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Economic Aspects of the Great Lakes Recreational Fisheries and Factors Driving Change

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ABSTRACT:

Fisheries management in the Laurentian Great Lakes operates under a transboundary governance structure that is increasingly integrating the biological and social sciences. With 20% of the world's surface fresh water, a large human population that is dependent on its water resources, and a recreational and commercial fishery, these integrations are critical. These valuable fisheries are also susceptible to a multitude of anthropogenic factors (e.g., aquatic invasive species, agricultural runoff, climate change), which will ultimately influence regional economies and quality of life. Our study sought to determine the use and non-use value of this globally important resource. We used human dimensions surveys of, 1) adult US anglers from the eight Great Lakes states to determine fishing participation and effort, expenditures related to fishing the Great Lakes, and their willingness to pay for a Great Lakes Fishing trip, and 2) a general public survey to determine the non-use value of the Great Lakes, including respondent's attitudes toward impacts and willingness to pay (WTP) for a Great Lakes fisheries management plan. We also compiled economic information from commercial harvesters to ascertain economic value within that sector and examine future population projections and how they might influence angler behavior in the future. For the 2020 recreational angler survey, between March 15 – April 20, 2021, we emailed 209,645 adult anglers with an invitation to complete an online survey. We also distributed an abbreviated survey (via mail and email) to 16,000 non-respondents. Overall, we received 19,993 replies, of which 10,595 people indicated they fished at least one of the Great Lakes during the 2020 fishing season. Using our survey results and data obtained by state fisheries managers, we estimated 1.1 million individuals fished at least one of the Great Lakes or their tributaries in 2020. Accounting for individuals who fished more than one lake (e.g., 37% in Michigan), we derived an overall estimate of 1.4 million anglers who fished 34.1 million days. Overall, we estimated that US anglers spent \$3.8 billion dollars fishing the Great Lakes in 2020. Using

data provided from a 2020 survey of Ontario anglers, they estimated Canadian anglers spend \$285 million dollars, also in 2020 (\$4.1 billion dollars combined). We also estimated on average, anglers were willing to pay \$81.50 for a Great Lakes trip; however, the WTP varied based on a variety of factors, including income, how they fished, and where they lived. Using input-output models and applying multipliers, we estimated the spending contributed to \$1.9 billion in household income supporting 25,900 jobs, \$2.8 billion dollars to Gross Domestic Product and \$770.8 million dollars in overall tax revenue. Using data from NOAA and the Ontario Commercial Fisheries' Association, we estimate the commercial fishery created \$151.4 million dollars of economic activity in the U.S., contributing \$78.5 million to GDP. These industries supported more than 1,920 US jobs, which provided \$55.4 million in household incomes in 2020. For the same time period, Ontario harvest and revenues were twice that of the U.S. Collectively, the commercial fishing industry in both countries contributed \$130.5 million dollars to their country's GDP, supported almost 3,000 jobs generating \$93.3 million dollars in household income. Combined, the US and Canadian recreational and commercial fisheries generated \$1.94 billion dollars of income, contributed \$2.88 billion dollars to North America's GDP, and sustained almost 39,000 full and part-time jobs. Our study also found that residents of the Great Lakes were evenly split as to whether the fisheries were improving, staying the same, or declining. However, there was strong agreement among public that anthropogenic factors would negatively impact the Great Lakes environment. Respondents also believed government has the ability to manage the recreational fisheries, and their beliefs would be shared with decision-makers, and their responses would affect those decisions. Finally, the Great Lakes population is expected to increase slightly over the next 20 years; consequently, the angling population may also grow slightly. However, any measurable increase in angler spending may be dependent on people between 25 and 64 years old, as they represent the highest percentage of anglers and spend the most money.