

**IMPACT OF THE LAKE ONTARIO SALMONID FISHERIES ON
SALMON RIVER COMMUNITIES: A FISCAL ANALYSIS**

by

Tommy L. Brown and Nancy A. Connelly



HDRU Series No. 91-9

September 1991

Human Dimensions Research Unit
Department of Natural Resources
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, N. Y.



HUMAN DIMENSIONS RESEARCH UNIT PUBLICATIONS SERIES

This publication is part of a series of reports resulting from investigations dealing with public issues in the management of wildlife, fish, and other natural resources. The Human Dimensions Research Unit (HDRU) in the Department of Natural Resources at Cornell University is a nationally-recognized leader in the study of the economic and social values of wildlife, fish, and other natural resources and the application of such information in management planning and policy. A list of HDRU publications may be obtained by writing to the Human Dimensions Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853.

**Impact of the Lake Ontario Salmonid Fisheries on
Salmon River Communities: A Fiscal Analysis**

by

**Tommy L. Brown and Nancy A. Connelly
Human Dimensions Research Unit
Department of Natural Resources
Cornell University**

ACKNOWLEDGMENTS

The authors would like to thank the local government officials, specifically Pulaski Village Mayor Dan Briggs and his staff, Richland Town Supervisor Lloyd Otis and his staff, and Albion Town Clerk Sue Brosnan and other Albion town officials for their assistance in assembling the data used in this report. Without their help this analysis would not have been possible.

Funding for this project was provided by Hatch Project NE-163, which is a regional research project of the Northeast Agriculture Experiment Stations.

TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGMENTS	i
LIST OF TABLES	iii
LIST OF FIGURES	iii
INTRODUCTION	1
METHODS AND FINDINGS	4
Revenue Components	5
Expenditure Components	8
Net Benefit or Cost to Local Governments	9
Revenues and Costs Excluded from the Cost Analysis	9
DISCUSSION OF RESULTS	10
LITERATURE CITED	14

LIST OF TABLES

Table	Title	Page
1	Revenue and expenditures of three local governments along the Salmon River, New York attributable to the salmon fishery, 1989.	7

LIST OF FIGURES

Figure	Title	Page
1	Map showing Salmon River communities	3

INTRODUCTION

The stocking of Pacific (coho and chinook) salmon along with other salmonids in the Great Lakes starting in the late 1960's and early 1970's has had major impacts on the use of these resources for fishing, resulting in major economic impacts to coastal regions of the Great Lakes States. For example, angler days on the New York portion of Lake Ontario increased by 287% from 664,000 in 1973 to 2,569,000 in 1988 (Brown 1975; Connelly et al. 1990b). Expenditures made by anglers near Lake Ontario fishing sites increased by an incredible 1,629% from \$5.06 million in 1973 to \$87.49 million in 1988 (both figures are in 1988 constant dollars).

Tributary fishing is a highly visible and economically important component of salmonid fishing on the Great Lakes, with the growth rates on most tributaries paralleling that of the open water. For New York's Salmon River system, which runs into Eastern Lake Ontario, angler days increased by 161% from 126,000 in 1973 to 329,000 in 1988, and on-site expenditures increased by 852% from \$1.00 million in 1973 to \$9.52 million in 1988 (both figures are in 1988 constant dollars). Growth rates from 1973 to any future date would be less on the Salmon River than most other Lake Ontario locations only because the Salmon River was very heavily stocked prior to 1973, the year of the first tributary salmon runs. Thus, the 1973 economic impact of salmon fishing on the Salmon River represented an unknown but notable portion of the total Lake Ontario impact.

In 1989, an estimated 180,000 angler days and \$10 million were spent on the Salmon River from August 17 through December 4, 1989 by anglers fishing for salmon and steelhead (Connelly et al. 1990a). The majority of angler days (63%) were attributable to out-of-state anglers. Employment in tourism-

related sectors grew on the order of ten-fold from 1975 to 1985 (Connelly and Brown, 1988).

The Pacific salmon fishery developed in the 1980's into a spring and summer fishery in the lake and a fall fishery in tributary streams during the spawning migration. Local businesses (especially lodging establishments, eating places, and sporting goods outlets) have grown and developed along the Salmon River in response to the increased number of anglers visiting the area.

The large influx of anglers has also caused a number of negative impacts. These include littering, lack of parking spaces, trespassing on private lands, and unruly behavior of anglers. Because the Salmon River is used for hydropower generation, waters rise rapidly during power generation, and several deaths of anglers have occurred over the years due to drowning.

Communities along the Salmon River have experienced both the positive and the negative impacts from the development of the Salmon River fishery. The largest population center adjacent to the river is the Village of Pulaski (1990 population of 2,525) (Figure 1). The Town of Richland (1990 population of 5,917), which surrounds the Village of Pulaski, extends westward to Lake Ontario and includes the hamlet of Port Ontario. To the east, the Town of Albion (1990 population of 2,043) includes the hamlets of Pineville and Altmar and the Salmon River State Fish Hatchery, operated by the New York State Department of Environmental Conservation. The population of the Village of Pulaski has remained essentially unchanged since 1970. During this same period the population of the Town of Richland has grown by approximately 11%, and the Town of Albion, while still very rural, has grown by approximately 40%.

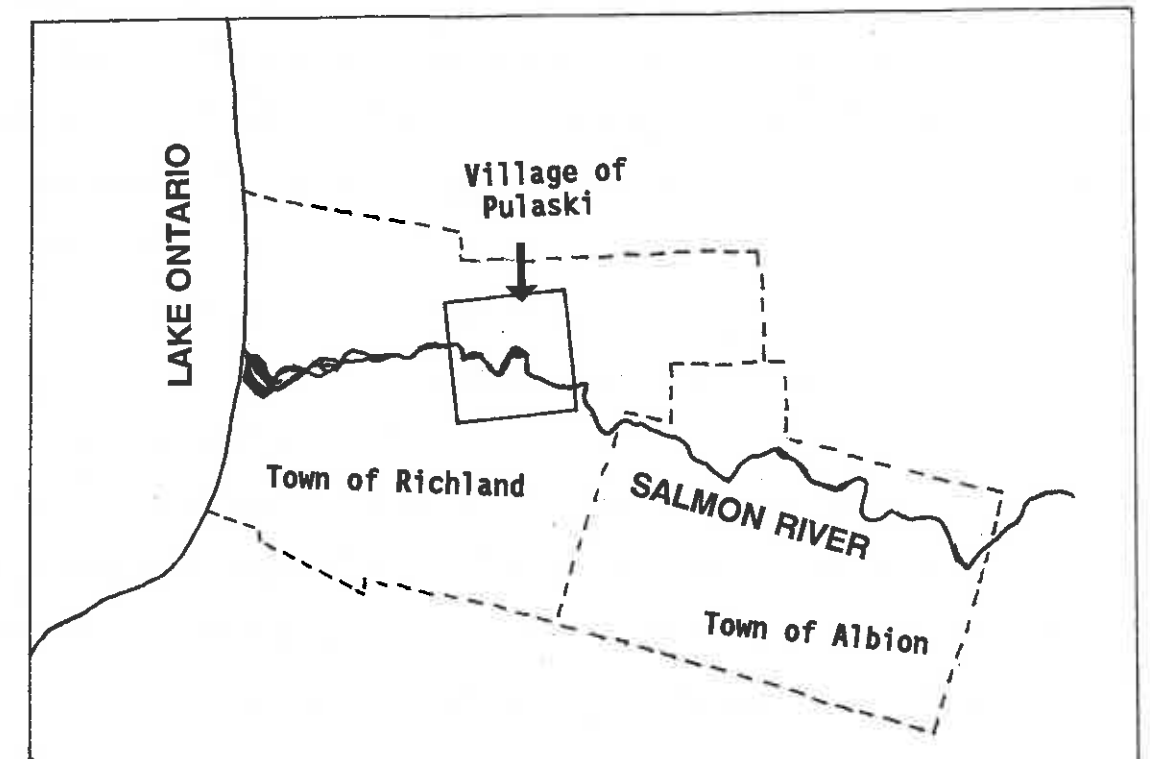


Figure 1. Map showing Salmon River communities.

In that the economic impacts of the Salmon River fishing have been measured elsewhere (Connelly et al. 1990a), the purpose of this inquiry was to look beyond the angler expenditures and examine the extent to which local governments recoup their costs associated with a tourism-related activity such as sportfishing. This represents the first attempt in the study area to examine the costs as well as the benefits of sportfishing and to make a determination of net effects of the fishery on any economic or political sector. Specifically we looked at the *fiscal* impacts of the fishery on the local governments of the Village of Pulaski and the Towns of Richland and Albion.

METHODS AND FINDINGS

The fiscal analysis was based on calendar 1989 data and uses a "with versus without" approach. In other words, the study analyzed the revenues and expenditures made by local governments using an accounting framework that on an item by item basis held tightly to the question: "What revenues were received, and what costs were incurred that would not have been made or incurred if the fishery were not present?". Using this definition in the strictest sense possible, we obtained information on revenues and expenditures made by the three local governments and tabulated the information.

It is inevitable that some expenditure components in particular will have only a partial relationship to the development of the fishery. In such cases, the researcher has the options of assuming either all or none of the expenditures are related to the fishery, or estimating (with local assistance) the portion of the expenditure that is attributable to the fishery. In such

cases we have tried to make the most accurate assumption possible. In addition, we have provided an explanation of how each item was derived. This will help any reader who may wish to examine the effects of an opposite or alternate assumption.

The revenue and cost analysis for the study area is shown in Table 1. An explanation for each revenue and expenditure item follows; their order corresponds to their display in Table 1.

Revenue Components

- 1) Business Property Taxes. Expansion of existing businesses and development of some new businesses (e.g., motels, restaurants, and bait and tackle shops) can be attributed to the presence of the fishery. Local government leaders were asked to identify businesses which had expanded or developed since 1975 because of the presence of the fishery. They identified 19 such businesses in the Village of Pulaski, 15 in the Town of Richland, and 16 in the Town of Albion. The property tax assessment before expansion or development was subtracted from the current tax assessment to yield the assessed value that was attributed to the presence of the fishery. This amount was multiplied by the tax rate to yield the revenue reported on line 1 of Table 1.
- 2) Lodging or Bed Tax. A bed tax (4%) is collected in Oswego County, 49% of which is returned to the local governments to be spent on projects related to tourism. To estimate the portion of the bed tax attributable to Salmon River anglers, the amount collected in the three non-fall quarters of 1989 was averaged to arrive at an estimate of fall receipts that could be expected without the fishery. The amount above that

average collected in the fall was attributed to fall anglers. A check on this method compared the amount spent by fall Salmon River anglers in Oswego County derived from the economic impact study conducted by Connelly et al. (1990a) with the receipts upon which the bed tax is based. Connelly et al. (1990a) estimated \$706,000 was spent by Salmon River anglers in Oswego County for lodging, while the above-described method of apportioning bed tax receipts indicated that \$588,000 was spent by all tourists during the same time period in the study area. Since most anglers stay in the Salmon River corridor if lodging is available and most fall visitors are anglers, the estimates on line 2 of Table 1 are probably conservative.

- 3) Parking Rental Receipts. The Village of Pulaski rents two parking lots to concessionaires for the fall salmon season.
- 4) Parking ticket receipts. Parking tickets at \$10 per ticket are issued in the Village of Pulaski. The amount collected during the ten non-fall months was averaged and the amount collected in the fall above the 10-month average was attributed to the presence of the fishery.
- 5) Local Government Share of Environmental Conservation Law Fines. A portion of the revenue generated by fines from violations of fishing regulations (NYS Environmental Conservation law violations) is returned to the local government where the violation occurred.
- 6) Total 1989 Local Government Revenues Attributed to the Presence of the Fishery. (Sum of lines 1 through 5).

Table 1. Revenue and expenditures of three local governments along the Salmon River, New York attributable to the salmon fishery, 1989.

<u>Revenues</u>	<u>Village of Pulaski</u>	<u>Town of Richland</u>	<u>Town of Albion</u>
1) Property tax paid by businesses which expanded or developed because of the fishery	\$15,967	\$4,949 8,808	\$7,023
2) Bed tax receipts - amount collected in fall above 3 quarter average	2,499	2,725	1,154
3) Parking lot rental fee	3,000		
4) Parking tickets - amount in fall above 10 month average	3,066		
5) Fishing violations	1,300	3,487	3,200
6) TOTAL	25,832	19,969	11,377
<u>Expenditures</u>			
7) Annualized expenditures - tourist trailer	536	536	
Annual expenditures			
8) Parking monitor (for Sept. & Oct.)	5,000		
9) Attorney fees		9,000	
10) Fire & Rescue	12,250		7,686
11) Litter bags	600		
12) Porta john rental	2,300		
13) Maintenance materials	138		
14) Signage	620		
15) TOTAL	21,444	9,536	7,686
<u>Net Benefit or Cost</u>			
16) Revenues - Expenditures	+4,388	+10,433	+3,691

Expenditure Components

- 7) Annualized Trailer Cost. A trailer used to distribute information to fall anglers was purchased by the Village of Pulaski, the Town of Richland, and the Pulaski Chamber of Commerce. The cost was depreciated over a 7 year period as allowed by the Internal Revenue Service (i.e., total cost was divided by 7 and the result reported on line 7).
- 8) Additional Parking Monitor. The Village of Pulaski hires a parking monitor for September and October to enforce parking regulations. This is required by the influx of anglers at that time of the year.
- 9) Attorney fees. Town of Richland officials estimated that they spent approximately \$9,000 on attorney fees in 1989 for a variety of legal services and opinions related to the fishery. These services were related to setting up zoning ordinances, dealing with individual businesses, and providing services such as parking.
- 10) Fire and Rescue Personnel and Equipment. Local government officials were asked to list any equipment purchased or personnel added because of the fishery. All of the fire and rescue groups are voluntary; thus, no personnel costs were incurred. Additional equipment cost was depreciated by the straight-line method using a 5 or 10 year period as allowed by the Internal Revenue Service. Vehicles were depreciated using a 20 year period.
- 11) Purchase of Litter Bags. Litter bags were purchased by the Village of Pulaski and handed out to anglers in an attempt to minimize the scale of clean-up operations.
- 12) Porta John Rentals. These were rented during the fall for anglers by the Village of Pulaski.

- 13) Parking Lot and Access Maintenance Materials. Materials were purchased by the Village of Pulaski to maintain the parking lots and access to the river for anglers.
- 14) Purchase of Signage. Signs were purchased by the Village of Pulaski to replace destroyed signs marking "no parking" areas typically used by anglers.
- 15) Total Local Government Expenditures. Total expenditures made by local governments attributed to the presence of the fishery (sum of lines 7 through 14).

Net Benefit or Cost to Local Governments

- 16) Revenues minus expenditures (line 6 - line 15).

Revenues and Costs Excluded from the Cost Analysis

Any accounting procedure such as this requires judgments as to which items should be included and which should be excluded from the analysis. Regardless of whether items represented expenditures or costs, we included them only if they resulted in real cash exchanges that could be attributed to and were necessitated by the fishery. Some additional expenditures were made by local governments that could be considered in relation to the fishery, but which the authors excluded from the cost analysis because they did not totally meet these criteria. These are summarized below:

- a) The Town of Richland contributed \$1,000 from their bed tax receipts to the Village of Pulaski fire and rescue department to cover incidents involving tourists. Since the Village of Pulaski spent \$12,250 on equipment related to the fishery, this figure could have been reported

as an inter-government transfer between these two local government units. Because it was a voluntary contribution, however, it was excluded from the analysis.

- b) The Village of Pulaski Department of Public Works estimated that they spent 1,056 hours at \$8.88 per hour for a total of \$9,377 doing maintenance and clean up work related to the fishery. This represents no additional employee hours or wages, but rather time that could have been spent doing other maintenance activities if the fishery were not present. This opportunity cost was excluded from the fiscal analysis. However, if Village maintenance staff become fully utilized at some point in the future so that additional staff would be required, these costs would become real costs that would have to enter the accounting system.
- c) The Town of Richland donated \$2,000 of their bed tax receipts to the Pulaski Chamber of Commerce to help advertize the Salmon River area. These expenditures could be classified as regular advertising expenditures, but were not because of their voluntary nature.
- d) Two parking lots were constructed in 1978 in the Village of Pulaski, but no estimates of cost could be obtained. Quite likely the parking lot would have been fully depreciated by now, but these costs were not further considered because they were not available.

DISCUSSION OF RESULTS

The findings from Table 1 show a positive fiscal benefit attributable to the salmon fishery for each local government entity. A comparison of data in Table 1 with items not included in the fiscal analysis helps clarify those

benefits. Clearly the Town of Albion gained from the fishery, as no cost items were excluded from the analysis. It is also clear that the Town of Richland gained fiscally from the presence of the fishery; Table 1 shows positive net revenues of \$10,433 that can be attributed to the fishery. We could if we choose also internalize the Town's \$2,000 bed tax donation to the Chamber of Commerce; still the Town would have net benefits of \$8,433.

The fiscal benefits of the fishery to the Village of Pulaski were less pronounced in 1989. On a cash basis, the Village netted \$4,388. Other less narrow accounting formats however would internalize the labor clean-up cost of \$9,377 on the basis of an opportunity cost forgone. That is, had the Village not provided this labor necessitated by the presence of the fishery, they could have done the equivalent amount of work that would have provided positive benefits elsewhere in the Village. By that perfectly legitimate method of accounting, the Village would have incurred a deficit of \$4,989 in 1989.

Mayor Dan Briggs indicated that in 1990 and 1991, the Village of Pulaski has enhanced its net revenue picture relative to the fishery. Through an agreement with Niagara Mohawk, the utility that generates power on the Salmon River, power is now generated at a fairly constant level over each 24-hour day, which eliminates the sharp rises and falls in the water level of the river. As a result, fire and rescue expenditures have been reduced from \$12,250 in 1989 to a figure in the area of \$500 in 1990 and 1991. The Village no longer provides litter bags; these are now provided by the parking lot concessionaires. Village expenditures for porta johns have been reduced because more of those who provide fee parking are providing this service. On the revenue side, a competitive bidding process for parking lot concessionaire

privileges increased the Village's income from this source from \$3,000 in 1989 to \$12,000 in subsequent years.

While a complete fiscal analysis was not redone for the Village of Pulaski for 1990, the above information suggests that the Village's net revenue picture relative to the fishery from items shown in Table 1 increased to a ballpark figure of \$18,000. This figure would easily accommodate the 1989 labor value of \$9,377 for clean-up activities which was not charged in Table 1 because clean-up was accomplished with existing staff with no additional expenditures.

With the improved revenue picture, the Village of Pulaski has made some new expenditures for increased access and safety to anglers. Approximately \$2,500 in materials were purchased to construct stairs down to the river. In addition, a light was installed by Niagara Mohawk at the "black hole" of the river for improved visibility to early morning anglers. The utility cost for this light, which the Village pays, is \$750 to \$800 per year.

It is perhaps remarkable that these small municipalities each appear to be realizing a fiscal surplus from the fishery despite the fact that Oswego County has no sales tax. Examining data from Connelly et al. (1990a), if 75% of nonresident angler expenditures were subject to the New York State sales tax (the exact figure is unknown), a 3% county sales tax would generate approximately \$220,000 per year from the fishery. The component of this tax that would be returned to local municipalities could be used for any local purpose, but if used in relation to fishing could enhance the development of a visitor center or other attractions that would complement fishing.

This type of fiscal analysis is illustrative and hopefully instructive for local government leaders because it pulls data from various cost and

revenue sources to examine the effects of one type of tourism on local government. Because expenses and costs related to tourism interface a number of departments within even a small municipality such as the Village of Pulaski, and departments tend to be each concerned individually with their fiscal stance, analyses such as this are rarely done. This tends to be the case even in communities such as those in the Salmon River corridor in which tourism development is controversial, at least among some elements of the communities. Yet, in the absence of such an analysis, one can only guess at the relative benefits versus costs of tourism.

For those who are interested in the distribution of tourism benefits and costs, this accounting or balance sheet approach shows how Salmon River communities are being affected fiscally by salmonid fishing. To the degree that costs incurred and benefits received can be internalized within a fiscal impact analysis, such an analysis provides a good indication of how a community is affected by tourism. However, some important community costs (e.g., congestion, noise) and some benefits (e.g., excellent fishing, increased restaurant alternatives) are not captured by a fiscal impact analysis. Broader social impact analysis is needed to encompass these impacts.

LITERATURE CITED

- Brown, Tommy L. 1975. *The 1973 New York Statewide Angler Study*. Cornell University/New York State Department of Environmental Conservation. 177 pp.
- Connelly, Nancy A. and Tommy L. Brown. 1988. *The Impact of Tourism on Employment in New York's Coastal Areas*. Nat. Resour. Res. and Ext. Series No. 32. New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, NY. 58 pp.
- Connelly, Nancy A., Tommy L. Brown, and Chad P. Dawson. 1990a. *Evaluating the Impacts of Proposed Changes in Snagging Regulations on the Salmon River*. New York State Department of Environmental Conservation, Albany, NY. 95 pp.
- Connelly, Nancy A., Tommy L. Brown, and Barbara A. Knuth. 1990b. *New York Statewide Angler Survey 1988*. New York State Department of Environmental Conservation, Albany, NY. 158 pp.