



# **Downeast LNG**

## **Sustainable Economic Development Plan**

***Washington County Economic  
Development Trust (WCEDT)***

***and***

***Gas-Based Economic  
Development Opportunities***

**July 2005**



## 1 Overview

Promoting sustainable and diversified economic development<sup>1</sup> in Washington County, Maine, is an important objective of Downeast LNG. In order to achieve this, Downeast LNG has decided to establish the *Washington County Economic Development Trust (WCEDT)*. The WCEDT will assist local communities in achieving sustainable economic development by providing an ongoing source of funds to support a diverse mix of economic development initiatives.

The WCEDT will support business development and employment creation activities by providing funds of up to \$500,000 annually for:

- Business training,
- Identifying and evaluating business opportunities,
- Assisting new business creation, and
- Supporting existing businesses.

The WCEDT will provide targeted funding for job growth and economic development in the county. Downeast LNG's commitment to making annual payments to WCEDT is *in addition* to any local, county, or State tax payments related to the operation of Downeast LNG's proposed facility.

Downeast LNG plans to work with regional economic development agencies, such as Sunrise Economic Development Council (SCEC), to identify potential business applications that could stem from the introduction of liquified natural gas (LNG) and natural gas in Washington County. These include low impact uses of gas such as heat treating, gas-fired power generation, and cold storage opportunities.

Downeast LNG will establish an Economic Review Team composed of business professionals and residents of Washington County. The team will assist in the further development of the WCEDT and other economic development initiatives proposed within this report.

This report reflects our vision for making a lasting contribution to the economic growth and well-being of Washington County. Downeast LNG welcomes comments and suggestions.

---

<sup>1</sup> Appendix 1 provides a discussion of sustainable economic development in the context of Washington County.



## **2 WCEDT Approach**

Downeast LNG believes that for its proposed LNG project to be successful, it must also contribute to economic development in area communities and support a diversification of the regional economic base. Our commitment and responsibility goes beyond potential tax revenue in the specific community in which the facility is sited. We believe that other communities along the ship's transit route, other parts of Washington County, and the State of Maine will ultimately play important roles in the project's success.

Downeast LNG's approach to promoting sustainable economic development is to create an ongoing funding mechanism from which the proposed LNG project can support local development initiatives. One key to successfully developing and managing the proposed program is to involve the community's business leaders and residents in identifying, assessing, choosing, and leading the initiatives at the grassroots level. Downeast LNG believes that the community of Washington County can best promote such activities. Therefore, we are creating partnerships with economic development groups already serving in the county, and hope to establish similar relationships with Washington County Community College in Calais and the University of Maine in Machias.



### 3 WCEDT Activities and Operation

#### 3.1 Objectives

Downeast LNG believes the creation of the WCEDT could fulfill the following growth and sustainability initiatives in Washington County:

- Supporting existing businesses and establishing new businesses to facilitate job growth,
- Assisting in the development of gas-based businesses, and
- Meeting community development needs.

#### 3.2 Funding

Downeast LNG would make an annual payment into the fund for the duration of the LNG terminal's operation—an estimated 30 years—based upon the average daily throughput of LNG delivered and regasified. Downeast LNG commits to contributing \$0.01 per million cubic foot per day (mmcf) of the average daily volume of gas processed at the LNG terminal. For example, if the proposed facility runs at full initial capacity (500 mmcf on average throughout the year), then Downeast LNG would contribute \$500,000 annually into the WCEDT. Any subsequent increase in throughput capacity would be covered by this same agreement.

#### 3.3 Proposed WCEDT Activities

A key to providing economic development stimulus in the area is to promote new businesses and to assist ongoing enterprises in expanding their operations. These efforts would lead to the creation of new jobs for area residents. The WCEDT could be used to provide low interest funding, training, and technical assistance to ongoing businesses and proposed startups.

The four proposed activities of the WCEDT are:

- Business training,
- Identification and evaluation of business opportunities,
- Assistance for new business creation, and
- Support for existing businesses.

WCEDT will complement, rather than compete with, existing funding sources by not duplicating their development activities and by targeting businesses in earlier stages of development.

##### **Business Training**

Downeast LNG recognizes that successful entrepreneurs must have sufficient business knowledge and training in order to identify opportunities and start and maintain profitable businesses. The WCEDT will provide funding for short courses on business development and leadership skill training.



### **Identification and Evaluation of Business Opportunities**

Downeast LNG's discussions with Washington County economic development organizations have identified the need for funding to research and identify new business opportunities. Therefore, the WCEDT will provide funding for market studies, etc., to allow entrepreneurs to identify, research, and evaluate such opportunities.

### **Assistance for New Business Creation**

Once a new business opportunity has been identified and evaluated, more detailed business planning is required to further develop the concept, including marketing, financing, and operational issues.

The WCEDT will provide funding for business plan development, and will provide grants and no-interest loans for startup financing and expenses.

### **Support for Existing Businesses**

Many existing businesses need technical assistance or funding to meet loan-matching requirements, maintain competitiveness, or expand to take advantage of business opportunities.

Funding would be provided for business training, grants, and low interest loans.

## **3.4 Area of Coverage for WCEDT**

The WCEDT was established to support economic development initiatives in Washington County, with a specific focus on promoting and supporting activities in the county's easternmost communities.

## **3.5 Management and Administration of WCEDT**

Downeast LNG proposes that a non-governmental organization act as the administrator<sup>2</sup> of the WCEDT.

The WCEDT manager would be responsible for the administration and day-to-day management of the trust. This would include working with potential and existing business owners on business development activities, as noted above. The manager would report to the WCEDT Board of Directors (BOD).

The BOD would establish operating protocols, establish criteria for assistance and funding, and review and approve new business proposals and funding for existing businesses.

Downeast LNG seeks to work with a range of local partners experienced in business development in Washington County. Key BOD participants could include:

- Cobscook Bay Chamber of Commerce

---

<sup>2</sup> Downeast LNG will set a maximum amount or percentage of funds to be allocated to overhead and administration.



- Eastport Chamber of Commerce
- Department of Economic and Community Development, City of Eastport
- Eastport Port Authority
- St. Croix Valley Chamber of Commerce
- Sunrise Economic Development Council
- University of Maine at Machias
- Washington County Leadership Council

The potential participants are subject to revision and expansion.



## 4 Development Initiatives for LNG/Gas-Based Industries

### 4.1 Overview

Downeast LNG plans to work with county and regional economic development entities to identify possible value-added industry uses for gas in Washington County. The focus of this initiative is to identify uses that can generate sustainable job growth.

Downeast LNG believes that gas and waste cold<sup>3</sup> can be used for the development of companies that can leverage either existing natural resources or the technical skill sets of the local population. The potential location of such companies is dependent upon the gas pipeline route to the Baileyville compression station and community support and interest.

Given the extent of the forestry industry in Washington County, it is possible that gas could be used to improve the competitiveness of the forestry products industry. For example, the use of gas could improve the competitiveness of the Domtar Industries facility in Baileyville by reducing operation costs. The use of gas could brighten the future for this important regional business, which has seen increased competition and endured recent layoffs.

### 4.2 Potential Applications

A preliminary review has identified several potential applications that include:

- Use of gas in paper mills and forest products.
- Power generation (possibly at the Domtar facility).
- Use of waste cold stream (cold air).

Paper mills, such as the Domtar facility, can often experience boiler stack emission excursions from the use of fuel oils and other energy sources. When such excursions occur in mid-day, they force reduced output in order to allow the company to stay below allowable emission levels. When natural gas is introduced in a co-combustion role with other fuels, boiler emissions can be reduced, thereby maintaining 100% plant operating capacity.

In the production of Oriented Strandboard (OSB), natural gas can be used to improve efficiency and reduce costs by displacing fuel oil for use in regenerative thermal oxidizers (RTOs). The Louisiana-Pacific Carthage (Texas) OSB Plant used about 260,000<sup>4</sup> mmbtu of natural gas in 2002 for three RTOs at an estimated cost of about \$1.2 million annually. A similar plant with RTOs powered by fuel oil would have consumed about 41,000 barrels of fuel oil at a cost of about \$2.4 million, assuming \$60/barrel for fuel oil. Using natural gas, the same plant could save \$1.2 million annually.

---

<sup>3</sup> The warming of LNG to ambient temperature releases energy in the form of cold streams, either in air or liquid form. This is called “waste cold” and can be used in any application that requires cold.

<sup>4</sup> <https://yosemite.epa.gov/oepi/ptrack.nsf/vAPRViewPrintView/0288A2C65E2CF3F185256EEB00707E31>



Over the past few years, Domtar has researched opportunities to build a gas-fired power plant to improve efficiency and generate additional revenue, but has encountered two barriers. First, the Domtar facility is not connected to the United States power transmission grid, and instead sells its surplus power at very low prices to the New Brunswick power transmission grid. The proposed development of the high voltage transmission interconnection between New Brunswick and southern New England by Bangor Hydro Power would eliminate this barrier by connecting it to the U.S. grid. Second, the facility does not have access to natural gas since it is about four miles from the Maritimes & Northeast Pipeline. The development of an LNG facility will require the construction of a gas pipeline passing close to Domtar, thereby providing it with easy access to a gas pipeline and eliminating this second barrier.

Development of a gas-fired power plant will allow the facility to supply needed electricity to New Brunswick in the winter for home heating load and to New England in the summer for air-conditioning load. The supply cost of natural gas provided by a Washington County-based LNG facility would be about 15-25%<sup>5</sup> lower than current gas supplies from offshore Sable Island or from a new LNG plant sited in Canada, making the plant much more competitive than the recently developed Veazie power plant in Veazie, Maine. (Even the Veazie power plant, however, will benefit by having access to lower priced gas as it will not have to pay the Canadian transmission tariff on the Maritimes & Northeast Pipeline. It would still be obligated to pay the U.S. portion of the gas pipeline tariff for gas from a Maine-based LNG facility.)

Last, the proposed LNG regasification plant will generate waste cold stream (cold air) as the LNG is warmed to atmospheric temperature. This cold can be harnessed for a range of purposes. In Japan, which has almost 30 LNG terminals, this cold stream is used for a number of purposes including power generation and flash freezing of fish and other products. In Washington County, the aquaculture and fishery industry could possibly use this cold stream for the processing of fish and ice production. Cold storage opportunities are also possible for blueberries and potatoes.

Further research is required before potential opportunities for both gas and cold stream applications can be fully evaluated commercially.

---

<sup>5</sup> This is due to the elimination of Maritimes & Northeast gas pipeline transmission tariffs for both the U.S. and Canada.



---

## Appendix 1 Sustainable Economic Development for Washington County

What is sustainable development and why is it important for Washington County?

The International Institute for Sustainable Development (IISD) is a leading international advocate for the promotion of sustainable development. It states:

"Sustainable development means different things to different people, but the most frequently quoted definition is from the report *Our Common Future* (also known as the Brundtland Report):

***"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."***

Other definitions of sustainable development include:

- "Improving the quality of human life while living within the carrying capacity of supporting ecosystems." (IUCN/UNEP/WWF, 1991)
- "...To equitably meet developmental and environmental needs of present and future generations." (Principle 3, Rio Declaration, 1992)
- "A model form of economic development... Development of the physical community, the social environment, and the economy which meets the needs of the present without compromising the ability of future generations to meet their own needs." (Sunrise Economic Development Council, Washington County, 2005)

It is clear that sustainable development is focused on meeting the economic and social needs of populations without compromising the environment.

**In Washington County, sustainable development means ensuring a diverse economy that is vibrant enough to meet the economic needs of its residents, while protecting the environment.** This means the economy of Washington County needs to provide economic growth to meet the employment and social needs of its population. In order to accomplish this, government officials, business leaders, and the community need to leverage the human and natural resources of the county with available investment capital to create businesses that can provide employment and fulfill the goals of sustainable development.

The human skill set of Washington County is diverse. A key component of this is the well-trained technical work force working in the paper and forestry industry. Unfortunately, competition and rising costs have hindered the growth of this sector. Leveraging the abilities of this work force in other industries requiring technical skills is one path that needs to be developed. Sustainable development will require increased diversification and the participation of a broad range of industries and sectors.



## Appendix 2 Washington County Economy

### Overview

This Appendix is based upon several sources of information including:

- Profile of Washington County, Maine (wacofactsheet<sup>6</sup>), Sunrise Economic Development Council.
- Washington County Demographics & Economic Data (wacostats<sup>7</sup>), Sunrise Economic Development Council.
- Demographic and Economic Characteristics of Washington County, University of Maine.

The economy of Washington County, as measured by total wages in 2003, was about \$265 million (excluding value-added exports). The largest industries (by employment) in Washington County are health and social services; manufacturing; retail trade; and local government. In 2003, total employment was 11,076, as compared to 11,771 in 2000.

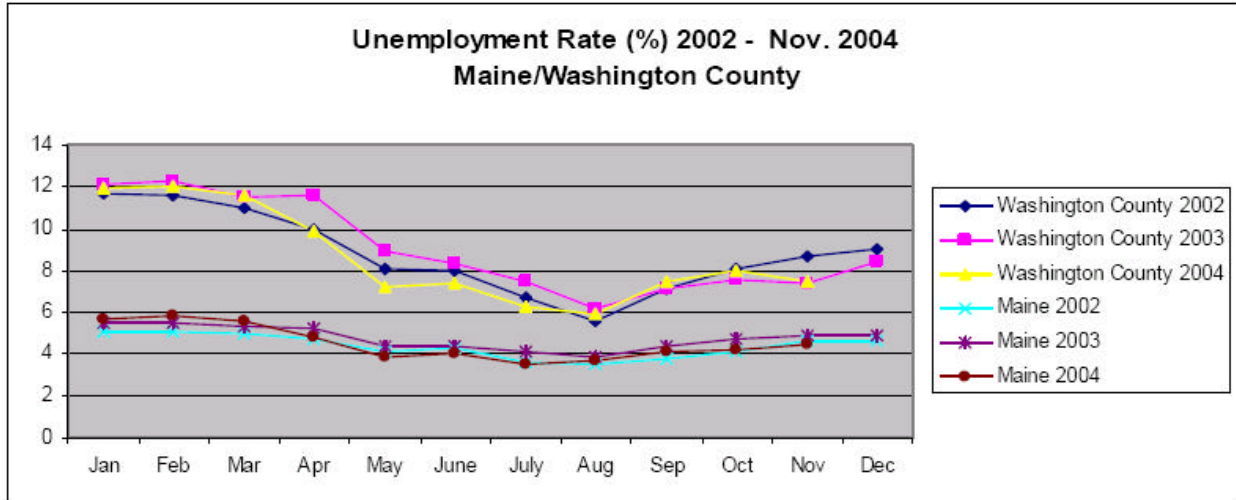
<b>Covered Employment and Wages by NAICS Sector, 2003</b>				
<b>WASHINGTON COUNTY</b>				
<b>North American Industry Classification System (NAICS) Sector</b>	<b>Employers at Year End</b>	<b>Average Employment</b>	<b>Total Wages</b>	
			<b>Annual Total</b>	<b>Average Weekly</b>
<b>Total</b>	<b>1,053</b>	<b>11,076</b>	<b>\$265,613,681</b>	<b>\$461</b>
Agriculture, Forestry, Fishing and Hunting	55	508	11,742,143	445
Manufacturing	53	1,585	52,689,292	639
Retail Trade	187	1,630	28,588,502	337
Finance and Insurance	32	321	10,367,059	621
Health Care and Social Assistance	98	2,113	52,380,639	477
State Government	17	442	13,640,750	593
Local Government	130	2,125	48,737,102	441
Other	481	2,352	47,468,194	388

In Washington County, total population fell during the last census period by 3.87% as compared to a growth of 3.83% for the State of Maine. Even with net emigration, job growth has not been able to keep pace, and unemployment has stayed relatively stagnant.

Washington County has a higher unemployment rate than the State of Maine and a high degree of seasonal employment fluctuation. In recent years, employment rates have fallen to about 6% in August and peaked at about 12% between January and April.

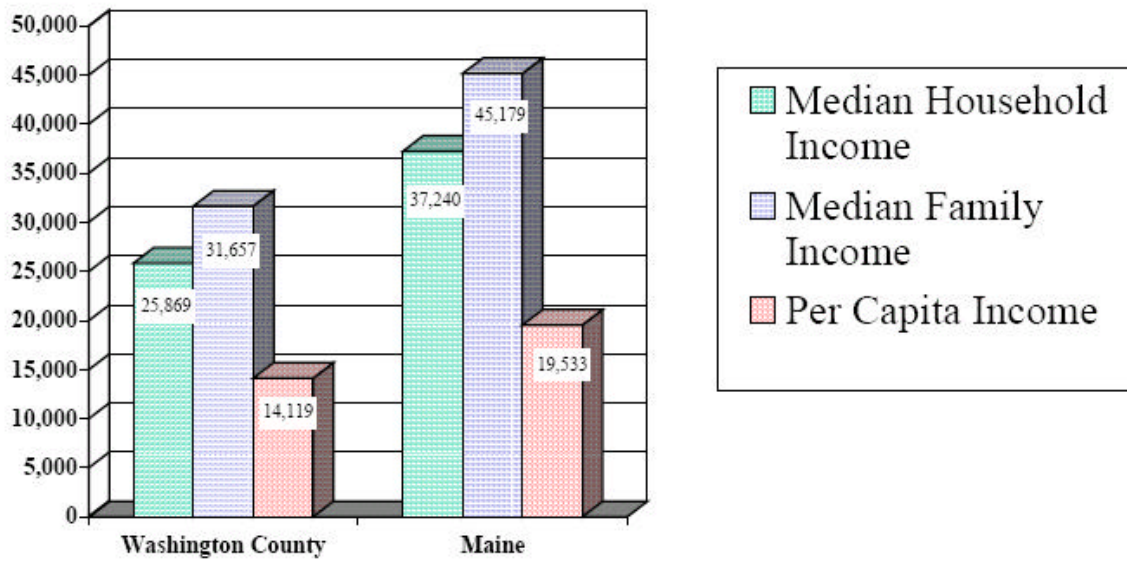
<sup>6</sup> <http://www.sunrisecounty.org/docs/wacofactsheet.pdf>

<sup>7</sup> <http://www.sunrisecounty.org/docs/wacostats.pdf>



In terms of income, Washington County trails the state average for Maine.

### Per Capita, Household, and Family Income, 2000



## Historical Perspective

The *Demographic and Economic Characteristics of Washington County* study presented some conclusions regarding socioeconomic and employment changes impacting the economy.<sup>8</sup>

### Changing Demographic

“Between 1990 and 1996, it is likely Washington County’s population aged at a rate faster than Maine as a whole. An examination of kindergarten through 12th grade public school enrollment figures suggests this may be true. Table 5 presents public school enrollment figures for Washington County, the comparison counties, and Maine.”

County/State	1990	1993	1996	Percent Change: '90-'96
Washington	6,984	6,699	5,809	-16.8%
Hancock	7,847	8,457	8,338	5.9%
Penobscot	25,269	25,893	24,830	-1.7%
Piscataquis	3,556	3,972	3,246	-8.7%
Maine	210,200	216,943	210,074	Essentially Unchanged

**Sources:** Maine Department of Education; and Eastern Maine Development Corporation

“Between 1990 and 1996, Washington County lost nearly 17% of its K-12 public school enrollment while Maine public school enrollment remained essentially unchanged. Among the comparison counties, only Hancock County experienced an enrollment increase. Several factors may be responsible for Washington County’s K-12 decline. They include an increased out-migration of families with children or decreased immigration of families with children. In addition, the aging population might produce a decline in the number of births. Whatever the reason, the decline in Washington County’s public school enrollment suggests a continued increase in median age.”

“Table 10 reveals that Washington County residents rely more on transfer income than residents of any other comparison county or Maine as a whole. Almost 33 cents of every dollar of income came from transfer payments in 1996. On a per capita basis, Washington County residents received \$5,365 of transfer

<sup>8</sup> Demographic and Economic Characteristics of Washington County, Maine 1970-1996, Margaret Chase Smith Center for Public Policy, University of Maine, Robert K. Roper, Associate Professor of Business Management, University College of Bangor and University of Maine at Augusta, January, 1999, Commissioned by *The Ellsworth American*, Ellsworth, Maine.  
[http://www.umaine.edu/mcsc/Research/EcoDev/Was\\_Cou/report.pdf](http://www.umaine.edu/mcsc/Research/EcoDev/Was_Cou/report.pdf)



income in 1996. In Maine, the per-capita figure was \$4,280. The difference is primarily due to higher per-capita Medicaid and income maintenance payments in Washington County. The table also reveals that just over half the income accruing to Washington County residents comes from economic activity within the county. Almost 54 cents of every income dollar came from income from work.”

**TABLE 7**  
**WASHINGTON COUNTY, COMPARISON COUNTIES, MAINE**  
**POPULATION POVERTY RATES 1970, 1980, 1990, 1993**

County/State	1970	1980	1990	1993 (Estimated)
Washington	23.2%	21.6%	19.3%	21.8%
Hancock	16.9%	14.6%	10.0%	13.4%
Penobscot	13.3%	13.0%	13.0%	14.9%
Piscataquis	14.9%	14.1%	15.2%	15.9%
Maine	13.6%	13.0%	10.8%	13.7%

Source: Bureau of Census <sup>3</sup>

“In 1993, slightly more than one in every five persons in Washington County lived in poverty (21.8%). Since 1970, Washington County has had the highest poverty rate of all the counties in Maine. In 1993, Washington County’s poverty rate was almost 60% above the state as a whole.”

Economic Change

**TABLE 10**  
**WASHINGTON COUNTY, COMPARISON COUNTIES, AND MAINE**  
**PER-CAPITA PERSONAL INCOME AND SOURCES OF PERSONAL INCOME: 1996**

County/State	Per Capita Income	Sources of Personal Income			Total
		Income From Work	Div/Int/Rent Income	Transfer Income	
Washington	\$16,406	53.8%	13.5%	32.7%	100.0%
Hancock	\$22,411	53.2%	27.9%	18.9%	100.0%
Penobscot	\$19,495	64.6%	13.6%	21.8%	100.0%
Piscataquis	\$15,929	54.6%	16.9%	28.5%	100.0%
Maine	\$21,087	61.4%	18.3%	20.3%	100.0%

Source: Bureau of Economic Analysis, U.S. Department of Commerce

“Manufacturing was the largest sector in 1996 generating 21% of all income from work. Table 11 presents manufacturing sub-sector income for durable and non-durable manufacturing activities.”

“Table 11 reveals that durable manufacturing is the smaller of the two broad sub-sectors. Over the entire 1970-1996 period, durable manufacturing income increased. However, the more recent 1990-1996 period shows a dramatic decline in durable manufacturing income. The cause can be traced to the lumber and wood sub-sector in which income from work declined by 37.6%.”

Durable Sub-sectors	1970	1990	1996	% Change 1970-1996	% Change 1990-1996
Lumber and Wood	\$15,111,735	\$24,734,259	\$15,422,000	2.1%	-37.6%
Other Durable	1,043,304	3,150,005	3,893,000	273.1%	23.6%
Durable Total	\$16,155,039	\$27,884,263	\$19,315,000	19.6%	-30.7%
Non-Durable Sub-sectors					
Food and Kindred Processing	\$9,519,139	\$11,283,115	\$12,423,000	30.5%	10.1%
Printing and Publishing	477,170	746,686	636,000	33.3%	-14.8%
Petroleum and Coal Products	323,505	315,721	310,000	-4.2%	- 1.8%
Other (Includes Paper) <sup>A</sup>	41,190,294	34,226,228	38,941,000	-5.5%	13.8%
Non-Durable Total	\$51,510,108	\$46,571,809	\$52,310,000	1.6%	12.3%
<b>TOTAL</b>	<b>\$67,665,147</b>	<b>\$74,456,073</b>	<b>\$71,625,000</b>	<b>5.9%</b>	<b>-3.8%</b>

<sup>A</sup> Disclosure rules prevent BEA from separately reporting income under the paper and allied products sub-sector.

**Source:** Bureau of Economic Analysis, U.S. Department of Commerce

“Both the size and the growth of the services sector are very important to Washington County’s economy. Between 1970 and 1996 all services’ sub-sectors grew. However, sub-sector growth was erratic between 1990 and 1996. Hotel and lodging, business services, and legal services realized decreases indicating reduced business activity.”

“The rest of the sub-sectors increased. The strongest of these was social services. The social services sub-sector includes establishments that provide individual and family social services, job training and vocational rehabilitation, child day care, and residential care. The growth of income in this sub-sector is likely associated with the higher poverty and unemployment rates experienced by Washington County residents. (At the state level, social services income increased 62.3% between 1990 and 1996.)”

**TABLE 12**  
**WASHINGTON COUNTY SERVICES SUB-SECTORS**  
**INFLATION ADJUSTED INCOME FROM WORK (1996 DOLLARS): 1970, 1990, 1996**

Sub-Sector	1970	1990	1996	% Change 1970-1996	% Change 1990-1996
Hotel and Lodging	Not Available	\$2,138,018	\$1,872,000	_____	-12.4%
Personal	\$2,220,054	2,659,017	2,910,000	31.1%	9.4%
Business	229,242	3,306,064	2,202,000	635.9%	-33.4%
Health	10,699,933	27,101,564	33,404,000	212.2%	23.3%
Legal	1,273,802	2,530,568	1,826,000	43.3%	-27.8%
Social	Not Available	4,038,344	7,514,000	_____	86.1%
Other	7,667,072	13,984,148	18,449,000	111.7%	35.2%
<b>TOTAL</b>	<b>\$22,160,103</b>	<b>\$55,757,723</b>	<b>\$68,177,000</b>	<b>207.7%</b>	<b>22.3%</b>

**Source:** Bureau of Economic Analysis, U.S. Department of Commerce

“Farming income increased significantly between 1970 and 1996 in Washington County, making it the only county in Maine where farming income increased. During the more recent 1990 to 1996 period, however, income from the farming sector decreased. It is almost certain that the general growth in farm income can be attributed to the continued commercialization of the blueberry and aquaculture industries. Aquaculture is a growing industry and is accounted for in this sector. In Maine, the harvest of aquaculturally raised fish such as Atlantic Salmon increased from 10,000,000 pounds in 1991 to 22,100,000 pounds in 1996. The Lubec, Eastport, and Machiasport regions contain many fish growing sites and several processors.”

“Agricultural and forestry services are services provided by firms to farm and forestry businesses. Examples of agricultural services include soil testing and veterinary services. Examples of forestry services include tree farms and reforestation management. Forestry services do not include tree harvesting or paper manufacturing. Fishing includes all businesses and individuals engaged in commercial fishing such as lobstering, clamming, and dragging. It does not include aquaculture (part of the farming sector), or recreational fishing.”

“Income for the entire AG/FR/FH sector decreased between 1970 and 1996. During the more recent 1991 to 1996 period, income decreased by 18.5%. Not surprisingly, fishing activity consistently generated most of the income in this sector. In all probability, fishing income is higher than that reported here. Many commercial fishermen and clam diggers are self-employed and do not necessarily report all of their income.”



**TABLE 18**  
**WASHINGTON COUNTY AGRICULTURE, FORESTRY, FISHING SERVICES SUB-SECTORS**  
**INFLATION ADJUSTED INCOME FROM WORK (1996 DOLLARS): 1970, 1991<sup>A</sup>, 1996**

Sub-Sector	1970	1991	1996	% Change 1970-1996	% Change 1991-1996
Agricultural Services	\$1,542,510	\$3,908,764	\$2,558,000	65.8%	-34.6%
Forestry Services	255,061	648,259	951,000	272.9%	46.7%
Fishing <sup>B</sup>	12,651,822	11,256,903	9,401,000	-25.7%	-16.5%
<b>TOTAL</b>	<b>\$14,449,393</b>	<b>\$15,813,926</b>	<b>\$12,910,000</b>	<b>-10.7%</b>	<b>-18.5%</b>

<sup>A</sup> Sub-sector income data not available for 1990

<sup>B</sup> Reported income derived from non-aquaculture, commercial marine activity

**Source:** Bureau of Economic Analysis, U.S. Department of Commerce