

the mackerel to eat. Anglers from the lowest income groups are also the most likely to intend to keep the fish to eat.

Anglers on overnight trips spend more (about \$89) per person per day than do anglers on day trips (about \$15). Day trip anglers spend most of their trip-related expenses on restaurant or take-out and gasoline. Overnight anglers incur the greatest expenses for lodging, restaurant or take-out, groceries, and gasoline. Anglers also spend money on fishing tackle, gifts and souvenirs, clothing, locally made arts and crafts, and locally produced food.

The local economic impact is related to the number of nonresident angler trips, the average spending per trip, and linkages in the local economy. An estimated \$77,500 local economic impact is generated from nonresident angler trips to the Eastport Breakwater. About \$20,700 of that output value accrues to local residents as income. The impact is not large, but it is significant for a town of about 1,600 and

however, are the less tangible benefits that this activity provides numerous families from Maine and beyond. Likewise, the economic effects of providing a healthy activity, wholesome food source, and possibly less dependence on imported food are not included in our analysis.

Local businesses can identify opportunities to profitably expand services to Breakwater anglers with the help of our angler profiles. The anglers on overnight trips not primarily to go fishing are the biggest spenders and most interested in buying local products.

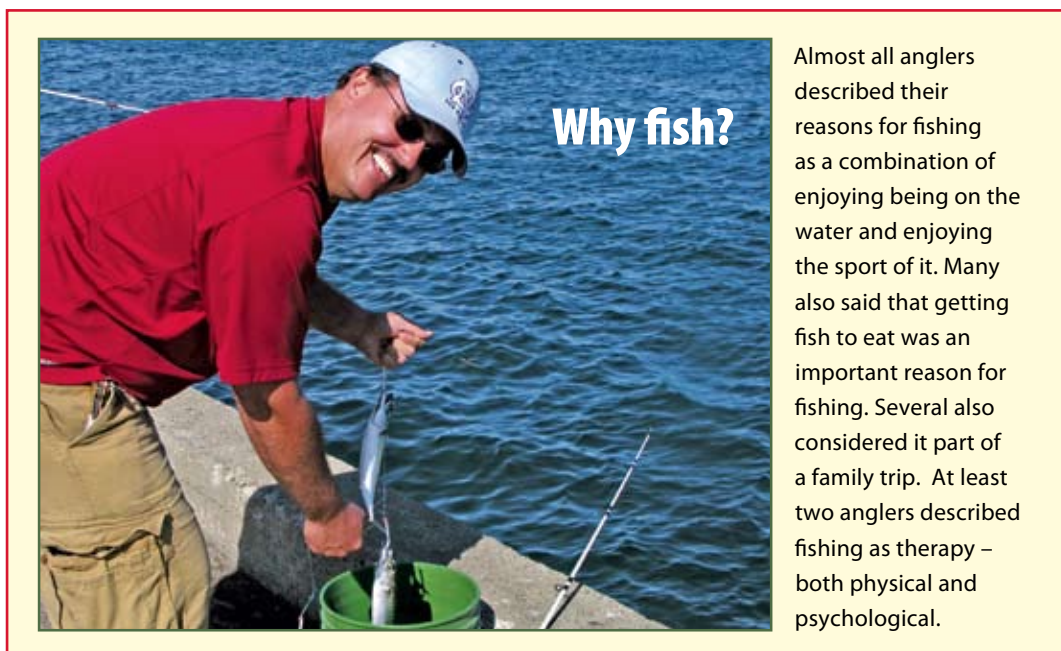
Anecdotal evidence suggests that fishing activity has declined in recent years, primarily because the mackerel have arrived later in the season and in lower numbers. Likewise, flounder and other groundfish are reportedly less abundant. Nevertheless, the Cobscook Bay region has good infrastructure for saltwater fishing, and fish appear abundant enough to satisfy demand. Promotion of saltwater fishing opportunities, together with excellent

freshwater fishing in eastern Washington County, could increase visits by nonresidents and enhance the economic impact of recreational fishing for the Cobscook Bay region.

Acknowledgements

Project funding provided by Maine Sea Grant, University of Maine Cooperative Extension, and the Center for Tourism Research and Outreach at the University of Maine. Bruce Joule at the Maine Department of Marine Resources advised

on recreational fishing survey methods and provided informational brochures for survey participants. Heidi Leighton with the Cobscook Bay Resource Center provided maps for the study and subsequent publications. Thanks to Inez Lombardo for her many hours at the Eastport Breakwater and other locations counting and interviewing anglers, and to the numerous anglers who participated in the survey. ■



Almost all anglers described their reasons for fishing as a combination of enjoying being on the water and enjoying the sport of it. Many also said that getting fish to eat was an important reason for fishing. Several also considered it part of a family trip. At least two anglers described fishing as therapy – both physical and psychological.

a county with about 33,000 residents (U.S. Census Bureau). Also, that impact is created from a single fishing location. The economic impact of boating anglers in the region could not be estimated, but surely adds to the total impact of saltwater recreational fishing in the region.

Many of the anglers are from lower income brackets and take advantage of the breakwater and mackerel runs as a low cost source of recreation, food, and often a family outing. Partly for that reason, fishing from the Breakwater does not generate a very large economic impact. Not quantified for this study,

Places to fish around Cobscook Bay

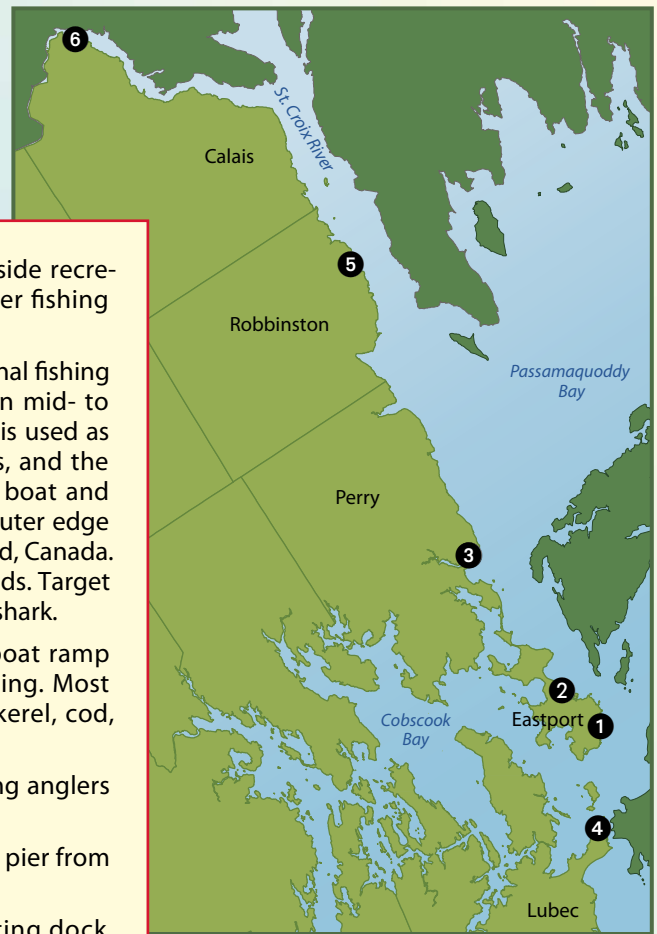


Figure 3

The Cobscook Bay region offers abundant opportunity for shoreside recreational fishing, as well as several public boat ramps, and a charter fishing boat based in Eastport.

- 1 The Eastport Breakwater** is the most popular marine recreational fishing location in the region, where numerous anglers congregate in mid- to late summer and early fall to fish for mackerel. The Breakwater is used as a docking location for commercial fishing boats, private boats, and the U.S. Coast Guard. A boat ramp is used by one charter fishing boat and infrequently by individual anglers. Most anglers fish from the outer edge of the Breakwater, facing Western Passage and Campobello Island, Canada. Fishing at the Breakwater is a popular activity for families with kids. Target species include mackerel, harbor pollock, herring, flounder, and shark.
- 2 Seaview Campground** in Eastport has a floating dock and boat ramp used occasionally by campers and others for recreational fishing. Most people go out in boats to fish for flounder, but also for mackerel, cod, and halibut.
- 3 Gleason's Cove** in Perry has a boat ramp that is popular among anglers fishing for flounder, mackerel, shark, and striped bass.
- 4 The Lubec Public Landing** has a boat ramp, floating dock, and pier from which people can fish for mackerel and flounder.
- 5 The Robbinston Public Landing** has a boat ramp and floating dock.
- 6 The Calais Public Landing** has a boat ramp, small pier, and a floating dock.

Other saltwater fishing locations not used in this study include public boat ramps at the Passamaquoddy Reservation, Pleasant Point, and Cobscook Bay State Park.

References

- Flanagan, D. 2005. Report on an Economic Development Strategy for Washington County. Report commissioned by Governor John E. Baldacci.
- U.S. Census Bureau. 2008. *American FactFinder*. Available at <http://factfinder.census.gov>. Accessed May 2008.
- Vacationland Resources Committee of the Down East Resource Conservation and Development Council. 2004. DESTINY 2010 Strategic Plan.

Saltwater fishing in Cobscook Bay: Angler profile and economic impact

Funding provided by:



Maine Sea Grant supports marine science research and outreach activities to promote the understanding, sustainable use, and conservation of ocean and coastal resources. Based at the University of Maine, our coastwide program works in partnership with marine industries, scientists, government agencies, private organizations, and a wide range of marine resource users. For more information on the activities of the Maine Sea Grant College Program at the University of Maine, please call 207.581.1435 or visit our Web site at www.seagrant.umaine.edu.

Edited by Catherine Schmitt, Maine Sea Grant; Design: Kathlyn Tenga-González, Maine Sea Grant; Photos: Christopher Bartlett; Map originally produced by the Cobscook Bay Resource Center, November 10, 2008

In complying with the letter and spirit of applicable laws and pursuing its own goals of diversity, the University of Maine shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, including transgender status or gender expression, national origin, citizenship status, age, disability, or veteran's status in employment, education, and all other areas of the University System. The University provides reasonable accommodations to qualified individuals with disabilities upon request. Questions and complaints about discrimination in any area of the University should be directed to the Director of Equal Opportunity, the University of Maine, 5754 North Stevens Hall, Room 101, Orono, ME 04469-5754, telephone (207) 581-1226, TTY (207) 581-9484.

MSG-E-08-10
NA06OAR4170108
250

♻️ Printed on recycled paper

Marine RESEARCH *in focus*

November 2008 / Vol. 6

Saltwater fishing in Cobscook Bay: Angler profile and economic impact

By Kevin Athearn, Ph.D., Assistant Professor of Natural Resource Economics, University of Maine at Machias
and Christopher Bartlett, Marine Extension Associate, Maine Sea Grant

Introduction

The Cobscook Bay region of eastern Maine is a place where rivers and bays converge with the sea. The area features the highest tides in the eastern United States, abundant marine life, and a rich cultural heritage based on natural resources.

Sustainable tourism has been identified as a promising economic development opportunity for Maine and, in particular, Washington County (Flanagan; VRC). Marine recreational fishing is one example of a nature-based activity with potential economic benefit. This fact sheet describes a study of marine recreational fishing activity in the Cobscook Bay region conducted during the summer of 2007. Specific objectives were to estimate the number of fishing trips, describe characteristics of anglers and their trips, and estimate county-level economic impacts generated by the fishing trips.



Figure 1 Cobscook Bay, Maine

Methods

To record the number of angler fishing trips, as well as the relevant characteristics of anglers and their trips, and associated spending, we conducted an angler count and a visitor intercept survey at selected sites in Washington County on selected days between May and September, 2007. We identified the primary types of fishing as (1) fishing from shore, (2) fishing from a private boat, and (3) charter boat fishing.

We attempted a census of all anglers at the Eastport Breakwater on selected days and made sporadic checks at five other locations (see *Figure 3*). We completed 205 full interviews of shoreside anglers at the Eastport Breakwater and 10 interviews of private boat anglers mostly at other locations in the region. Based on these interviews, we estimated the total number of angler fishing days, profile angler segments, and the impact of the fishing trips on the local economy.

With an average of 2.8 people per angler party, our interview data cover 574 angler fishing days at the Breakwater. An angler fishing day represents one person fishing on one day.

As part of the interview, participants were asked about expenses related to their fishing trips. In particular, they were asked how much their angler party spent in Washington County, while away from home on the fishing trip, and on various categories of goods and services. In order to be compatible with our count data (which recorded the number of people fishing), all expenditure data were converted to a per-person-fishing-per-fishing-day basis, which we call “per angler fishing day.”

Using these data, we estimated the total number of angler fishing trips during the season, and placed anglers into groups or segments based on certain characteristics. Statistical analysis was performed using XL Data Analyst™.

We used standard economic impact analysis methodology (employing IMPLAN® database and software package) to estimate the local economic impact of spending by anglers at the Breakwater. Economic impact analysis is a method of estimating the effect of an initial change in demand for a region’s products on sales revenue for all businesses and income for all households in a region. Changes in the regional economy are divided into direct, indirect, and induced impacts.

When estimating local economic impacts from an activity like recreational fishing, it is important to define the geographic boundaries of the study and distinguish between spending by local residents and spending by nonresidents. Ultimately, economic impact analysis is intended to describe the *change* in the local economy produced by a particular activity. Spending by residents does not inject new money into the local economy, so it is typically excluded from economic impact estimates. Spending by nonresidents, however, represents new money injected into the local economy. That new money is used to represent the change in final demand for a region’s products to which indirect and induced multipliers may be applied to estimate the total local impact of an activity like recreational fishing.

Results

We were unable to obtain an estimate for the total number of boating angler trips, therefore we have not calculated the economic impact generated from that activity. The boaters we interviewed were on day trips, primarily targeting mackerel and flounder.



We estimate a total of 2,690 angler fishing days at the Eastport Breakwater between May 26 and September 30, 2007. Anglers began to arrive in large numbers in the middle of July, around the time mackerel started to appear. August was the most popular fishing month, with an average daily count of 63 anglers on weekends and 43 anglers on weekdays (*Figure 2*). We believe that a significant amount of fishing continued after September 30, so the total count for the entire year is higher than 2,690. Mackerel is the primary target species.

Continued inside >

Figure 2 Average number of anglers per day at the Eastport Breakwater by month

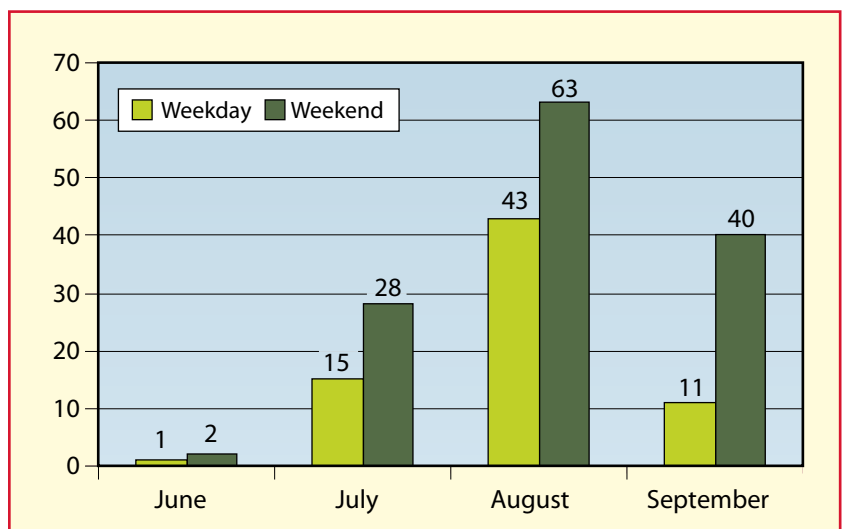


Table 1 Total angler fishing days & local spending at the Eastport Breakwater

Segment	Local Spending per Day	Fishing Days	%	Total Local Spending	%
DAY TRIPS					
Washington County resident	\$12.20	1,294	48%	\$15,800	16%
Nonresident with summer home	\$21.20	369	14%	\$7,800	8%
Nonresident without summer home	\$21.20	265	10%	\$5,600	6%
Total Day		1,928	72%	\$29,200	30%
OVERNIGHT TRIPS					
Trip primarily to go fishing	\$52.40	214	8%	\$11,200	12%
Trip not primarily to go fishing	\$103.60	549	20%	\$56,900	58%
Total Overnight		763	28%	\$68,100	70%
TOTAL		2,690		\$97,300	

We divide anglers at the Eastport Breakwater into five distinct segments: (1) day trips by Washington County residents, (2) day trips by nonresidents with local summer homes, (3) day trips by nonresidents without local summer homes, (4) overnight trips primarily to go fishing, and (5) overnight trips not primarily to go fishing.

We estimate that 1,928 (72%) angler fishing days were day trips, whereas 763 (28%) angler fishing days were part of overnight trips. The breakdown of angler fishing days and expenditures by angler segment is shown in Table 1. Washington County residents accounted for 48% of all angler fishing days, spending an average of \$12 per person per trip, mostly on restaurants or take-out, gasoline, and fishing tackle. Seventy-two percent of the Washington County anglers have a household income below \$50,000, and 83% kept the fish they caught.

About 14% of anglers at the Breakwater were on day trips from a local summer home. Most of these anglers were out-of-state residents. This group reported the highest income and was least likely to keep the fish they caught. Anglers on day trips from a local summer home spent an average of \$21 per angler fishing day, mostly on restaurants or take-out, gasoline, fishing tackle, and gifts or souvenirs.

Day-trip anglers traveling from a primary residence outside Washington County accounted for 10% of angler fishing days. Most of these anglers came from Aroostook County (37%) and Penobscot County (26%). Seventy-nine percent of angler parties in this group reported household income below \$50,000, and 84% intended to keep the fish they caught. They also spent an average of \$21 per person per trip, mostly on restaurants or take-out, gasoline, and fishing tackle.

Eight percent of all angler fishing days were overnight anglers who made the trip primarily to go fishing; most came from Aroostook County (33%) and Penobscot County (33%). They spent an average of \$52 per angler fishing day, mostly on accommodations, restaurants or take-out, gasoline, and groceries. Sixty percent of angler parties in this group reported household income below \$50,000. Seventy-one percent intended to keep the fish they caught.

Table 2. Local economic impact of fishing at the Eastport Breakwater

	Total spending in Washington County	Local Impacts			
		Direct	Indirect	Induced	Total
All anglers	\$97,300				
Output		\$67,200	\$12,800	\$9,900	\$89,800
Labor Income		\$18,300	\$3,200	\$2,900	\$24,400
Nonresident anglers only	\$81,500				
Output		\$57,800	\$11,300	\$8,300	\$77,500
Labor Income		\$15,400	\$2,800	\$2,500	\$20,700

Twenty percent were overnight anglers for whom fishing was not the primary reason for the trip. Most of these anglers came from a U.S. state outside Maine (58%) or from a Maine county other than Washington County (34%). Anglers in this segment spent an average of \$104 per angler fishing day, mostly on accommodations, restaurant or take-out, groceries, gasoline, and gifts or souvenirs.

Overall, most anglers (77%) intended to keep the fish they caught, whereas (23%) intended to catch and release. There is a statistically significant relationship between income and intention for catch. Higher incomes are associated with a greater likelihood to catch and release. Lower income respondents are more likely to keep the fish to eat.

The age of respondents at the Breakwater varied widely. The highest portion of respondents (25%) were in the 40 to 49-year-old age group, followed by 23% in the 50 to 59-year-old age group.

The vast majority of anglers at the Breakwater used rod and reel with artificial lures; mackerel trees (four small lures on one line) were the most popular. Some anglers brought their own bait, such as worms and clams, and others purchased bait from local stores.

Results of the economic impact analysis are shown in Table 2. Estimates represent local (Washington County) impacts of fishing at the Eastport Breakwater only. Total spending by all

anglers is estimated at \$97,300 for the period May 26 through September 30, 2007. Of that amount, \$81,500 is spending by anglers whose primary residence lies outside Washington County. The total local value of output generated by all anglers amounts to \$89,800. Of that amount, \$24,400 accrues to local residents as income. Counting only spending by nonresidents (new money injected into the Washington County economy), the total local value of output generated is \$77,500 and the local income generated is \$20,700.

Conclusions

The Eastport Breakwater is a popular location for saltwater recreational fishing, especially when the mackerel are running in late July, August, and September. The Breakwater draws numerous anglers from Washington County, other parts of the state, and beyond. An estimated 2,690 anglers came to the breakwater to fish between May 26 and September 30, 2007. Nearly half (48%) of the anglers fishing at the Eastport Breakwater on an average day are Washington County residents from Eastport and nearby towns, although some come for day trips from other parts of the county, such as Machias and Danforth. Most other day trip anglers come from Aroostook or Penobscot County, or are out-of-state residents who travel to Eastport from a nearby summer home. About 28% of anglers are on overnight trips from a variety of locations.

Mackerel is the primary fish targeted from the Breakwater, and the majority of anglers from all segments intend to keep

