Economic Impacts of Recreational Fishing Closures Resulting From the Deep Horizon Oil Spill: Preliminary Estimates

The Deep Horizon Oil Spill (DHOS) has necessitated large recreational fisheries closures in the Gulf of Mexico (GoM). These closures impact both the anglers and the business that rely on angler expenditures. This brief, preliminary examination details potential per day revenue losses across recreational fisheries dependent businesses as well as potential impacts stemming from reduced durable good purchases that might arise from this disaster.

To estimate the potential number of trips affected, a 10 year time series of total annual effort by mode and GoM state was downloaded from the National Marine Fisheries Service (NMFS 2010). Next, 10 year average per day effort was calculated by mode and state (see Appendix A). Texas is not included in the web queries, so Texas effort numbers were taken from Gentner and Steinback (2008) and include a single point estimate of annual effort instead of an average as in the other states. From the Appendix, there are 106,703 recreational fishing trips taken in the GoM every day. If East Florida is included the number of trips potentially foregone jumps to 139,043 trips each day.

Lost recreational fishing trip expenditures were calculated by taking the 2006 expenditure estimates from Gentner and Steinback (2008) and inflating those values to 2010 dollars using the consumer price index. Total expenditures were converted to economic impacts by using the US level multipliers implied by Gentner and Steinback (2008). US level multipliers were used because the DHOS impacts a large region and US multipliers are more appropriate for such a large region than state level multipliers.

Table 1 details the potential daily losses of a complete closure of the GoM to recreational fishing. For every day the entire GoM is closed, there is $8.6 million dollars in recreational fishing trip expenditures lost. These expenditures include purchases of bait and tackle, food and beverages, ice, gas, lodging and other items needed for recreational fishing. This level of revenue supports $20.2 million in total sales, $10.5 million in value added, $6.6 in personal income and 162 jobs. If the DHOS generates closures that impact the Florida Keys and the East Coast of Florida, losses increase $1.2 million in revenue, $2.8 million in total sales, $1.4 million in value added, $900,161 in income and 22 jobs per day.

Table 1. Revenues and Economic Impacts Per Day of Recreational Fishing Closure by Gulf of Mexico State.

State	Trip Expenditures Lost Per Day	Total Sales Per Day	Value Added Per Day	Income Per Day	Jobs Per Day
Alabama	$332,931	$781,693	$405,951	$254,562	6.24
Louisiana	$786,979	$1,847,756	$959,582	$601,730	14.75
Mississippi	$75,054	$176,219	$91,515	$57,386	1.41
West Florida	$2,442,199	$5,734,061	$2,977,830	$1,867,322	45.76
East Florida	$1,177,287	$2,764,162	$1,435,493	$900,161	22.06
Texas	$4,986,660	$11,708,225	$6,080,350	$3,812,834	93.44
Total	**$9,801,110**	**$23,012,115**	**$11,950,721**	**$7,493,994**	**183.65**

To further explore the impacts of a longer term closure, if the entire GoM were closed to recreational fishing from May through August (123 day closure), the region would lose $1.1 billion in revenue. This level of lost revenue would support $2.5 billion in total sales, $1.3 billion in value added, $811.1 million in income and 18,785 jobs. If East Florida is impacted by the closure, revenue losses increase $144.8 million which supports $340.0 million in total sales, $176.6 million in value added, $100.7 million in income and 2,713 jobs.

As of May 18th, 2010, 19% of the total area of the GoM was closed. If you take the GoM wide estimates listed above and reduce them by the actual area closed, the loss of revenue is $229.1 million. This level of revenue loss supports $537.8 million in total sales, $279.3 million in value added, $175.1 million in income and 4,292 jobs if 19% of the GoM remains closed for 4 months.

This estimate assumes that 19% of recreational effort is contained by the closed area that covers 19% of the GoM area. It is an open question whether or not the current closed area contains more or less than 19% of the daily average fishing effort. It is know that the majority of recreational fishing effort occurs relatively close to shore. However, that does not preclude that the closed area impacts less (more) trips than 19%.

That said, the closure is likely to reduce the trips taken by more than just the area closed indicates because anglers, particularly non-resident anglers, will likely avoid taking a saltwater fishing trip even if their local waters are not officially closed due to adverse feelings about encountering the oil spill. This will be particularly true as the spill spreads to other popular recreational areas on the Florida Coast. If the spill or the perception of adverse impacts from the spill further spreads to the Keys and Eastern Florida beaches, these damages will increase dramatically. For these reasons, the 19% estimates presented above represent the lower bound for business activity lost during a 4 month closure.

In addition to trip expenditure that will be lost, anglers spend vast sums of money on annual durable good purchases for fishing equipment, boats, second homes, and vehicles used for saltwater fishing. While it is unknown how the DHOS would impact how much anglers spend on these types of products, it is possible to look at the current total expenditures on these items in the GoM. Table 2 contains the estimates of these expenditures for each GoM state. These estimates were taken from Gentner and Steinback (2008) and inflated to 2010 dollars using the consumer price index.

While unlikely, if the closures last long enough, anglers may quit making expenditures on durable equipment entirely. If all durable good expenditures cease in the GoM, $14.0 billion in revenue will be lost. This level of expenditure supports $32.8 billion in total sales, $26.3 billion in value added, $10.7 billion in income and 261,855 jobs. If the reduction in durable good expenditures spill over into the Keys and East Florida the losses could increase to $21.5 billion in lost revenue, $50.6 billion in total sales, $26.3 billion in value added, $16.5 billion in income and 403,699 jobs.

Table 2. Annual Recreational Fishing Equipment and Durable Good Expenditures in the Gulf of Mexico, 2010 (thousands of dollars).

State	Expenditures	Total Sales	Value	Income	Jobs
Alabama	$532,467	$1,250,184	$649,249	$407,128	9,977
Louisiana	$2,703,198	$6,346,863	$3,296,072	$2,066,883	50,651
Mississippi	$545,133	$1,279,923	$664,694	$416,813	10,214
West Florida	$7,761,623	$18,223,585	$9,463,926	$5,934,589	145,434
East Florida	$7,570,023	$17,773,726	$9,230,305	$5,788,090	141,843
Texas	$2,432,492	$5,711,269	$2,965,993	$1,859,899	45,579
Total	**$21,544,936**	**$50,585,549**	**$26,270,239**	**$16,473,402**	**403,699**

These estimates are considered upper bound estimates for two reasons. First, it is likely that expenditures on boat, home, and vehicle maintenance and insurance would continue, at least for some, except in the case of very long closures. Second, because of the nature of the Marine Recreational Fisheries Statistical Survey participation estimates, non state resident expenditures on durable goods may be double counted. That is, a resident participant in Mississippi could also be a non-resident participant in Florida. As a result, that angler would be counted as a participant twice. Since the durable good expenditure totals are generated by multiplying mean expenditure per participant by the total number of participants, the double counting of a participant across two states will artificially inflate this total. It is not currently possible to determine the severity of this double counting. To combat this potential double counting, Table 2 only contains resident expenditures on durable goods.

References

Gentner, B. and S. Steinback. 2008. The Economic Contribution of Marine Angler Expenditures in the United States, 2006. U.S. Department of Commerce, NOAA Tech. Memo. NMFS F/SPO-94, 301p.

NMFS. 2010. Marine Recreational Fisheries Statistical Survey Online Data Queries. Last Accessed 5/20/2010 - http://www.st.nmfs.noaa.gov/st1/recreational/queries/index.html.

Appendix A. Detail of Table 1.

State	Fishing Mode	Average Trips Per Day		Average Trip Expenditures		Trip Expenditures Lost Per Day	Total sales Per Day	Value Added Per Day	Income Per Day	Jobs Per Day
		Non Residents	Residents	Non Residents	Residents					
Alabama	Charter	108	72	$348.43	$287.90	$62,902	$147,688	$76,698	$48,095	1.18
	Private Boat	209	2,051	$74.78	$48.07	$123,320	$289,544	$150,367	$94,291	2.31
	Shore	783	1,345	$116.01	$33.46	$146,709	$344,460	$178,886	$112,175	2.75
	Subtotal	1,099	3,468	$539.22	$369.43	$332,931	$781,693	$405,951	$254,562	6.24
Louisiana	Charter	218	145	$316.99	$261.61	$115,683	$271,614	$141,056	$88,452	2.17
	Private Boat	759	7,470	$97.63	$55.18	$525,213	$1,233,153	$640,405	$401,581	9.84
	Shore	964	1,656	$47.02	$54.30	$146,083	$342,989	$178,122	$111,696	2.74
	Subtotal	1,942	9,271	$461.64	$371.09	$786,979	$1,847,756	$959,582	$601,730	14.75
Mississippi	Charter	27	18	$225.92	$139.74	$9,171	$21,532	$11,182	$7,012	0.17
	Private Boat	163	1,601	$23.80	$23.50	$44,827	$105,250	$54,659	$34,275	0.84
	Shore	423	727	$25.61	$11.90	$21,055	$49,436	$25,673	$16,099	0.39
	Subtotal	613	2,346	$275.33	$175.14	$75,054	$176,219	$91,515	$57,386	1.41
West Florida	Charter	942	627	$197.40	$137.53	$293,839	$689,907	$358,285	$224,671	5.51
	Private Boat	2,223	21,864	$114.57	$29.30	$966,866	$2,270,113	$1,178,922	$739,272	18.12
	Shore	6,579	11,299	$141.77	$14.27	$1,181,494	$2,774,040	$1,440,623	$903,378	22.14
	Subtotal	9,743	33,790	$453.74	$181.10	$2,442,199	$5,734,061	$2,977,830	$1,867,322	45.76
East Florida	Charter	256	298	$298.57	$173.40	$128,206	$301,016	$156,324	$98,027	2.40
	Private Boat	1,520	15,358	$100.43	$32.25	$647,948	$1,521,323	$790,058	$495,425	12.14
	Shore	2,604	12,303	$75.30	$16.66	$401,133	$941,823	$489,111	$306,709	7.52
	Subtotal	4,381	27,959	$474.29	$222.32	$1,177,287	$2,764,162	$1,435,493	$900,161	22.06
Texas	Charter	119	1,380	$238.02	$208.30	$341,047	$800,747	$415,846	$260,767	6.39
	Private Boat	3,864	20,608	$148.87	$104.77	$2,953,082	$6,933,567	$3,600,761	$2,257,946	55.33
	Shore	5,197	13,263	$123.13	$69.91	$1,692,532	$3,973,910	$2,063,743	$1,294,121	31.71
	Subtotal	9,180	35,251	$510.02	$382.98	$4,986,660	$11,708,225	$6,080,350	$3,812,834	93.44
	Total					**$9,801,110**	**$23,012,115**	**$11,950,721**	**$7,493,994**	**183.65**