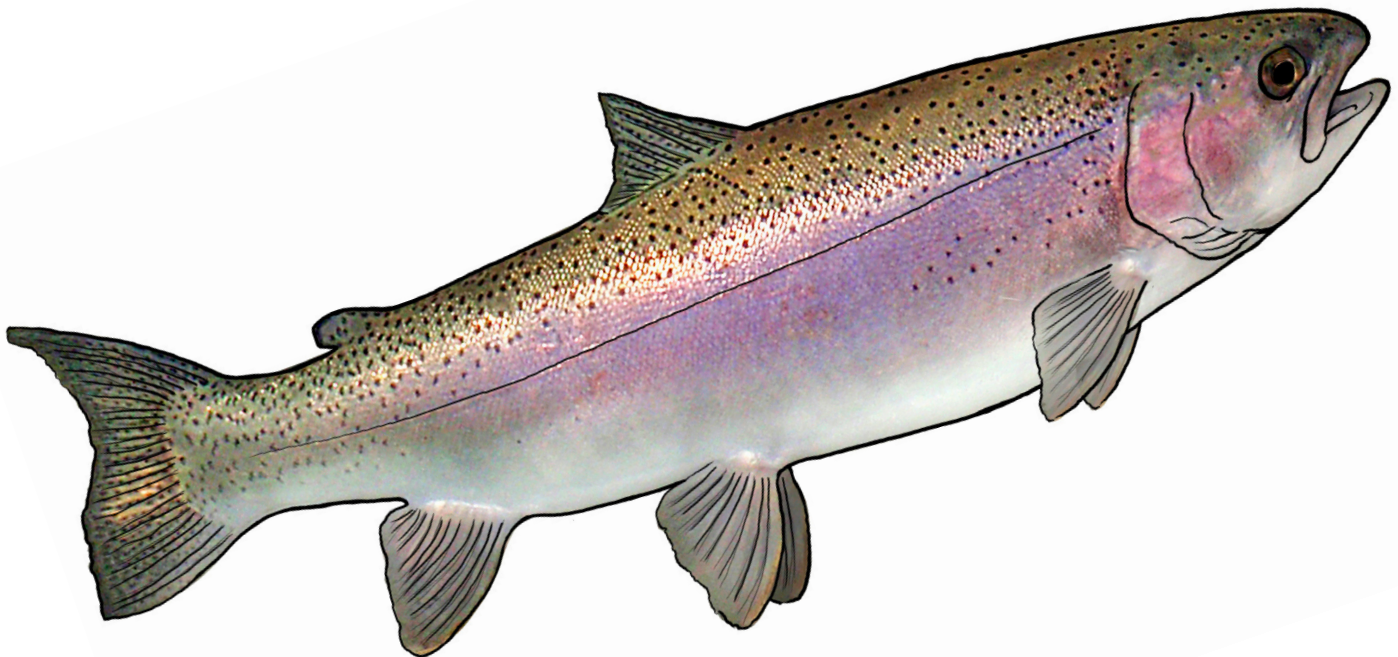




TROUT IN THE CLASSROOM(TIC) INFORMATION PACKET



Source: California Department of Fish and Wildlife

Table of Contents

Overview	1-2
General Timeline	3
Equipment	4-6
Testing Requirements	7-8
Next Steps.....	9

Overview

Trout in the Classroom (TIC) is a conservation-oriented, environmental education program for elementary, middle and high school students.

Throughout the school year, students will engage in a number of responsibilities that relate to stewardship and provide excellent opportunities for learning.

As part of TIC, students will:

- Raise trout from eggs to fry;
- Monitor tank water quality;
- Engage in stream habitat studies;
- Learn to appreciate water resources;
- Begin to foster a conservation ethic; and
- Grow to understand ecosystems

During the year, each teacher tailors the program to fit his or her curricular needs. Therefore, each program is unique. TIC has interdisciplinary applications in science, social studies, mathematics, language arts, fine arts and physical education.

Program Objectives:

The objectives of the TIC program are to introduce a conservation education program into selected schools based on the life cycle of a member of the trout species and to foster increased student public knowledge of water quality issues and coldwater conservation. The TIC program curricula will include aquatic biology and ecology, watershed management and stewardship, disease awareness, aquarium maintenance, water quality, fish growth and behavior, health and regulatory concerns, and other topics relative to the TIC program objectives.

Program Model:

The TIC program will be primarily planned, led and implemented by the educator/learning institution using the Colorado TIC Manual. Local Trout Unlimited chapters and Colorado Trout Unlimited are available for financial and technical support, supplementary lessons, and release field trips

General Timeline

The Standard TIC program takes place over the course of a school year.

August - October

- Educators/learning institution sign Memorandum of Understanding with Colorado Trout Unlimited and Colorado Parks and Wildlife
- Equipment is obtained via loan from chapter/CTU or purchased by school and set up in classroom
- Tanks are cycled and tested to ensure that the water chemistry and temperature is adequate to support fish
- Fish eggs are ordered and delivered to the classroom
- Teacher connected with local chapter representative
- Teacher connected with Colorado TIC network

October - February

- Fish are raised by students and educator in tanks located in the classroom
- Teachers offer lessons reflecting TIC program objectives

March - April

- Fish are tested for aquatic diseases in the classrooms (see testing requirements/process attached)
- CTU secures stocking permit from CPW and approval for release into teacher's preferred body of water

May - June

- Fish are released into pre-approved body of water

Equipment

All of the standard TIC equipment is listed in the table on page 6. Trout Unlimited has a partnership with That Pet Place, who provide the majority of the equipment at a discounted cost. The brands listed are those that have been successful in classrooms. Comparable equipment should also work.

The majority of the equipment you will be using can be found at <http://www.thatpetplace.com/trout-in-the-classroom>. The remaining pieces of equipment can be found at local hardware stores, local pet stores or online.

Note: Due to CPW testing requirements, it is recommended that classrooms establish two tanks in order to raise enough fish for testing and release. If only one tank is used, the site may not have enough fish to test and/or release at the end of the season. For more information, see testing requirements on page 6 and 7.

Equipment Costs

Initial Start-Up Costs (for one tank set up): ~\$1,850

Breakdown:

Equipment from That Pet Place (not including shipping):

Note: the difference in Kit#1 and #3 is in the filter. One of the filters is drop in, one sits on the floor. This would be up to the educator/ learning institution and what their classroom can accommodate.

Kit #1: \$1,161.22

Kit #3: \$1,053.13

Additional Equipment: ~\$350

Eggs: ~\$150 (shipping)

Disease Testing (every other year): ~\$150 (shipping)

Annual Costs (for one tank set up): ~\$450

Breakdown:

Replacement Item Kit from That Pet Place (not including shipping):
\$103.22

Replacement eggs: ~\$150 (shipping)

Disease Testing (every other year): ~\$150 (shipping)

Trout food will be provided through Colorado Parks and Wildlife

Equipment	Item Number	First Year	Replaced Annually
Items purchased from thatpetplace.com			
(1)Aqua Euro USA ¼ hp Chiller	253983	•	
(1)Fluval 406 Canister Filter	256342	•	
AquaClear 110 Power Filter	215378	•	
(1)Whisper 60 Air Pump	205754	•	
(1)10" Aqua Mist Add-a-Stone	212520	•	•
(1)8' Flexible Airline Tubing ST-8	212445	•	
(1)Fusion Check Valve 1 pk.	240195	•	•
(1)Net Breeder	204233	•	
(1)Battery Operated Digital Thermometer	209362	•	
(1)8" Net w/ Long Handle	212526	•	
(2)Micro-Lift Special Blend 16 oz.	243424	•	•
(2)Nite-Out II 16 oz.	243555	•	•
(1)NovAqua Plus Water Conditioner 16 oz.	214299	•	•
(1)Mag Drive Water Pump 700 GPH	206397	•	
(15')¾" Clear Flexible Tubing	204177	•	
(1)Reducing Bushing MPT x FPT - .75in. X .75in.	199448	•	
(1)Female insert Adapter FPT x Insert - .75 in. X .75 in.	278257	•	
(5)Stainless Steel Hose Clamp ½" to 1"	241595	•	
(1)Freshwater Master Test Kit	199591	•	•
(1)GH & KH Hardness Test Kit for FW	199678	•	•
(1)Lees Squeeze Bulb Ultra Gravel Vac. With on/off Valve	253080	•	
(2)Shallow Creek Pebbles 5 lb.	268724	•	
(1)Eshopps Return Jet for Output of Chiller Water	250869	•	
(1)Teflon Tape	199328	•	
(2)Chemi-Pure 5 oz. Filter Media (carbon)	196393	•	•
Items purchased from other sources			
(1)55 Gallon Tank and Stand		•	
Foam board for insulation (enough to cover all sides)		•	
Turkey Baster (to remove dead eggs or waste)		•	
Battery Operated Aerator (transportation of fish)		•	
Clean Ice Packs (chiller malfunction and transportation)		•	
Siphon Water Pump (water changes)		•	
(2) 5 Gallon Bucket with Lid		•	
Outlet Surge Protector		•	
Measuring Spoon set w/ ¼ tsp (feeding fish)		•	
Plastic Eye Dropper (measuring)		•	

Testing Requirements

According to state law, fish must be tested prior to release. The following guidelines, provided by CPW, outlines the testing requirements. Depending on the location of the release, fish may have to be tested for Whirling Disease (for all sites west of I-25). Sites must test a minimum of 35 fish in order to qualify for a release into waters with any connectivity to state waters. If the fish are released in Whirling Disease positive waters, no sampling is required for Whirling Disease, and you can use the lower confidence level of sampling if the area biologist is in agreement. If your total fish population would be highly impacted by testing, you may skip disease testing and release your fish into a private pond or lake with no connectivity to state waters. Testing results are good for up to 15 months on the same water supply, meaning that TIC sites will only need to test their fish once every two years (fish must be tested in the first year). Sites with multiple tanks will increase the chances of holding enough fish to test and release in the same year.

Alternative Options to Release:

If your program does not have enough Trout to sample, test and release, you have a few different options. You can keep the fish over the summer to give your students a chance to see larger trout and potentially use them for a dissection lesson for that next year. This would require maintenance of the tank over the summer months. You can also donate your trout to a Wildlife Rehabilitation Center in Colorado. Lastly, you can use clove oil or similar techniques to euthanize the fish if none of the other options are viable.

COLORADO PARKS AND WILDLIFE

INSTRUCTIONS FOR TIC FISH HEALTH AND TESTING

All eggs/fish in the TIC project must be obtained, held, disease tested, and released in accordance with the regulations in 2 CCR 406-0, Ch. W-0, art. VII

<p>1. Transportation of eggs to the classroom must be accompanied by the Aquaculture Permit (Colorado Department of Agriculture), CPW Importation Permit, and a copy of the Fish Health Inspection Certificate from the source facility.</p>
<p>2. A fish health inspection request must be made by a Qualified Sample Collector to the CPW Aquatic Animal Health Lab in a timely fashion in order to schedule the inspection. CPW may help train Qualified Sample Collectors to support the TIC program or provide a list of certified collectors if requested. The inspection must be scheduled at least six (6) weeks prior to the anticipated release date to allow for testing and paperwork to be completed. A Fish Health Inspection Certification is required prior to release of the fish unless specifically exempted by the Director.</p>
<p>3. A "lot" of fish is defined as a group of fish of the same species and age that share a common water supply and originate from a distinct spawning population. If there are more than one aquaria in a classroom, but all are on the same water supply and eggs are from the same source, they will all be considered one lot.</p>
<p>4. An appropriate number of fish from each aquarium/lot will be required during the health inspection to result in confidence and prevalence levels required from other facilities within the state. The sample numbers are based upon a 10% prevalence level for a pathogen (the number of fish selected at random will give at least one positive 90 times out of 100). Examples for sample size are: If the aquarium holds 500 fish, 26 would be tested If the aquarium holds 250 fish, 25 will be tested If the aquarium holds 100 fish, 23 will be tested If the aquarium holds 50 fish, 20 will be tested, etc. CTU and/or the schools will be responsible for the cost of the testing.</p>
<p>5. Whirling Disease (<i>Myxobolus cerebralis</i>) testing – at the time of the annual inspection, fish to be released in salmonid habitat will be tested for whirling disease and the <u>sample size will be based on a 10% prevalence level according to regulations</u>. If fish are destined for WD-positive waters, then the testing is not required. This case must be determined between the TIC site proctor and the area biologist prior to inspection. For classroom trout that have not been held on the water supply for at least 1800-degrees days Celsius or six months, the polymerase chain reaction (PCR) technique will be the method of testing. Fish must be on the water supply at least 4 months prior to testing. A positive finding in such instance shall be considered presumptive for the presence of <i>M. cerebralis</i>. Confirmation shall be determined by a second PDR conducted by a different laboratory. Cost for this testing is the responsibility of CTU and/or the school.</p>
<p>6. Fish cannot be released until the Fish Health Inspection Certification has been issued. Fish transported for release will be accompanied by a copy of that certificate and appropriate stocking permit for waters on the west slope. It is imperative that the TU representative contact the area aquatic biologist to coordinate appropriate stocking locations well in advance of the anticipated release date.</p>

Next Steps

If you are interested in participating in Trout in the Classroom, please fill out this quick survey and someone will be in touch shortly!

[TIC Questionnaire](#)