

The Economics Associated with Natural Areas in the Delmarva Peninsula

For:

Theodore Roosevelt Conservation Partnership

By:

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Summary Findings

The Delmarva Peninsula's natural areas provide a number of measurable economic benefits for the peninsula and surrounding areas. Key selected facts are highlighted below. All dollar figures are reported in 2011 dollars.

Outdoor Recreation

- For Maryland, the Delmarva Peninsula was found to contain 37 percent of the available hunting acreage in the state, while in Virginia, Delmarva was found to have about 2 percent of the state's available hunting land.
- The total contribution from camping, biking, and trail based recreation in the Delmarva Peninsula is \$1.07 billion a year and generates over 11,000 jobs throughout the region. Included in this total is almost \$80 million in gear retail sales, \$830 million in trip-related sales and over \$150 million in federal, state and local taxes.
- Hunting, fishing and wildlife watching engaged more than 1.6 million people on the Delmarva Peninsula, of which 570,000 fished, 184,000 hunted and nearly 1.3 million enjoyed wildlife watching. While pursuing all of these activities, they spent more than \$1.5 billion.
- Recreational boating contributed more than \$1.3 billion in sales that supported over 11,000 jobs and paid out over \$400 million in wages.
- Combined, outdoor recreationists such as boaters, hunters, anglers, cyclists and others annually spend up to \$3.9 billion to enjoy Delmarva's natural areas. These dollars support upwards of 27,900 jobs.

Natural Resources Conservation

- The Delmarva Peninsula has approximately 1.7 million acres of wetland, 580,000 acres of grass and rangelands, 2.2 million acres of crops and 450,000 acres of forest.
- The region's wetlands provide upwards of \$14 billion in ecological benefits, which serves as the basis for many important regional industries, such as fisheries and tourism. Grass and rangelands add \$86 million, cropland provides \$126 million and the forest generates \$247 million of benefits.
- Nature tourism in Dorchester County, Md., contributes \$367 million to the local economy and creates nearly 7,000 full-time equivalent jobs.
- Natural areas can increase adjacent home values almost 20 percent.

Agricultural and Commercial Fishing Value

- The Delmarva Peninsula has nearly 7,000 farms of which nearly 5,500 are individual or family farms. The average value of the land and buildings on each of those farms is \$1.8 million.
- The region has 1.3 million acres of land dedicated to crops that generate \$2.8 billion in farm products sold every year.
- Commercial fishing in Maryland has a value of more than \$105 million and brings in over 100 million pounds of product. In Virginia there are annual catches of 510 million pounds with a value of more than \$190 million.
- The value of commercial fishing in the Chesapeake Bay as a whole is more than \$300 million.
- In terms of the weight of catch, nothing in the continental United States rivals what is caught around Delmarva and in the Chesapeake Bay.

Miscellaneous Values

- From September 2010 to December 2010, there were at least 23 festivals in Delmarva, many of them centered on the wildlife and bounty of the region's natural areas.
- In 2010, the Punkin' Chunking, Apple-Scrapple and Waterfowl festivals alone brought in more than 100,000 visitors.
- A 2007 study of Waterfowl Festival attendance found that 43 percent of the attendees came from out of state, while another 42 percent came from outside Talbot County where the festival is held, generating money that would not have been spent in the county otherwise.
- Total expenditures at the Waterfowl Festival exceeded \$5 million, half of which came from out-of-state visitors. Overall, the three-day festival generated \$5.8 million and sustained 89 jobs that provided \$1.7 million of total income.

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Introduction

This document was commissioned by the Theodore Roosevelt Conservation Partnership to outline the economic benefits and other considerations associated with natural areas and their related activities throughout the Delmarva Peninsula.

The Delmarva Peninsula is the area between the Chesapeake Bay and the Atlantic Ocean where the borders of Delaware, Maryland and Virginia merge. The Peninsula encompasses virtually all of Delaware and parts of Maryland and Virginia located on what is considered the Eastern Shore. The following counties make up Delmarva and are analyzed in this report: New Castle (partial), Kent and Sussex all in Delaware; Cecil (partial), Kent, Queen Anne, Talbot, Caroline, Dorchester, Wicomico, Worcester and Somerset all in Maryland; and Accomack and Northampton in Virginia.

The information in this report stems from a study of various academic journals, trade journals, websites, industry reports, government statistics and other publications that provide details on the relevant economic data for the region. Many of the publications cited designate only state-level data. When only state-level data are available, statistics are scaled to focus only on the Delmarva region using the best data available. Furthermore, the dollar figures in this report have all been converted to 2011 dollars to account for inflation and provide a fair valuation of economic considerations over a span of years.

It is vital to note natural areas contribute to local economies in four main ways: outdoor recreation, nature conservation, agricultural production and commercial fishing. Indirectly, natural areas also contribute through miscellaneous activities such as wildlife festivals. This report covers each of these topics in its own section; however, there is some overlap between sections. For instance, nature conservation impacts water quality, which in turn impacts the value of fishing of the region. Although there are many interconnections between the data, sections have been separated for clarity.

A. Outdoor Recreation

There are several nationwide studies of outdoor recreation in the United States from which to pull information; however, much of this is on the state level and not broken down by county. To scale the statistics down to the Delmarva Peninsula, the amount of land suitable and open to recreation was divided by the same types of land available statewide. This percentage was then used as the percentage of recreation that could be attributed to the peninsula. The assumption is made that participation levels are the same per acre on the mainland compared to the peninsula. While this assumption potentially introduces an unknown level of error, this assumption is necessary and not considered unreasonable.

Delaware did not need to be scaled as the entire state is on the peninsula. For Maryland, the Delmarva Peninsula was found to contain 37 percent of the available hunting acreage in the state, while in Virginia, Delmarva was found to have about 2 percent of the state's available hunting land. It's important to note, Delmarva is a peninsula that does not have many urban centers, thus wildlife can flourish making hunting, fishing, watersports and other activities more commonplace.

Secondly, many communities in Delmarva specifically attract recreation tourism by using their natural beauty as a selling point. "You'll love our Nature," is the slogan for the eastern shore of Virginia and many of the tourism campaigns in Delmarva focus on natural beauty and natural habitat-based recreation. Delmarva includes nine national wildlife refuges, one national seashore and many state parks, preserves and wildlife areas, which all attract tourists and money to the local economy. Although the statistics are probably higher than what is presented in the following sections, what is reported can be taken as a conservative estimate.

1. Outdoor Recreation

The 2006 report "The Active Outdoor Recreation Economy," produced for the Outdoor Industry Foundation (OIF), with data from consumer surveys conducted by Harris Interactive and analyzed by Southwick Associates, is a good reference for the value of recreation to the overall economy. The report looked at the effect of outdoor recreation such as camping, bicycling, and trail-based recreation on jobs, sales, taxes and total economic contribution to a census region (Table A1).

The scaled OIF data suggests that the total contribution from bicycling, camping and trail-based recreation, in the Delmarva Peninsula is \$1.07 billion a year and generates over 11,000 jobs. Included in this total is almost \$80 million in gear sales, \$830 million in trip-related sales and over \$150 million in federal and state taxes. These contributions come from both direct and indirect expenditures throughout the economy. The report suggests that outdoor recreation sales alone (gear and trips combined) of \$900 million per year are nearly equal to one and a half percent of the entire GDP of Delaware.

Table A1: Economic Impact from Outdoor Sports in Delmarva (2006, Outdoor Industry Foundation, scaled down from South Atlantic regional level and standardized to 2011 dollars)

	Number of Participants (thousands)	Jobs Supported	Gear Related Sales (millions)	Trip Related Sales (millions)	Fed and State Taxes (millions)	Total Economic contribution (millions)
Bicycling	236	2967	\$34	\$204	\$40	\$280
Camping	160	6528	\$33	\$490	\$88	\$616
Trail-based	212	1848	\$13	\$135	\$25	\$174
Total	608	11,343	\$80	\$830	\$153	\$1,070

2. Hunting, Fishing and Wildlife Watching

Hunting, fishing and wildlife-watching participation has been thoroughly studied and reported on for individual states, as well as for the nation as a whole (US DOI, 2006). Even though these activities were included in the OIF report discussed above, the data in the DOI report are based on more recent data, include some equipment expenditures that are omitted from the OIF report, and are reported by state rather than census region so these results scale more easily to the DelMarVa area. As a result, they are a more accurate estimate of total economic contributions from hunting, fishing and wildlife watching. Additional details are presented in Table A2, based on the 2006 national survey conducted by the U.S. Census Bureau on behalf of the U.S. Fish and Wildlife Service.

Overall, 1.6 million people on the peninsula are estimated to have participated in hunting, fishing and wildlife watching. Approximately 570,000 fished, 184,000 hunted and nearly 1.3 million enjoyed wildlife watching. It should be noted some participants were involved in both sporting and wildlife watching activities so there is some overlap. While pursuing all of these activities, they spent more than \$1.5 billion. It's worth noting, while sporting activities involved fewer anglers, sportfishermen spent \$509 million compared to \$626 million spent by wildlife watchers. Again, because Delmarva is a recreational hub for a wide array of outdoor activities and draws people and dollars from major nearby metropolitan areas such as Baltimore, Washington D.C. and the Virginia Tidewater area.

Table A2: Annual Participants and Expenditures for Hunting, Fishing and Wildlife Watching (US DOI, 2006, states scaled only for Delmarva and updated to 2011 dollars)

		Delaware	Maryland	Virginia	Delmarva
Total (Thousands)		395	691	573	1,659
Anglers (Thousands)		160	239	172	570
Hunters (Thousands)		42	60	83	184
Wildlife Watching (Thousands)		285	552	462	1,299
Wildlife Expenditures (Thousands)	Total	346,789	656,973	528,203	1,531,966
	Trip	95,786	176,644	172,398	444,828
	Equipment	228,628	435,662	317,080	981,370
	Other	22,376	44,668	38,724	105,768
Fishing (Thousands)	Total	108,552	236,032	165,129	509,714
	Trip	54,466	121,504	88,711	264,681
	Equipment	44,041	105,284	71,508	220,833
	Other	10,046	9,245	4,910	24,200
Hunting (Thousands)	Total	57,720	90,217	107,909	255,845
	Trip	26,588	25,885	28,023	80,496
	Equipment	27,832	50,062	66,689	144,583
	Other	3,300	14,269	13,196	30,766
Wildlife Watching (Thousands)	Total	146,816	264,159	215,500	626,474
	Trip	14,732	29,254	55,664	99,650
	Equipment	123,679	218,401	140,689	482,770
	Other	8,405	16,504	19,146	44,054

3. Boating

Boating in Delmarva and the Chesapeake Bay depends on the natural habitat of the wetlands and open waters. The Recreational Marine Research Center at Michigan State University produced a report in 2008 for the National Marine Manufacturers Association detailing the economic significance of power and sailboats for individual congressional districts. The Delmarva includes one congressional district from each state.

The congressional districts for the states extend slightly outside the Delmarva area. However, there is significant economic significance of boating in other congressional districts around the Chesapeake Bay that is not included in this report. Thus, the following numbers can be thought of as a low estimate of the value natural habitats bring to Delmarva through the recreational boating industry.

There were a significant number of registered boats in Delmarva's three congressional districts. The Delaware district had nearly 40,000, Maryland's 1st Congressional District

had more than 63,000 and Virginia’s 2nd Congressional District had over 24,000, making up for approximately 127,000 registered boats total. All of these boats contributed significant economic value to the peninsula both directly and indirectly. The effects are shown in Table A3. Recreational boating alone contributed more than \$1.3 billion in sales that supported over 11,000 jobs and paid workers over \$400 million in wages.

Table A3: Economic Significance of Boating in Delmarva (NMMA 2008, updated to 2011 dollars)

	Sales (Millions)	Jobs	Labor Income (Millions)
Delaware			
Direct Effects	202.1	2,426.0	69.1
Secondary Effects	323.4	2,206.1	103.6
Total Effects	525.5	4,325.3	172.7
Maryland			
Direct Effects	232.5	2,426.0	78.6
Secondary Effects	375.2	2,549.9	119.7
Total Effects	607.8	4,975.9	198.3
Virginia			
Direct Effects	84.6	879.1	28.5
Secondary Effects	136.6	927.4	43.5
Total Effects	221.2	1,806.5	72.1
Delmarva			
Direct Effects	519.2	5,731.1	176.2
Secondary Effects	835.2	5,683.4	266.8
Total Effects	1,354.4	11,107.7	443.1

4. Combined Outdoor Recreation Expenditures

Considering the total expenditures reported in the passages above, outdoor recreationists such as boaters, hunters, anglers, cyclists and others annually spend approximately \$3.9 billion to enjoy Delmarva’s natural areas. This can be broken down as follows: \$1.35 billion from boating (NMMA), \$1.53 billion from hunting, fishing, and wildlife watching (DOI), and \$1.07 billion from biking, camping, and trail based recreation (OIF). These dollars support upwards of 27,900 jobs. Some double-counting is expected in these estimates based on overlap between the studies for example boating and fishing estimates.

B. Nature Conservation

Natural areas in Delmarva provide tremendous value not captured in mere property or crop values. These lands provide both benefits to the ecosystem, as well as attract visitors, who spend money to participate in various outdoor-related activities and related services and products such as food, lodging, gas, etc. All of these expenditures generate a positive economic impact that needs to be considered when determining property values and uses for those natural areas and the lands around them.

1. Ecosystem Benefits

Ecosystems vary greatly depending on the types of land where they are found and provide a wide mix of benefits. For example, forests provide erosion control that agricultural fields do not, while fields provide pollination that forests do not. To appropriately value the ecosystem for any region, the type of land covering the region must be determined. This study uses National Land Cover Data from 2006 to identify the types of acreage in Delmarva. The Multi-Resolution Land Characteristics Consortium provides detailed maps of the entire United States showing land cover types to a spatial resolution of 30 meters. A map of Delmarva was analyzed to determine the acreage of each type of land cover with the results detailed in Table B1.¹

Table B1: Land Cover Data for Delmarva from the Multi-Resolution Land Characteristics Consortium (2006)

Description (2006 NLCD)	Percentage	Acres
21. Developed, Open Space	2.08%	107,908
22. Developed, Low Intensity	0.63%	32,668
23. Developed, Medium Intensity	0.23%	11,993
24. Developed High Intensity	0.16%	8,438
31. Bare Rock/Sand/Clay	0.54%	27,920
41. Deciduous Forest	4.95%	257,220
42. Evergreen Forest	3.38%	175,631
43. Mixed Forest	0.36%	18,667
52. Shrub/Scrub	1.13%	58,499
71. Grasslands/Herbaceous	0.08%	4,396
81. Pasture/Hay	11.00%	571,582
82. Cultivated Crops	42.63%	2,215,078
90. Woody Wetlands	19.94%	1,036,179
95. Emergent Herbaceous Wetlands	12.88%	669,342

¹ Note that only the peninsula up to the Chesapeake and Delaware Canal was analyzed to isolate the peninsula only.

Many of the benefits an ecosystem provides are not traded on commercial markets. Therefore, the dollar worth of those benefits is hard to determine. Using a system of environmental evaluation developed by Robert Costanza and a team of associates in 1994, Delmarva was determined to have four key ecosystem service categories. The peninsula has approximately 1.7 million acres of wetland, 580,000 acres of grass and rangelands, 2.2 million acres of crops and 450,000 acres of forest. When the dollars per acre values provided by Costanza are applied and converted to 2011 dollars, the wetlands alone are worth \$14 billion for the ecological services they provide. Grass and rangelands add \$86 million, cropland provides \$126 million in services and forest contributes \$247 million. While the Costanza estimates have been criticized for being overstated, the values are still presented here as maximum estimates, and are meant to help communicate the benefits conveyed by natural lands and not precise estimates.

The natural areas in Delmarva provide a myriad of important ecological benefits that would be lost if these areas no longer existed. Wetlands, for example, not only contribute to commercial fishing and recreation, but they have value in terms of supplying water and naturally treating waste. Cropland provides pollination at levels that cannot be sustained in more developed areas.

Ingraham and Foster (2008) produced a more recent study of environmental services valuation. Although the authors were specifically looking at the services provided by the U.S. National Wildlife Refuge System, their analysis still offers useful valuation data for many different types of land found in the Delmarva Peninsula. Applying this data, the region is found to have \$18 billion worth of wetlands, \$458 million of forests, \$39 million of shrub land and \$36 million of grassland. The comparison suggests that these values are good approximations for the minimum value of these essential ecosystems, and that the value of such services tend to increase as citizens become more aware of the benefits these natural areas provide.

2. Visits to Natural Areas

The Department of the Interior manages natural areas in Delmarva through the U.S. Fish and Wildlife Service and the National Park Service. There are nine national wildlife refuges set aside in the peninsula as well as one national seashore. The national wildlife refuges encompass almost 80,000 acres of land. Although the numbers are not reported for individual wildlife refuges in the DOI (2011) report, visitor and economic impact numbers are given by state. By comparing the acreages of national wildlife refuges within Delmarva with the acreages of the national wildlife refuges outside the region, the state results for Delaware, Maryland and Virginia have been scaled to estimate the impact specifically on Delmarva. Again this introduces an unknown amount of error, but is considered a reasonable and necessary assumption. There were approximately 750,000 visitors to fish and wildlife service lands which generated 300 full time jobs and about \$30 million in output.

Two University of Maryland researchers (Thompson and Wagenhals) wrote a report in 2002 specifically about nature tourism in Dorchester County, Md. They used survey data of visitors to the county to estimate that direct visitor spending on nature tourism and cultural activities was \$87 million while extra spending on food, lodging and transportation added another \$148 million in direct spending. They used an economic input-output model to determine that this \$235 million in direct spending also supported \$132 million in indirect and induced spending meaning that the total effect from visitors was \$367 million for the local economy.² The authors point out that the tourism based on the natural habitats of Delmarva brought nearly 7,000 full time equivalent jobs to the county. This is a huge economic impact for a county, which has a population of 51,000. Although other counties in the peninsula have not been similarly studied, this is a good snapshot of how much natural areas and nature tourism bring to the region.

3. Property Values

There is significant research that suggests natural areas not only have value attributed to recreation and ecological services, but that they also contribute to the value of property surrounding those areas. There is no comprehensive study available for the value natural areas bring to surrounding Delmarva properties, so this report uses both national and local studies of the value provided to land near parks to determine a valuation. By applying these values, this report suggests that overall Delmarva property values increase with their approximation to natural areas.

Lutzenhiser and Netusil (2001) looked at different types of parks in Portland, Ore., and found that natural parks increase home values significantly more than other types of parks. Natural areas can increase home values almost 20 percent while urban parks only increase values less than 5 percent at most. Specialty parks, such as public boat ramps, provide more value than urban parks but cannot match the effect a natural park has on values.

Table B4: Property value increases for parcels in proximity to different types of parks in Portland, Oregon. Based on Lutzenhiser and Netusil (2001).

	Urban park	Natural Park	Specialty Park
Distances in Feet			
Less than 200	2.91%	16.93%	11.17%
201–400	3.11%	15.43%	8.68%
401–600	1.80%	19.07%	15.53%
601–800	1.23%	17.02%	8.55%
801–1,000	1.42%	13.57%	7.51%
1,001–1,200	2.55%	12.28%	6.89%
1,201–1,500	0.52%	15.08%	5.80%

² Numbers updated for inflation to \$2011

Passive parks, such as natural areas, have a positive impact of as much as 20 percent on property values for lands that are immediately next to a park, according to a J. L. Crompton (2005) study that was more national in scope. Without more detailed studies of Delmarva specifically, this report cannot say exactly how much abundant natural areas of the region affect overall property values. Nevertheless, judging from the available literature, natural areas certainly have a positive impact on property values the same way natural parks do.

C. Agriculture and Commercial Fishing

The natural land and water of the Delmarva Peninsula provides a wealth of agricultural and commercial fishing benefits, the direct value of which is easily determined given the dollar value of the actual products produced, caught and sold on the open market.

1. Agricultural Value

Agricultural land has value both in the inherent worth of the land, as well as in the crops and resources they produce. To determine the Delmarva region's agricultural value, county-level data from the 2007 North American Industry Classification System (NAICS) Agriculture Study published by the U.S. Census Bureau was aggregated to the state and Delmarva regional level.

The Delmarva Peninsula has nearly 7,000 farms, of which nearly 5,500 are individual or family farms. The average value of the land and buildings on each of those farms is \$1.8 million. The region has 1.3 million acres of land dedicated to crops that generate \$2.8 billion in agricultural products sold every year. According to the NAICS data, the number of farms has been increasing along with the value of farm products over the 10-year period between 1997 and 2007, even as the total acreage dedicated to farming has decreased. Just in the period from 2002 to 2007, the value of farm products sold grew from \$1.62 billion to \$2.60 billion (not adjusted for inflation). This is an increase of 60 percent.

The value of agriculture may be even greater when considering there is less infrastructure investment or upkeep to these areas when compared to more developed localities. Large business parks or residential areas require roads, sewers, electricity and other major infrastructure investments in order to become productive, while agriculture in the Delmarva requires little infrastructure to produce billions of dollars in value.

These values also do not take into consideration the number of full-time jobs created by agricultural production in the Delmarva. In 2000 alone, agriculture generated more than 11,500 full-time jobs, a seemingly conservative number given the size of the region, but which might be explained by the seasonal aspects of crop production, which do not require a large year-round workforce.

2. Commercial Fishing Value

The Chesapeake Bay supports a large amount of commercial fishing based out of the Delmarva area. The National Oceanic and Atmospheric Administration (NOAA) maintains detailed statistics on commercial fishing broken down by state and by region. Using NOAA's data, commercial fishing in Maryland has a value of more than \$105 million and brings in over 100 million pounds of product. In Virginia, the totals are even

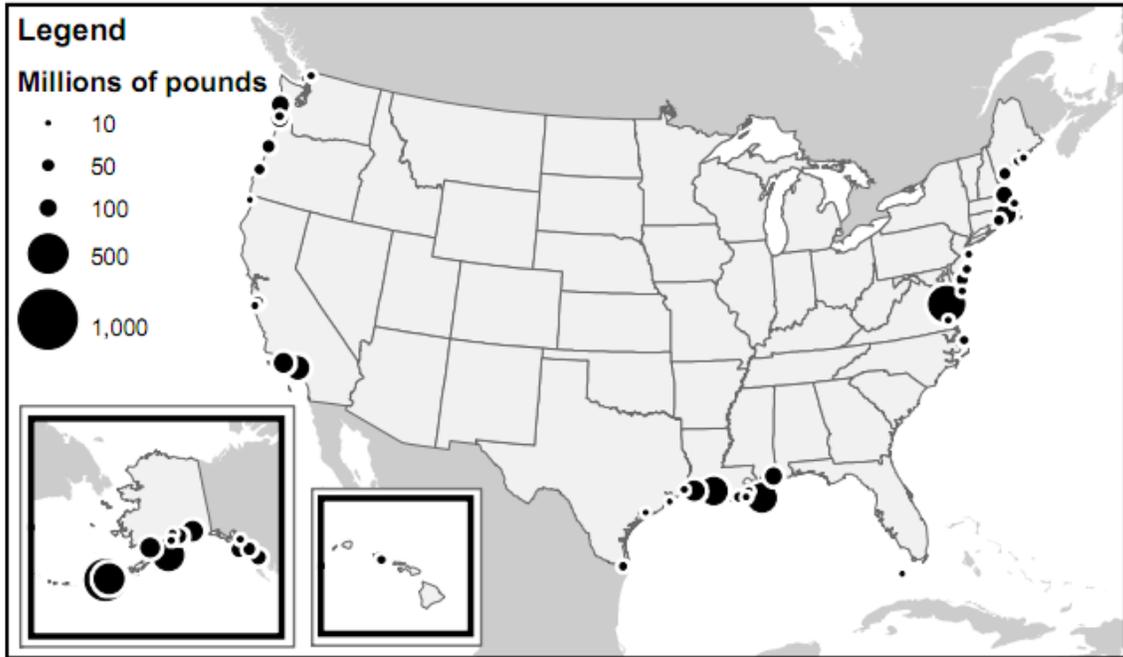
greater with annual catches of 510 million pounds with a value of more than \$190 million. The value of commercial fishing in the Chesapeake Bay as a whole is over \$300 million. Without the peninsula as a source of wetlands and other ecological services that benefit the entire Chesapeake Bay watershed, the bay would not be nearly as productive.

Table C1: Commercial Fishing Statistics for the Chesapeake Bay (NOAA 2010 converted to 2011 dollars)

State	Species	Pounds	Value
Maryland	Bass, Striped	2,548,794	5,738,165
	Clams Or Bivalves	6,939,580	5,394,971
	Crab, Blue	66,611,021	82,492,552
	Oyster, Eastern	430,004	4,524,958
	Perch, White	1,704,584	1,201,195
	Scallop, Sea	152,835	1,231,395
	MD Total (including species not given in this table)	102,911,320	108,808,201
			0
Virginia	Bass, Striped	2,138,863	3,771,328
	Clam, Northern Quahog	2,342,742	24,006,240
	Crab, Blue	37,100,339	28,331,053
	Crab, Blue, Peeler	1,124,334	1,627,971
	Croaker, Atlantic	7,815,570	6,241,601
	Flounder, Summer	2,589,792	4,372,223
	Menhaden	433,240,775	35,768,529
	Scallop, Sea	9,167,499	72,834,872
	Shellfish	993,170	5,403,457
	VA Total (including species not given in this table)	509,513,106	192,012,185
	Grand Total	612,424,426	300,820,387

The blue crab is symbolic of the Chesapeake Bay and brings in the most value of any species caught. As the following map from NOAA reveals, Delmarva is crucial to the United States commercial fishing industry. In terms of the weight of catch, nothing in the continental United States rivals what is caught around Delmarva and the Chesapeake Bay.

Commercial Fishery Landings at Major U.S. Ports 2010



D. Festivals

The direct impact of natural areas, in terms of ecological, recreational and agricultural value is large. However, there are many indirect benefits derived from natural spaces as well. Particularly, there are many festivals in Delmarva that focus on the wildlife and lifestyle generated by region's natural areas.

Festivals contribute to local economies by bringing in tourists and locals alike who spend money on food, hotels, merchandise and other items. From September 2010 to December 2010 alone there were at least 23 festivals in Delmarva, many of them centered on the wildlife and bounty of the region's natural areas. Estimates of participation in these festivals are large with participation growing every year. Last year, the Punkin' Chunking, Apple-Scrapple and Waterfowl festivals alone brought in more than 100,000 visitors. While the economic impact of these festivals can be difficult to fully analyze, the Jacob France Institute produced a report in 2008 about the economic impact of the 2007 Waterfowl Festival that illustrates how much these festivals can generate.

The study analyzed receipts on admissions and sales, conducted a survey at the festival to generate direct impact numbers and used other established models to ascertain related economic impacts. The study found that 43 percent of the attendees came from out of state, while another 42 percent came from out of Talbot County, where the festival is held, importing dollars that the county likely would not have received otherwise. Total expenditures at the festival exceeded \$5 million, half of which came from out-of-state visitors. Overall, the three-day festival generated \$5.8 million and sustained approximately 89 jobs that provided \$1.7 million of total income. The study also revealed the festival had an economic multiplier effect on the state of Maryland as a whole, bringing in an additional \$3.5 million and creating 34 jobs as a direct result of the festival.

It must be noted that the Waterfowl Festival is one of the larger festivals in Delmarva, yet still serves as an excellent example of the potential economic impact such events can bring as a result of the natural areas in the region. According to the Virginia Department of Game and Inland Fisheries, the Eastern Shore Birding Festival brings in more than \$100,000 to the local economy of Northampton County. Many of these festivals would not occur if the natural habitats of Delmarva were lost. Thus communities would not only lose the ecological, recreational and agricultural value of the land; they would lose the festival and other indirect income as well.

Related to the festivals are the fishing tournaments that also take place in the Delmarva area. Maryland holds the Maryland Fishing Challenge, which it bills as the world's largest fishing tournament. The challenge goes on for most of the summer throughout the Chesapeake Bay and its tributaries and is geared to recreational fishermen. Without the waters of the bay, the wetlands and natural habitats of Delmarva, this type of recreational fishing would be greatly diminished.

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