TROUT IN THE CLASSROOM

Connecting students to their watersheds
Coordinated by
Naugatuck Pomperaug Chapter of
TROUT UNLIMITED

Trout Unlimited is a national grass roots group whose mission is to:
Conserve, protect, and restore North America's coldwater fisheries and their watersheds.

Trout in the Classroom (TIC) programs have been in place all across the country for more than 20 years. In New York, TIC was started through the efforts of the late Joan Stellar in 1997. The program was designed specifically for teachers who want to incorporate more environmental education into their curriculum and need outside help. It gives TU members the opportunity to get involved with their local schools, while teaching kids about water quality, aquatic life, and other environmental issues.

What is Trout in the Classroom?

Trout in the Classroom is a relatively simple program and has been a huge success so far. Basically, teachers set up an aquarium and incubate trout eggs in their classroom, under the guidance of a Trout in the Classroom coordinator (often a TU member). Together, they ensure that all of the equipment has been purchased and is assembled by September. The teacher and students are responsible for daily maintenance and observation of the eggs, while the coordinator is responsible for obtaining permits and delivering the eggs.

The final result is an aquarium full of trout fry that is released into a pre-approved body of water during a class field trip. Trout in the Classroom is an extremely rewarding program for everybody involved, whether student, teacher, or mentor. The program can be set up in one school, or, as the Long Island Chapter of Trout Unlimited has done, as a collaboration with many different schools.

For more information please contact Ed Albrecht, Hammonasset Chapter, Trout in the Classroom Coordinator, at 1-203-271-1103 or albrecht_ed@yahoo.com or Rochelle Gandour, Trout in the Classroom Coordinator, at 718-595-3503 or rgandour@tu.org

What is the timeline for raising trout in a classroom?

The general timeline for TIC is that classrooms set up coldwater tanks in September, get brown or brook trout eggs in October or November, and raise the trout over the school year. The fingerlings are then released in the spring, into appropriate streams and rivers.

What type of trout do classes raise?

The classes will raise brown trout, rainbow trout, or brook trout depending on the availability of eggs.

What kind of equipment is needed?

The tank set-up includes a UV sterilizer, filter, pump, aeration device, and a chiller. Other smaller items for tank maintenance are also required. Thames Valley TU will provide the necessary equipment. Keeping this equipment clean is important and easy to do at the end of each year.

How much does TIC cost to do?

TIC has a large initial cost, but then maintenance is very inexpensive. The chiller is the most expensive item on the list, amounting to more than half the total of the $1200 needed for a setup.

What care do trout require?

Preparing for and maintaining a trout tank is a fairly straightforward process. The tank must be up and running about thirty days before the trout eggs can be placed into the tank. Then, once the eggs are in, maintenance is simply a matter of making sure that all the different pieces of equipment are working properly. Daily monitoring of nitrogen levels and pH indicates when water should be changed.

Do you feed the trout?

Most programs do feed their trout, once the fry have used up their yolk sacs and risen from the hatching basket. The key to raising trout is feeding them as little as possible, because feeding creates waste. It becomes harder to maintain a clean environment for the trout. A feeding guide will be provided.

Where is food available?

The amount of food needed is very small, and some hatcheries are willing to give a classroom the portion of food they would need. Instructions will be provided.

Do the trout have to be fed?

Some programs successfully raise trout without feeding them. The key is maintaining a low water temperature, which slows growth. Contact Rochelle Gandour (rgandour@tu.org) for more information about this method.

How are chapters of TU involved?

Local TU volunteers can help a teacher navigate permits and licenses, secure eggs and food, help set up and maintain equipment, provide guest speakers in classes about all sorts of topics, and help on stream study and release field trips. If the chapter is doing a stream restoration project, the site could be a great field trip location for students.

What are the requirements for setting up a program?

- Interested teacher
- Permission of school Principal
- A letter of agreement with the school, including a transportation arrangement for field trips
- Source of eggs & permission to acquire them
- Instructions for teacher to follow in setting up classroom aquarium

- Aquarium and other related equipment

Where can I use it in my school's curriculum?

TIC is an environmental education program that can be used in any school, in grades K-12, across the curriculum with:

Science

- Animal Studies
- Weather
- Genetics and reproduction
- Stream study
- Macroinvertbrates

Social Studies

- Human impact
- Maps measurements
- Municipal decision- making
- Democracy: working with representatives
- Resource management

Language Arts

- Journaling
- Reports
- Points of view

Math

- Measurements:
- Length
- Percentage
- Volumes
- many other calculations

What do we do with the trout fry during the vacation breaks?

The feeding and water dilution must be done. Make arrangement to get this done.

What if the equipment breaks down?

NPTU will be there to help you with repairs and/or getting new equipment.

Who do I contact for more information?

Rochelle Grandeur (rgandour@tu.org) is New York's TIC Coordinator. She is also able to provide some support to teachers and volunteers from other states. Teachers may also want to contact the Ed Albrecht (Albrecht_ed@Yahoo.com) Naugatuck Pomperaug Chapter of TU directly.

Equipment List

- 55 Gallon aquarium tank with stand
- Chiller
- Approximately 10 feet of plastic tubing
- Water pump
- UV Sterilizer light
- Water filter
- Air pump with air hose and a 12 inch air stone
- In addition to the above materials, you will also need something to shade the eggs and young fry from UV light.

Equipment Replaced Yearly

Each year the school will have to purchase the following items:

- UV bulb for the sterilizer—even if it is still emitting light after one year, it is no longer emitting the UV spectrum useful for sterilization. The filament degrades.
- Filter pads
- Airstone—these can degrade or get gummed up with waste.
- Water Quality Test Kit—at the end of one school year, you will have used up most of the reagents and other testing materials.

A General Timeline

30 Days before eggs are received:

- Assemble all parts for aquarium setup
- Set up the bio-system in the tank:
    - Temperature 65°F (18°C)
    - Start nutrient cycle by adding Biozime or equivalent
    - Change 25% of water each week
    - UV light off.

12 Hours before eggs arrive

- Turn UV light on.
- Temperature down to 50-52°F (10-11°C)

After your eggs are in the water

- Eggs should be placed in a net- type breeding basket.
- Keep the tank shadowed with a Styrofoam cover. You can remove it for viewing or cut a viewing window. This cover gives darkness for the eggs, and helps keep the temperature down.

Egg Maintenance

- Dead eggs must be removed each day. They are opaque white. Use a large-mouthed eyedropper (some have also used a turkey baster) to remove. Change 10-20% of water per week (more is always better).

Hatching

- When eggs hatch, fry will lie on sides, with egg sack still attached...feeding from it. Tip: As eggs hatch, place a small screen on top of the breeding basket to prevent the fry from hopping out!
- Soon they will "right" themselves, but remain low in the basket. As egg sac is consumed, they begin to rise. You will be provided with instructions on when to begin, quantity and frequency of feeding.
- Eventually, they will swim up over the basket edge into the larger area of the tank.

Trout Maintenance

- Keep changing that water 10-20% per week!
- Expect losses...non eating pinheads...some deformities...surprises!
- In six months, fry will be ready to release! The teacher will have to work with the TIC coordinator to get the appropriate permits.

End of Year Tank Clean-up

At the end of your TIC season, it is important to clean your aquarium set-up in order to ensure a successful next year. If you take a few minutes to make sure everything is clean, your equipment will have a much longer life. Clean up instructions will be provided by the TIC coordinator.

Contacts

Trout Unlimited
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Naugatuck Pomperaug Chapter T.U.
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Trout in the Classroom Website;
www.troutintheclassroom.org (temporary: www.tu.org/tic)

State of Connecticut D.E.P.; Inland Fisheries Division
William A. Hyatt, Director
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Bill Gerrish, Permits
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Rick VanNorstrad, Supervisor of Fish Culture (source for the eggs)
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Mike Beauchene, (THE BUG MAN) Entomologist
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Connecticut Aquatic Resources Education (CARE)
Phone: 860-663-1656
Quinebaug Valley Trout Hatchery
Phone: 860-564-7542

Here are some links to very detailed information from some very successful programs:

Nevada Division of Wildlife: http://ndow.org/learn/tic/index.shtm
Boquet River Association: http://www.boquetriver.org/adopt.html
New Jersey- Division of Fish & Wildlife: http://www.state.nj.us/dep/fgw/troutinclassroom.htm

Naugatuck Pomperaug Chapter
Trout Unlimited
P.O. Box 100
Middlebury, CT

Dear,

On behalf of the Naugatuck Pomperaug Chapter of Trout Unlimited, I am pleased to inform you that your school, ---School Name ---, has been accepted into our Trout in the Classroom (TIC) Program and will be provided with the necessary equipment (see the equipment list) for raising trout fry.

This program requires a large investment and only through our fund raising efforts can we sustain this level of sponsorship. Our goal is to use TIC to help you educate school children on conservation and the local environment, recognizing that trout require clean cold water to survive. In turn, by helping to protect the trout's environment we aid our own community's clean water environment.

There are a few things Naugatuck Pomperaug TU (NPTU) asks of you and your school in return for providing this grant. In a partnership such as this, there is a need for a clear understanding of expectations of us both.

Naugatuck Pomperaug responsibility:

- The equipment to properly equip your school to begin the TIC Program.
- Initial training in aquarium and cooler operation.
- A contact list of our participants to be used as a support mechanism to share information, etc.
- A contact person from NPTU as a resource for assistance and coordination.
- Assistance with equipment maintenance.

School Name/Teacher Name responsibility:

- Provide updates on the status of the trout eggs/fry such as how many left, size of fry,problems encountered and solutions, etc., every two weeks
- Awareness/publicity – Whenever possible make parents/public aware that NPTU provided the equipment for your TIC program. This is very beneficial for future chapter fund raising activities.
- Should the program end the chiller and any other usable equipment shall be returned to NPTU to provide to another school.

Please acknowledge your acceptance of these roles in writing and we will make arrangements to present your school with the equipment.

We look forward to you and School Name joining Naugatuck Pomperaug TU's Trout in the Classroom Program.

Regards,

Ed Albrecht
TIC Coordinator
Naugatuck Pomperaug Chapter T.U.