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Contribution of recreational fishing in the Matanuska-Susitna Borough to the local economy



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Introduction

A study of the economic contributions that accrue to the Cook Inlet region from sportfishing activity was conducted in 2017.¹ The project was conducted in cooperation with the Alaska Department of Fish & Game with funding provided by the Matanuska-Susitna (Mat-Su) Borough and the Department of Commerce, Community, and Economic Development. The Mat-Su Fish and Wildlife Commission now has interest in understanding the economic contributions of spending by anglers who fish within the Mat-Su Borough.

Methodology

The 2017 study surveyed Alaska's licensed anglers to learn where they fished and determine how much money was spent anywhere in the Cook Inlet region for fishing trip-related and equipment purchases. The study did not ask anglers to identify the specific boroughs where the money was spent. Moreover, the economic contributions were estimated across the broader geographical region of the Cook Inlet. Because of this, a specialized approach to allocate the region-wide spending estimates to the Mat-Su Borough is needed and described below.

Quantifying days of fishing specific to the Mat-Su Borough

The Alaska Department of Fish & Game (ADF&G) conducts an annual statewide harvest survey (SWHS) that includes estimated numbers of anglers and days of fishing effort for many small sub-state regions. We obtained from ADF&G the estimated numbers for the fishing sub-areas within the Mat-Su Borough for 2017. Every effort was taken to define the Mat-Su Borough in the same way that it was defined in the 2009 report by ISER, including the programming code that was used to retrieve the data from the SWHS.² A full list of sites is included in Table A1 of the Appendix.

The fishing day data for the Mat-Su Borough from the SWHS do not provide detail regarding the proportion of days which are resident versus nonresident. As a proxy, we apply the proportion of resident to nonresident fishing days available

¹ Southwick Associates. 2019. Economic Contributions of Sportfishing in the Cook Inlet Region. Prepared for the Matanuska-Susitna Borough Fish and Wildlife Commission. The Cook Inlet is defined to include the Anchorage, Kenai, and Mat-Su Boroughs.

² Colt, S. and T. Schwoerer. 2009. Economic Importance of Sportfishing in the Matanuska-Susitna Borough. Prepared for Matanuska-Susitna Borough Economic Development Department.

from the broader geographical region of the Cook Inlet to the total days fished within the Mat-Su Borough.

Angler spending profile development

From the raw data in our 2017 study, we estimated average spending during a day spent fishing in the Mat-Su Borough which contributes to the local economy. To do this, we initially converted both annual trip-related and annual equipment & real estate spending to an average spending per fishing day using the estimate of total fishing days from the SWHS.

Separate expenditure profiles were constructed for resident and nonresident sportsmen. It is important to note that not all spending occurs where the fishing activity takes place. As a result, we allocate the trip-related and equipment spending differently to estimate the spending that takes place within the Mat-Su borough by anglers who fished in the region. **Equipment** spending was allocated to the Mat-Su borough proportional to retail sales of sporting goods across the entire Cook Inlet that occurs in Mat-Su.³ This assumes that fishing equipment purchases are made in essentially the same places that most retail sporting goods are sold. Most **trip-related** spending takes place close to where the fishing occurs. We allocated the destination spending (e.g., lodging, guide fees) to the Mat-Su borough on the basis of days of fishing taking place in the region. However, a portion of some **trip-related** spending also takes place closer to home (e.g., groceries, gasoline). That spending was split between the sportsmen's place of residence and where the activity occurred.⁴ For this spending, one-half of the expenditure was allocated using the destination spending methodology and one-half was allocated using the residential spending methodology. More detail is provided in Table A2 in the Appendix.

With regards to total estimated fishing days in the Mat-Su Borough, we define two groups, local and nonlocal, for both Alaska residents and nonresidents. Among Alaska residents, 'local' fishing days are those associated with anglers who reside in the Mat-Su Borough and 'nonlocal' fishing days are those associated with anglers who reside outside of the Borough. It is not possible to determine the local to nonlocal proportion from the SWHS data specific to the Mat-Su Borough. Instead, we apply the proportion of local to nonlocal fishing days available from the broader geographical region of the Cook Inlet to the total days fished within the Borough.

Among nonresidents of Alaska, 'local' fishing days are associated with anglers who stayed in Mat-Su during the course of their visit and 'nonlocal' fishing days are those associated with anglers who stayed outside of Mat-Su during their visit

³ Retail sales data for Alaska was estimated using the regional purchase coefficient from IMPLAN®.

⁴ The allocation procedure varied somewhat for Alaska residents and nonresidents to account for the different places where nonresidents stay when visiting Alaska. See Appendix Table A2 for a detailed explanation.

but fished somewhere in the Mat-Su Borough. These allocations are done using data from Alaska’s Visitor Statistics Program (AVSP).⁵ The AVSP provides information about visitor destinations, including overnight stays for boroughs within the Cook Inlet. From that, the proportion of nonresidents who likely stayed in Mat-Su Borough (‘local’) can be estimated and used to apportion fishing days to define local and nonlocal groups among nonresidents.

Economic Modeling

Background and Metrics

The economic contributions of fishing-related spending on the Mat-Su Borough are estimated with an input-output model of the regional economy and IMPLAN Pro© impact analysis software.

Input-output models are driven by some change in economic activity, usually spending (also known as the direct effect). The **direct effect** refers to the initial stimulus to the economy. In this study, it refers specifically to the dollars spent by anglers for trip-related purchases, fishing equipment, and other spending that is immediately attributable to their fishing activity. In the strictest sense, the direct effect does not always equate with angler spending due to economic leakages. For example, some of the equipment purchased by anglers is manufactured outside of the region and those dollars (except for associated retail/wholesale/transportation activity) leak immediately beyond the region’s borders and do not have a direct effect on the regional economy. In that case, angler spending may not equal direct effect in the language of input-output models. In other cases, the amount of angler spending is the direct effect. For example, spending for lodging and restaurant meals represents purchases of goods and services that are produced entirely where they are bought, and the entire purchase is captured in the direct effect on the regional economy.

The total economic contributions of sportfishing on the Mat-Su Borough are based on the spending described above plus the multiplier effect of that spending. The input-output model produces estimates of the total multiplier effects (indirect and induced) that arise from the spending by anglers (the direct effect).

Indirect effect refers to the economic activity (e.g., output, employment, income) in the businesses that supply the industries stimulated by the direct effect. Those indirectly affected industries, in turn, stimulate additional activity among their

⁵ McDowell Group. 2016. AVSP 7-Section 5: Visitor Profile-Destinations and Activities. Available: <https://www.alaskatia.org/marketing/AVSP%20VII/5.%20AVSP%207%20Vis%20Profile%20Destinations%20Activities.pdf>

local suppliers, and so on. For example, if an angler spent \$100 to purchase the services of a guide, the guide uses a portion of the \$100 paid by the angler to purchase boat fuel, equipment, bait, utilities, etc. from local sources. In addition, a portion of the \$100 pays for goods and services from out-of-state providers. In the next round, the in-state business that supplies bait to the guide (as well as all of the other in-state businesses that supply goods and services to the guide), in turn, must use part of the money that it receives from the guide to pay its own business expenses (e.g., fuel, gear, utilities). Their suppliers, in turn, also pay in-state and out-of-state suppliers to support their increased business activity. This indirect activity continues in this way until the effect becomes negligible as a portion of each round of payments for goods and services eventually leaks out of the local economy.

The **induced effect** measures the economic activity that results from the household spending of salaries and wages that were generated from the business activity associated with the direct and indirect effects.

The interpretation of the results of the economic models depends on the changes that drive the model. The term “economic impact” is normally reserved to describe some level of economic activity that would not occur except for the initial economic activity. In the case of recreational activities like sportfishing, it is generally agreed that economic impact comes from spending by visitors to the region. If not for their presence, their spending would not occur. If quality sportfishing was no longer available in the Mat-Su Borough, for example, nonresident anglers may choose to fish (and spend) elsewhere, and thus not generate economic contributions to the regional economy. Most resident anglers, on the other hand, choose fishing as an activity on which to spend their recreational dollars, locally. If quality sportfishing was no longer available, some residents would likely choose some other local recreational activity on which to spend their money in place of fishing and their spending would remain in the regional economy.

It is generally acknowledged that retained economic activity can also represent a real economic impact. For example, the quality of fishing opportunities in the Mat-Su Borough is such that some anglers choose to fish in Alaska rather than go elsewhere. If the quality of fishing were to decline, then some dedicated resident anglers may choose to travel outside of the region for sportfishing and their dollars would be lost to the region’s economy. It is unclear what portion of resident anglers would fall into that category. It was beyond the scope of this study to investigate retention scenarios.

The focus of this study was on the total economic activity associated with sportfishing as a measure of its overall contribution to the Mat-Su Borough economy. In that case, it was appropriate to include all spending for sportfishing, including both resident and nonresident anglers. That measure is alternately called “economic contribution” or “economic significance”, among others. This

study was concerned with measuring the economic significance of sportfishing and therefore includes resident spending as part of the direct effect. To help understand the relative contributions that residents and nonresidents make to the economy, results in this report were broken out separately by residency.

Separate models based on residency were created to estimate the associated contributions of sportfishing. IMPLAN economic data are available for each of the boroughs in Alaska, including the Mat-Su Borough, and are based on 2016 economic model data. Deflators included within the modeling software were employed to account for inflation effects between the model year data (2016) and the year of reported angler expenditures (2017).

Economic activity can be measured in several different ways. The most common way to portray how expenditures on sportfishing affect the economy include the following metrics. **These descriptions explicitly include the multiplier effects of angler spending.**

Retail Sales – These include expenditures made by anglers for equipment, travel expenses and services related to their sportfishing activities over the course of the year. These combined initial retail sales are the stimulus that trigger the multiplier effects in the regional economy.

Output – This measure reports the volume of economic activity within the local economy that is related to sportfishing. Because it does not discount the value of raw materials as they move through the production of goods or services, this measure double-counts a portion of the output of the industries in the value chain.

Labor Income – This figure reports the total salaries and wages paid in all sectors of the regional economy as a result of sportfishing activities. These are not just the paychecks of those employees directly serving anglers or manufacturing their goods, it also includes portions of the paychecks of all employees affected by the direct, indirect and induced effects. For example, it would include a portion of the dollars earned by the truck driver who delivers food to the restaurants serving anglers and the accountants who manage the books for companies down the supply chain, etc.

Employment – Much like Labor Income, this figure reports the total jobs in all sectors of the economy as a result of the sportfishing activity and includes both full-time and part-time jobs. These are not just the employees directly serving anglers or manufacturing their goods but can also include employees of industries impacted by the direct, indirect and induced effects.

Federal, State, and Local Tax Revenues – Including all forms of personal, business and excise taxes, the IMPLAN model estimates the tax revenues collected by the local, state and federal governments as a result of the initial expenditures by anglers.

Results

Angler Days

Anglers spent 155,000 days sportfishing in the Mat-Su Borough in 2017 (Table 1). Alaska residents accounted for the majority of days fished (57% or 88,100) while nonresidents fished 67,300 days (43%). Local residents contributed the overwhelming majority (94%) of the resident angler days. The minority of days were contributed by Alaskan residents who live outside of the Mat-Su Borough. Conversely, the majority (81%) of nonresident days were contributed by visitors to the state who fished in the Mat-Su Borough but stayed in locations outside of the area. Less than 20% of nonresident days were contributed by visitors who both fish and stay in the region.

Table 1. Angler days by residency in the Mat-Su Borough (2017)

	Residents		Nonresidents		All Anglers Angler-Days (thous.)
	Angler-Days (thous.)	%	Angler-Days (thous.)	%	
Local	83.0	94%	12.7	19%	95.7
Nonlocal	5.1	6%	54.6	81%	59.6
Total	88.1	100%	67.3	100%	155.4

Angler Spending

Average spending per fishing day within each of the major expense categories is shown in Table 2. On the whole, anglers spent between \$67 and \$343 in the Mat-Su Borough on trip-related purchases in 2017. Estimated equipment-related spending per day was \$241 and \$170, for residents and nonresidents, respectively.

Table 2. Average sportfishing expenditures in the Mat-Su Borough, by residency and category

	Resident Anglers		Nonresident Anglers	
	Local	Nonlocal	Local	Nonlocal
Trip Expenditures	\$89.78	\$67.25	\$272.30	\$181.10
Package Expenditures	\$ -	\$-	\$70.20	\$49.73
Total trip spending	\$89.78	\$67.25	\$342.50	\$230.84
Equipment Expenditures	\$136.13	\$136.13	\$31.75	\$31.75
Real Estate Expenditures	\$104.85	\$104.85	\$138.38	\$138.38
Total equipment & real estate spending	\$240.98	\$240.98	\$170.12	\$170.12

Sportfishing trip and package spending encompasses a wide variety of items from fuel and oil to support the trip; from groceries to restaurants to sustain the angler; and from derby tickets to rentals to support the day on the water. The common theme is that trip-related items are services or items considered non-durable and purchased specifically for the trip. The full list of items and the amount spent in the region by resident and nonresident anglers are presented in Table 3.

Table 3. Total trip-related spending in the Mat-Su Borough, by residency and detailed categories (thousands)

	Resident Anglers	Nonresident Anglers	All Anglers
Trip Expenditures			
Fuel and oil for transportation	\$2,271.6	\$797.0	\$3,068.6
Guide and charter fees	\$1,042.3	\$6,474.1	\$7,516.4
Air travel	\$0.0	\$0.0	\$0.0
Transportation services	\$103.3	\$311.0	\$414.3
Boat launch & dockage fees	\$497.2	\$132.2	\$629.3
Ice	\$139.2	\$77.9	\$217.2
Bait	\$219.5	\$146.2	\$365.7
Groceries	\$1,340.0	\$786.4	\$2,126.3
Restaurants	\$884.8	\$768.6	\$1,653.4
Heating & cooking fuel	\$69.1	\$32.8	\$101.9
Fish processing	\$261.5	\$1,124.1	\$1,385.5
Rentals	\$123.7	\$1,340.9	\$1,464.6
Overnight accommodations	\$652.7	\$558.1	\$1,210.8
Derby	\$21.5	\$28.5	\$50.0
Souvenirs & gifts	\$48.8	\$577.9	\$626.7
Other entertainment expenses	\$37.8	\$110.0	\$147.8
Other	\$12.7	\$83.8	\$96.5
Sub-Total	\$7,725.8	\$13,349.4	\$21,075.2
Package Expenditures	na	\$3,607.6	\$3,607.6
Total Trip & Package	\$7,725.8	\$16,957.0	\$24,682.8

Sportfishing equipment spending encompasses a diverse list of items from rods and tackle (specific to sportfishing) to boats and apparel (which can be used for multiple purposes). In contrast to trip or package related items, equipment items are durable in nature and typically used for more than one trip. Table 4 presents the full list of items and the total spending in the region by Alaska resident and nonresident anglers that is attributable to fishing in the Mat-Su Borough.

Table 4. Total equipment spending in the Mat-Su Borough, by residency and detailed categories (thousands)

	Resident Anglers	Nonresident Anglers	All Anglers
Equipment expenditures			
Rods, reels, and components	\$767.4	\$346.5	\$1,113.9
Fishing tackle	\$444.4	\$229.8	\$674.2
Tackle boxes or cases	\$75.4	\$29.7	\$105.1
Electronics	\$261.2	\$56.7	\$317.9
Nets	\$155.1	\$30.7	\$185.8
Miscellaneous fishing equipment	\$174.5	\$81.5	\$256.0
Shellfish equipment	\$28.8	\$3.3	\$32.1
Taxidermy	\$102.5	\$49.8	\$152.3
Books and magazines	\$25.0	\$16.5	\$41.5
Items to store/preserve fish	\$266.4	\$103.2	\$369.5
Coolers, fish boxes	\$129.9	\$117.3	\$247.2
Clothing	\$70.3	\$52.2	\$122.5
Boots, shoes, waders	\$322.9	\$136.6	\$459.5
Life jackets	\$67.6	\$6.6	\$74.2
Boats, canoes, rafts, etc.	\$1,426.0	\$43.9	\$1,469.9
Boat motors	\$898.4	\$7.1	\$905.5
Trailers, hitches	\$147.2	\$7.2	\$154.4
Bear spray, bug spray, sun screen	\$47.0	\$37.8	\$84.8
Firearms	\$309.7	\$65.3	\$375.0
Cameras, binoculars, sunglasses	\$148.9	\$52.7	\$201.6
Tents, screen rooms, tarps, backpacks, sleeping bags	\$136.2	\$25.5	\$161.7
Camping trailer	\$558.6	\$54.5	\$613.1
Other camping equipment	\$140.4	\$14.4	\$154.7
Vehicles	\$3,818.0	\$239.2	\$4,057.3
Airplanes and related equipment	\$23.6	\$55.3	\$79.0
ATVs, snow machines	\$766.7	\$53.9	\$820.6
Boat/camper registrations and excise taxes	\$63.8	\$7.4	\$71.2
Vehicle, boat, or airplane repair/maintenance	\$588.6	\$161.4	\$749.9
Other	\$26.6	\$50.7	\$77.3
Total	\$11,991.0	\$2,136.6	\$14,127.6

The reported dollar figures in Table 4 reflect total spending on fishing equipment and only that portion of multi-use equipment items anglers report was used specifically for the purpose of sportfishing in the Mat-Su Borough. Resident purchases amount to \$12.0 million and nonresident purchases amount to \$2.1 million.

Annual real estate spending estimates are presented in Table 5. The real estate category captures spending on the purchase or lease of existing structures, on-site construction or maintenance of structures, and purchases of structures constructed off-site. Spending by both residents and nonresidents sums to \$18.5 million. Almost the entirety is associated with purchases or leases of land and existing houses. Despite the sizable amount of spending, only a small portion generates economic activity and primarily in the real estate and finance sectors.

Table 5. Total real estate spending in the Mat-Su Borough, by residency and detailed categories (millions)

	Resident Anglers	Nonresident Anglers	All Anglers
Real Estate Expenditures (millions)			
Purchases of lots, existing houses and cabins, and/or land	\$2.8	\$8.2	\$11.1
Leases of land, cabins, boat slips, and storage	\$0.1	\$0.8	\$1.0
Construction of houses and cabins, and repair or maintenance expenses	\$5.8	\$0.2	\$6.0
Purchase or construction of boat docks, sheds, or outbuildings	\$0.5	\$0.0	\$0.5
Total	\$9.2	\$9.3	\$18.5

Collectively, an estimated \$57.4 million was associated with sportfishing activity in the Mat-Su Borough (Table 6). Total spending was estimated to be relatively balanced between Alaska residents and nonresidents (\$29.0 million and \$28.4 million). Thirty seven percent (\$21.1 million) of total spending was trip-related spending.

A portion of nonresident anglers, traveling to the region to fish, pre-purchase a package experience from one of the many outfitters or guides operating in the Mat-Su Borough, securing a range of services for the one fixed price. Overall, 6% (\$3.6 million) of total spending was package-related spending.

One quarter (\$14.1 million) of all sportfishing related spending that occurs in Mat-Su was associated with equipment. Finally, another third (\$18.5 million) was associated with sportfishing-related real estate spending.

Table 6. Total spending in the Mat-Su Borough, by residency and expenditure type (millions)

Expenditures	Resident		Nonresident		All	
	Angler Spending	%	Angler Spending	%	Angler Spending	%
Trip	\$7.7	26.7%	\$13.3	47.0%	\$21.1	36.7%
Package	\$0.0	0.0%	\$3.6	12.7%	\$3.6	6.3%
Equipment	\$12.0	41.4%	\$2.1	7.5%	\$14.1	24.6%
Real Estate	\$9.2	31.9%	\$9.3	32.8%	\$18.5	32.3%
Total	\$29.0	100%	\$28.4	100%	\$57.4	100%

Distribution across the four spending category types is quite different between the two groups. Among resident anglers, spending on sportfishing-related equipment and real estate accounted for 73% (\$21.2 million) of total spending. Equipment and real estate spending accounted for less than half of spending (40% or \$11.4 million) among nonresident anglers. The proportion associated with trip and package spending among nonresidents was twice as large as residents (27% or \$7.7 million relative to 60% or \$16.9 million).

Economic Contributions

The angler spending discussed in the previous section, known as the direct effects, cycles through the regional economy generating additional rounds of economic activity. These extra rounds include indirect effects driven by businesses who provide supporting services and goods to anglers as well as induced effects resulting from household spending by employees of these businesses, known together as the multiplier effects. The three effects as a collective comprise the total economic contribution effects. The IMPLAN model is used to track the flow of these multiple rounds of spending.

Anglers spent an estimated \$57.4 million in Mat-Su across all expenditure categories (Table 6). After adjustments to isolate the portion of spending that actually generated economic activity within the borough, the direct contribution to the region's economic output was \$33.7 million (Table 7). That activity supported more than 378 full and part-time jobs and \$10.9 million in household income.

Spurred by the initial spending of anglers, the economic output attributable to the supporting industries, or multiplier effect, was \$10.9 million. The indirect and induced activity supported 96 jobs and \$3.3 million in household income. Together, the total effects of the spending activity generated \$44.6 million in economic output and supported more than 474 jobs that provided \$14.3 in household income.

Table 7. Economic contributions of all sportfishing spending in the Mat-Su Borough, by residency

	Resident Anglers	Nonresident Anglers	All Anglers
Direct effect			
Output (millions)	\$18.6	\$15.0	\$33.7
Labor Income (millions)	\$6.2	\$4.8	\$10.9
Employment	177	201	378
Multiplier effects			
Output (millions)	\$5.3	\$5.6	\$10.9
Labor Income (millions)	\$1.6	\$1.7	\$3.3
Employment	47	49	96
Total effect			
Output (millions)	\$23.9	\$20.7	\$44.6
Labor Income (millions)	\$7.8	\$6.4	\$14.3
Employment	224	250	474

Table 8 presents the economic contributions from trip and package related spending by residency. The total effects of trip and package spending activity generated \$25.8 million in output, more than 307 jobs, and \$7.8 million in household income. The majority of these effects came from nonresident spending.

Table 8. Economic contributions of sportfishing trip and package spending in the Mat-Su Borough, by residency

	Resident Anglers	Nonresident Anglers	All Anglers
Direct effects			
Output (millions)	\$6.6	\$12.6	\$19.2
Labor Income (millions)	\$1.7	\$4.1	\$5.8
Employment	74	175	249
Multiplier effects			
Output (millions)	\$1.8	\$4.9	\$6.7
Labor Income (millions)	\$0.5	\$1.5	\$2.0
Employment	15	43	58
Total effects			
Output (millions)	\$8.3	\$17.5	\$25.8
Labor Income (millions)	\$2.2	\$5.6	\$7.8
Employment	89	218	307

Table 9 presents the economic contributions from equipment and real estate related spending by residency. The total effects of equipment and real estate spending activity generated \$18.8 million in output, more than 167 jobs, and \$6.5

million in household income. In this case, the majority of these effects came from resident spending.

Table 9. Economic contributions of sportfishing equipment and real estate spending in the Mat-Su Borough, by residency

	Resident Anglers	Nonresident Anglers	All Anglers
Direct effects			
Output (millions)	\$12.1	\$2.4	\$14.5
Labor Income (millions)	\$4.5	\$0.7	\$5.1
Employment	103	26	129
Multiplier effects			
Output (millions)	\$3.6	\$0.7	\$4.3
Labor Income (millions)	\$1.1	\$0.2	\$1.3
Employment	32	6	38
Total effects			
Output (millions)	\$15.6	\$3.2	\$18.8
Labor Income (millions)	\$5.6	\$0.9	\$6.5
Employment	135	32	167

The economic activity generated in the region also produced tax revenues at the local, state, and federal level. The IMPLAN modeling produced generalized region-specific estimates of tax revenues based on existing ratios of output, income, and employment to tax revenues. It was estimated that angler spending in the region in 2017 generated \$2.9 million and \$3.1 million in state/local and federal tax revenue, respectively (Table 10).

Table 10. Tax revenues generated from the economic contributions of sportfishing in the Mat-Su Borough (millions)

	State and Local Tax	Federal Tax	Total Tax
Resident anglers			
Trip & Package Expenditures	\$0.9	\$0.5	\$1.5
Equipment & Real Estate Expenditures	\$0.6	\$1.1	\$1.7
Subtotal	\$1.5	\$1.7	\$3.2
Nonresident anglers			
Trip & Package Expenditures	\$1.2	\$1.2	\$2.4
Equipment & Real Estate Expenditures	\$0.2	\$0.2	\$0.4
Subtotal	\$1.4	\$1.4	\$2.8
All anglers			
Trip & Package Expenditures	\$2.1	\$1.7	\$3.8
Equipment & Real Estate Expenditures	\$0.8	\$1.3	\$2.1
Total	\$2.9	\$3.1	\$5.9

Summary and Discussion

This study was conducted in order to provide current estimates of the economic contributions made by sportfishing activity on the Mat-Su Borough. We find that more than 155,000 days were spent fishing in the region. Anglers who fished in the region and anglers who traveled to the region to purchase items used for sportfishing spent a total of \$57.4 million. The majority of those retail dollars were retained in the local economy supporting more than 370 jobs and providing \$10.9 million in labor income. A regional level input-output model was used to track the collective economic contributions of the direct spending and the multiplier effects created as the angler dollars moved from business to business in the Mat-Su economy. The total contributions generated by angler spending was estimated to be \$44.6 million in economic output, which supported more than 470 jobs and \$14.3 million in labor income.

Another objective of this study was to provide estimates for comparison to the 2009 report by ISER. The methodological approach of this study captured spending that remains within the Mat-Su economy based on secondary data available from IMPLAN[®] and the AVSP. In that regard, it differs somewhat from the approach utilized for the 2009 ISER report. Additionally, we remind readers who wish to make comparisons that adjustments should be made to the 2009 spending estimates to account for inflation over the ten-year period. We also encourage readers making comparisons between the two studies to explore the changes in fishing conditions and the regional economy between the two periods, as it may provide context for differences in participation, spending, and economic contributions.

Table 11. Summary results: Current study and previous ISER study

	Results from current study	ISER study scenarios		
		Low	Medium	High
Mat-Su angler days (thousands)	155.4	296.0	296.0	296.0
Direct spending (millions)	\$57.4	\$74.7	\$140.6	\$193.6
Average spending				
\$ per angler day	\$369	\$252	\$474	\$654
Total economic contributions				
Employment	474	904	1,180	1,900
Income (million)	\$14.3	\$37.3	\$47.7	\$75.8
Local & state taxes (millions)	\$5.9	\$7.3	\$9.2	\$17.8

Note: Comparison of the results from the two studies need to account for the methodologies utilized in each study and how they differ. All monetary values reported in the table reflect 2017 dollars. Total economic contributions include direct and multiplier effects.

Appendix

Table A 1. ADF&G Statewide Harvest survey fishing sites included within the area of focus

Site Names		
Alexander Creek	Goose Creek	Mud Lake (Mirror Lake-between Big Lake and Flat Lake)
Alexander Lake	Hayes River	Nancy Lake
Amber Lake	Hewitt Creek	Nancy Lake State Recreation Area
Anderson Lake	Hewitt Lake	No Name Lake (Arrowhead Lake)
Answer Creek	Hidden Lake	North Friend Lake (Montana Lake, Little Bill Lake)
Barley Lake	Honeybee Lake	North Rolly Lake (Nancy Lake State Rec Area)
Bear Creek (into Alexander Lake)	Honolulu Creek	Oshetna River
Beaver Lake (U)	Horseshoe Creek	Other lakes (within area)
Beluga River	Horseshoe Lake (north of Big Lake)	Other streams
Bench Lake (Glenn Highway, fly-in)	Hourglass Lake	Otter Lake
Bench Lake (N. of Little Su)	Ida Lake (Thirtymile Lake)	Peters Creek (near Willow)
Benka Lake	Indian River (into Susitna)	Peters Creek (Petersville Road)
Beverly Lake (by Kalmbach Lake)	Irene Lake (Kepler Lake Complex)	Peters Creek (U)
Big Lake	Jim Creek (into Knik River)	Pierce Creek
Birch Creek	Jim Lake	Rabideux Creek
Blodgett Lake	Johnson Creek	Rainbow Lake (Nancy Lake State Rec Area)
Bonnie Lake (30 miles NE Palmer) (Lower Bonnie)	Judd Lake	Rainbow Lake (Talkeetna Mountains)
Bonnie Lake, Upper	Kalmbach Lake (Baptist Lake)	Ravine Lake
Bradley Lake (Kepler Lake Complex)	Kashwitna River	Red Shirt Lake (Nancy Lake State Rec Area)
Butte Creek	Kepler Lake (Kepler Lake Complex)	Reed Lake
Butte Lake	Kepler Lake Complex	Reflections Lake (Palmer Hay Flats)
Butterfly Lake (U)	Kichatna River	Rhein Lake (Nancy Lake State Rec Area)
Byers Creek	Kings Lake	Scotty Lake
Byers Lake	Knik Arm (Shore)	Sevenmile Lake
Camp Creek	Knik Lake	Seventeenmile Lake
Canoe Lake (Kepler Lake Complex)	Knik River	Seymour Lake (Herning Lake)
Canyon Creek	Knik River and tributaries inc. Jim Creek	Sheep Creek
Canyon Lake	Knob Lake (Glenn Highway mile 119)	Sheep Creek Slough
Caribou Creek (into Matanuska River)	Kroto Slough	Shell Lake
Carpenter Lake	Lady'slipper Lake	Shirley Lake
Caswell Creek	Lake Creek	Skwentna River
Caswell Lake	Lake Louise (off Glenn Highway)	South Friend Lake (Montana Lake)
Chelatna Lake	Lane Creek	South Rolly Lake (Nancy Lake State Rec Area)
Cheri Lake	Larson Creek	Stephan Lake
Christiansen Lake	Larson Lake	Sucker Lake
Chulitna River	Little Clearwater Creek (Denali Highway)	Sunbeam Lake
Chulitna River East Fork	Little Lake Louise	Sunshine Creek
Clarence Lake	Little Susitna River (reach unspecified)	Susitna Lake
Clear Creek (Chunilna Creek)	Little Susitna River above weir	Susitna River
Clearwater Creek (Denali Highway)	Little Susitna River below weir	Swan Lake

TABLE A1 (cont)		
Coal Creek (into Beluga Lake)	Little Willow Creek	Talachulitna Creek
Coffee Creek (into Chelatna Lake)	Loberg Lake (Junction)	Talachulitna River
Cornelius Lake	Lockwood Lake	Talkeetna Lakes
Cottonwood Creek	Long Lake (9 miles SE Talkeetna)	Talkeetna River
Cottonwood Lake	Long Lake (Kepler Lake Complex)	Tigger Lake (Talkeetna Lakes)
Crooked Lake	Long Lake (Mile 86 Glenn Highway)	Trapper Lake
Crystal Creek	Long Lake (near Big Lake)	Troublesome Creek
Deception Creek	Long Lake (near Willow, Nancy Lake State Rec Area)	Tsisi Creek
Denali Highway streams and lakes	Long Lake (U)	Twin Island Lake
Deshka River (Kroto Creek)	Lorraine Lake	Tyone Creek
Deshka River (Kroto Creek) above weir	Lost Lake	Tyone Lake
Deshka River (Kroto Creek) below weir	Lucille Lake	Visnaw Lake
Diamond Lake	Lucy Lake	Walby Lake
East Butterfly Lake (Nancy Lake State Rec Area)	Maclaren River	Wasilla Creek (Rabbit Slough)
Echo Lake (Kepler Lake Complex)	Matanuska Lake (Kepler Lake Complex)	Wasilla Lake
Eightmile Creek	Matanuska River	Weiner Lake
Eklutna Power Plant Raceway	Meadow Lakes	West Beaver Lake
Eska Lake (Slipper Lake)	Meirs Lake (McLeod Lake)	West Lake (West Horseshoe Lake, Barbara Lake)
Figure Eight Lake	Memory Lake	Willow Creek
Finger Lake	Mile 180 Lake	Willow Lake
Fish Creek (Big Lake drainage)	Monsoon Lake	Windy Creek
Fish Creek (into Kroto Slough)	Montana Creek	Wishbone Lake
Fish Creek (U)	Moose Creek (Deshka-Oilwell Rd)	Wolf Lake
Fish Lake (Glenn Highway)	Moose Creek (into Yentna)	X and Y Lakes (Talkeetna Lakes)
Fish Lake Creek and Fish Lakes (Yentna drainage)	Moose Creek (near Palmer)	Yentna River
Flat Horn Lake	Moose Creek (U)	
Florence Lake	Morvro Lake	

Spending profile development detail

Angler trip-related spending profiles were developed to reflect only those expenditures which contribute to the Mat-Su Borough's economy and vary based upon the 'local' versus 'nonlocal' distinction. For the 'local' group, whether resident or nonresident, 100% of the respective average angler spending per fishing day is included within the profile. Table A2 provides added detail about spending category treatments for the 'nonlocal' groups, again whether resident or nonresident.

Table A 2: Treatment of trip-related spending to capture economic activity within the Mat-Su Borough

	Resident		Nonresident	
	Local	Nonlocal	Local	Nonlocal
Fuel and oil for your transportation	100%	50%	100%	50%
Guide and charter fees	100%	100%	100%	100%
Air travel	0%	0%	0%	0%
Transportation services	100%	50%	100%	50%
Boat launch & dockage fees	100%	100%	100%	100%
Ice	100%	100%	100%	100%
Bait	100%	100%	100%	100%
Groceries	100%	50%	100%	50%
Restaurants	100%	100%	100%	50%
Heating & cooking fuel	100%	100%	100%	100%
Fish processing	100%	100%	100%	50%
Rentals	100%	100%	100%	100%
Overnight accommodations	100%	100%	100%	0%
Derby	100%	100%	100%	100%
Souvenirs & gifts	100%	100%	100%	100%
Other entertainment expenses	100%	100%	100%	100%
Other	100%	100%	100%	100%