

# The Canandaigua Lake Fishery

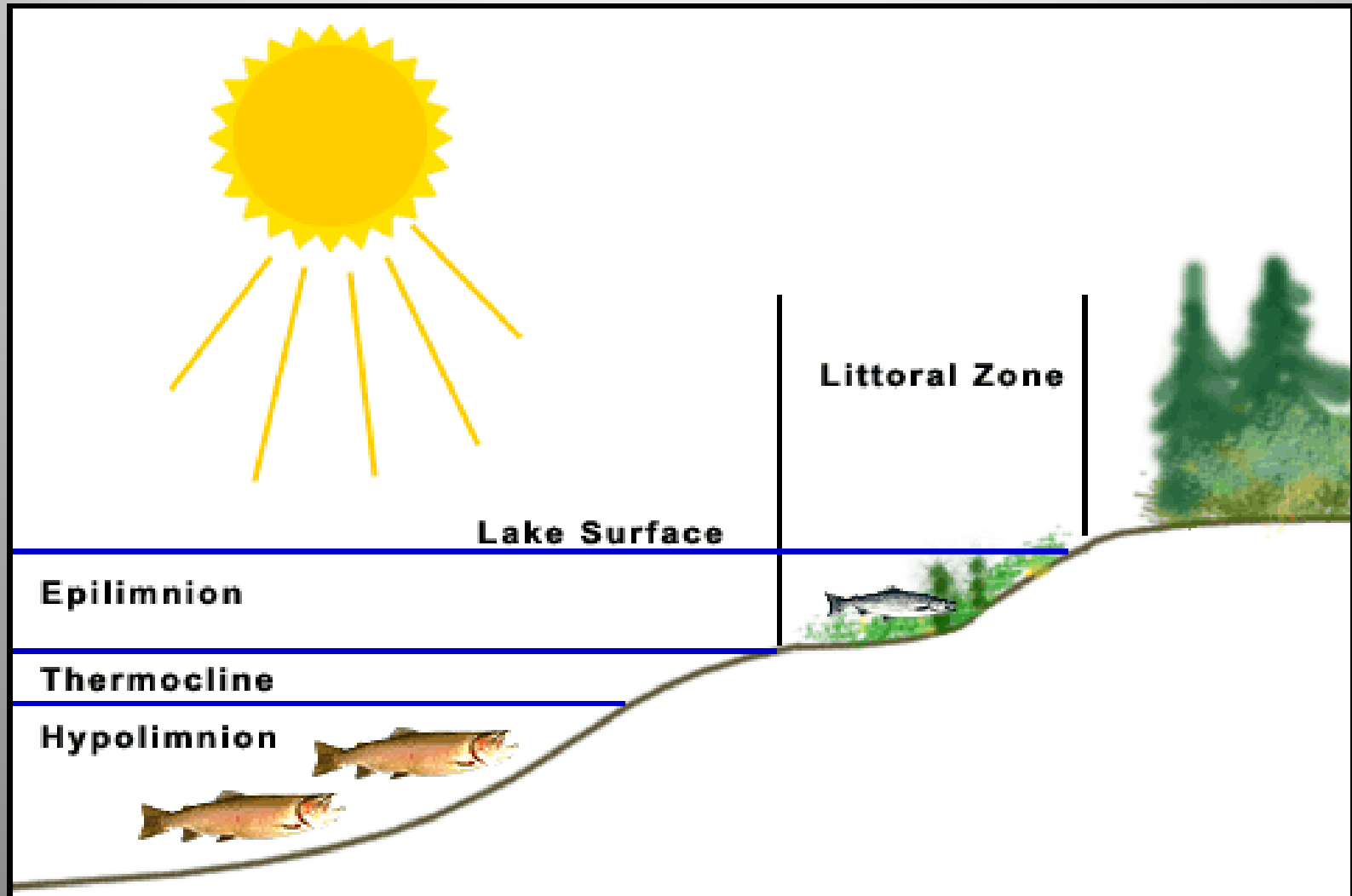
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NYSDEC – Region 8 Fisheries

# Canandaigua Lake

- Surface Area: 10,558 acre (4<sup>th</sup> largest Finger Lake by area)
- Volume: 433.3 Billion Gallons (3<sup>rd</sup> largest Finger Lake by volume)
- Max depth: 276 feet (4<sup>th</sup> deepest Finger Lake)

# “Two story” Fishery



# Warm Water Fishery



Largemouth Bass



Smallmouth Bass



Chain Pickerel



# Warm Water Fishery



Yellow Perch



Bluegill



Rock Bass

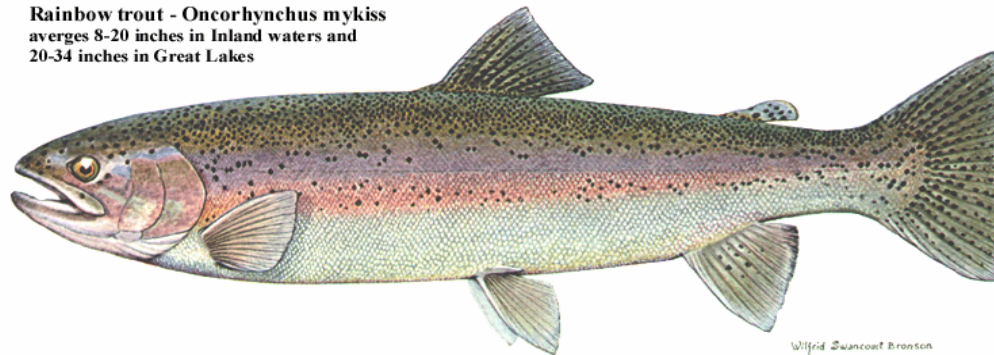


Black Crappie

# Cold Water Fishery



**Brown Trout- *Salmo trutta***  
averages 8 - 20 inches in inland waters  
20 - 32 inches in Great Lakes



**Rainbow trout - *Oncorhynchus mykiss***  
averages 8-20 inches in Inland waters and  
20-34 inches in Great Lakes

Wilfrid Swancock Branton



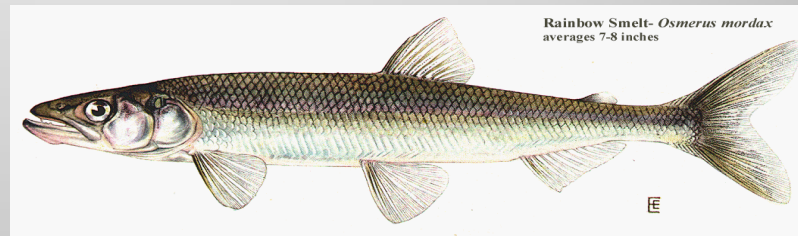
**Lake trout - *Salvelinus namaycush***  
averages 15-34 inches

# Forage

- Alewife



- Rainbow Smelt



- Slimy Sculpin



- Wide variety of other fishes and invertebrates
- Cisco were primary forage for native lake trout before stocking

# Stocking

- Lake Trout – Native; supplemented since **1900**
- Rainbow Trout – first stocked **late 1800's**
- Brown Trout – first stocked **early 1970's**
- Rainbow Smelt – stocked in **1925**
- Alewives – unknown source in **1950's**



# Stocking

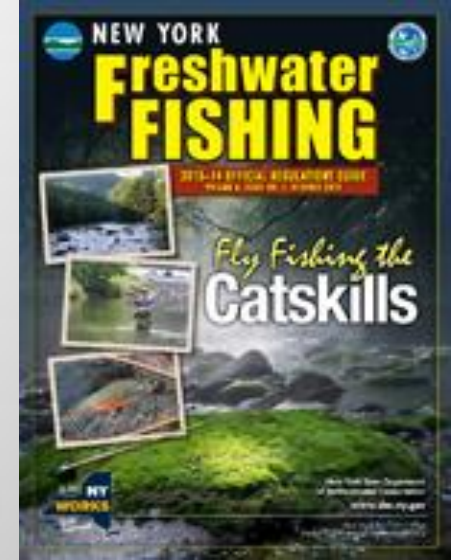
- Lake Trout
  - 12,100 Yearlings
  - 24,100 Fall Fingerlings
- Brown Trout
  - ~ 7,000 Yearlings



# 2007 Statewide Angler Survey

- 23<sup>rd</sup> most fished water body in NY
- Most targeted species:
  1. Black Bass (Largemouth and Smallmouth)
  2. Yellow Perch
  3. Lake Trout
  4. Trout (Brown and Rainbow)
  5. Black Crappie

# Fishing Regulations



- Separate “Finger Lakes and Tributary” section
- 2 year cycle
- Recent Changes (beginning Oct 2012)
  - Increased Lake Trout limit from 3 to 5
  - Decreased Rainbow Trout limit from 5 to 1 in lake and 3 to 1 in tributaries

# Sampling Methods

- Cooperative Angler Diary Program
- Gill Netting
- Boat Electrofishing (Lake)
- Back-pack Electrofishing (Stream)
- Fishing Derbies
- Creel Surveys
- Hydroacoustics
- Fish Kill Monitoring



# Long-Term Objectives

- Proposed objectives based on available data and knowledge of Canandaigua Lake
- Helps us allocate sampling effort
- Provides a method for assessing current status of fishery

# Angler Diary Catch Rate Objective

- 0.40 legal size fish per hour (2.5 hours per legal fish)
  - Lake Trout                      0.30 legal/hr
  - Rainbow Trout                0.07 legal/hr
  - Brown Trout                  0.03 legal/hr

# Angler Diary Length Objective

- Average Length of Harvested Fish:
  - Lake Trout – 21.5 inches
  - Rainbow Trout – 20.0 inches
  - Brown Trout – 20.5 inches

# Using Angler Diary Data

- Goal: lengths for 100 lake trout, 40 rainbow trout, 30 brown trout
- Goal of 300 trips a year from 37 diary cooperators
- Most efficient method for obtaining these data



# Weight Objectives for Coldwater Fish

Species	Goal	Sampling Method
Lake Trout	3.4 pounds at 21.5 inches	Standard Gill Netting
Rainbow Trout	3.0 pounds at 20.0 inches	Naples Creek Spring Electrofishing
Brown Trout	3.4 pounds at 20.5 inches	Derbies? Creel Survey?

# Long-Term Objectives for Warmwater Fish

- Current data are lacking
- Should focus on popular species identified in Statewide Angler Survey:
  - Black Bass, Yellow Perch, Black Crappie
- Goals should be refined as current data are obtained

# Long-Term Objectives for Warmwater Fish

- Need more sampling effort focusing on Black Bass, Yellow Perch, and Black Crappie
- Determine most efficient sampling methods
  - Trap Netting
  - Gill Netting
  - Electrofishing
  - Creel Survey
  - Warmwater Angler Diary
  - Fishing Tournaments

# Cooperative Angler Diary Program

**Trout and Salmon  
Fishing Diary  
For  
Angler Cooperators**


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Write in body of water fished

Name of Angler \_\_\_\_\_

Address \_\_\_\_\_

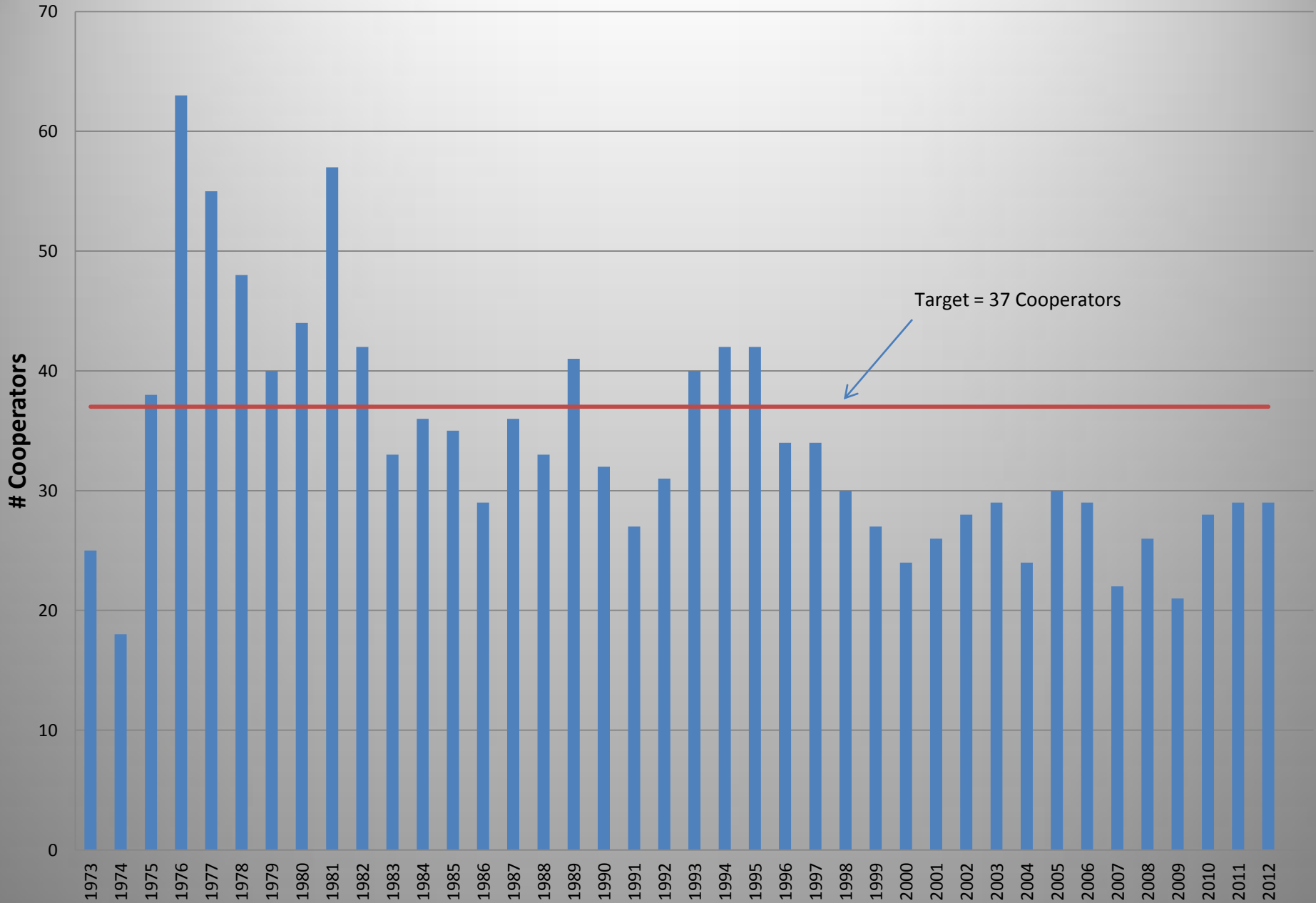
Year \_\_\_\_\_



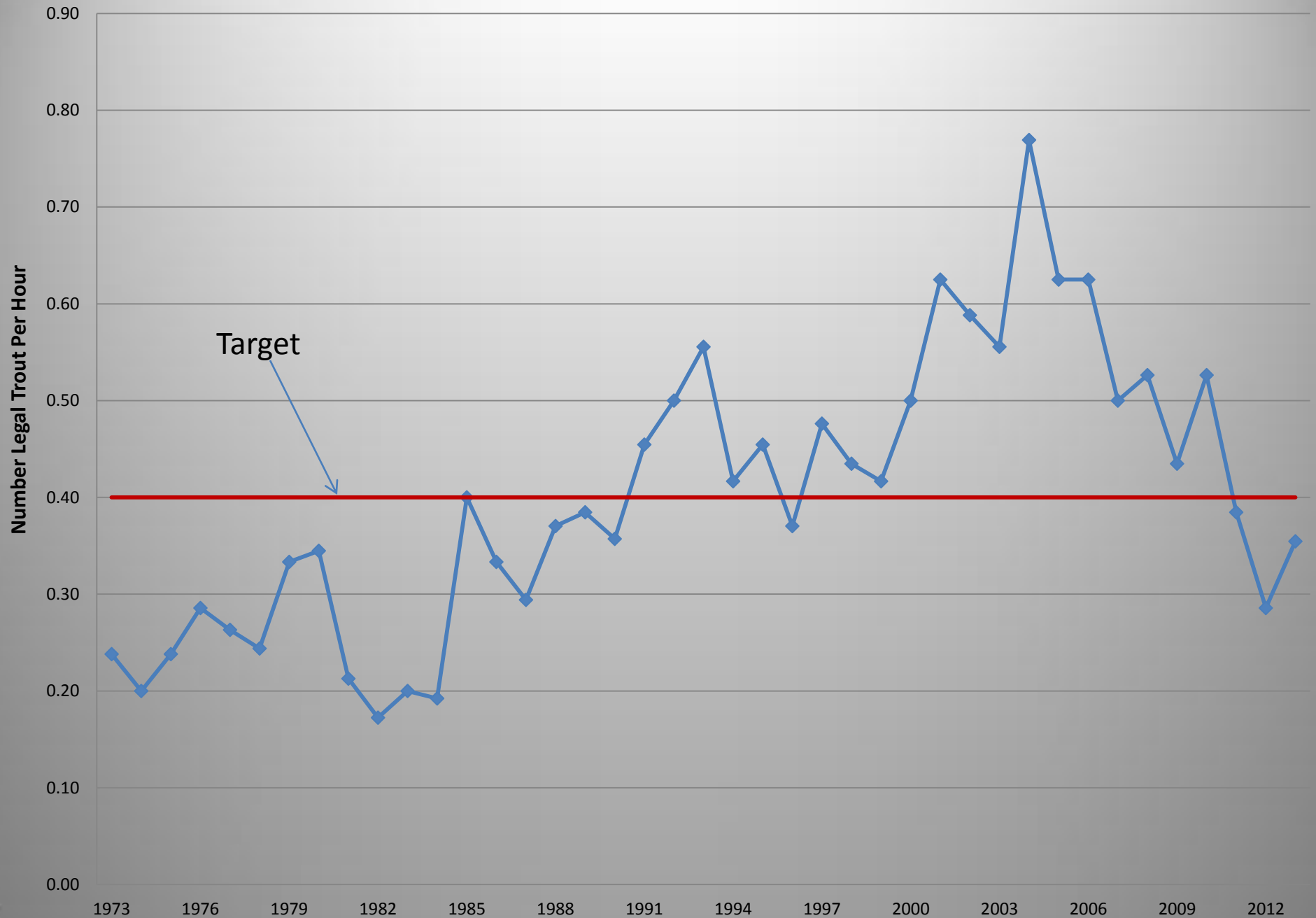
New York State  
Department of Environmental Conservation



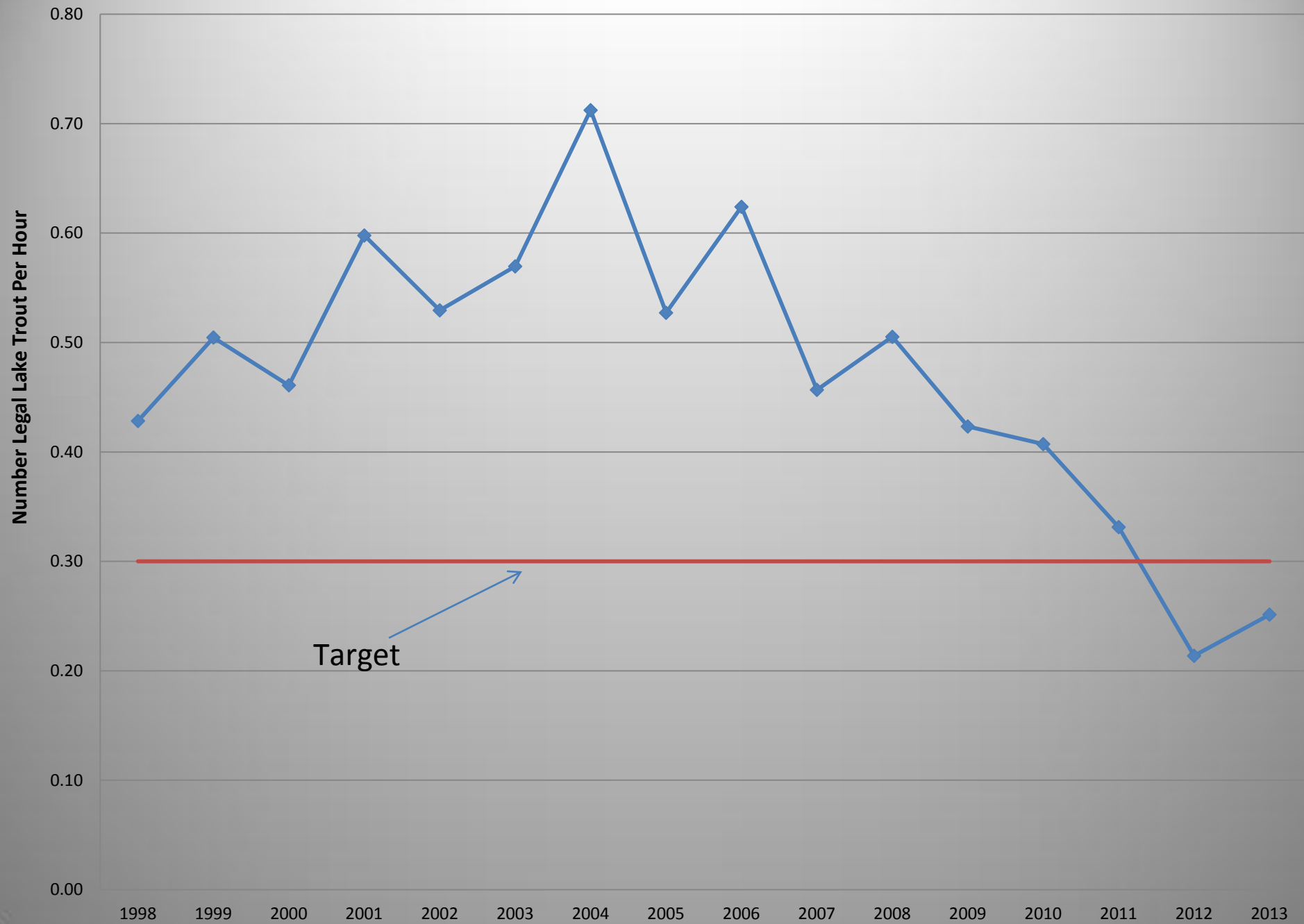
# Canandaigua Lake Angler Diary Cooperators



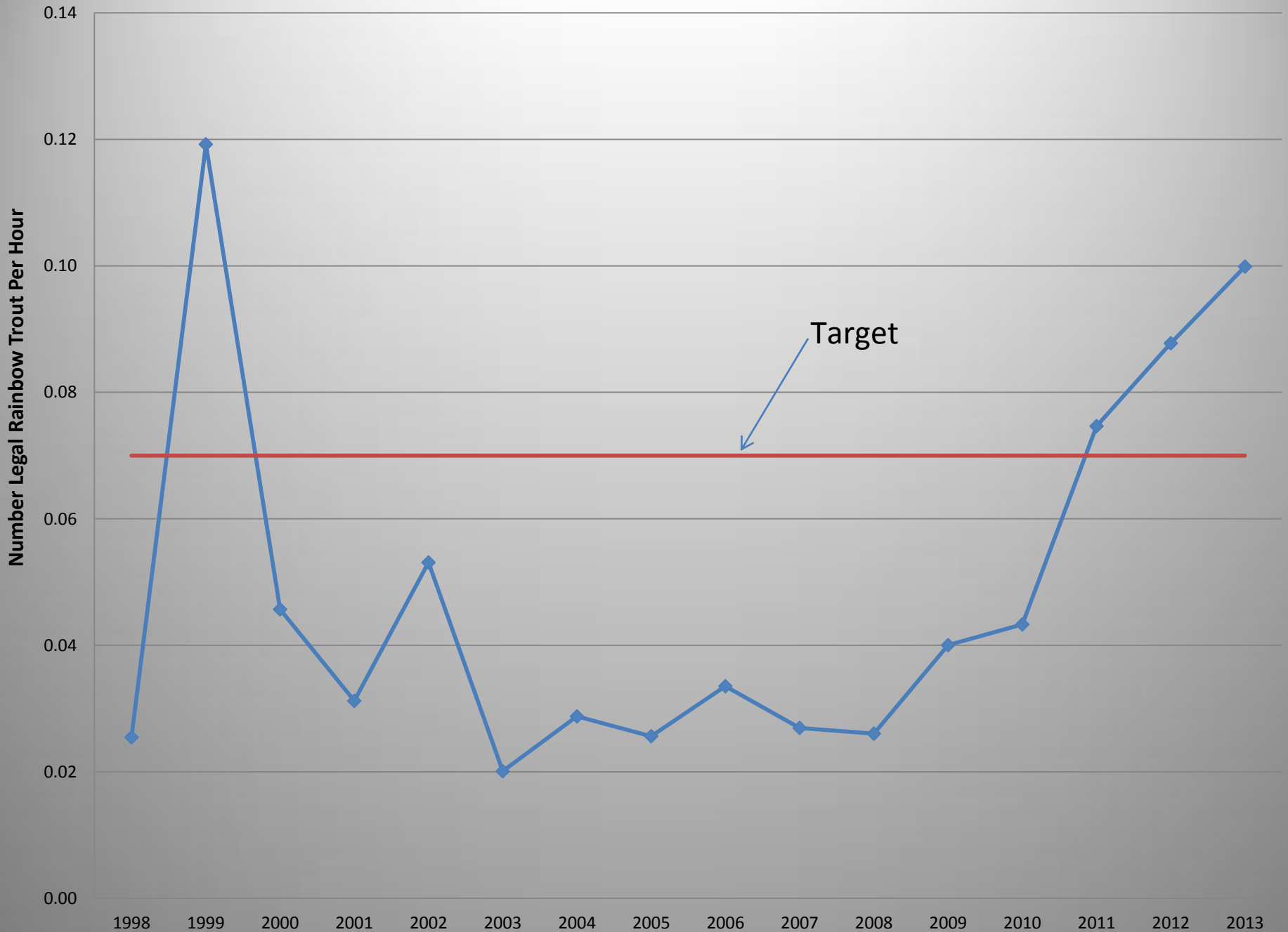
# Canandaigua Lake Angler Diary Catch Rates



## Canandaigua Lake Angler Diary Catch Rate - Lake Trout

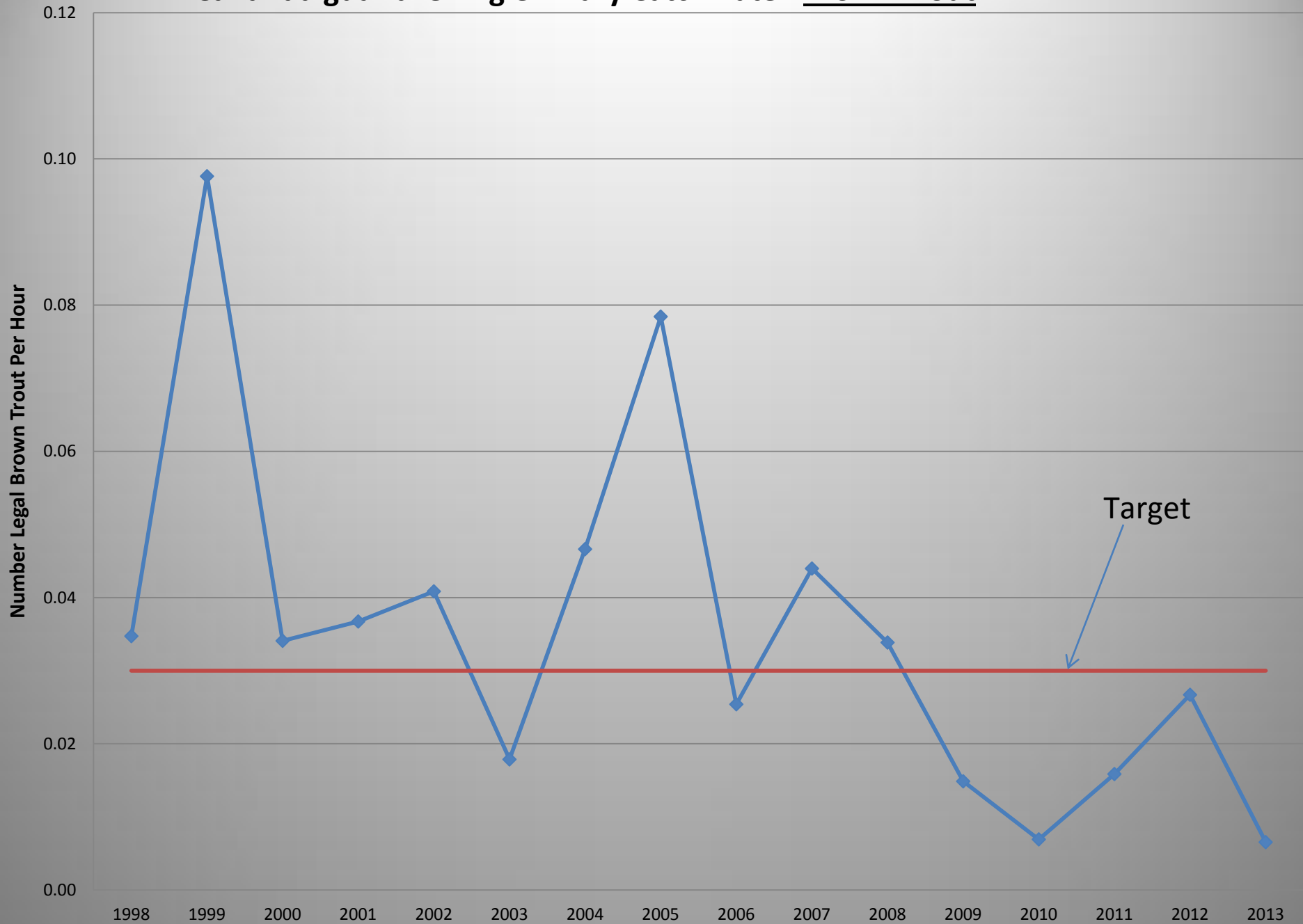


## Canandaigua Lake Angler Diary Catch Rate - Rainbow Trout





## Canandaigua Lake Angler Diary Catch Rate - Brown Trout



# Cooperative Angler Diary Program

Species	Goal Length (inches)	Average Length – 2013
Lake Trout	21.5	20.9
Rainbow Trout	20.0	20.6
Brown Trout	20.5	23.2

# Cooperative Angler Diary Program

- Overall salmonid catch rate just below target in 2013
- Lake Trout at or near target levels
- Rainbow Trout at or near target levels
- Brown Trout catch rates **below** target and sample size small
- Years with high overall catch rates often dominated by lake trout – 2012 and 2013 showed a more balanced salmonid catch
- Need more cooperators

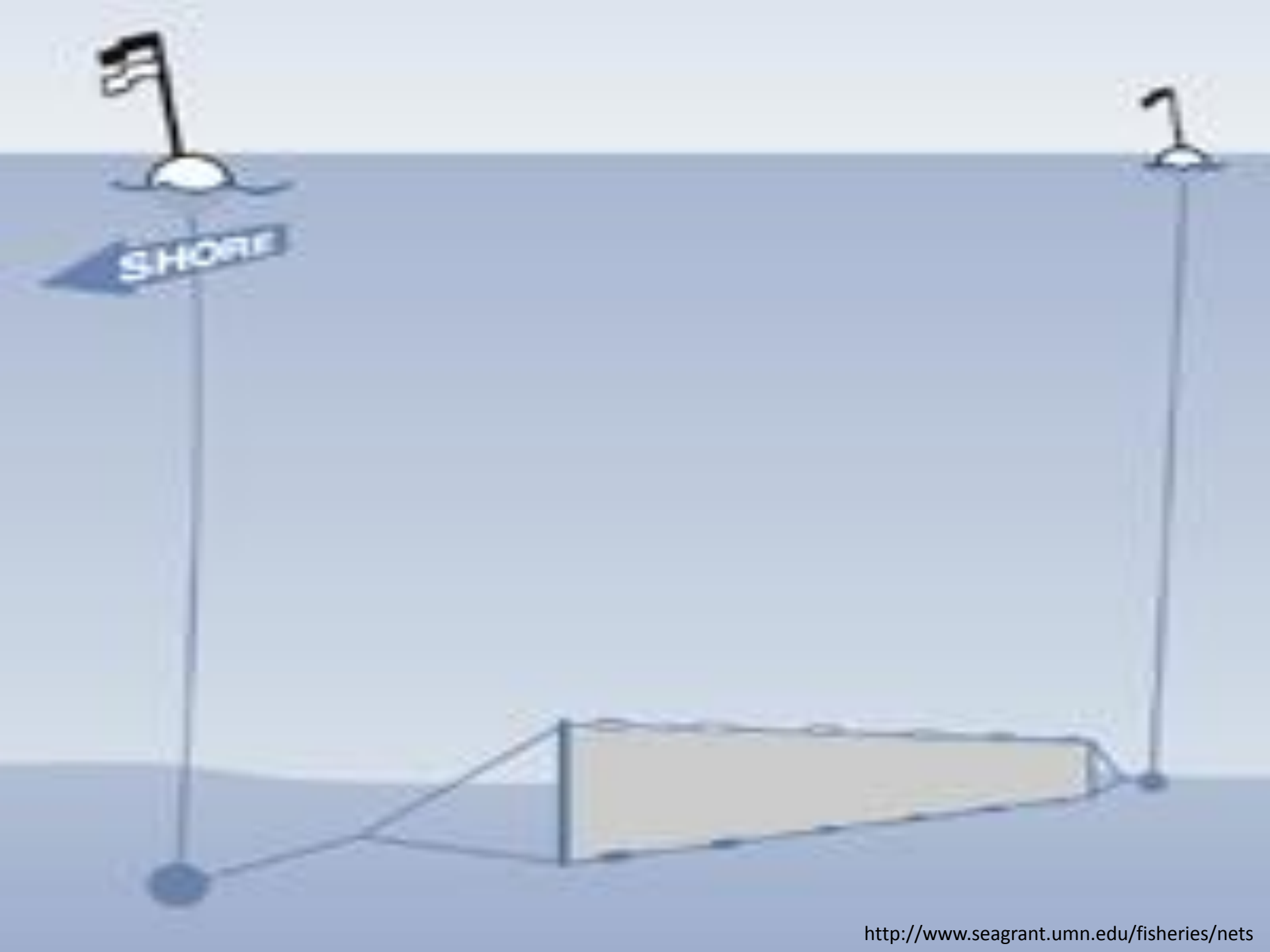
# Standard Gill Netting

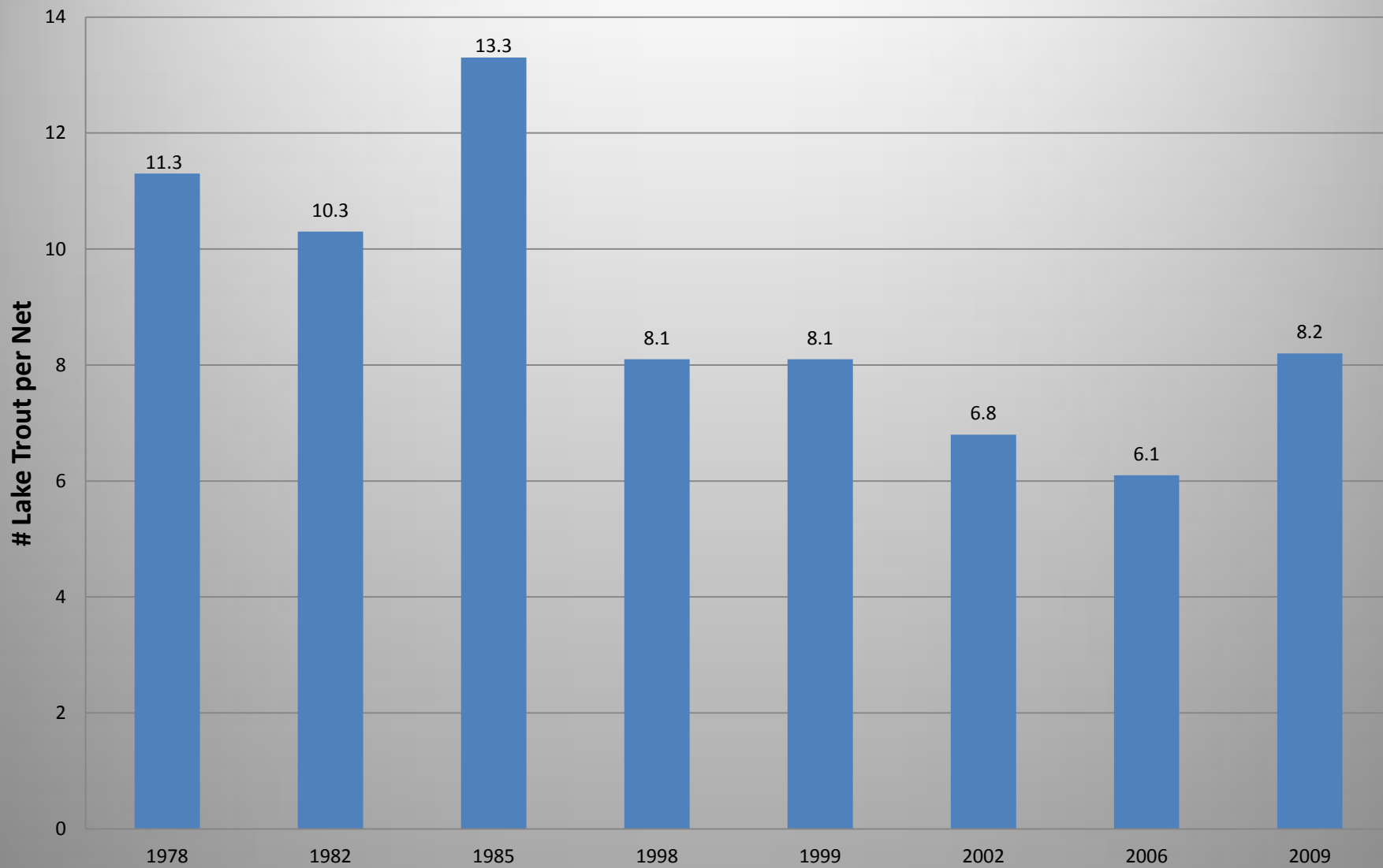


# Standard Lake Trout Gill Netting

- Specifically target Lake Trout
- Every 3 to 5 years
- 32 nets over 2 weeks in July
- Assess stocking, natural reproduction, growth, condition, abundance
- Submit samples used for determining Fish Health Advisories







# Lake Trout Condition

- Long-term objective: Average 3.4 pounds at 21.5 inches

Year	Average Weight of 21.5 inch Lake Trout (pounds)
2009	3.9
2006	3.2
2002	3.1
1999	3.5
1998	2.7
1985	4.0
1982	3.4
1978	2.9

# Standard Lake Trout Gill Netting

- Lake trout growth consistent throughout years sampled – generally reach legal size at age 5
- Natural reproduction estimated to be 19% in 2009
- Largest Lake Trout in 2009:
  - 28 inches; 7.6 pounds; 10 years old

# Naples Creek

## Rainbow Trout







Electrofishing for Adults in March



# Electrofishing for Juveniles in August





# Adult Rainbow Trout Sampling

- Late March Electrofishing
- Numbers vary depending on timing of spawning run
- Assess rainbow trout condition and stage of spawning run

# Rainbow Trout Condition

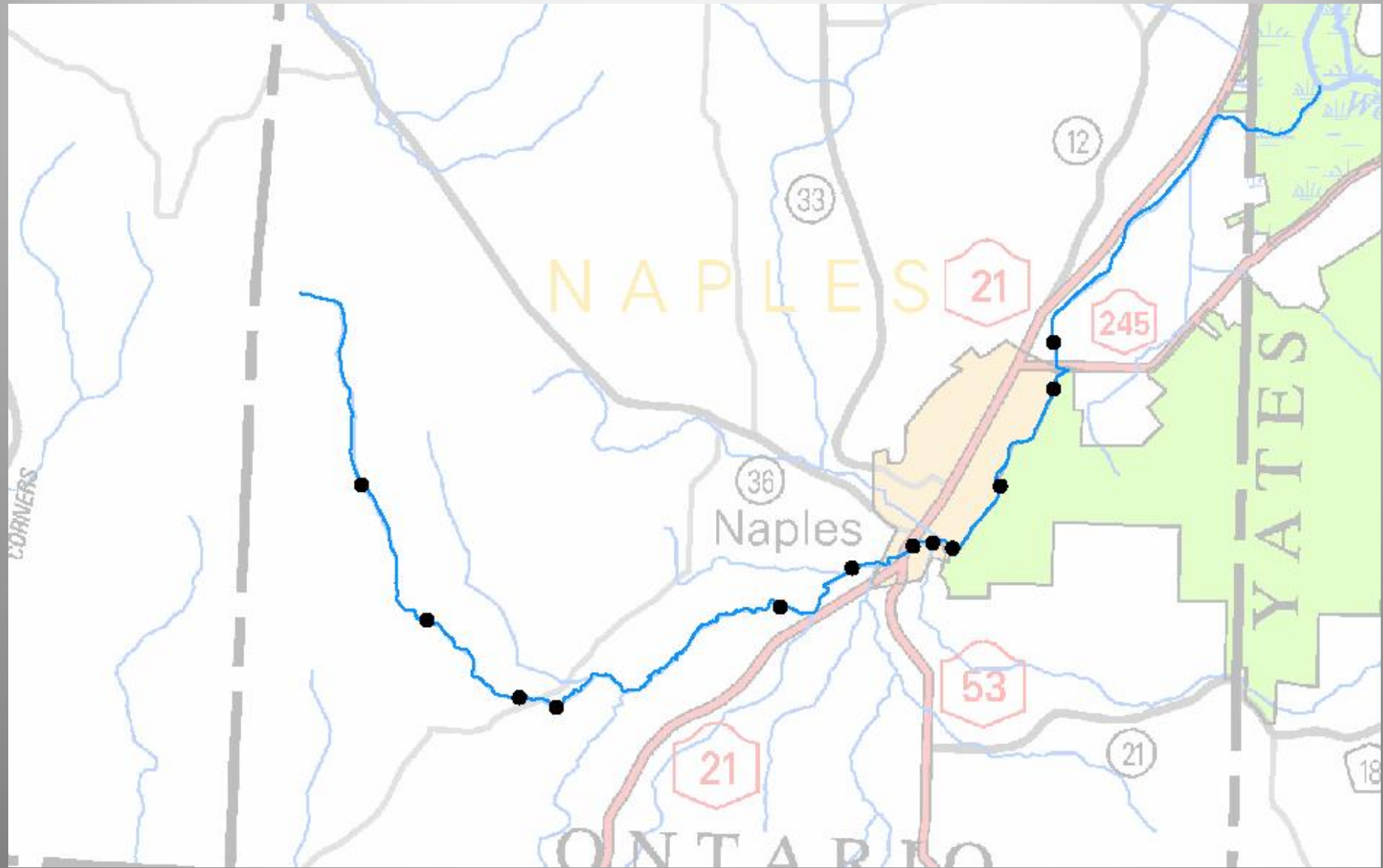
- Long-term objective: Average 3.0 pounds at 20.0 inches

Year	Average Weight of 20 inch Rainbow Trout (pounds)
2013	3.1
2012	2.6
2011	3.0
2010	3.0
2009	3.1

# Juvenile Rainbow Trout Sampling

- August Electrofishing
- Helps us assess natural reproduction in Naples Creek
- Estimate densities of young-of-year (2-4 inches) and yearling (5-7 inches) rainbow trout
- Identify opportunities to protect and/or enhance habitat

# 12 Sites sampled every 3 years



# Juvenile Rainbow Trout Sampling

Age Group	2013 Density (#/acre)	Long-Term Avg (#/acre)
Young-of-Year	3,915	5,348
Yearling	1,408	1,690

- Yearling Abundance:
  - Naples Creek – 11.5 miles long and 16 feet avg width at time of sample = 22.3 acres
  - 1,408 yearlings/acre x 22.3 acres = **31,403 Yearling Rainbow Trout**

# 2008 Naples Creek Creel Survey

- April 1 to May 28
- 16,600 hours of angling (Catharine Creek – 32,800; Cold Brook – 3,000)
- 1,217 Legal Rainbow Trout (Catharine Creek – 859; Cold Brook – 166)
- Repeat in a few years

# Boat Electrofishing





# Boat Electrofishing

- Conducted in shallow water, usually at night
- Good method for sampling bass, perch, bluegills, pumpkinseeds, crappie and other shallow water fish
- Last conducted on Canandaigua Lake in 2001
  - Yellow Perch, Rock Bass, Pumpkinseed, Smallmouth Bass and Brown Bullhead all fairly abundant
  - Good growth and condition at that time



# Forage

- Alewife, Rainbow Smelt, Sculpins, etc.
- Densities of forage species affect success of stocking and health of predators
- Need to obtain multiple hydroacoustic samples to establish baseline (Cornell University)



# Fish Kills

- May through July of 2013
- Primarily Smallmouth Bass, Yellow Perch, Rock Bass, Brown Bullhead, Pumpkinseeds
- SMB, RB, BH, and PS submitted to Cornell:
  - Dual bacterial infections: Furunculosis and Columnaris
  - Increased sediment from rain and high water temps probably factors

# Future Sampling

- Black Bass, Yellow Perch, Black Crappie
  - Electrofishing, Gill Netting, Trap Netting, WW Diary?
- Overall Creel Survey?
- More hydroacoustics to sample forage?
- Possibly Brown Trout data from derbies

# Summary

- Lake Trout, Rainbow Trout meeting or very close to meeting all objectives; Brown Trout **not** meeting objectives
- Stocking levels anticipated to remain the same
- Need to develop better sampling for popular species such as Largemouth/Smallmouth Bass, Yellow Perch, Black Crappie
- Need to determine trends in forage populations

?