

Report to  
Committee for Atlantic Steelhead Trout  
New Jersey State Council of Trout Unlimited

by

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Eighty steelhead salmon are being maintained in three, 250 gallon tanks, the first two dozen arriving on the 10th of April, the remainder on April 17th. The tanks are equipped with flow-through sea water from Sandy Hook Bay. To date, the temperature has been 10° to 11°C with the salinity approximately 27 parts/thousand. The flow rate is about 150 liters/hour. Lighting is controlled by a day/night cycle timer which is adjusted to normal daylight for this period. Each tank contains 6 to 12 half-sections of PVC pipe approximately eight inches long for habitat adaptation as well as a number of hermit crabs for sanitation purposes.

The fish are being fed 2 to 3 times daily with pelleted trout chow supplemented with grass shrimp, small carps and minnows obtained from nearby waters. Especially during the period of adaptation to the tanks, the live food was found to be preferable.

To date, the majority of moribund fish appeared to be fish that were undersized. The dark coloration of the dorsal area and silvery undersides were not as distinct as in most of the survivors; an indication that these fish were not yet ready to smolt. The autopsies (reports attached) showed some evidence of myxobacteria in the gills of a number of the moribund fish, though in most cases this was not deemed the probable cause of death.

The purpose of these studies undertaken for Trout Unlimited is to monitor, in water directly from Sandy Hook Bay, the survival and growth rate of steelhead and other salmon which may be introduced to this region. Presumably, those fish being monitored will encounter the same water conditions and pathogens as the released fish. One tank will be maintained at normal bay temperatures throughout the year, while another will be at optimal temperature for the fish (approximately 10°C).

The parr-to-smolt transformation involves a variety of chemical, physiological and behavioral changes which result in the fish becoming more able to survive in the marine environment. Whole body energy demands increase dramatically. A second phase of this project is to perform biochemical studies to test gill ATPase, serum thyroxine levels and total body lipids. This is in preparation for determining the optimal time of release of smolts and thus maximizing their chance of survival for the coming years.

## AUTOPSY REPORT

A total of 18 fish was autopsied. Of the total, four were sacrificed upon arrival on the 17th of April. Fourteen were moribund. Out of this number, four died of asphyxiation (jumped out of the tank).

A total of eight of the moribund fish showed some evidence of bacterial gill disease. Of this eight, in only one fish was this the probable cause of death. The rest probably succumbed due to lack of ability to osmoregulate. Some evidence of bacteria hemorrhagic septicemia was also seen, but no positive conclusion could be drawn.