



## APPENDIX C. SOCIAL RETURN ON INVESTMENT OUTPUT

---

The Water Institute of the Gulf (the Institute) and partners established The Partnership for Our Working Coast (POWC) with Chevron, Shell, Danos, and the Greater Lafourche Port Commission (GLPC) in 2017 (Allison et al., 2018; The Water Institute of the Gulf, 2018). GLPC plans to conduct a dredging operation that will generate between 10 and 20 million cubic yards of uncontaminated material as well as a smaller, more continuous supply from maintenance dredging. The Port has identified beneficial use wetland creation as a component of the overall deepening project and seeks to maximize the co-benefits of these wetlands, incorporating aspects of social and ecological resilience. To accomplish this, the Institute worked with an environmental competency group (ECG) consisting of residents, local stakeholders, and Institute scientists utilizing a combination of hydrological and ecological modeling, social vulnerability and risk assessment, and participatory modeling. During the participatory modeling phase of the project, the ECG identified 43 feasible sites consisting of marsh creation and ridge restoration projects.

Each site was developed with specific goals in mind, ranging from protection of industrial infrastructure to protection of wildlife and fisheries habitat to recreational utilization. While this process allowed the Institute to identify and delineate the final set of project polygons, it did not allow for a final ranking of projects. To develop rankings, the research team used a modified Social Return on Investment (SROI) framework to integrate community-based qualitative research, ecological site assessments, and economic proxies to calculate the social value of candidate projects. SROI is a performance measurement framework that directly accounts for the broad concept of social value, a measure of change that is relevant to people and organizations that experience it. Built upon a combination of traditional cost-benefit analysis and social accounting principles, the SROI process involves a systematic analysis of the effects of projects or programs on communities of interest and key stakeholders, with stakeholder input as part of the data that are analyzed (Nielsen et al., 2021).

For this research, the potential costs and benefits of each proposed project on nearby communities were assessed through qualitative research and stakeholder engagement including one-on-one interviews and questionnaire research. The research team conducted a series of guided interviews using an option questionnaire to assess the social value that would be generated by each of the projects. To simplify the process and reduce the amount of time that would be required for respondents to assess the projects, the initial 43 projects were grouped into five project clusters based upon geographical proximity and project type.

The option questionnaire was constructed around three broad categories identified through qualitative analysis of the workshop results: impacts on ecology, impacts on wildlife and fisheries, and impacts on human communities. Respondents were asked to determine if an outcome would be a beneficial or harmful, its severity, how likely it is to occur, and over what timeframe and spatial scale it would take place. In total, 13 interviews were conducted, ranging in length from 65 minutes to 110 minutes. One respondent opted to fill out the questionnaire on their own and was provided with background information on how the project polygons were derived and detailed instructions on how to fill out the questionnaire. Upon completion of the interviews, average scores were computed for all four outcome attributes.



After the survey results were compiled, the research team worked with partners from EcoMetrics LLC to incorporate these into a social valuation methodology previously developed by the Restore the Earth Foundation (REF). This methodology was piloted by the Water Institute (Hemmerling et al., 2017a, 2017b) in conjunction with REF at two REF reforestation sites. EcoMetrics identifies, quantifies, and values all environmental, economic, and social benefits resulting from nature-based solutions projects. In this analysis, social value was quantified using part of the approach in the EcoMetrics methodology, which was built on the guiding principles of Social Value International's (SVI) SROI Methodology. The SVI approach concerns an in-depth, evidence-based understanding of change for a full range of community stakeholders with recognition of both positive and negative changes as well as intended and unintended outcomes.

The SROI analysis used geographically-based financial proxies based on the amount of land built or lost, including acres of both saltmarsh and mangrove, as well as the amount of expected carbon sequestered by this land. The financial proxies used to assess both land built, and carbon sequestered provided a standard metric by which to rank each of the projects. To account for the expected likelihood and consequence of each outcome among local stakeholders, the estimated social value generated by each outcome was weighted based upon the results of the option survey. The percentage of survey respondents that identified that specific outcome, the perceived likelihood of that outcome occurring, and the expected consequences of the outcome were all equally weighted in the final value calculation. If the perceived outcome is a benefit, then that outcome is assigned a positive value. Conversely, if the perceived outcome is a harm, then that outcome is assigned a negative value. The final estimated costs and perceived social benefits of each project grouping were run through a modified version of part of the calculations component of the EcoMetrics model and calculated for thirty years into the future to coincide with the timeframe of the ecosystem models. This process resulted in a final adjusted SROI score for each project grouping, a ratio of the expected construction costs to the perceived social benefits and costs estimated using the final weighted social value scores.

This remainder of this appendix contains graphical and tabular outputs of the qualitative research and SROI analysis for each of the five project groupings assessed during this phase of the research. These data outputs supplement those data shown in the main report. The location of each project grouping relative to the other project alternatives was mapped. For each project grouping, the survey results were separated into impacts on ecosystems, impacts on wildlife and fisheries, and impacts on humans, with the results summarized in a series of wind rose charts. Finally, detailed tables showing the outcomes analyzed, the anticipated social values generated using the financial proxies, the survey results, and the final stakeholder weighted social value of each outcome.



## EAST OF PORT FOURCHON (BROAD WETLANDS)

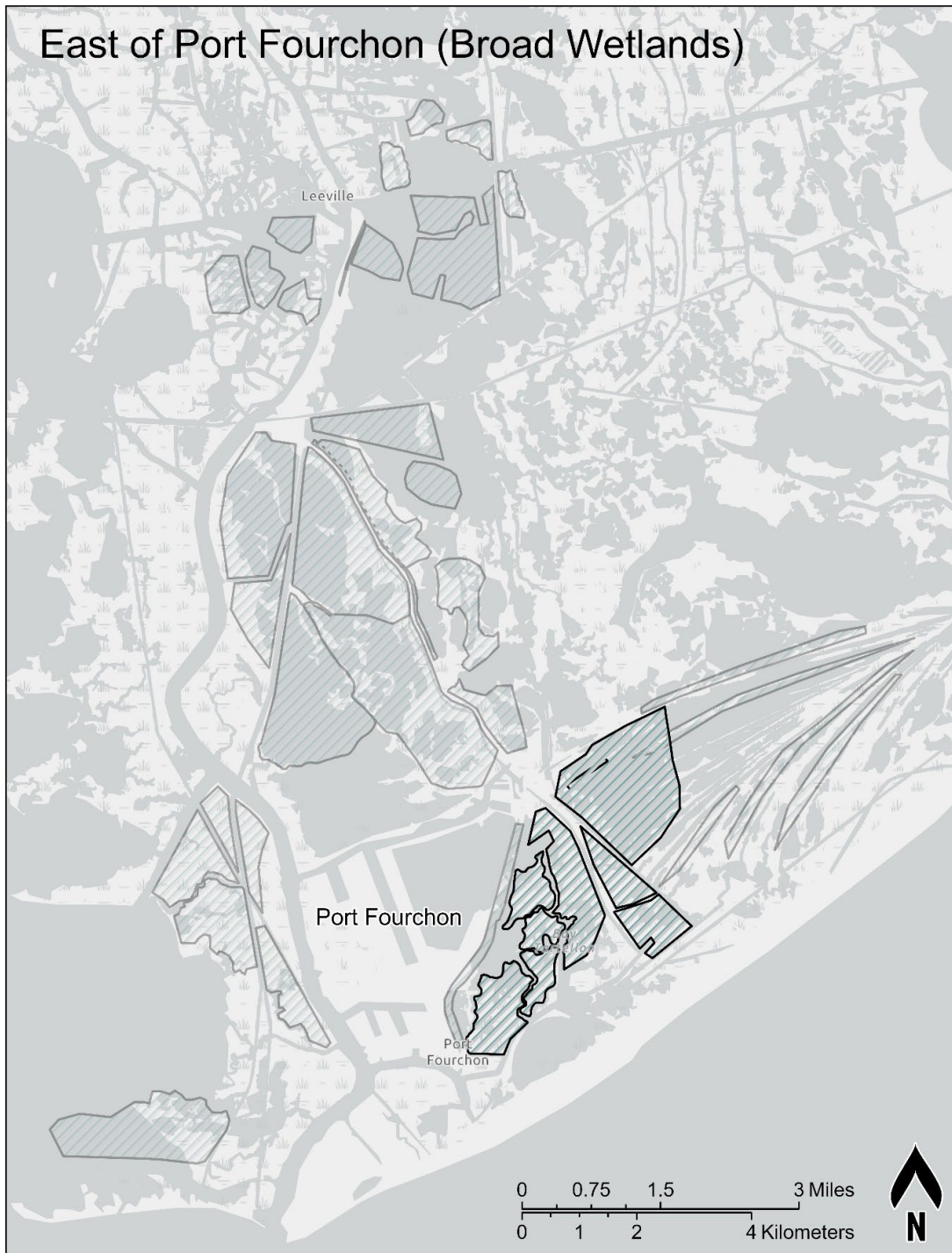


Figure C-1. Location of the East of Port Fourchon (Broad Wetlands) project grouping used during stakeholder interviews.



## East of Port Fourchon (Broad Wetlands)

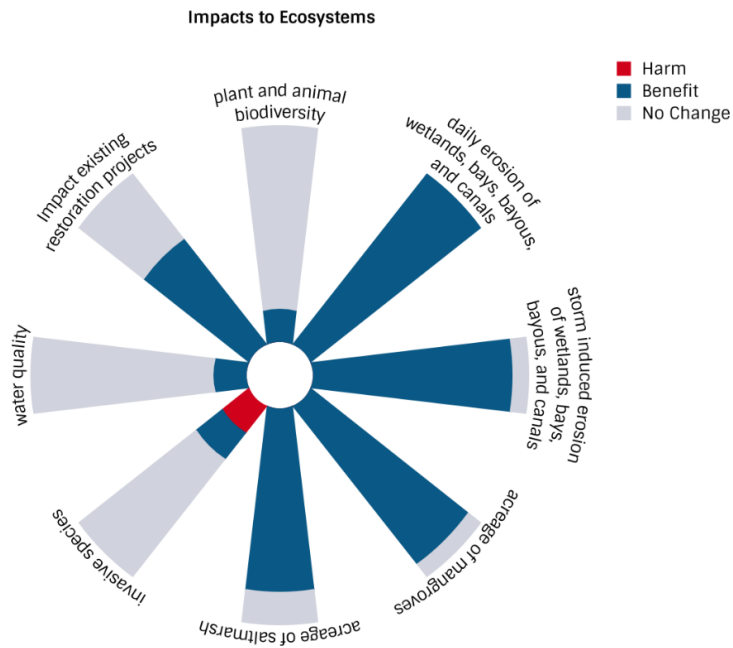


Figure C-2. Expected ecosystem impacts of the East of Port Fourchon (Broad Wetlands) project grouping based on survey results

## East of Port Fourchon (Broad Wetlands)

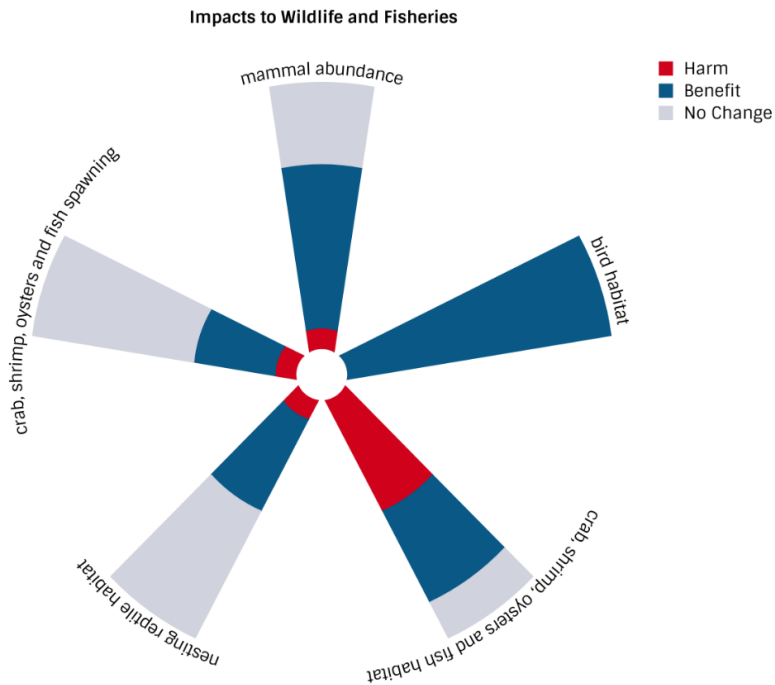


Figure C-3. Expected wildlife and fisheries impacts of the East of Port Fourchon (Broad Wetlands) project grouping based on survey results



## East of Port Fourchon (Broad Wetlands)

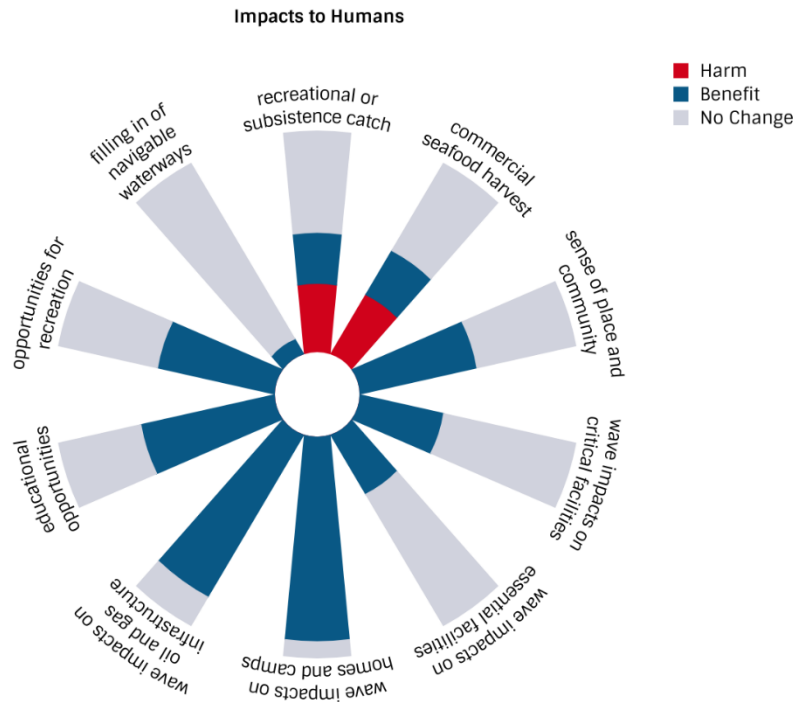


Figure C-4. Expected human impacts of the East of Port Fourchon (Broad Wetlands) project grouping based on survey results



Table C-1. Survey results and stakeholder weighted value of outcomes for the East of Port Fourchon (Broad Wetlands) project grouping

Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
Human Impacts	Social value of carbon sequestered	\$8,957,260.13	n/a	n/a	n/a	\$8,957,260.13
	Improve recreational or subsistence catch (redfish, trout etc.)	\$17,474,926.86	23%	100%	100%	\$4,032,675.43
	Improve seafood harvest for commercial fishermen	\$42,745,943.07	23%	100%	100%	\$9,864,448.40
	Improve sense of place/community	\$20,321,877.14	54%	86%	86%	\$8,039,423.92
	Reduce storm surge and wave impacts on critical facilities (water treatment facility, hospitals, police stations)	\$84,165,916.85	38%	100%	93%	\$30,213,406.05
	Reduce storm surge and wave impacts on essential facilities (grocery stores, schools, day cares)	\$84,165,916.85	40%	100%	92%	\$30,860,836.18
	Reduce storm surge and wave impacts on homes and camps	\$84,165,916.85	120%	86%	83%	\$72,476,206.17
	Reduce storm surge and wave impacts on oil and gas infrastructure (port, pipelines)	\$84,165,916.85	85%	94%	82%	\$54,737,274.59
	Create educational opportunities (e.g., ecotourism, K-12)	\$34,493,712.51	62%	88%	83%	\$15,477,947.92
	Create opportunities for recreation (e.g., birding, paddling, recreational fishing, and hunting)	\$66,594,413.75	54%	90%	76%	\$24,718,805.59
	Filling in of navigable waterways making locations less difficult to get to	\$88,176,813.65	8%	100%	67%	\$4,521,887.88
	Reduce recreational or subsistence catch (redfish, trout etc.)	(\$17,474,926.86)	31%	67%	42%	(\$1,493,583.49)



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Reduce seafood harvest for commercial fishermen	(\$42,745,943.07)	31%	42%	50%	(\$2,740,124.56)
Ecosystem Impacts	Increase plant and animal distributions and biodiversity (e.g., migration of more saline tolerant species)	\$102,081,255.90	17%	67%	67%	\$7,561,574.51
	Reduce daily erosion of wetlands, bays, bayous, and canals (i.e., tidal prisms, changing salinity regimes, wind fetch)	\$61,799,268.79	108%	82%	77%	\$42,255,910.28
	Reduce storm induced erosion of wetlands, bays, bayous, and canals	\$61,799,268.79	92%	89%	81%	\$40,847,379.94
	Increase the acreage of mangroves	\$71,932,376.90	92%	89%	78%	\$45,905,562.46
	Increase the acreage of saltmarsh	\$190,091,245.44	85%	100%	85%	\$136,475,765.96
	Reduce the number/distribution of invasive species.	\$14,911,098.71	15%	67%	67%	\$1,019,562.30
	Benefit existing and ongoing restoration projects	\$84,165,916.85	67%	100%	88%	\$49,096,784.83
	Increase the number/distribution of invasive species.	(\$14,911,098.71)	29%	67%	67%	(\$1,893,472.85)
	Reduce the water quality e.g., harmful algal blooms, microalgae, and bacteria	(\$22,907,083.68)	15%	100%	67%	(\$2,349,444.48)
Wildlife Impacts	Increase the number of mammals in the area (e.g., deer, fur bearing mammals)	\$16,805,501.27	62%	88%	75%	\$6,786,837.05
	Increase habitat for bird species (e.g., migratory, threatened, and endangered, secretive marsh)	\$16,805,501.27	100%	90%	79%	\$11,988,145.22



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Increase habitats for crabs, shrimp, oysters, and fish	\$16,805,501.27	38%	93%	80%	\$4,826,195.24
	Increase habitats for nesting reptile species (e.g., diamond back terrapins)	\$16,805,501.27	38%	80%	80%	\$4,136,738.77
	Increase spawning ground for crab, fish, and shrimp (e.g., trout, redfish)	\$167,482,467.31	31%	100%	83%	\$42,944,222.39
	Reduce the number of mammals in the area (e.g., deer, fur bearing mammals)	(\$16,805,501.27)	8%	67%	33%	(\$287,273.53)
	Reduce habitats for crabs, shrimp, oysters, and fish	(\$16,805,501.27)	67%	78%	39%	(\$3,388,763.63)
	Reduce habitats for nesting reptile species (e.g., diamond back terrapins)	(\$16,805,501.27)	10%	67%	67%	(\$746,911.17)
	Reduce spawning ground for crab, fish, and shrimp (e.g., trout, redfish)	(\$167,482,467.31)	10%	100%	33%	(\$5,582,748.91)
					<b>Total:</b>	<b>\$639,262,528.61</b>





## EAST OF PORT FOURCHON (LA 1 FRINGE)

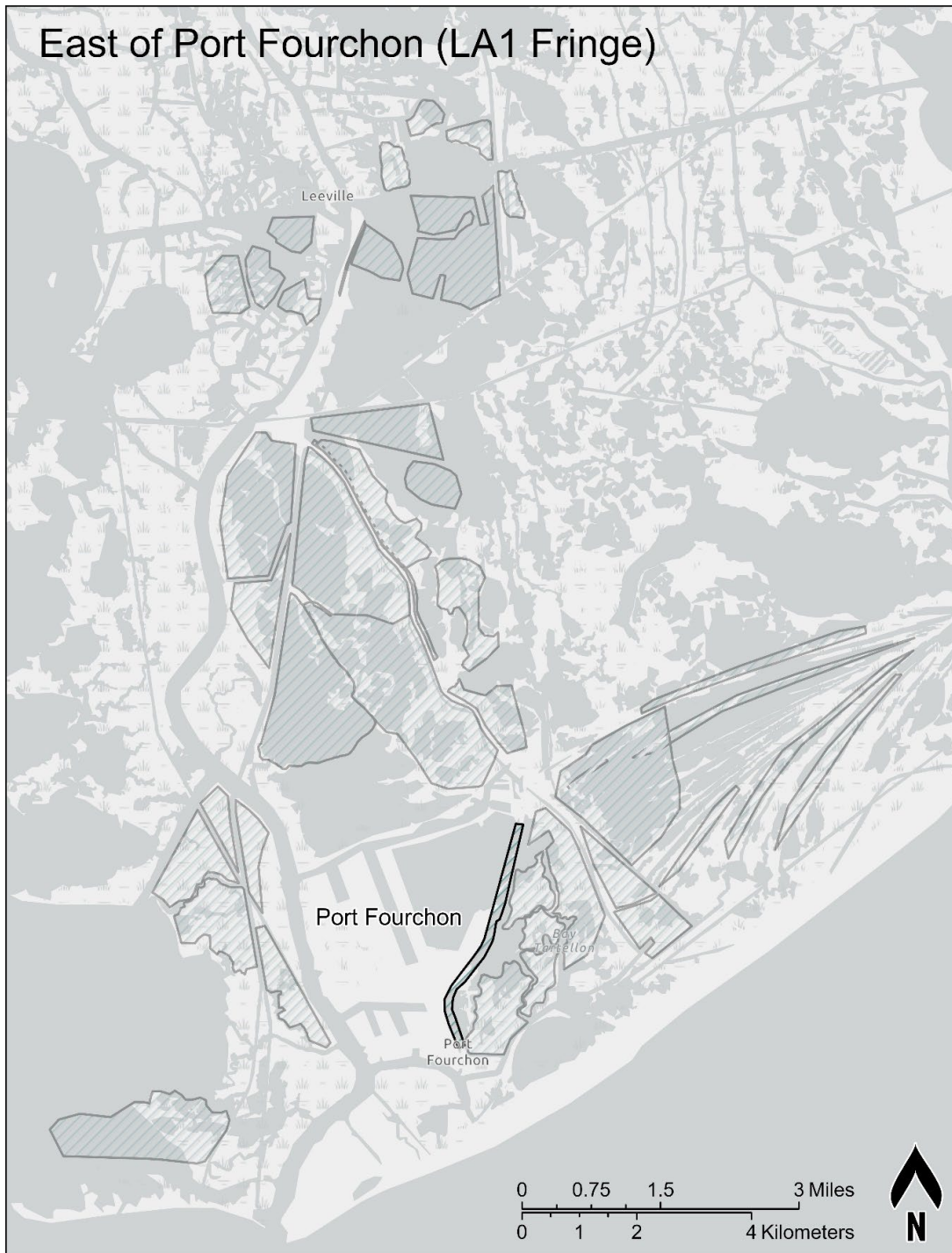


Figure C-5. Location of the East of Port Fourchon (LA 1 Fringe) project grouping used during stakeholder interviews.



## East of Port Fourchon (LA1 Fringe)

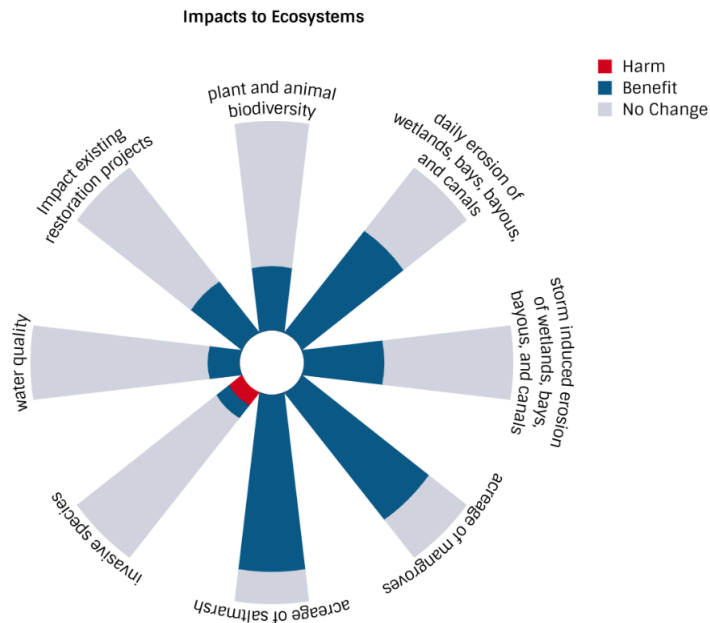


Figure C-6. Expected ecosystem impacts of the East of Port Fourchon (LA 1 Fringe) project grouping based on survey results

## East of Port Fourchon (LA1 Fringe)

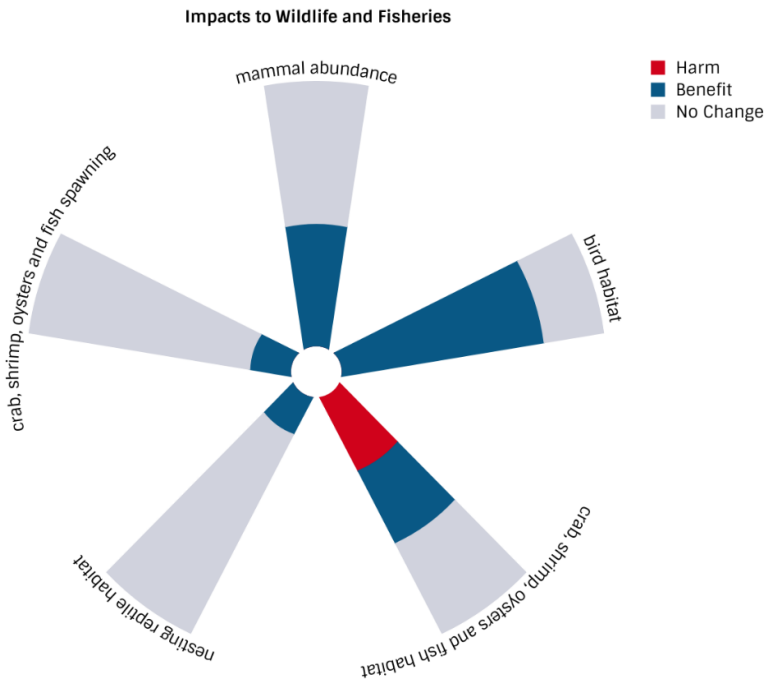


Figure C-7. Expected wildlife and fisheries impacts of the East of Port Fourchon (LA 1 Fringe) project grouping based on survey results



## East of Port Fourchon (LA1 Fringe)

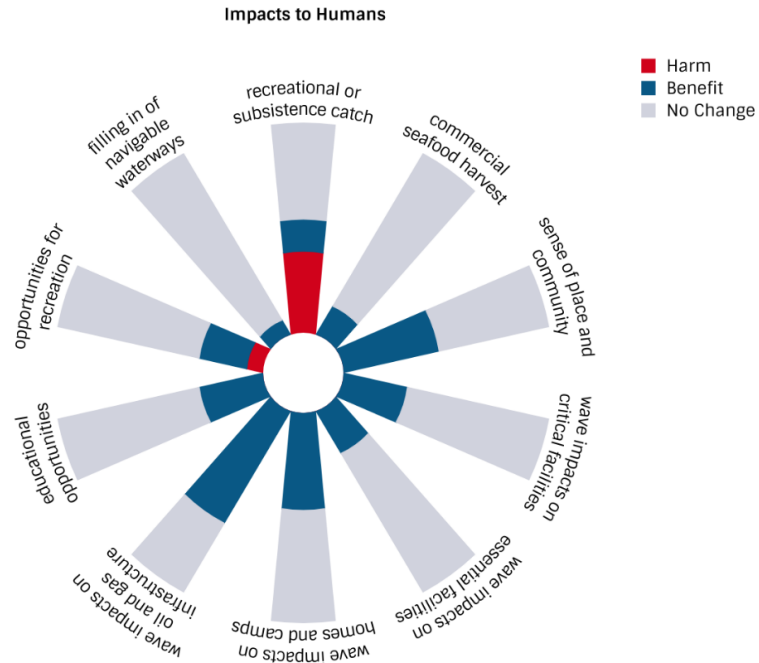


Figure C-8. Expected human impacts of the East of Port Fourchon (LA 1 Fringe) project grouping based on survey results



Table C-2. Survey results and stakeholder weighted value of outcomes for the East of Port Fourchon (LA 1 Fringe) project grouping

Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
Human Impacts	Social value of carbon sequestered	-\$795,336.01	n/a	n/a	n/a	-\$795,336.01
	Improve recreational or subsistence catch (redfish, trout etc.)	\$1,509,325.70	23%	100%	100%	\$209,628.57
	Improve seafood harvest for commercial fishermen	\$3,692,006.89	23%	100%	100%	\$512,778.73
	Improve sense of place/community	\$1,755,219.44	54%	86%	86%	\$828,853.63
	Reduce storm surge and wave impacts on critical facilities (water treatment facility, hospitals, police stations)	\$7,269,488.58	38%	100%	93%	\$2,036,129.90
	Reduce storm surge and wave impacts on essential facilities (grocery stores, schools, day cares)	\$7,269,488.58	40%	100%	92%	\$2,180,846.57
	Reduce storm surge and wave impacts on homes and camps	\$7,269,488.58	120%	86%	83%	\$2,275,080.68
	Reduce storm surge and wave impacts on oil and gas infrastructure (port, pipelines)	\$7,269,488.58	85%	94%	82%	\$2,717,644.46
	Create educational opportunities (e.g., ecotourism, K-12)	\$2,979,254.06	62%	88%	83%	\$689,642.14
	Create opportunities for recreation (e.g., birding, paddling, recreational fishing, and hunting)	\$5,751,821.50	54%	90%	76%	\$869,874.24
	Filling in of navigable waterways making locations less difficult to get to	\$7,615,913.47	8%	100%	67%	\$70,517.72



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Reduce recreational or subsistence catch (redfish, trout etc.)	(\$1,509,325.70)	31%	67%	42%	(\$327,020.57)
	Reduce opportunities for recreation (e.g., birding, paddling, recreational fishing, and hunting)	(\$5,751,821.50)	0%	0%	0%	(\$116,198.41)
Ecosystem Impacts	Increase plant and animal distributions and biodiversity (e.g., migration of more saline tolerant species)	\$8,816,853.09	17%	67%	67%	\$3,206,128.39
	Reduce daily erosion of wetlands, bays, bayous, and canals (i.e., tidal prisms, changing salinity regimes, wind fetch)	\$5,337,660.37	108%	82%	77%	\$2,520,561.84
	Reduce storm induced erosion of wetlands, bays, bayous, and canals	\$5,337,660.37	92%	89%	81%	\$1,541,990.77
	Increase the acreage of mangroves	\$9,830,571.73	92%	89%	78%	\$5,443,223.97
	Increase the acreage of saltmarsh	\$12,421,437.04	85%	100%	85%	\$6,796,240.80
	Reduce the number/distribution of invasive species.	\$1,287,885.47	15%	67%	67%	\$71,549.19
	Benefit existing and ongoing restoration projects	\$7,269,488.58	67%	100%	88%	\$2,423,162.86
	Increase the number/distribution of invasive species.	(\$1,287,885.47)	29%	67%	67%	(\$40,885.25)
	Reduce the water quality e.g., harmful algal blooms, microalgae, and bacteria	(\$1,978,506.14)	15%	100%	67%	(\$219,834.02)
Wildlife Impacts	Increase the number of mammals in the area (e.g., deer, fur bearing mammals)	\$1,451,506.79	62%	88%	75%	\$376,316.57



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Increase habitat for bird species (e.g., migratory, threatened, and endangered, secretive marsh)	\$1,451,506.79	100%	90%	79%	\$620,922.35
	Increase habitats for crabs, shrimp, oysters, and fish	\$1,451,506.79	38%	93%	80%	\$268,797.55
	Increase habitats for nesting reptile species (e.g., diamond back terrapins)	\$1,451,506.79	38%	80%	80%	\$107,519.02
	Increase spawning ground for crab, fish, and shrimp (e.g., trout, redfish)	\$14,465,616.59	31%	100%	83%	\$2,410,936.10
	Reduce habitats for crabs, shrimp, oysters, and fish	(\$1,451,506.79)	67%	78%	39%	(\$443,515.96)
					<b>Total:</b>	<b>\$36,235,555.85</b>



## EAST OF PORT FOURCHON (LINEAR WETLANDS)

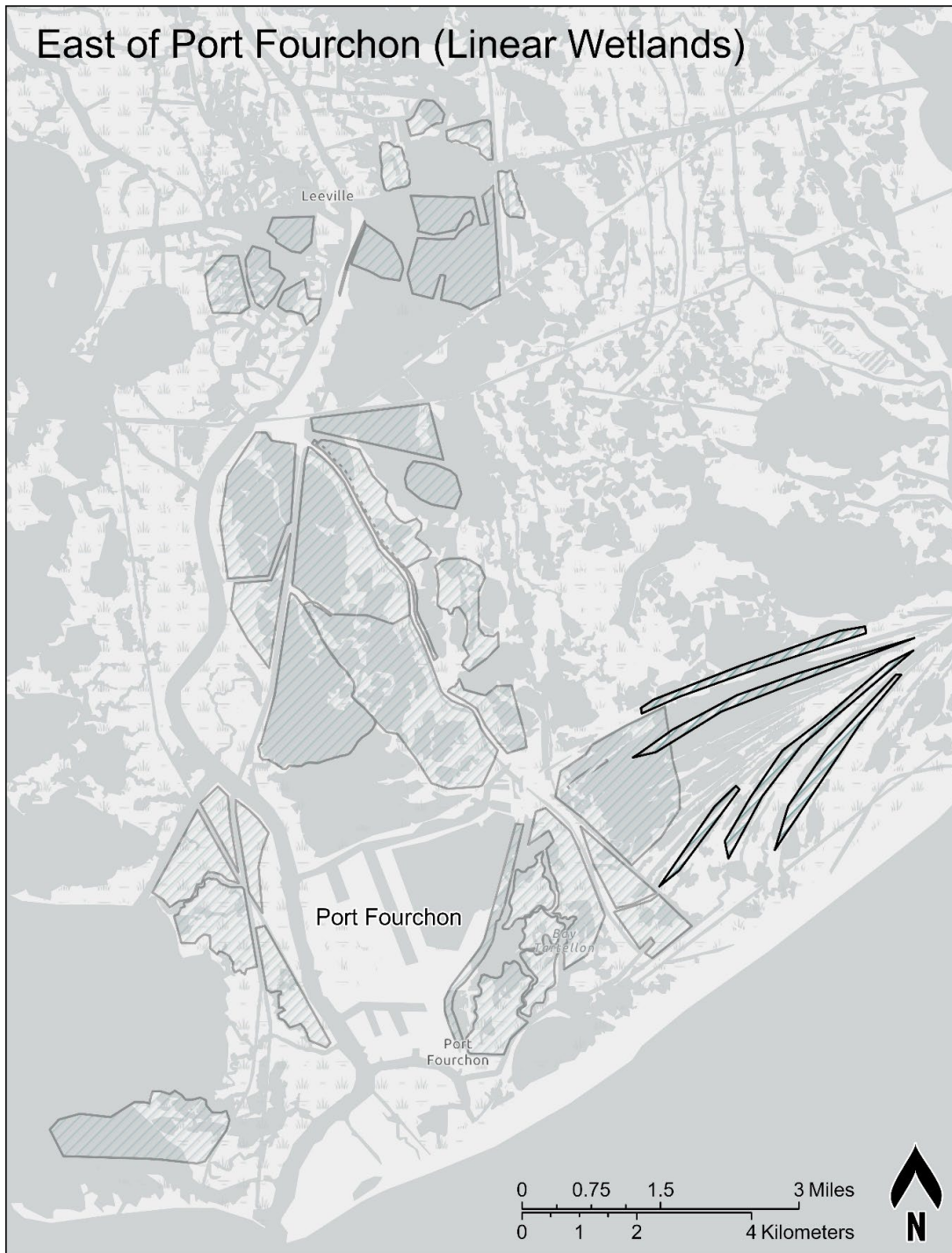


Figure C-9. Location of the East of Port Fourchon (Linear Wetlands) project grouping used during stakeholder interviews.



## East of Port Fourchon (Linear Wetlands)

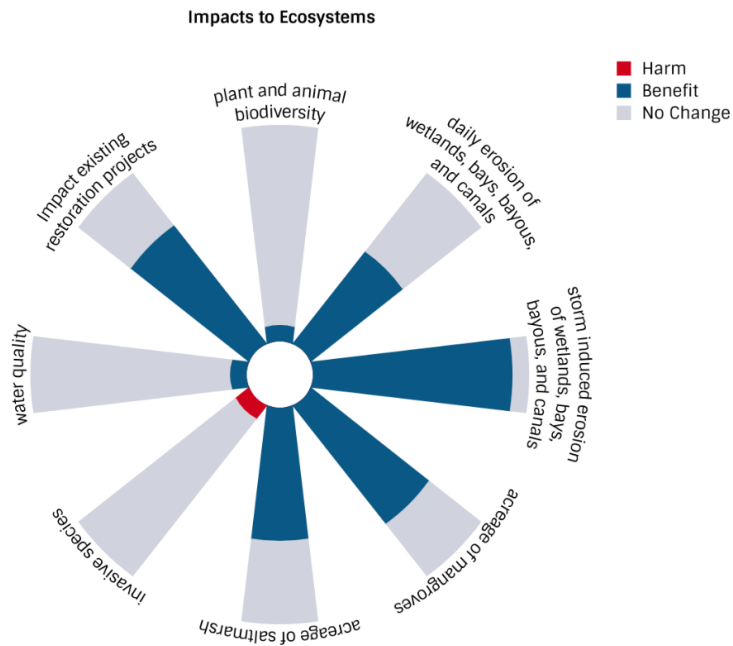


Figure C-10. Expected ecosystem impacts of the East of Port Fourchon (Linear Wetlands) project grouping based on survey results

## East of Port Fourchon (Linear Wetlands)

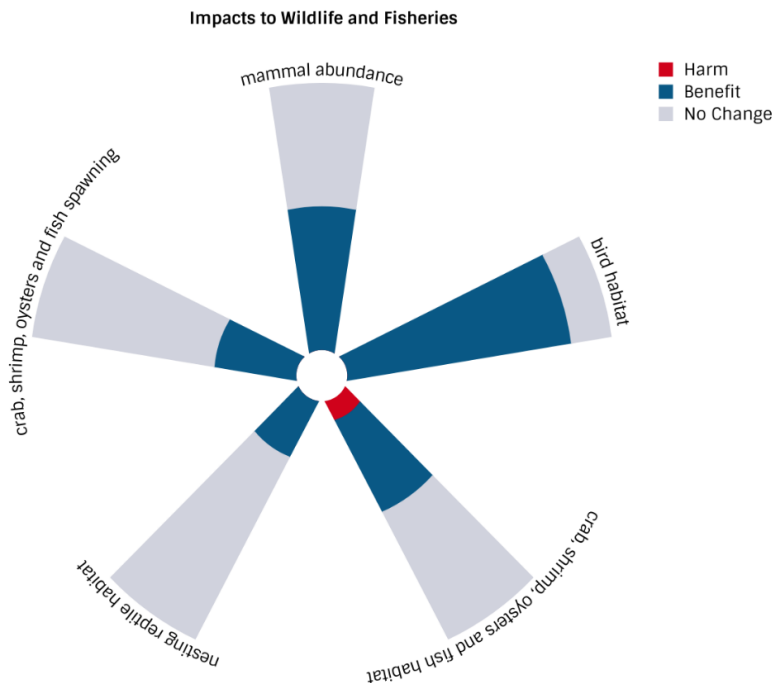


Figure C-11. Expected wildlife and fisheries impacts of the East of Port Fourchon (Linear Wetlands) project grouping based on survey results





## East of Port Fourchon (Linear Wetlands)

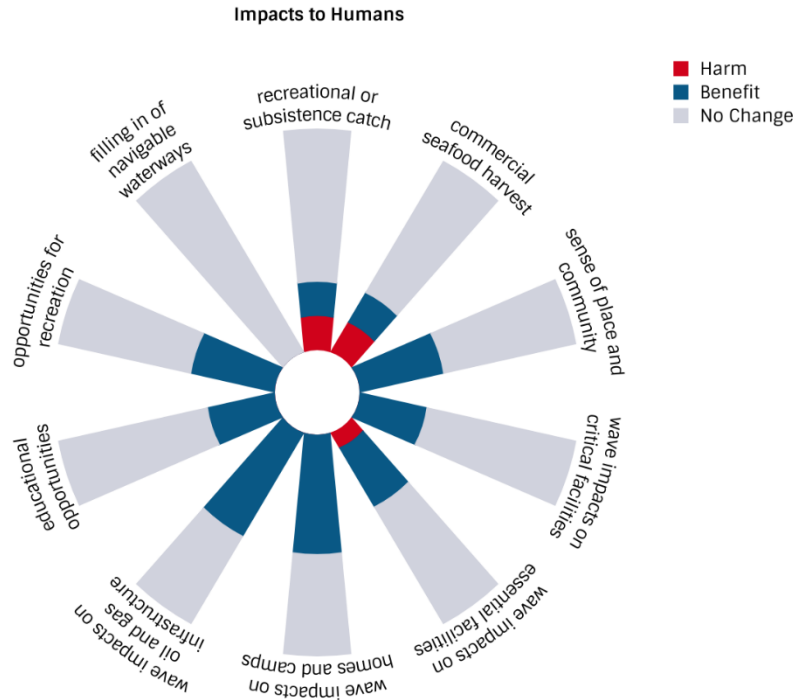


Figure C-12. Expected human impacts of the East of Port Fourchon (Linear Wetlands) project grouping based on survey results



Table C-3. Survey results and stakeholder weighted value of outcomes for the East of Port Fourchon (Linear Wetlands) project grouping

Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
Human Impacts	Social value of carbon sequestered	\$1,482,759.53	n/a	n/a	n/a	\$1,482,759.53
	Improve recreational or subsistence catch (redfish, trout etc.)	\$2,267,493.95	15%	100%	100%	\$348,845.22
	Improve seafood harvest for commercial fishermen	\$5,546,585.00	15%	100%	100%	\$853,320.77
	Improve sense of place/community	\$2,636,905.65	38%	87%	87%	\$761,772.74
	Reduce storm surge and wave impacts on critical facilities (water treatment facility, hospitals, police stations)	\$10,921,116.22	31%	100%	92%	\$3,080,314.83
	Reduce storm surge and wave impacts on essential facilities (grocery stores, schools, day cares)	\$10,921,116.22	40%	100%	92%	\$4,004,409.28
	Reduce storm surge and wave impacts on homes and camps	\$10,921,116.22	70%	86%	86%	\$5,616,574.05
	Reduce storm surge and wave impacts on oil and gas infrastructure (port, pipelines)	\$10,921,116.22	54%	76%	76%	\$3,413,682.24
	Create educational opportunities (e.g., ecotourism, K-12)	\$4,475,800.39	31%	92%	100%	\$1,262,405.24



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Create opportunities for recreation (e.g., birding, paddling, recreational fishing, and hunting)	\$8,641,090.83	38%	93%	80%	\$2,481,544.03
	Reduce recreational or subsistence catch (redfish, trout etc.)	(\$2,267,493.95)	15%	83%	67%	(\$193,802.90)
	Reduce seafood harvest for commercial fishermen	(\$5,546,585.00)	15%	83%	67%	(\$474,067.09)
	Reduce storm surge and wave impacts on essential facilities (grocery stores, schools, day cares)	(\$10,921,116.22)	8%	67%	33%	(\$186,685.75)
Ecosystem Impacts	Increase plant and animal distributions and biodiversity (e.g., migration of more saline tolerant species)	\$13,245,756.73	8%	67%	33%	\$245,291.79
	Reduce daily erosion of wetlands, bays, bayous, and canals (i.e., tidal prisms, changing salinity regimes, wind fetch)	\$8,018,887.24	58%	86%	86%	\$3,436,665.96
	Reduce storm induced erosion of wetlands, bays, bayous, and canals	\$8,018,887.24	100%	81%	78%	\$5,024,179.35



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Increase the acreage of mangroves	\$1,300,488.15	75%	93%	78%	\$702,424.16
	Increase the acreage of saltmarsh	\$33,540,969.92	62%	83%	71%	\$12,183,685.65
	Benefit existing and ongoing restoration projects	\$10,921,116.22	82%	81%	89%	\$6,471,772.57
	Increase the number/distribution of invasive species.	(\$1,934,819.32)	17%	67%	33%	(\$71,659.97)
	Reduce the water quality e.g., harmful algal blooms, microalgae, and bacteria	(\$2,972,354.28)	8%	100%	67%	(\$152,428.42)
Wildlife Impacts	Increase the number of mammals in the area (e.g., deer, fur bearing mammals)	\$2,180,631.30	54%	81%	81%	\$769,477.95
	Increase habitat for bird species (e.g., migratory, threatened, and endangered, secretive marsh)	\$2,180,631.30	85%	79%	85%	\$1,233,488.41
	Increase habitats for crabs, shrimp, oysters, and fish	\$2,180,631.30	38%	100%	80%	\$670,963.48
	Increase habitats for nesting reptile species (e.g., diamond back terrapins)	\$2,180,631.30	23%	78%	89%	\$347,906.99
	Increase spawning ground for crab,	\$21,732,021.21	31%	100%	92%	\$6,129,544.44



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	fish, and shrimp (e.g., trout, redfish)					
	Reduce habitats for crabs, shrimp, oysters, and fish	(\$2,180,631.30)	11%	67%	33%	(\$53,842.75)
					<b>Total:</b>	<b>\$59,388,541.80</b>



## WEST OF PORT FOURCHON

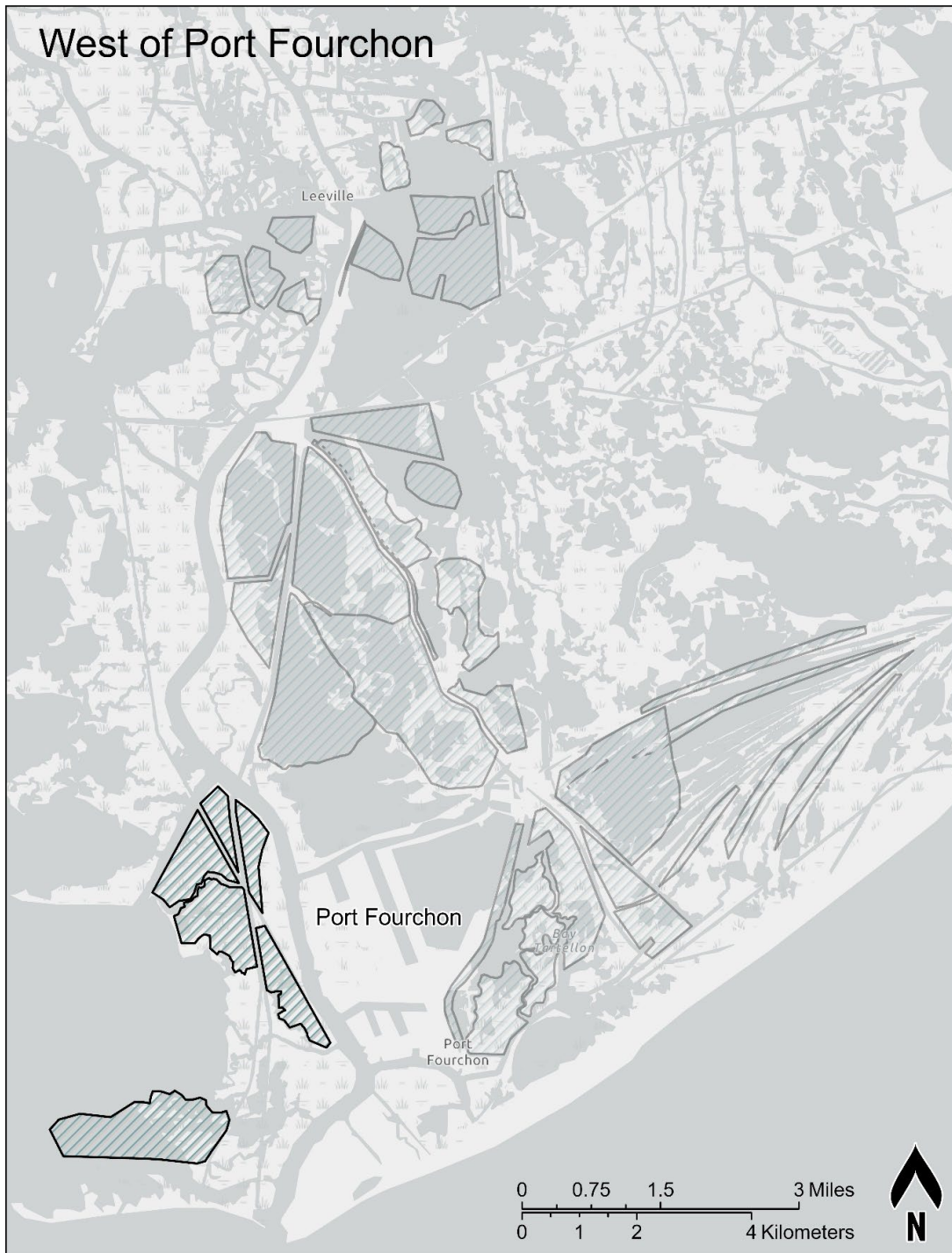


Figure C-13. Location of the West of Port Fourchon project grouping used during stakeholder interviews.



## West of Port Fourchon

### Impacts to Ecosystems

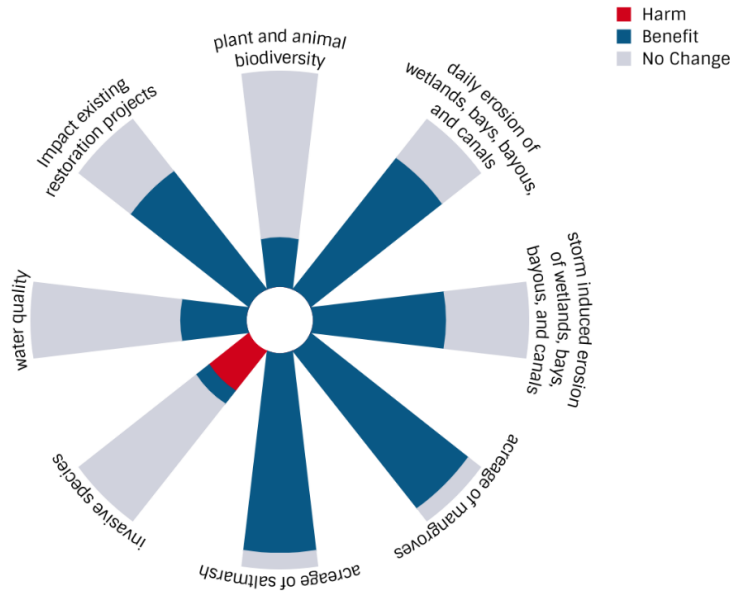


Figure C-14. Expected ecosystem impacts of the West of Port Fourchon project grouping based on survey results

## West of Port Fourchon

### Impacts to Wildlife and Fisheries

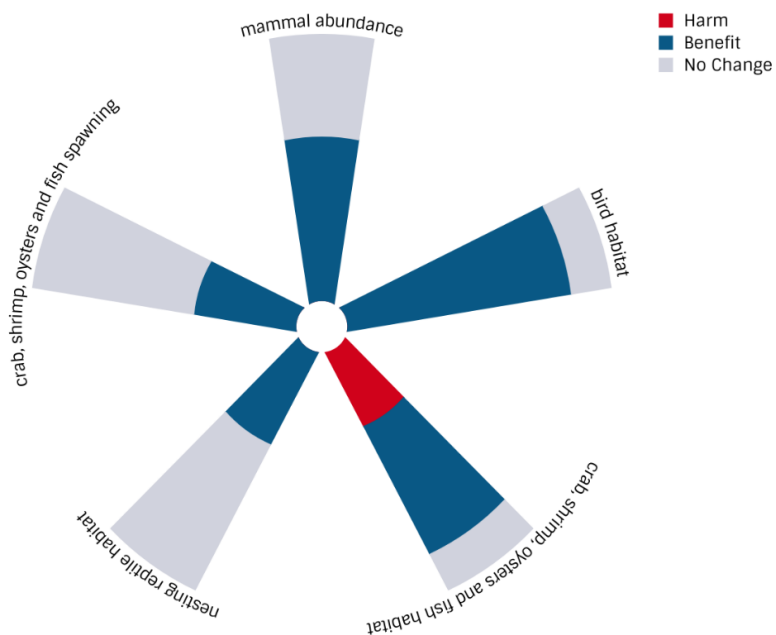


Figure C-15. Expected wildlife and fisheries impacts of the West of Port Fourchon project grouping based on survey results



# West of Port Fourchon

## Impacts to Humans

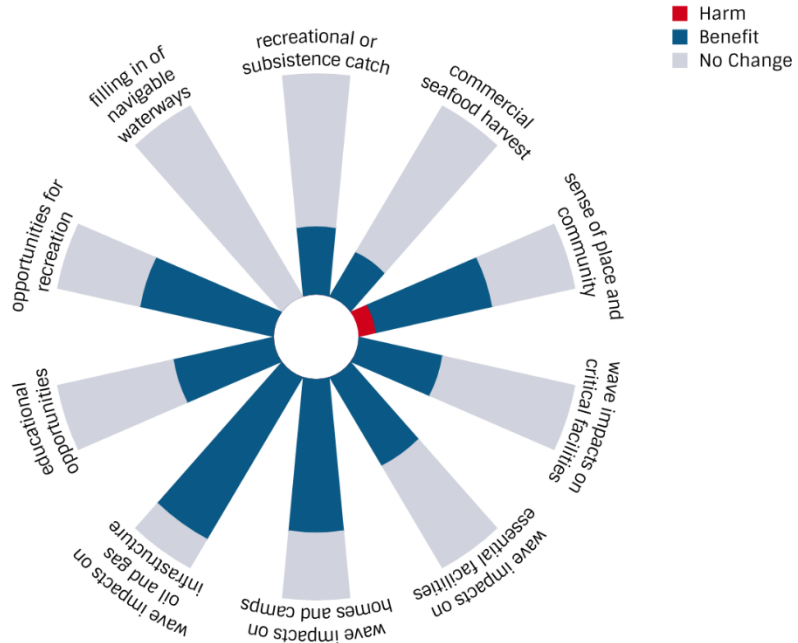


Figure C-16. Expected human impacts of the West of Port Fourchon project grouping based on survey results





Table C-4. Survey results and stakeholder weighted value of outcomes for the West of Port Fourchon project grouping

Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
Human Impacts	Social value of carbon sequestered	\$6,860,456.98	n/a	n/a	n/a	\$6,860,456.98
	Improve recreational or subsistence catch (redfish, trout etc.)	\$11,941,400.33	31%	100%	100%	\$3,674,277.02
	Improve seafood harvest for commercial fishermen	\$29,210,217.74	23%	100%	100%	\$6,740,819.48
	Improve sense of place/community	\$13,886,848.99	78%	100%	86%	\$9,257,899.32
	Reduce storm surge and wave impacts on critical facilities (water treatment facility, hospitals, police stations)	\$57,514,341.28	50%	93%	93%	\$25,050,690.87
	Reduce storm surge and wave impacts on essential facilities (grocery stores, schools, day cares)	\$57,514,341.28	60%	89%	78%	\$23,857,800.83
	Reduce storm surge and wave impacts on homes and camps	\$57,514,341.28	90%	93%	93%	\$44,378,349.75
	Reduce storm surge and wave impacts on oil and gas infrastructure (port, pipelines)	\$57,514,341.28	85%	91%	82%	\$36,197,837.17
	Create educational opportunities (e.g., ecotourism, K-12)	\$23,571,098.94	46%	89%	89%	\$8,595,728.39
	Create opportunities for recreation (e.g., birding, paddling, recreational fishing, and hunting)	\$45,506,946.08	62%	83%	71%	\$16,530,300.92
	Reduce sense of place/community	(\$13,886,848.99)	8%	33%	33%	(\$118,691.02)
	Ecosystem Impacts	Increase plant and animal distributions and biodiversity (e.g., migration of more saline tolerant species)	\$69,756,694.99	25%	89%	100%
Reduce daily erosion of wetlands, bays, bayous, and canals (i.e., tidal prisms, changing salinity regimes, wind fetch)		\$42,230,208.72	83%	90%	80%	\$25,338,125.23
Reduce storm induced erosion of wetlands, bays, bayous, and canals		\$42,230,208.72	62%	92%	83%	\$19,851,807.52
Increase the acreage of mangroves		\$130,230,603.82	92%	92%	86%	\$94,890,247.65



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Increase the acreage of saltmarsh	\$40,323,321.73	92%	92%	86%	\$29,380,881.86
	Reduce the number/distribution of invasive species.	\$10,189,421.70	8%	100%	100%	\$783,801.67
	Benefit existing and ongoing restoration projects	\$57,514,341.28	69%	96%	81%	\$31,242,358.22
	Increase the number/distribution of invasive species.	(\$10,189,421.70)	23%	67%	67%	(\$1,045,068.89)
	Reduce the water quality e.g., harmful algal blooms, microalgae, and bacteria	(\$15,653,436.42)	40%	75%	83%	(\$3,913,359.11)
Wildlife Impacts	Increase the number of mammals in the area (e.g., deer, fur bearing mammals)	\$11,483,951.84	67%	88%	71%	\$4,745,105.10
	Increase habitat for bird species (e.g., migratory, threatened, and endangered, secretive marsh)	\$11,483,951.84	100%	97%	79%	\$8,773,781.38
	Increase habitats for crabs, shrimp, oysters, and fish	\$11,483,951.84	54%	90%	81%	\$4,529,079.91
	Increase habitats for nesting reptile species (e.g., diamond back terrapins)	\$11,483,951.84	56%	73%	80%	\$3,742,917.64
	Increase spawning ground for crab, fish, and shrimp (e.g., trout, redfish)	\$114,448,272.45	50%	93%	80%	\$42,727,355.05
	Reduce habitats for crabs, shrimp, oysters, and fish	(\$11,483,951.84)	31%	92%	33%	(\$1,079,687.78)
					<b>Total:</b>	<b>\$456,494,302.94</b>



## LEEVILLE (WEST OF BAYOU LAFOURCHE)

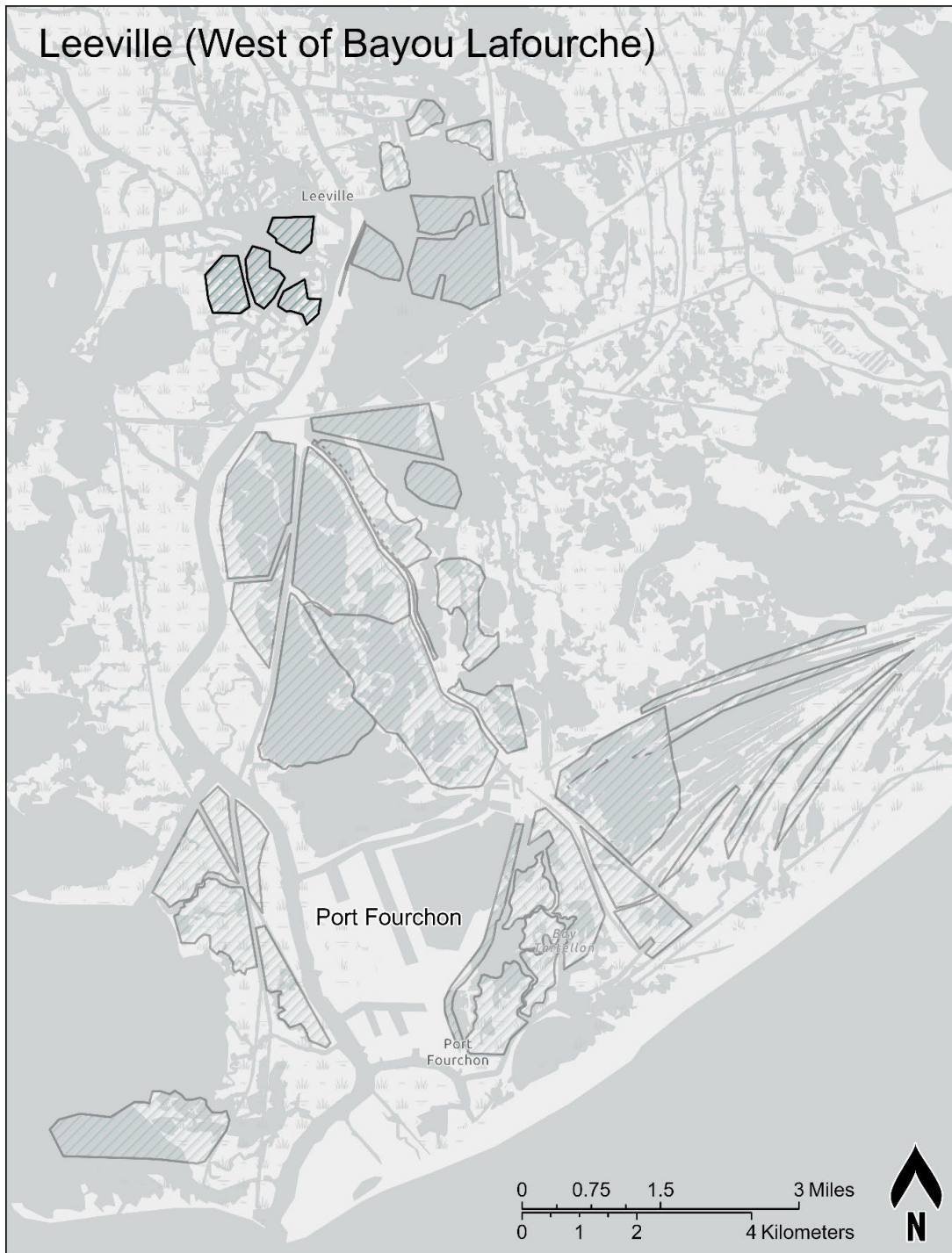


Figure C-17. Location of the Leeville (West of Bayou Lafourche) project grouping used during stakeholder interviews.



## Leeville (West of Bayou Lafourche)

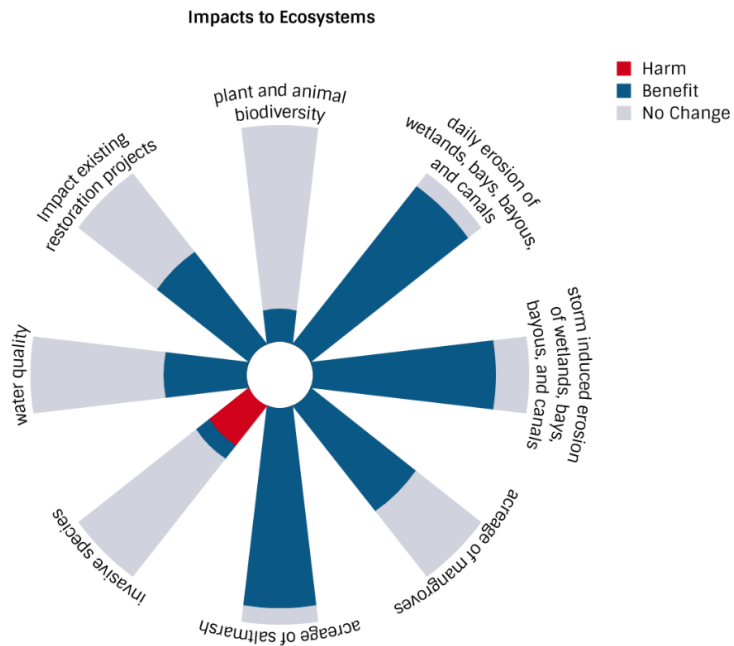


Figure C-18. Expected ecosystem impacts of the Leeville (West of Bayou Lafourche) project grouping based on survey results

## Leeville (West of Bayou Lafourche)

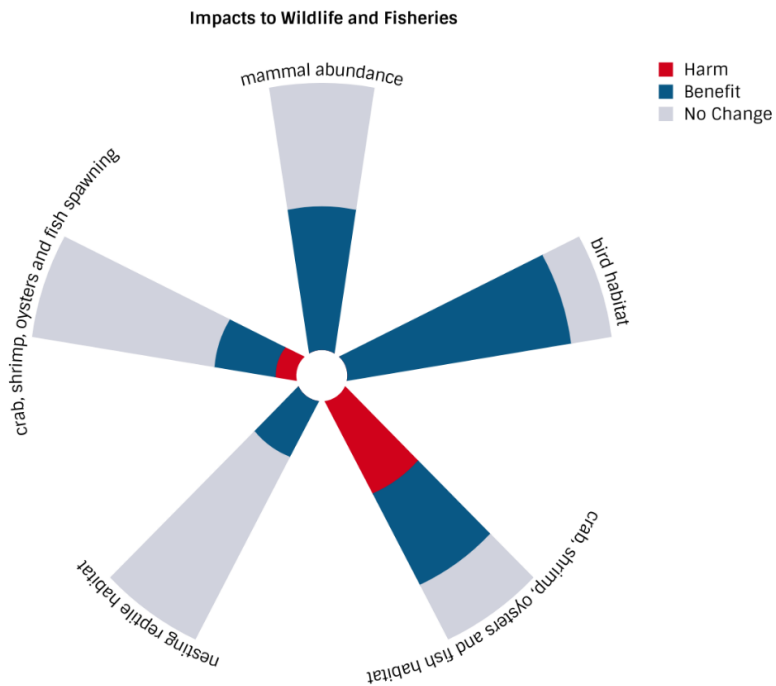


Figure C-19. Expected wildlife and fisheries impacts of the Leeville (West of Bayou Lafourche) project grouping based on survey results



## Leeville (West of Bayou Lafourche)

### Impacts to Humans

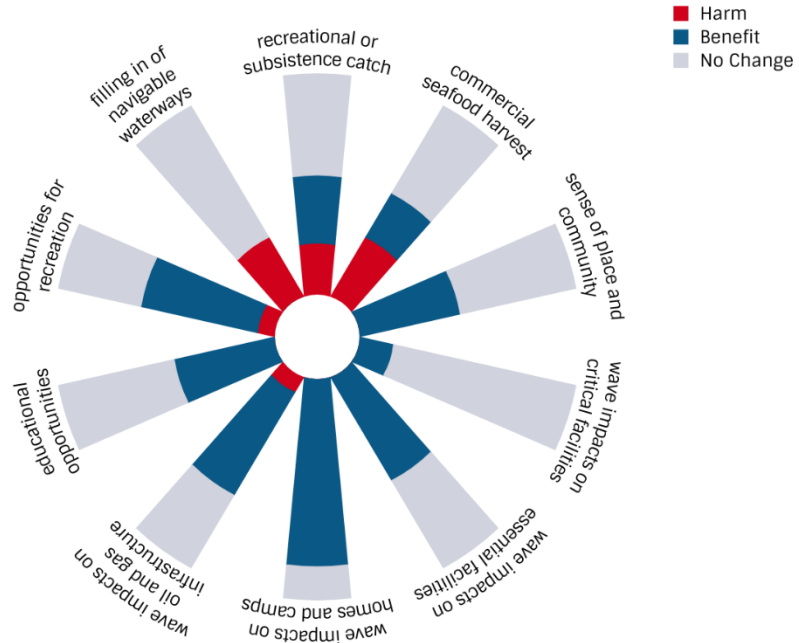


Figure C-20. Expected human impacts of the Leeville (West of Bayou Lafourche) project grouping based on survey results



Table C-5. Survey results and stakeholder weighted value of outcomes for the Leeville (West of Bayou Lafourche) project grouping

Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
Human Impacts	Social value of carbon sequestered	\$1,611,057.57	n/a	n/a	n/a	\$1,611,057.57
	Improve recreational or subsistence catch (redfish, trout etc.)	\$3,440,051.22	31%	83%	92%	\$808,559.05
	Improve seafood harvest for commercial fishermen	\$8,414,812.55	23%	89%	89%	\$1,534,324.79
	Improve sense of place/community	\$4,000,491.61	46%	94%	94%	\$1,646,926.03
	Reduce storm surge and wave impacts on critical facilities (water treatment facility, hospitals, police stations)	\$16,568,599.55	15%	83%	100%	\$2,124,179.43
	Reduce storm surge and wave impacts on essential facilities (grocery stores, schools, day cares)	\$16,568,599.55	58%	81%	81%	\$6,333,763.59
	Reduce storm surge and wave impacts on homes and camps	\$16,568,599.55	92%	85%	76%	\$9,762,642.83
	Reduce storm surge and wave impacts on oil and gas infrastructure (port, pipelines)	\$16,568,599.55	64%	81%	71%	\$6,096,670.83



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Create educational opportunities (e.g., ecotourism, K-12)	\$6,790,308.13	55%	78%	83%	\$2,400,613.99
	Create opportunities for recreation (e.g., birding, paddling, recreational fishing, and hunting)	\$13,109,536.68	54%	90%	76%	\$4,866,055.13
	Reduce recreational or subsistence catch (redfish, trout etc.)	(\$3,440,051.22)	23%	89%	44%	(\$313,622.90)
	Reduce seafood harvest for commercial fishermen	(\$8,414,812.55)	31%	83%	42%	(\$899,018.43)
	Reduce storm surge and wave impacts on oil and gas infrastructure (port, pipelines)	(\$16,568,599.55)	8%	100%	100%	(\$1,274,507.66)
	Reduce opportunities for recreation (e.g., birding, paddling, recreational fishing, and hunting)	(\$13,109,536.68)	8%	67%	67%	(\$448,189.29)
	Filling in of navigable waterways making locations more difficult to get to	(\$17,358,170.26)	31%	58%	42%	(\$1,298,153.76)



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
Ecosystem Impacts	Increase plant and animal distributions and biodiversity (e.g., migration of more saline tolerant species)	\$20,095,348.74	15%	83%	67%	\$1,717,551.17
	Reduce daily erosion of wetlands, bays, bayous, and canals (i.e., tidal prisms, changing salinity regimes, wind fetch)	\$12,165,581.69	92%	92%	78%	\$8,006,408.46
	Reduce storm induced erosion of wetlands, bays, bayous, and canals	\$12,165,581.69	85%	94%	76%	\$7,325,816.48
	Increase the acreage of mangroves	\$0.00	62%	92%	79%	\$0.00
	Increase the acreage of saltmarsh	\$53,065,344.63	92%	94%	78%	\$35,981,629.69
	Reduce the number/distribution of invasive species.	\$2,935,345.24	8%	100%	100%	\$225,795.79
	Benefit existing and ongoing restoration projects	\$16,568,599.55	58%	95%	81%	\$7,451,486.57
	Increase the number/distribution	(\$2,935,345.24)	27%	67%	67%	(\$355,799.42)





Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	of invasive species.					
	Reduce the water quality e.g., harmful algal blooms, microalgae, and bacteria	(\$4,509,406.07)	38%	80%	80%	(\$1,110,007.65)
Wildlife Impacts	Increase the number of mammals in the area (e.g., deer, fur bearing mammals)	\$3,308,270.51	54%	90%	67%	\$1,074,481.02
	Increase habitat for bird species (e.g., migratory, threatened, and endangered, secretive marsh)	\$3,308,270.51	85%	91%	79%	\$2,005,012.43
	Increase habitats for crabs, shrimp, oysters, and fish	\$3,308,270.51	38%	100%	53%	\$678,619.59
	Increase habitats for nesting reptile species (e.g., diamond back terrapins)	\$3,308,270.51	23%	78%	78%	\$461,838.33
	Increase spawning ground for crab, fish, and shrimp (e.g., trout, redfish)	\$32,969,995.89	23%	100%	89%	\$6,763,076.08
	Reduce habitats for crabs, shrimp, oysters, and fish	(\$3,308,270.51)	56%	53%	33%	(\$326,742.77)



Category	Outcomes	Potential Value	Percent of Respondents	Likelihood of Outcome	Consequence of Outcome	Stakeholder Weighted Value
	Reduce spawning ground for crab, fish, and shrimp (e.g., trout, redfish)	(\$32,969,995.89)	11%	67%	33%	(\$814,073.97)
					<b>Total:</b>	<b>\$102,036,393.02</b>



## LITERATURE CITED

- Allison, M. A., Carruthers, T. J. B., Clark, R., Di Leonardo, D. R., Hemmerling, S. A., Meselhe, E. A., Moss, L. C., Weathers, H. D., White, E. D., & Yuill, B. T. (2018). *Partnership for Our Working Coast: Port Fourchon Phase 1 Technical Report* (p. 215). Baton Rouge, LA.: The Water Institute of the Gulf. Produced for and funded by: Shell, Chevron, Danos, and the Greater Lafourche Port Commission.
- Hemmerling, S. A., Barra, M., & Bienn, H. C. (2017a). *Restore the Earth Foundation Reforestation Social Return on Investment Report: Pointe-aux-Chenes Wildlife Management Area*. Baton Rouge, LA: The Water Institute of the Gulf.
- Hemmerling, S. A., Barra, M., & Bienn, H. C. (2017b). *Restore the Earth Foundation Reforestation Social Return on Investment Report: Tensas River National Wildlife Refuge*. Baton Rouge, LA: The Water Institute of the Gulf.
- Nielsen, J. G., Lueg, R., & Van Liempd, D. (2021). Challenges and boundaries in implementing social return on investment: An inquiry into its situational appropriateness. *Nonprofit Management and Leadership*, 31(3), 413–435.
- The Water Institute of the Gulf. (2018). *Partnership for Our Working Coast* - Water Institute.