

Reversing the Decline of Nova Scotia's Wild Brook Trout:

**A Discussion Paper Prepared
by
Trout Nova Scotia**

Draft – March 13, 2009

Trout Nova Scotia is a non-profit organization that advocates for improved and sustainable trout habitat throughout the Province of Nova Scotia.

TABLE OF CONTENTS

Introduction.....	3
Annual Catches of Brook Trout in Nova Scotia: 1966 - 2003.....	4
Factors resulting in the Decline of Nova Scotia’s Wild Trout Stocks.....	5
Water Quality and Aquatic Habitats.....	5
Management Practices to Protect Wild Trout Populations.....	5
Trout Angling and Habitat Enforcement.....	5
Public Education and Awareness.....	6
Environmental Factors.....	6
Introductions of Non-Native Species.....	6
Proposed Recommendations to Improve Wild Trout Populations in Nova Scotia.....	7

DRAFT

Introduction

Statistical evidence among fisheries biologists and anecdotal evidence among anglers suggest that Nova Scotia's wild brook trout stocks are in serious trouble.

Trout Nova Scotia (TNS) prepared the following discussion paper to address the rapid decline of our wild brook trout populations in Nova Scotia. Statistics indicate that over a 38 year period, from 1966 to 2003, brook trout catches have declined by 55 per cent!

This paper is intended to address ways to reduce and ultimately halt the decline of wild trout populations in Nova Scotia. In order to be successful, it is imperative that the Provincial government take a leadership role by engaging our community leaders, industry, anglers, conservation groups, fishery managers and the general public to develop and implement strategies focused on the conservation and protection of wild trout and their habitat.

The rapid decline of trout in Nova Scotia is not only a concern to the angling community. Brook trout are an important part of Nova Scotia's heritage and culture that should not be lost. Wild trout, specifically the brook trout, is the proverbial "canary in the coal mine," requiring cool and well oxygenated water to survive and thrive. As a result, this species serves as an important indicator of healthy watersheds which provide safe drinking water and recreational activities such as swimming and boating in addition to angling.

The brook trout has a long history and cultural significance to the people of Nova Scotia. It is an important part of the heritage in many small Nova Scotia rural communities. Angling for trout continues to be a recreational activity for the whole family that promotes healthier lifestyles.

There is a significant economic value to the recreational fishery in Nova Scotia. An angler survey conducted in 2000 reported 64,621 licensed anglers in Nova Scotia, 91 per cent (58,524) of whom fished. Of those who fished, 96 per cent (56,031) were residents of the province and four per cent (2,493) were non-residents.¹ The same survey found that Nova Scotia anglers spent \$56.5 million on recreational fishing. This would include over \$21 million on supplies and services (mostly food, lodging and transportation) and an additional \$35 million on major durables and property for fishing. This same survey reported that over 70 per cent of resident anglers target trout as their main species, over 40 per cent of which targeted brook trout.

In 2006, the Province of Nova Scotia passed legislation declaring the brook trout Nova Scotia's official fish. This legislation has signaled the Province's intention to recognize the historical and cultural significance of the brook trout in Nova Scotia. This implies there should be a vested interest on behalf of the Provincial government and all Nova Scotians to maintain the health of wild brook trout stocks. The time to act is now before it is too late.

The following outlines some of the major causes for the rapid decline of Nova Scotia's brook trout populations. This is followed by Trout Nova Scotia's proposed recommendations to help reverse this

¹ "Sport Fishing in Nova Scotia," Nova Scotia Department of Agriculture and Fisheries, 2000.

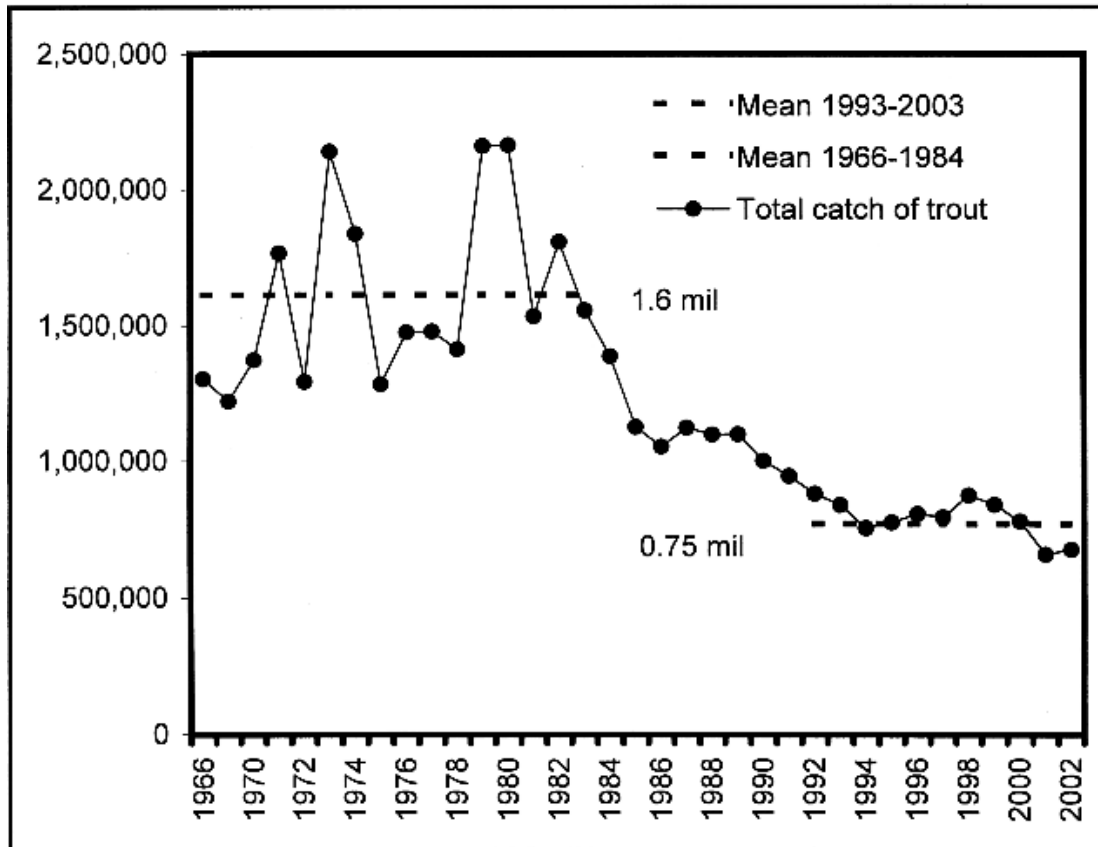
trend.

Annual Catches of Brook Trout in Nova Scotia: 1966 - 2003

The rapid decline in brook trout catches over a 38 year period should be deemed a “crisis situation” that if not addressed immediately could result in the total collapse of wild trout stocks throughout the province. The results are staggering. Between 1966 and 2003 the numbers of brook trout caught by anglers dropped from 1.3 million to 580 thousand. **This is a decrease of 55 per cent province-wide.** In some regions such as the south-west part of the province, this decline is much greater. While there are many reasons for this rapid decline, the seriousness of this situation cannot be disputed. Strategies need to be implemented now if we are to avoid a situation similar to the collapse of the Newfoundland cod fishery as well as the severe decline of the Atlantic Salmon population.

Figure 1 below outlines the annual catches of brook trout anglers from 1966 to 2003 based upon angler stub returns. This data is maintained by Nova Scotia Inland Fisheries Division of the Department of Fisheries and Aquaculture. The department uses this information as a tool to assess the health of brook trout populations in Nova Scotia.

Figure 1



Source: Nova Scotia Inland Fisheries Division, Department of Fisheries & Aquaculture, 2008.

Factors resulting in the Decline of Nova Scotia's Wild Trout Stocks

The following represent some of the key factors contributing to the decline of Nova Scotia's wild brook trout stocks.

Water Quality and Aquatic Habitats

Many factors within our control impact negatively on our water quality and aquatic habitats where trout reside including:

- *Land clearing practices* - particularly clearcutting along riparian zones
- *Agricultural practices* - heavy use of farm pesticides and fertilizers which enter rivers, and open access for grazing of farm animals within watersheds
- *Development practices* along rivers, streams and lakes including residential, commercial and industrial land use resulting in increased levels of siltation entering watersheds (During heavy rainfall, siltation exposes poisonous minerals and lawn fertilizers adding deadly chemicals that eventually end up in our watersheds. This silt can smother fish eggs and insect larvae).
- *Mining practices* that can result in toxic byproducts discharged into surface water or leached into ground water which can negatively impact fish and surrounding wildlife
- *Recreational practices* in and around water sources - including driving motorized vehicles directly into rivers and streams
- *Human factors* such as illegal dumping of garbage and use of household chemicals which eventually enter our water systems
- *Forestry practices* that result in reduced riparian zones, increased siltation, increased water temperatures, and improperly located culverts.

Management Practices to Protect Wild Trout Populations

The management of our wild trout populations and their habitat is the responsibility of both the Provincial and Federal governments. To protect our wild trout populations will require leadership, cooperation and a common vision among a number of government departments. The implementation of effective management practices is challenged due to a variety of factors including budgetary constraints, resource allocations and conflicting mandates.

Trout Angling and Habitat Enforcement

The ability of Federal and Provincial departments to enforce trout angling and habitat regulations is challenged due to numerous priority species and resource constraints. For example, the Department of Fisheries and Oceans maintains approximately 42 priority species. Unfortunately, trout are very low on the priority list. The requirement to enforce the commercial fishery largely outweighs the Department's activities to adequately enforce the trout fishery. The Department of Natural Resources and Nova Scotia Environment, as provincial enforcement agencies, are also dealing with multiple priorities. Habitat degradation and unlawful fishing practices are an unfortunate reality. This situation is exacerbated when fewer resources are allocated to enforce the regulations that protect trout and their habitat.

Public Education and Awareness

An effective program to increase public education and awareness of the importance of wild trout and the factors negatively impacting trout and trout habitat in Nova Scotia is lacking. The general public, including the angling community, may not be aware of the severe decline of our native trout populations and may not understand the importance of reversing this trend.

Environmental Factors

Environmental factors have contributed to the decline of wild trout populations. Examples include:

Climate change resulting in:

- warmer water temperatures and lower water levels during summer months (higher summer water temperatures can be lethal for trout.)
- severe storm events such as storm surges and heavy rains resulting in negative impacts to aquatic habitats, particularly along rivers and streams
- increased rates of erosion along stream banks
- excessive inputs of nutrients from farms and human waste
- loss of in-stream woody debris used by trout to hide from wild predators

Acid Rain has had a negative impact on many rivers along Nova Scotia's southwest and eastern shores. High levels of acidity can result in:

- impeding the ability of trout and salmon to successfully spawn
- degradation of small stream tributaries which are essential trout spawning areas
- conversion of many lakes in south-west Nova Scotia from trout to smallmouth bass and chain pickerel which are more tolerant of higher acidity levels
- declining insect activity within portions of or entire watersheds

Introductions of Non-Native Species

The unlawful introductions of non-native species have devastated many watersheds that formally supported healthy wild brook trout populations. Non-native species are often introduced to watersheds by anglers who prefer to angle for these species. Many non-native species are predatory in nature and forage on biomass throughout a watershed including insects and small fish. They also actively feed during warm water temperatures when trout become inactive. Once introduced, these non-native species often take over a watershed by travelling through connected waterways, displacing wild trout populations.

Nova Scotia Inland Fisheries estimates that from 2000 to 2008 the number of watersheds reported to have smallmouth bass increased from approximately 137 to 200, an increase of 46 per cent. During this same time period chain pickerel reports estimate increases from 69 to 90 watersheds, an increase of 30 per cent.

Proposed Recommendations to Improve Wild Trout Populations in Nova Scotia

Commission Nova Scotia Voluntary Planning to undertake a comprehensive study on the decline of wild trout stocks in Nova Scotia including recommendations on how to reverse this trend

Voluntary Planning is a non-partisan arm's length agency that undertakes major research issues at the request of the provincial government. It works openly and seeks advice from citizens at large and stakeholder groups. After input is gathered the agency produces a report with recommendations for the Province to consider. An issues report on the decline of wild trout prepared by Voluntary Planning could serve as a blueprint to reduce and ultimately halt the decline of wild trout populations in Nova Scotia.

Request that all Provincial and Federal Departments with mandates to protect trout and trout habitat form a Task Force to review current policies and procedures with the goal to making recommendations for improvement

Several government departments have mandates aimed to conserve and protect trout and trout habitat. These include the provincial departments of Fisheries and Aquaculture, Natural Resources, Agriculture, Environment and the Federal department of Fisheries and Oceans. These departments need to work cooperatively in an effort to better protect trout and their habitat. Such a concerted effort would seek to integrate healthy trout fisheries into a broad, unified policy of government land use rooted in sound ecological and environmental practices. These policies and procedures would encompass farming, forestry, residential/commercial development, mining and other resource-based industries. Such efforts should be clearly communicated to all stakeholders including conservation organizations, industry, anglers as well as the general public who will ultimately benefit from such improvements.

Launch a Public Awareness Campaign on the Importance of Protecting Wild Trout Stocks

The Province should prepare and implement a public awareness campaign on the importance of protecting and conserving Nova Scotia's wild trout stocks. This campaign would require the Province to engage conservation groups including TNS, anglers, fish and game organizations, river associations and other stakeholders. As part of its public awareness campaign, the Province should designate the brook trout as a keystone indicator of healthy aquatic conditions. Restoring aquatic habitat and riparian zones will improve freshwater conditions resulting in a better environment for wildlife in general and for all Nova Scotians.

Comprehensive and Effective Management Practices

If wild trout populations are to be revived, the federal and provincial departments responsible for trout need to show leadership by elevating the stature of trout among their priorities. Comprehensive and effective management practices will require both levels of government, in cooperation with other key stakeholders, to dedicate more resources towards wild trout

conservation and protection.

Targeted Enforcement

To improve wild trout enforcement efforts, TNS recommends the following:

- The provincial and federal governments should raise the profile of wild trout populations within their respective departments and allocate more resources to enforce regulations affecting wild trout and their habitat. Particular emphasis should be placed on backwoods operations and patrols of Class A (better quality) watersheds where healthy wild trout populations exist.
- The Federal Fisheries Act should be amended to address the issue of unlawful introductions of non-native species. In addition to more stringent regulations, both federal and provincial governments should create a public awareness campaign around the harmful effects of introducing non-native species into Nova Scotia's watersheds.