

*Economic Impact Assessment  
of the Fisheries Sector  
in New Brunswick*

*New Brunswick  
East Coast  
HERRING*

*By:*

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## **Introduction<sup>1</sup>**

This assessment seeks to quantify the economic impact of the New Brunswick east coast herring sector.

## **Objective of the Study**

The objective of the study is to evaluate the sector's total economic contribution at both the provincial and the county level. The analysis incorporates the impact of the fishery itself (primary production) as well as the impact of herring processing (secondary production). Some of the data used are from 2001 and some from 2002, i.e., the most recent data available at the time the analysis was carried out. It should be noted that, generally, the industry's cost structure enables us to assume that the impact of a variation in landed quantities can be measured on a proportional basis to the total.

## **Methodology**

This type of analysis must be carried out with the help of a proven economic model, in this case, the input-output model. We got our baseline data from various representatives of the sector (Fisheries and Oceans Canada, Agriculture, Fisheries and Aquaculture, processing plant managers, fishermen, industry representatives, and so forth).

We then used an input-output model to quantify with relative precision the total, detailed economic impact of the sector. The baseline data used in this analysis were obtained during our consultations. The principle of the input-output model is that it basically tracks the money spent by the sector. For example, a processing plant may purchase packaging from a factory in Moncton or Saint John which, as a result of this, hires employees, buys raw materials, etc. Those expenditures in turn will have an effect, i.e., the employees spend their wages, pay taxes, and so on. The input-output model takes into account the different facets of the economy and has a special characteristic in that it is based on the inputs (purchases) and outputs (production) of

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various large sectors of the economy. Our model has the added advantage of breaking these down geographically, by county.

Obviously, a study such as this one is based on certain general hypotheses. In other words, averages are used at various levels. By definition, averages provide a general picture and do not automatically reflect specific cases. For instance, not all plants and boats have the same cost structure. The baseline data used therefore provide an overall profile of the sector rather than a snapshot of one case in particular.

### **Economic Impact of East Coast Herring on the New Brunswick Economy – Processing Plants**

This section looks at the economic impact of fish processing plants in the New Brunswick east coast herring sector. Three categories are presented: roe production, other production (smoked, marinated, mild cured, meal and oil), and total impact. It should be noted that the tables combine the direct, indirect, and induced impacts.

#### *Jobs Generated*

Table 1 shows the jobs generated by herring processing in plants on the province's east coast. It can be seen that roe has the most impact, generating about 470.5 person-years of employment. Although the geographical impact is felt in all regions of the province, it is concentrated in Gloucester and Westmorland counties.

Table 1: Jobs generated – direct, indirect, and induced impact, herring processing plants on New Brunswick’s east coast, person-years

	Roe	Other*	Total
Albert	1.0	0.4	1.4
Carleton	6.7	0.6	7.3
Charlotte	2.8	0.6	3.4
Gloucester	342.8	61.3	404.1
Kent	2.2	0.4	2.6
Kings	3.6	0.6	4.2
Madawaska	6.4	1.0	7.4
Northumberland	14.7	1.9	16.6
Queens	3.1	0.2	3.3
Restigouche	8.4	1.4	9.8
Saint John	13.7	3.2	16.9
Sunbury	1.2	0.3	1.5
Victoria	2.9	0.4	3.3
Westmorland	49.4	176.3	225.7
York	11.7	2.5	14.2
Total	470.5	250.9	721.4

\* Other: smoked, marinated, mild cured, meal and oil

### *Wages Generated*

The wages generated totalled nearly \$17 million, two-thirds of which was attributable to roe and the rest to the other categories. More than half of the impact is in Gloucester County, and nearly 30%, in Westmorland County.

Table 2: Wages generated – direct, indirect, and induced impact, herring processing plants on New Brunswick’s east coast, \$ million

	Roe	Other*	Total
Albert	0.02	0.01	0.03
Carleton	0.18	0.01	0.19
Charlotte	0.09	0.01	0.10
Gloucester	7.54	1.29	8.83
Kent	0.06	0.01	0.07
Kings	0.09	0.02	0.11
Madawaska	0.24	0.05	0.29
Northumberland	0.34	0.10	0.44
Queens	0.08	0.01	0.09
Restigouche	0.36	0.06	0.42
Saint John	0.58	0.15	0.73
Sunbury	0.03	0.00	0.03
Victoria	0.08	0.00	0.08
Westmorland	1.19	3.72	4.91
York	0.47	0.11	0.58
Total	11.34	5.57	16.91

\* Other: smoked, marinated, mild cured, meal and oil

### *Sales Generated*

The next section does not measure the value of production but rather the sales generated through economic activity (direct, indirect, and induced impact). Sales of \$63.4 million are therefore attributable to herring processing on New Brunswick's east coast.

	Roe	Other*	Total
Albert	0.21	0.08	0.29
Carleton	0.87	0.12	0.99
Charlotte	0.57	0.33	0.70
Gloucester	27.76	3.33	31.09
Kent	0.40	0.09	0.49
Kings	0.51	0.13	0.64
Madawaska	1.35	0.26	1.61
Northumberland	1.27	0.52	1.79
Queens	0.39	0.06	0.45
Restigouche	2.05	0.36	2.41
Saint John	3.28	0.92	4.20
Sunbury	0.26	0.05	0.31
Victoria	0.45	0.08	0.53
Westmorland	4.99	9.53	14.52
York	2.72	0.64	3.36
Total	47.06	16.34	63.40
* Other: smoked, marinated, mild cured, meal and oil			

### *Contribution to Gross Domestic Product*

The contribution to the gross domestic product (GDP) is considerable, totalling \$25.6 million.

Table 4: Contribution to gross domestic product – direct, indirect, and induced impact, herring processing plants on New Brunswick’s east coast, \$ million

	Roe	Other*	Total
Albert	0.07	0.02	0.09
Carleton	0.36	0.04	0.40
Charlotte	0.20	0.04	0.24
Gloucester	10.25	1.83	12.68
Kent	0.14	0.02	0.16
Kings	0.19	0.04	0.23
Madawaska	0.49	0.09	0.58
Northumberland	0.46	0.18	0.64
Queens	0.16	0.02	0.18
Restigouche	0.72	0.12	0.84
Saint John	1.26	0.32	1.58
Sunbury	0.08	0.02	0.10
Victoria	0.17	0.02	0.19
Westmorland	1.88	4.78	6.66
York	1.33	0.29	1.62
Total	17.76	7.84	25.60

\* Other: smoked, marinated, mild cured, meal and oil

#### *Federal and Provincial Government Revenues*

The impact of processing on public finances amounts to nearly \$3 million in revenues for the federal government and nearly \$2.5 million for the provincial government.

Table 5: Federal government revenues – direct, indirect, and induced impact, herring processing plants on New Brunswick’s east coast, \$ million

	Roe	Other*	Total
Albert	0.01	0.01	0.02
Carleton	0.06	0.01	0.07
Charlotte	0.03	0.01	0.04
Gloucester	1.28	0.22	1.50
Kent	0.02	0.01	0.03
Kings	0.03	0.01	0.04
Madawaska	0.06	0.01	0.07
Northumberland	0.06	0.02	0.08
Queens	0.03	0.00	0.03
Restigouche	0.08	0.01	0.09
Saint John	0.15	0.04	0.19
Sunbury	0.01	0.01	0.02
Victoria	0.03	0.00	0.03
Westmorland	0.26	0.61	0.87
York	0.15	0.04	0.19
Total	2.26	1.00	3.26

\* Other: smoked, marinated, mild cured, meal and oil

Table 6: Provincial government revenues – direct, indirect, and induced impact, herring processing plants on New Brunswick’s east coast, \$ million

	Roe	Other*	Total
Albert	0.01	0.00	0.01
Carleton	0.04	0.01	0.05
Charlotte	0.02	0.01	0.03
Gloucester	0.92	0.17	1.09
Kent	0.02	0.00	0.02
Kings	0.03	0.00	0.03
Madawaska	0.05	0.00	0.05
Northumberland	0.04	0.02	0.06
Queens	0.02	0.00	0.02
Restigouche	0.06	0.01	0.07
Saint John	0.12	0.04	0.16
Sunbury	0.01	0.01	0.02
Victoria	0.02	0.01	0.03
Westmorland	0.19	0.46	0.65
York	0.13	0.03	0.16
Total	1.70	0.76	2.46

\* Other: smoked, marinated, mild cured, meal and oil

### **Economic Impact of East Coast Herring on the New Brunswick Economy – Fishery**

The next section analyzes the economic impact of the fishing effort. The results are divided between inshore fisherman (for four counties) and seiners.

#### *Jobs Generated*

The fishing effort generates the equivalent of more than 270 person-years of employment, concentrated in Gloucester, Northumberland, Kent, and Westmorland counties.

Table 7: Jobs generated – direct, indirect, and induced impact, New Brunswick east coast herring fishery, person-years

	Inshore				Seiners	Total
	Gloucester*	North.	Kent	West.		
Albert	0.1	0.1	0.1	0.0	0.1	0.4
Carleton	0.5	0.2	0.1	0.0	0.3	1.1
Charlotte	0.3	0.2	0.1	0.0	0.2	0.8
Gloucester	121.4	0.2	0.1	0.0	41.0	162.7
Kent	0.2	0.6	20.6	0.0	0.2	21.6
Kings	0.3	0.1	0.1	0.0	0.2	0.7
Madawaska	0.3	0.1	0.1	0.0	0.2	0.7
Northumberland	0.4	47.5	0.1	0.0	0.6	48.6
Queens	0.1	0.1	0.0	0.0	0.1	0.3
Restigouche	0.3	0.2	0.1	0.0	0.2	0.9
Saint John	1.4	0.8	0.2	0.1	4.7	7.2
Sunbury	0.1	0.1	0.0	0.0	0.1	0.3
Victoria	0.3	0.1	0.0	0.0	0.2	0.6
Westmorland	1.5	0.9	0.3	16.4	1.9	21.0
York	1.2	0.6	0.2	0.1	1.4	3.5
Total	128.3	51.9	22.1	16.8	51.4	270.5

\* Includes a few fishermen from Restigouche County

### *Wages Generated*

The wages generated by the fishing effort are estimated at more than \$8 million.

Table 8: Wages generated – direct, indirect, and induced impact, New Brunswick east coast herring fishery, \$ million

	Inshore				Seiners	Total
	Gloucester*	North.	Kent	Westmorland		
Albert	0.00	0.00	0.00	0.00	0.00	0.01
Carleton	0.01	0.01	0.00	0.00	0.01	0.03
Charlotte	0.01	0.00	0.00	0.00	0.01	0.02
Gloucester	3.71	0.00	0.01	0.00	1.27	4.99
Kent	0.01	0.02	0.63	0.00	0.00	0.66
Kings	0.01	0.00	0.00	0.00	0.00	0.02
Madawaska	0.01	0.00	0.00	0.00	0.01	0.02
Northumberland	0.01	1.43	0.00	0.00	0.02	1.46
Queens	0.00	0.00	0.00	0.00	0.00	0.01
Restigouche	0.01	0.00	0.00	0.00	0.01	0.02
Saint John	0.05	0.03	0.01	0.00	0.20	0.29
Sunbury	0.00	0.00	0.00	0.00	0.00	0.01
Victoria	0.01	0.00	0.00	0.00	0.00	0.02
Westmorland	0.06	0.03	0.01	0.50	0.07	0.66
York	0.04	0.02	0.01	0.00	0.04	0.11
Total	3.94	1.59	0.67	0.51	1.64	8.33

\* Includes a few fishermen from Restigouche County



### *Sales Generated*

As in the case of processing, this category measures sales generated by economic activity rather than the landed value. The fishing effort therefore generates sales of nearly \$23 million.

	Inshore				Seiners	Total
	Gloucester*	North.	Kent	Westmorland		
Albert	0.02	0.02	0.01	0.00	0.03	0.08
Carleton	0.10	0.06	0.02	0.01	0.06	0.26
Charlotte	0.07	0.03	0.02	0.00	0.04	0.17
Gloucester	8.29	0.03	0.02	0.00	4.13	12.48
Kent	0.04	0.07	1.34	0.00	0.04	1.50
Kings	0.06	0.03	0.02	0.01	0.04	0.16
Madawaska	0.06	0.03	0.02	0.00	0.05	0.17
Northumberland	0.09	3.05	0.02	0.00	0.09	3.26
Queens	0.02	0.02	0.01	0.00	0.02	0.07
Restigouche	0.07	0.04	0.02	0.00	0.05	0.17
Saint John	0.38	0.20	0.06	0.03	0.80	1.47
Sunbury	0.02	0.02	0.01	0.00	0.02	0.08
Victoria	0.06	0.03	0.01	0.01	0.04	0.15
Westmorland	0.33	0.17	0.07	1.19	0.25	2.00
York	0.29	0.15	0.05	0.02	0.23	0.75
Total	9.92	3.95	1.69	1.29	5.90	22.75

\* Includes a few fishermen from Restigouche County

### *Contribution to Gross Domestic Product*

The contribution of the fishing effort to the gross domestic product (GDP) is about \$11 million.

Table 10: Contribution to gross domestic product – direct, indirect, and induced impact, New Brunswick east coast herring fishery, \$ million

	Inshore				Seiners	Total
	Gloucester*	North.	Kent	Westmorland		
Albert	0.01	0.00	0.00	0.00	0.01	0.02
Carleton	0.03	0.02	0.01	0.00	0.02	0.08
Charlotte	0.02	0.01	0.00	0.00	0.01	0.05
Gloucester	4.63	0.01	0.02	0.00	1.59	6.26
Kent	0.01	0.03	0.76	0.00	0.01	0.82
Kings	0.02	0.01	0.00	0.00	0.01	0.04
Madawaska	0.02	0.01	0.00	0.00	0.02	0.05
Northumberland	0.03	1.75	0.01	0.00	0.03	1.82
Queens	0.01	0.00	0.00	0.00	0.01	0.02
Restigouche	0.02	0.01	0.00	0.00	0.02	0.05
Saint John	0.11	0.06	0.02	0.01	0.26	0.45
Sunbury	0.01	0.00	0.00	0.00	0.01	0.02
Victoria	0.02	0.01	0.00	0.00	0.01	0.04
Westmorland	0.10	0.06	0.02	0.62	0.10	0.90
York	0.10	0.05	0.02	0.01	0.09	0.27
Total	5.12	2.04	0.88	0.66	2.20	10.90

\* Includes a few fishermen from Restigouche County

#### *Federal and Provincial Government Revenues*

The contribution of the fishing effort to public finances is about \$1.5 million for the federal government and \$1.2 million for the provincial government.

Table 11: Federal government revenues – direct, indirect, and induced impact, New Brunswick east coast herring fishery, \$ million

	Inshore				Seiners	Total
	Gloucester*	North.	Kent	Westmorland		
Albert	0.00	0.00	0.00	0.00	0.00	0.00
Carleton	0.00	0.00	0.00	0.00	0.00	0.01
Charlotte	0.00	0.00	0.00	0.00	0.00	0.01
Gloucester	0.64	0.00	0.01	0.00	0.20	0.85
Kent	0.00	0.00	0.10	0.00	0.00	0.11
Kings	0.00	0.00	0.00	0.00	0.00	0.01
Madawaska	0.00	0.00	0.00	0.00	0.00	0.01
Northumberland	0.00	0.25	0.00	0.00	0.01	0.26
Queens	0.00	0.00	0.00	0.00	0.00	0.00
Restigouche	0.00	0.00	0.00	0.00	0.00	0.01
Saint John	0.02	0.01	0.00	0.00	0.03	0.06
Sunbury	0.00	0.00	0.00	0.00	0.00	0.00
Victoria	0.00	0.00	0.00	0.00	0.00	0.01
Westmorland	0.02	0.01	0.00	0.10	0.02	0.14
York	0.02	0.01	0.00	0.00	0.01	0.05
Total	0.72	0.30	0.13	0.10	0.29	1.54

\* Includes a few fishermen from Restigouche County

Table 12: Provincial government revenues – direct, indirect, and induced impact, New Brunswick east coast herring fishery, \$ million

	Inshore				Seiners	Total
	Gloucester*	North.	Kent	Westmorland		
Albert	0.00	0.00	0.00	0.00	0.00	0.00
Carleton	0.00	0.00	0.00	0.00	0.00	0.01
Charlotte	0.00	0.00	0.00	0.00	0.00	0.01
Gloucester	0.51	0.00	0.00	0.00	0.15	0.66
Kent	0.00	0.00	0.08	0.00	0.00	0.08
Kings	0.00	0.00	0.00	0.00	0.00	0.01
Madawaska	0.00	0.00	0.00	0.00	0.00	0.01
Northumberland	0.00	0.19	0.00	0.00	0.00	0.19
Queens	0.00	0.00	0.00	0.00	0.00	0.00
Restigouche	0.00	0.00	0.00	0.00	0.00	0.01
Saint John	0.02	0.01	0.00	0.00	0.00	0.05
Sunbury	0.00	0.00	0.00	0.00	0.00	0.00
Victoria	0.00	0.00	0.00	0.00	0.00	0.01
Westmorland	0.01	0.01	0.00	0.08	0.01	0.11
York	0.02	0.01	0.00	0.00	0.01	0.04
Total	0.58	0.23	0.09	0.08	0.23	1.21

\* Includes a few fishermen from Restigouche County

## Conclusion

The economic contribution of the New Brunswick east coast herring fishery is therefore very significant. If the direct, indirect, and induced effects are combined, it can be seen that this sector generates spin-offs of nearly 1,000 jobs, measured in person-years, more than \$25 million in revenues, and sales of over \$86 million. Its contribution to the province's gross domestic product is \$36.5 million. The sector also generates government revenues of \$4.8 million at the federal level and nearly \$3.7 million at the provincial level.

	Fishing	Processing	Total
Jobs generated (person-years)	270.5	721.4	991.9
Wages generated (\$ million)	8.33	16.91	25.24
Sales generated (\$ million)	22.75	63.40	86.15
Contribution to GDP (\$ million)	10.90	25.60	36.50
Federal govt. revenues (\$ million)	1.54	3.26	4.80
Provincial govt. revenues (\$ million)	1.21	2.46	3.67