

Economic Growth and Revitalization on Long Island: the Role of the Recreational Fishing and Marine Economy

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Abstract

Long Island's economy grew from a set of farm and marine based communities into a diverse service based economy. These traditional industries have for the most part been displaced as a result of increasing development pressures throughout the Island and its coastal areas. Recreational fishing is still a significant factor in local and tourism related recreational activities. This study, part of an ongoing 2-year research project funded by New York Sea Grant, focuses on the role that marine based activity may play in the region's economic activity and policies that may be implemented to reinvigorate the sector. Results show that there are still pockets of Long Island that are dependent on marine-related activities, and that these areas have undergone rapid change in the past decade. Tourism, transportation, and construction are the three dominating sources contributing to the marine economy.

Keywords: Economic Growth and Revitalization; Long Island; Marine Economy; Recreational Fishing

1. Introduction

Maritime based industry has played a crucial role in Long Island's coastal economic development. Potential growth in tourism and recreation, transportation, construction related-commerce business sectors, are positioned to be the driving economic engines (Pomeroy, et al. 2013). While the number of individuals directly working within marine based industries such as commercial and recreational fishing are relatively small in relationship to the greater Long Island economy, they may be able to serve as a vehicle to help fuel the regional tourism sector and to provide substantial support to local economic growth.

Recent studies such as Ma (2014) found the marine sector provided not only the necessary foods and resources but also offer the basic platform of transportation industry and tourism industries. Zhang (2007)'s study suggested that wildlife recreational activities have significant contributions both on income and employment. Colgan (2013) estimated the total size of the U.S marine economy was 2.68 million employees working in over 140,000 establishments and earning nearly \$94 billion in wages in 2007. They contributed over \$238 billion to the U.S. GDP. The National Marine Fisheries Service (NMFS) 's report in 2014 demonstrates that in 2012, there were over 11 million marine recreational anglers across the U.S. who spent \$4.6 billion on fishing trips and \$20 billion on durable fishing-related equipment. These expenditures contributed over \$58 billion in sales to the U.S. economy, generated \$30 billion in value added impacts, and supported over 381,000 job impacts (NMFS, 2014).

On Long Island, the marine economy contributes significantly to the state's economy in tourism, recreational fishing, and other activities. Some traditional industries, like fishing, have been threatened and displaced as a result of increasing development pressures in coastal areas (Carey, 2014). Even though the commercial fishery is still important to the region, tourism (in which recreational fishing-based tourism still plays a role), transportation, and the information technology sector have become significant economic activities in the local economy.

The purpose of this paper is to assess the contributions that marine and related industries provide in the overall Long Island economy as part of an overall evaluation of strategies to revitalize the marine-based economy of the region. As part of that process, we also evaluate the economic trends affecting the marine economy on Long Island. Recreational fishing is the largest component of the maritime sector, and we pay particular attention its interrelationship with tourism as it is possible that recreational fishing may be able to play a significant role in furthering this sector.

2. Marine Economy Growth and Revitalization on Long Island

Since 2001, Long Island's economy (Nassau County and Suffolk County) has grown from a gross regional product of \$105 billion to \$170 billion (2014), expanding by 62 percent. Over this same period, New York State's economy grew by 61 percent to an annual gross state product of \$1.4 trillion in 2014, having risen by a comparable 61 percent over the 14-year period. As a share of NYS's GSP, the two Counties' economy contributes 12 percent of the gross product.

Table 1 shows the GDP of those two Counties in comparison with the output of the nation and New York State. Before the recessions, economic growth in the Long Island is comparable with the national level and even higher than the state level. Since 2007, the great recession slowed economic growth with national growth and state growth declining to 3.7 percent and 7.7 percent respectively. Long Island's economy continued to increase with a 12 percent from 2007 to 2010. By comparison, Suffolk grew faster than Nassau in most of years since 2001, and Nassau's growth fell to 1.5 percent during 2010 to 2011. By the end of 2014, Suffolk had surpassed Nassau in GDP by roughly \$1.4 billion.

Table 1. A Comparison of GDP Growth by Area, Billion Dollar, 2001-2009

<i>All Industries</i>	<i>2001</i>	<i>2004</i>	<i>2007</i>	<i>2010</i>	<i>2011</i>	<i>2014</i>
<i>US</i>	10,562	12,207	14,391.1	14,859.8	15,406.0	17,232.6
<i>NYS</i>	864.4	954.2	1,120.9	1,207.6	1,230.1	1,395.5
<i>Nassau County</i>	54.2	62.0	69.0	75.3	76.4	84.0
<i>Suffolk County</i>	50.7	59.4	67.2	75.7	77.3	85.4
<i>Nassau County+ Suffolk County</i>	104.8	121.3	136.2	151.0	153.7	169.5
<i>GDP Change in %</i>	<i>01-04</i>	<i>04-07</i>	<i>07-10</i>	<i>10-11</i>	<i>11-14</i>	<i>01-14</i>
<i>US</i>	15.6%	17.9%	3.3%	3.7%	11.9%	63.2%
<i>NYS</i>	10.4%	17.5%	7.7%	1.9%	13.4%	61.4%
<i>Nassau County</i>	14.4%	11.2%	9.2%	1.5%	10.0%	55.1%
<i>Suffolk County</i>	17.2%	13.2%	12.6%	2.1%	10.5%	68.6%
<i>Nassau County+ Suffolk County</i>	15.7%	12.2%	10.9%	1.8%	10.2%	61.7%

Source: U.S. Bureau of Economic Analysis, ENOW, and NOAA Office of Coastal Management

The industrial composition of income in Long Island is presented in Table 2. Total personal income for 2010-2014 was extended from 161 billion dollars to 185 billion dollars. With \$14.9 billion of annual income in 2014, the trade sector (both retail and wholesale) is the largest component on Long Island, which rose 14 percent over the period of 2010-2014. Scientific and Technical services ranked the second most important sector increasing slightly during the past four years. Finance & insurance and the construction industry contributed \$7.9 billion and \$7.1 billion income respectively in 2014. However, income from agriculture and forestry sector, including fisheries based industries is only \$0.4 billion. Service industries dominated the Long Island economy while the proportion of traditional sectors, e.g. agriculture and manufacturing have declined.

Marine based and related sectors accounted for 13% of the total GDP and provided more than 45 thousand jobs in 2012 (Table 3). Marine industries including nature species, ports, and waterways support a broad range of sectors, such as shipbuilding, commercial fishing, aquaculture, marine manufacturing, marine engineering, port services, marine terminal operation, marine construction, marine maintenance, marine environmental services, and transportation. Tourism and recreation, construction, and transportation are all ranked highly in the distribution of industry on Long Island. Figure 1 shows the development of marine industries from 2005 to 2012. Jobs added over this period totaled 6,425, or 16% growth, contributing to an increase in GDP of \$ 0.5 billion or 25% growth.

Tourism and recreation continue to provide a strong impetus for economic growth in Long Island with consistent growth over time. In 2012, recreational anglers generated \$369 million in sales. Tourism and recreation contributed \$1.7 billion to the gross product and supported 42,000 jobs (Herfaut et al. 2013). Even during the recession, the output and employment within this sector maintained itself at a stable level. Since 2010, the whole industry has grown, and

the sector averaged nearly 13 percent growth in employment and over 13 percent growth in GDP from 2010 to 2012 (Figure 2).

Table 2 Long Island's Economy – Income by Supersector in Billions Dollar, 2010-2013

	Nassau County					Suffolk County				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
<i>Total Personal Income</i>	86.1	91.3	96.5	95.7	100.0	74.6	78.1	81.81	81.73	85.26
<i>Trade (Retail+Wholesale)</i>	6.48	6.73	7	7.22	7.51	6.34	6.6	6.96	7.04	7.35
<i>Scientific & Technical</i>	4.27	4.54	4.66	4.86	5.09	3.50	4.00	4.08	4.14	4.37
<i>Finance And Insurance</i>	3.98	3.78	3.82	3.82	3.96	3.83	4.04	4.08	3.85	3.96
<i>Construction</i>	2.72	2.79	2.95	3.03	3.29	2.97	3.06	3.30	3.59	3.85
<i>Information</i>	2.97	2.88	3.13	2.89	2.78	0.97	0.97	1.00	0.98	1.10
<i>Agriculture and Forestry</i>	0.01	-	0.01	0.01	-	0.03	0.03	0.03	0.03	0.03

Source: U.S. Bureau of Economic Analysis

Table 3 Marine Economy by sectors, Long Island, 2012.

	Nassau County		Suffolk County		Total	
	<i>Employment</i>	<i>GDP(Million Dollar)</i>	<i>Employment</i>	<i>GDP(Million Dollar)</i>	<i>Employment</i>	<i>GDP(Million Dollar)</i>
All Maine Sectors	15,242	656	30,353	1,610	45,595	2,266 (13% of GDP)
Living Resources	182	10	286	21	468	31
Tourism & Recreation	14,396	568	26,614	1133	41,010	1,700
Construction	92	15	340	35	432	50
Minerals	16	1	27	2	43	3
Transportation	556	62	3,086	420	3,642	482

Note: Data sources; NOAA Office of Coastal Management. Available at: www.coast.noaa.gov/digitalcoast/data/enow/.

The natural resources sector, primarily concentrated in commercial fishing is still popular in Long Island. Commercial fishing industries landed more than 27 million pounds of finfish and shellfish worth \$37.6 million in 2012. However, this sector shows a rather high volatility over time due to extreme weather, changes in fish stocks and regulations, as well as the economic recession (Zhang et al. 2015). Fish landings peaked in 2005 at 17 thousand tons and declined to 14 thousand tons in 2011, a 25% reduction (Figure 3).

Marine waters are also an economically important area for transportation including commercial shipping of goods and commodities, and freight entering the country and the state. The transportation sector processed over \$482 million output and supporting 3,600 jobs in 2012. Transportation activities increased significantly between 2006 and 2009, although there was a slight reduction in GDP at the beginning of 2010 (Figure 4).

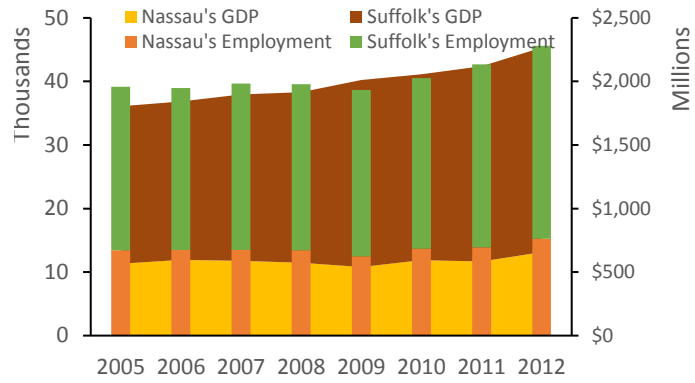


Figure 1 Marine Economy Changes in Long Island NY, 2005-2012

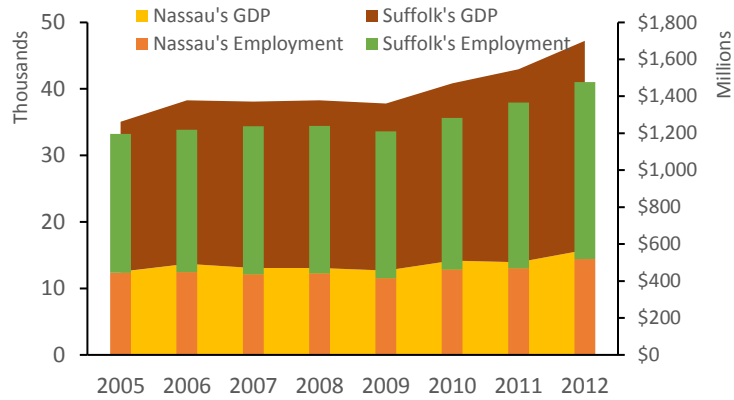


Figure 2 Economic Changes in the Tourism Sector, Long Island NY, 2005-2012

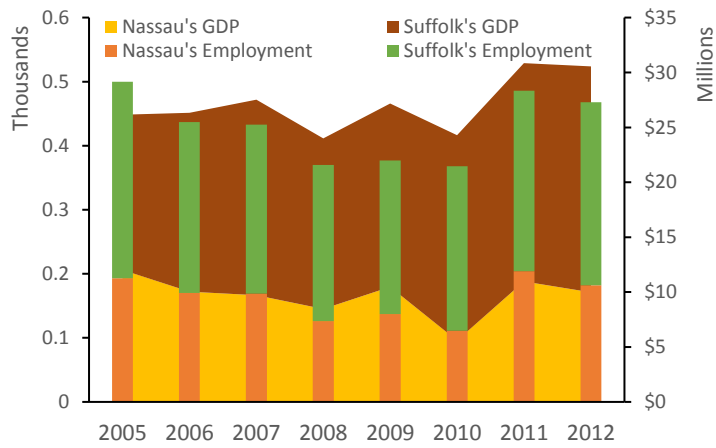


Figure 3 Economic Changes in the Living Resources Sector, Long Island NY, 2005-2012

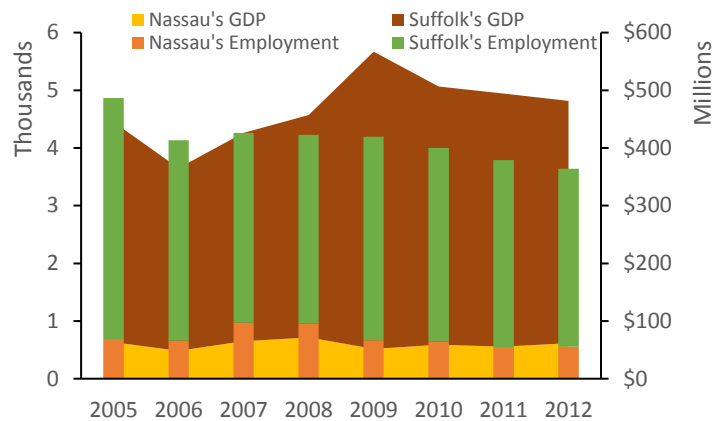


Figure 4 Economic Changes in the Transportation Sector, Long Island NY, 2005-2012

3. Marine Recreational Fishing: a Driver of Marine Economic Activity

Recreational fishing on Long Island has been thriving since 1998, and the proportion of recreational and sports fishing increased continuously over the last two decades. Recreational fishing generated \$316 million dollars in expenditures in New York State as a whole in 2012 (NMSF 2014) and led to economic impacts estimated at \$381 million in total output, close to \$242 million in value added, \$151 million in income, and total employment of 2,959 people. It peaked in 2007 when recreational fishing in the state contributed up to 1 billion in outputs, almost 6,000 people employed, and \$0.5 billion of value added.

Table 4. Economic Impacts of Recreational Fishing Expenditures, New York, 2012

	2006	2007	2008	2009	2010	2011	2012
<i>Employment Impacts (1000)</i>	5.37	6.49	5.77	4.57	4.46	3.09	2.96
<i>Output Impacts (\$ Millions)</i>	812.27	979.19	875.45	680.46	667.85	398.88	381.30
<i>Value Added Impact s(\$ Millions)</i>	424.07	511.31	457.20	358.11	350.16	254.73	241.95
<i>Income Impacts (\$ Millions)</i>				231.73	227.22	160.03	151.10

Note: Output impacts reflect total dollar sales generated from marine recreational fishing expenditures. Value-added impacts represent the contribution marine recreational fishing makes to gross domestic product. Income impacts represent wages, salaries, benefits, and proprietary income generated from marine recreational fishing. Date source: NOAA Interactive Fisheries Economic Impacts. <https://www.st.nmfs.noaa.gov/apex/f?p=160:7:0::NO>

Total angler expenditures on marine recreational fishing in New York were \$330.3 million in 2011. Trip expenditures were \$205.9 million and expenditures on durable goods were \$124.4 million. Mean trip expenditures by residents on for-hire fishing trips were \$157.83, \$59 on private boat trips, and \$19.91 for shore trips, compared with \$116.37, \$38.83, and \$44.68 for Non-resident respectively. Recreational fishing also generated \$78 million tax revenue, including 40.4 in local tax and 37.4 in federal tax. 70% of the total come from business and households.

Table 5 2011 Economic Impacts of Recreational Fishing Expenditures (millions of dollars)

<i>Trip Impacts By Fishing Mode:</i>	<i>Expenditures</i>
<i>For-Hire</i>	66.3
<i>Private Boat</i>	115.7
<i>Shore</i>	23.9
<i>Total Durable Equipment</i>	124.4
<i>Total State Trip and Durable Equipment</i>	330.3

Table 6 Federal and State Tax Impacts Generated from Marine Recreational Fishing in New York in 2011, \$ billion

	<i>Employee Compensation</i>	<i>Proprietor Income</i>	<i>Indirect Business Tax</i>	<i>Households</i>	<i>Corporations</i>	<i>Total</i>
<i>Local Tax</i>	0.5		27.9	7.8	4.2	40.4
<i>Federal Tax</i>	14.9	1.1	3.4	15.2	3.1	37.7
<i>Total</i>	15.4	1.1	31.3	23.0	7.2	78.1

One critical connection between the coastal and marine-based industries and the larger economy is through the greater tourism sector operating in the region. Nunes et al. (2009) pointed out coastal resources, and ecosystems can contribute significant economic benefits to regional economies especially regarding coastal tourism and recreational services. As the second most popular tourist destination in New York State after New York City, over 9 million overnight visitors come to Long Island annually generating approximately \$5.1 billion in spending in 2013 (Matejka, 2014). Overall, tourism supports more than 70,000 jobs or 5.9 percent of all jobs on Long Island and is, responsible for generating nearly \$638 million in state and local tax dollars. Based on an economic multiplier of 4.3, tourism spending created potentially \$27.4 billion in economic impact on Long Island in 2013.

Table 7 reports the total tourism impact in the Long Island in 2010. Traveler spending in Nassau and Suffolk counties was \$4.6 billion, contributed \$2.5 billion labor income, supported 70 thousand jobs, and generated \$0.56 billion in taxes. The region's tourism economy is roughly evenly split between Suffolk and Nassau Counties.

Table 7 Tourism Economic Impact, Long Island, 2010

	<i>TRAVELER SPEND</i> (\$Billion)	<i>LABOR INCOME</i> (\$Billion)	<i>EMPLOYMENT</i>	<i>LOCAL TAXES</i> (\$Billion)	<i>STATE TAXES</i> (\$Billion)
<i>NASSAU</i>	\$2.13	\$1.18	33,445	\$0.13	\$0.13
<i>SUFFOLK</i>	\$2.47	\$1.30	36,675	\$0.15	\$0.15
<i>TOTAL</i>	\$4.60	\$2.47	70,120	\$0.28	\$0.29

Four percent of all labor income on Long Island is generated by tourism, with 4.2 percent in Suffolk County and 3.8 percent in Nassau County. The direct impact was \$1.4 billion, and total impact estimated at \$2.4 billion. Tourism generates 5.9 percent of all employment on Long Island, with a direct impact of 48 thousand jobs and a total impact of 70 thousand jobs. (Table 8).

Table 8 Economic Impact and Contribution from Tourism in Long Island, 2010

		<i>Direct</i>	<i>Total (Direct, Indir., Induced)</i>	<i>Share (Total)</i>
<i>Lab. Income (\$Billion)</i>	<i>Nassau</i>	\$0.69	\$1.18	3.8%
	<i>Suffolk</i>	\$0.76	\$1.30	4.2%
	<i>Total</i>	\$1.45	\$2.47	4.0%
<i>Employment</i>	<i>Nassau</i>	23,072	33,445	5.7%
	<i>Suffolk</i>	25,301	36,675	6.1%
	<i>Total</i>	48,373	70,120	5.9%

4. Discussion and Conclusions

The recreational fishing industry contributes substantially to the Long Island economy both through the creation of employment and output, and through its interrelationship with the rest of the Island's economy. As a driver for related industries, recreational fishing attracted tourists to the region and this in turn supported a number of related industries including the retail sector, restaurants, hotels and other places of lodging, and related support service industries. Those impacts extend to the greater regional economy, and coastal based activities, which have the potential to provide substantial support to the region's economic growth.

This study focuses on the role that marine based activity may play in the region's economic activities and to assess the contribution of marine and related industries on the overall Long Island economy, and to evaluate strategies to revitalize the marine sector. Despite the significance of the marine economy, it faces significant challenges due to the

damages associated with the loss of ecosystem services, water pollution, competition, and a lack of infrastructure investment in the sector. Decreased social resilience and increased vulnerability to both natural and human disasters have been highlighted by some scholars (Bowen, 2003; Douvère 2008; Malone et al. 2010).

This project is still in its early stages though. Initial surveys (150) were conducted late in the tourism season (late August) of 2015, and will again be conducted beginning in the late spring and early summer of this year. We are also in the process of developing a detailed model of the region's economy (CGE) to evaluate the interrelationship between the recreational fishing industry and the greater economy. Once the model is completed we will be able to evaluate better policies that may help to revitalize the marine based industries and sector on Long Island.

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