PROJECT INFORMATION

Project Director's Name*	Michael Polito
Organization*	Louisiana State University
Project Title*	Panacea or pandora's box: coastal restoration and recreational fishing livelihoods in salt-marshes of coastal Louisiana
Reporting Period*	na

Note to Grantees: In sections 1 to 5, we ask you to highlight your accomplishments (including outputs and outcomes) through this grant award. These sections of the final grant report will be made available to the public.

1. GOALS AND ACCOMPLISHMENTS

1.1 Please restate the goals and objectives of your project.*

This project has 5 major aims. Aim 1: To characterize ecosystem structure and function in estuarine coastal salt marshes using biogeochemical tracers (i.e. stable isotopes) and ecosystem models; Aim 2: To predict effects of natural processes and human activities on fisheries services using citizen science, isotope biogeochemistry, and fisheries-independent data to improve ecosystem and fish habitat suitability models; Aim 3: To characterize and assess the vulnerabilities, adaptive capacities, and livelihood strategies of recreational fishers relative to past and predicted environmental change; Aim 4: To quantify the socio-economic vulnerability of coastal communities to socio-ecological change, particularly planned freshwater diversions, climate change, and decarbonization; and Aim 5: To use the data gathered from Aims 1 & 2 (ecological datasets) and Aims 3 & 4 (socioeconomic datasets) to build a cost-benefit analysis model that can be used to predict the potential impacts of environmental perturbations on the economic decision-making of local stakeholders.

1.2 Describe the accomplishments of your project. You should include both the anticipated accomplishments that you outlined in your project proposal as well as any *unanticipated* accomplishments that have since occurred. Describe any activities you have conducted, programmatic progress made, or project benchmarks and milestones met.*

Aim 1: Michael Polito , Kristy Lewis , Emma Morgan and Sydney Moyo lead the efforts to characterize ecosystem function using geochemical tracers and ecosystem models. Michael Polito and Sydney Moyo collated approximately ~5800 samples comprising isotope data of plants and animals from current and prior studies in Barataria Bay. The data were grouped into trophic guilds for estimations of trophic positions, basal resource use to characterize ecosystem structure and function in Barataria Bay. Emma Morgan and Kristy Lewis then compared the trophic positions derived from this stable isotope database to the trophic positions derived from the Delta Management model for Barataria Bay (De Mutsert et al. 2017) which is a Ecopath with Ecosim food web model used for coastal management and predictions. They created a Shiny App UI in R Studio to visualize the comparison between Ecopath trophic levels and the probability distribution of the SIA trophic position model. This app allows users (agency managers, academics, etc.) of the Delta Management model to validate the model relative to an independent data source that is spatially and temporally relevant to the management and restoration of Barataria Bay. In addition, the app has been created in such a way that users (agency managers, academics, etc.) can apply this approach to ecosystem models of other systems which have matching stable isotope data. The tool provides a novel method of visualizing the validation process in order to simplify the use of food web models in management. The app and a scientific paper describing it was presented at the 2022 Gulf of Mexico Conference (GoMCon) and will be submitted to a peer reviewed journal in May 2023.

Aim 2: This aim was broadly cast on understanding habitat suitability of key recreational fish species using agency data, local “citizen science” stakeholder knowledge, and stable isotope proxies. This was an important focus of a workshop we organized at the 2022 Gulf of Mexico Conference (GoMCon) in Baton Rouge, LA. This workshop included a panel of agency managers, scientists, and recreational fishing stakeholders. This includes: Melissa Daigle (Louisiana Sea Grant Law and Policy Program), Devin Denman (Louisiana Fishing Blog), Keith Espadron (Plaquemine Parish Economic Development), Ryan Lambert (Louisiana Charter Boat Association), David Lindquist (Coastal Protection and Restoration Authority), Shaye Sabel (Dynamic Solutions), and Robert Spears (Plaquemine Parish Coastal Zone Office). During this meeting we gained feedback on our efforts obtaining stakeholder knowledge of preferred fishing locations for target species via our project's Survey of Recreational Fishers (SuRF) tool described below in Aim 3. To further address Aim 2, Polito and Moyo analyzed samples and conducted a preliminary analyses of the use of sulfur stable isotope values to quantify the dietary and habitat niche of spotted seatrout along a salinity gradient within Barataria Bay as a source of fisheries-independent data to improve ecosystem and fish habitat use models in collaboration with Dr. Pamela MacRae (University of Maine). This research was presented at GoMCom and Polito and Moyo have drafted an article for publication, which will be submitted for publication summer/fall 2023.

Aim 3: Stephanie Otts led the legal research efforts for this Aim to inventory the use of the term “fishing community” in federal law. Specifically, to explore how the term “fishing community” has been defined and operationalized in public policy and research, we conducted two complementary scoping reviews, one on the legal framework and another on social science research. These efforts identified 1) how “fishing community” has been defined by different entities, 2) who is left out of those definitions, and 3) what the implications of such definitions are. We shared these results with our Project Steering Committee and other researchers and managers at the 2022 Gulf of MexicoConference (GoMCom) in Baton Rouge, LA. The research findings were summarized in a law review article authored by Stephanie Otts entitled “Fishing Communities and Public Participation in Federal Decision-Making: A Case Study of Community Opposition to the Mid-Barataria Sediment Diversion Project.” The article was accepted for publication by the Ocean and Coastal Law Journal at the University of Maine School of Law and is currently in press. During the reporting period Vanessa Parks led the development and implementation of the Survey of Recreational Fishers (SuRF) with input from the project team, students, and our Project Steering Committee. SuRF is a web-based survey of recreational fishers who fish in and around Plaquemines Parish, Louisiana, funded by the National Academies Gulf Research Program. The survey included a wide range of questions, including species-specific fishing behaviors, responses to ongoing and proposed diversions, environmental risk perceptions, trust in institutions, and socio-demographic questions. Preliminary results of SuRF were shared with our Project Steering Committee and other researchers and managers at the 2022 Gulf of Mexico Conference (GoMCom) in Baton Rouge, LA, and at the 2022 Natural Hazards Workshop (held remotely) Parks has drafted an article for publication, which will be submitted for publication summer 2023.

Aim 4: During the reporting period Brian Snyder led the Aim 4 research effort by creating a socio-ecological vulnerability index for the coastal region which includes social, economic and ecological correlates of vulnerability. These factors include the proportion of each census tract employed in natural resource industries, the proportion of each census tract in poverty, the geographic isolation of each census tract, vulnerability to land loss based on CPRA data, and proportion of the population identifying as minority. We created a simple proportional, multiplicative index and anticipate submission for publication in summer 2023

Aim 5: During the reporting period Brian Snyder led the Aim 5 research effort. In our original proposal, we planned to build a cash flow model to study the economic decision-making of charter captains. Through our team meetings and feedback from the Project Steering Committee, we identified an opportunity to develop a more novel and more sophisticated system model. We integrated a cash-flow model into an ABM. This model is intended to be a “generative social science” model that illustrates the decisions faced by fishers. In the model, clients select fishers who earn income based on the satisfaction of their clients. The model is parameterized so that a shock in the form of increased salinity occurs during the simulation. This changes fish dynamics and the social dynamics. Notably, the social system remains relatively stable in nearly all parameterizations, but the model is limited because it is not

empirically grounded. It may be possible to improve the model to allow it to more accurately model the coastal zone and this may be a future direction.

2. Outputs

Before the form is completed, you may click "Save & Continue Editing" at the bottom of the page at any time to save your work or "Next" to move onto the next page of this form.

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** denotes required fields*

2. OUTPUTS

Outputs are tangible or measurable deliverables, products, data, or publications produced during the project period.

2.1. Please indicate the number of students (K-12, undergraduate, or graduate), postdoctoral scholars, citizen scientists, or other trainees involved in the project. *

Please enter 0 if none were involved.

K-12 students	0
Undergraduate students	2
Graduate students	5
Postdoctoral scholars	1
Citizen Scientists	2
Other Trainees	0

2.2. Has your project generated any data and/or information products? *

Generation of data includes transformations of existing data sets and generation of data from existing resources (e.g., maps and images). Information products include publications, models, software, code, curricula, and digital resources.

(Check all that apply.)

Responses Selected:

Data
Information Products

2.3. Briefly describe how you fulfilled the approved Data Management Plan and, if applicable, any changes from the approved plan. *

As required we submitted and had approved by the GRP a data management plan that followed FAIR (Findable, Accessible, Interoperable, Reusable) principles, described the data to be collected and plans for its short and long term curation. We have subsequently fulfilled this plan by first creating a project homepage at GRIIDC (https://data.gulfresearchinitiative.org/pelagos-symfony/research-group/about/956) and publicly identifying the specific dataset that will be submitted to GRIIDC. As required by GRP these datasets will be made publicly available to be no later than the acceptance for publication of the main findings from the final dataset or 1 year after the project end date (2/27/2024), whichever comes first.

If your project has generated data, please download the Excel worksheet entitled GRP Data Management Reporting. Use the "Data Report" tab in the worksheet to create an inventory of data sets that you produced and to verify deposit in a curation facility. Upon completion, please upload the worksheet to your task list. If you need guidance on how to complete the Data Report, please e-mail gulfgrants@nas.edu. A member of GRP's data management staff will reach out to you.

If your project has produced publications, websites or data portals, GIS applications, models or simulations, software packages or digital tools, code, curricula, or other interactive media, please download the Excel worksheet entitled GRP Information Management Reporting. Use the "Information Products Report" tab in the worksheet to create an inventory of these products and to verify deposit in a curation facility. Upon completion, please upload the worksheet to your task list. If you need guidance on how to complete the Information Products Report, please e-mail gulfgrants@nas.edu. A member of GRP's data management staff will reach out to you.

2.4. Aside from data and information products, what other tangible or measurable deliverables or products (e.g., workshops, trainings, and outreach events) were produced during the project period? *

Upon completion of this form, you may upload supplemental material that represent the tangible or measurable deliverables or products to complement this narrative report.

Presentation of findings at public academic/professional research conferences:
Snyder, B.F. Preparing Coastal Communities for Decarbonization-Induced Socio-Ecological Stress. Oral presentation, State of the Coast, 6/2/2021 - 6/4/2021, New Orleans, LA 2021 (Virtual)

Polito, M.J.; Hooper-Bùi, L.M.; Morgan, E.; Lewis, K.A.; Moyo, S. Quantifying the trophic structure and energy pathways in Barataria Bay, Louisiana: Synthesizing isotopic data across studies to inform management. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

MacRae S.D.; Cowan J.H.; Fry, B; Russell M; Moyo, S.; Polito, M.J. The isotopic niche of Spotted seatrout across a salinity gradient in Barataria Bay, LA. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Otts, S.; Parks, V.; Hupp, K.; Paola, B.; Polito, M.J. Defining fishing communities in research and policy Parks, V.; Polito, M.J. Preliminary findings from the Survey of Recreational Fishers. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Snyder, B.F. Fishing communities as socio-ecological systems. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Moyo, S.; Bennadji, H.; Johnson, J.; López-Duarte, P.C.; Olin, J.A.; Martin, C.W.; Hooper-Bui, L.M.; Jensen, O.P.; Roberts, B.J.; Polito, M.J. Salinity changes shape the relative importance of different organic matter sources in saltmarsh food webs. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Morgan, E.; Polito, M.J.; Hooper-Bui, L.M.; Moyo, S.; Lewis, K.A. Calibrating food web models using stable isotope analysis: creating a framework to improve models for use in ecosystem management. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Presentation of findings / project participation at academic/professional workshops:
RecFishFolx stakeholder knowledge and steering committee workshop. Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA.

47th Annual Natural Hazards Research and Applications Workshop, 6/10/2022 - 6/13/2022, Natural Hazards Center, Boulder, CO (Virtual)

3. Data Management

Before the form is completed, you may click "Save & Continue Editing" at the bottom of the page at any time to save your work or "Next" to move onto the next page of this form.

When the form is completed, you may click "Mark as Complete" at the bottom of the page to save your work and return to the dashboard.

** denotes required fields*

3. DATA MANAGEMENT

In this section, please provide a response to each question to complement the **Data Report** in the GRP Data Reporting Excel worksheet.

3.1 If you listed multiple data sets in the data reporting table, please briefly describe how these data sets relate to one another. *

We have identified three datasets that are in progress and have submitted Dataset Information Forms to GRIIDC that related to the project Aims.
Literature review of carbon and nitrogen stable isotope values from taxa collected within and around Barataria Bay, Louisiana (Unique Dataset Identifier (UDI):H4.x956.000:0001)
Survey of Recreational Fishers (SuRF) (Unique Dataset Identifier (UDI):H4.x956.000:0002)
Socioeconomic Indicators in the LA Coastal Zone (Unique Dataset Identifier (UDI):H4.x956.000:0003)

3.2. Please provide a list of additional documentation to describe the data listed in the reporting table (e.g., code books, lab manuals, workflow procedures). Enter none if you did not produce any additional documentation to describe the data. *

The code for the EcoTuneR webtool has been made publicly available and will be updated following the peer review of the associated mansucript :
Morgan M., Polito M.J., Moyo S., Cassady C., de Mutsert K., Lewis K.A. EcoTuneR: A new tool for food web model validation. https://github.com/ecotuneR/EcoTuneR

3.3. Beyond depositing data and metadata in a repository, what other activities have you undertaken or will undertake to ensure that others (e.g., researchers, decision makers, and the public) can easily discover project data? What other activities have you undertaken to ensure that others can access and re-use these data in the future? *

We have presented these data at public academic/professional research conferences and workshops with agency managers, scientists, and recreational fishing stakeholders.

3.4. Are any data products you produced sensitive, confidential, and/or proprietary? *

Yes

3.4a (yes). Were these sensitive, confidential, and/or proprietary data products described in the data management plan of the approved project plan? *

Yes

3.4b (yes). If your plans for managing restricted access to and re-use of confidential data have changed since the approval of the project plan, briefly describe the new plans and procedures.*

They have not. We will follow all approved IRB protocols.

4. Information Products

Before the form is completed, you may click "Save & Continue Editing" at the bottom of the page at any time to save your work or "Next" to move onto the next page of this form.

When the form is completed, you may click "Mark as Complete" at the bottom of the page to save your work and return to the dashboard.

** denotes required fields*

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4. INFORMATION PRODUCTS

In this section, please provide a response to each question to complement the **Information Products Report** in the **GRP Information Products Management** Excel worksheet.

4.1. Please select the type(s) of information products that your project produced. *

Responses Selected:

1. Scholarly publications, reports or monographs, workshop summaries, or conference proceedings
6. Software packages or digital tools, or other interactive media

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Scholarly publications, reports or monographs, workshop summaries, or conference proceedings *

Please provide a list of citations for project publication, reports and monographs, workshop summaries, and conference proceedings.

One paper from this research has been published to date:

Otts, S., Fishing Communities and Public Participation in Federal Decision-Making: A Case Study of Community Opposition to the Mid-Barataria Sediment Diversion Project, Ocean and Coastal Law Journal (in press)

We have also had many presentation of findings at public academic/professional research conferences:

Snyder, B.F. Preparing Coastal Communities for Decarbonization-Induced Socio-Ecological Stress. Oral presentation, State of the Coast, 6/2/2021 - 6/4/2021, New Orleans, LA 2021 (Virtual)

Polito, M.J.; Hooper-Bùi, L.M.; Morgan, E.; Lewis, K.A.; Moyo, S. Quantifying the trophic structure and energy pathways in Barataria Bay, Louisiana: Synthesizing isotopic data across studies to inform management. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

MacRae S.D.; Cowan J.H.; Fry, B; Russell M; Moyo, S.; Polito, M.J. The isotopic niche of Spotted seatrout across a salinity gradient in Barataria Bay, LA. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

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Snyder, B.F. Fishing communities as socio-ecological systems. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Moyo, S.; Bennadji, H.; Johnson, J.; López-Duarte, P.C.; Olin, J.A.; Martin, C.W.; Hooper-Bui, L.M.; Jensen, O.P.; Roberts, B.J.; Polito, M.J. Salinity changes shape the relative importance of different organic matter sources in saltmarsh food webs. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Morgan, E.; Polito, M.J.; Hooper-Bui, L.M.; Moyo, S.; Lewis, K.A. Calibrating food web models using stable isotope

analysis: creating a framework to improve models for use in ecosystem management. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Curricula for education and training, GIS applications, Models or simulations, Software packages or digital tools, or other interactive media, and Other *

If you produced any additional documentation to describe information products, please provide a list of this documentation (e.g., model or simulation documentation, software manuals, source code annotation).

The code for the EcoTuneR webtool has been made publicly available and will be updated following the peer review of the associated manuscript :

Morgan M., Polito M.J., Moyo S., Cassady C., de Mutsert K., Lewis K.A. EcoTuneR: A new tool for food web model validation. https://github.com/ecotuneR/EcoTuneR

4.2. Beyond depositing information products in a repository, what other activities have you undertaken or will undertake to ensure that others (e.g., researchers, decision makers, and the public) can easily discover and access the listed information products? *

We have presented these information products at public academic/professional research conferences and workshops with agency managers, scientists, and recreational fishing stakeholders.

4.3. Are any of the information products you produced confidential, proprietary, or subject to special license agreements? *

No

5. Project Outcomes

Before the form is completed, you may click "Save & Continue Editing" at the bottom of the page at any time to save your work or "Next" to move onto the next page of this form.

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5. PROJECT OUTCOMES

Outcomes refer to the **impact(s), consequence(s), result(s), or effect(s)** that occur from carrying out the activities or outputs of the project. Outcomes may be environmental, behavioral, health-related, or programmatic. Example outcomes include, but are not limited to: increased learning, knowledge, skills, and motivation; policy changes; actions taken by a group as a result of information generated by your project.

5.1. Please describe the outcomes achieved during your project and how they were assessed. For this question, we are interested in learning about the immediate short-term outcomes that have already occurred during or as a result of your project. Do not include long-term outcomes you foresee your work contributing to beyond the end of the project. *

In regards to Aim 1, outcomes include a GitHub repository for EcoTuneR code and submission of Morgan et al. for publication to Ecosphere. The framework developed in that paper can be used globally by anyone looking for a validation tool for their food web model if they also have stable isotope data. In regards to Aim 2, the outcomes include increased learning, knowledge, and collaboration between agency managers, scientists, and recreational fishing stakeholders resulting from our 2022 workshop. In addition MacRae et al. will be submitted to Hydrobiologia. The outputs from this paper will demonstrate habitat preferences for sea trout and be useful for managers that are working on developing Habitat Suitability Indices for this species. For Aim 3, this projects has provided an increased understanding of how the term “fishing community” is defined and used in federal law; increased understanding of how the term “fishing community” is defined and used in social science research and generated a novel dataset (SuRF) that documents the attitudes and experiences of recreational fishers in the Plaquemines Parish area. Parks et al. will be submitted for publication in summer 2023. For Aim 4 and 5, we built a socio-ecological index of the LA Gulf Coast and a unique agent-based model of recreational fishers that incorporated a cash flow model. We will publish the index and model in 2023.

5.2. We're interested in hearing not just the results of your project but what are their implications for or contributions to:

- **offshore energy system safety,**
- **environmental protection and stewardship, and/or**
- **health and community resilience**

Please describe what you consider to be the most remarkable accomplishment or finding of your project. What can others learn from your accomplishment and finding? How do you see it fitting in with your greater field of study or community of practice? *

We contend that the development of a validation framework applied to food web models will provide natural resource managers a more effective way to evaluate model precision and therefore, become more confident in using models to make management decisions. In addition, our legal research related to the definition of fishing communities reveals a need for regulators, policy-makers, and advocates to be more precise when using the term "community" to ensure adequate representation of relevant communities. Environmental justice is increasingly important to policy makers and the public. The socioecological index we created helps visualize and understand environmental justice in the coastal zone and the model we built is useful because it can be used to understand how alternative events impact the community. We can use the same framework to understand how land loss or catastrophic events impact the same community.

6. Communication

Before the form is completed, you may click "Save & Continue Editing" at the bottom of the page at any time to save your work or "Next" to move onto the next page of this form.

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** denotes required fields*

Note to Grantees: In Section 6, we seek input from you to help us evaluate the Gulf Research Program's funding strategy. This section will not be made available to the public.

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6. Information to Inform GRP Evaluations

6.1. Sharing the difficulties you encountered helps us learn from your experience. Describe any challenges you encountered in your project and how you addressed or overcame them. Challenges are inherent to conducting any complex project. These may include (but are not limited to): unexpected staffing changes, changes in the community you are working in, appearance of a new technology or dataset in the field you are working in, challenges accessing a field site, policy or regulatory changes that affect the issue you are addressing, low recruitment rates, delays in setting up services, or other problems in implementing and conducting your project. *

COVID shutdowns/restrictions in 2020 delayed both our ability to travel to and collect data from our focal research area (Plaquemines Parish, LA) and meet with stakeholders in person. The pandemic also reduced institutional support for subaward management at LSU and the other institutions which delayed the disbursement of funds to subwardees. This then delayed the ability to start work and expend funds on the project. In practice, this delayed implementation of key aspects of our project. For example, based on the timeline we submitted with our proposal, we had planned to have the Survey of Recreational Fishers (SuRF) go live in December 2020 / January 2021 (about 5-6 months after an assumed project award date of 8/1/2020). However, the subaward from LSU to the University of Mississippi (UM), whose project team led the creation and implementation of Survey of Recreational Fishers (SuRF) was not executed until 11/24/2020. This delayed the creation and implementation of the survey which then went live during the summer of 2021. Similar issues with subaward delays slowed the timeline for the ecosystem modeling efforts led by the University of Central Florida (UCF) and stable isotope based analysis of food webs led by Rhodes College (RC).

Hurricane Ida in August/September 2021 significantly impacted Plaquemines Parish and Southeast Louisiana in general. One specific impact of the hurricane was that it restricted our ability to travel to Plaquemines Parish to meet with stakeholders and attend community events/meetings to recruit SuRF participants gone live. It delayed the ability of Dr. Polito and Dr. Bui from LSU and Dr. Moyo from RC to collect tissue samples and associated data from recreational fishers as planned, and contributed to a redirection in effort to samples that had been previously collected as part of unrelated projects in the past. It also affected the ability of our project steering committee members (some of who run recreational fishing businesses in the parish) to communicate with and participate in project team meetings. While many in the Parish are still recovering from the effects of Ida, improving conditions have subsequently allowed the project team and committee members to restart meeting, and the project team has conducted additional survey recruitment and data collection in Plaquemines Parish.

There was one additional delay to note due to the transition of project co-PI Dr. Vanessa Parks from UM to RAND Corporation. The change in employment required the issuance of a subaward that was not anticipated in the original budget, necessitating UM to request approval from LSU and NAS. This paperwork took longer to complete than anticipated, and once the subaward was in place, RAND Corporation had to obtain IRB approval. During this

transition, Dr. Parks was not able to access or analyze the survey responses. The SuRF is a key link across the interdisciplinary aims of the project.

6.2. We like to hear about what you learned from your work and how you feel it affects future work or the work of others. Think back on your project strategies, methods, and activities, what worked and what did not? Is there anything you would do differently in the future? If so, tell us what and why. *

We had originally proposed to develop a model definition for the term “fishing community” However, upon further research into the term “community” we learned that a model definition would not be feasible or advisable. That discovery led us to shift focus to thinking about how the failure to clearly define the relevant “community” can impact public engagement and consideration. Similarly, we originally intended to complete a simple NPV model for aim 5, then decided to complete a more sophisticated ABM that included a cash flow calculation. However, empirical grounding of this ABM proved more difficult than anticipated, and so we have a model that is good for understanding the dynamics of the system, but the system is somewhat abstract. We still believe that this is far more interesting than the original plan, but in the future we would be more cautious about expanding the scope.

6.3. What are the next steps for this work, either for you and your project team or other researchers? Has this project led to other opportunities to work in this area? *

Clarity of definitions is important in all aspects of coastal policy. Lessons learned from this research will inform the development of future projects examining fisheries management. Using these guiding principles the team plans to integrate survey data into other models. The SuRF dataset includes information about community sentiments, behavioral health, fishing behaviors, and what is perhaps most exciting, citizen-science-inspired interactive maps coded into the survey instrument where respondents can share information about fishing locations. There is a small and growing literature on residents’ attitudes about diversions. Our team’s focus on recreational fishers is a unique contribution to this literature and these data can be used in food web models or other research products in the future.

6.4. Have you developed new collaborations or partnerships (formal or informal) as a result of this work? If yes, please describe the new collaborations or partnerships. *

This project has led to another grant proposal (including Parks and Lewis) to the National Academies using similar methods (integrating social science data into other models) but focusing on environmental pollution in the Lake Charles area.

6.5. What, if any, positive changes in policy or practice do you foresee as a result of your work? *

We hope the webtool we developed in this project will allow coastal zone managers to create better models and/or improve and have more faith in the predictions of existing models such that they can better predicted the ecological and social effects of coastal restoration.We also hope there will be more awareness of the need to clearly define the relevant communities in policy conversations. Finally, we hope that the SuRF data will speak to the different concerns of individuals living and fishing around the Plaquemines Parish region and help them have a voice in restoration future planning.

6.6. If you could make one recommendation to the Gulf Research Program for how best to build on the work you conducted in this project, what would it be? *

Many residents of the areas around and downstream of the proposed diversions feel that their concerns were not taken into account in the plans for the diversions and other coastal restoration plans. I recommend that, as these projects are undertaken, the GRP prioritizes research on how residents are impacted.

7. Communication and Dissemination

Before the form is completed, you may click "Save & Continue Editing" at the bottom of the page at any time to save your work or "Next" to move onto the next page of this form.

When the form is completed, you may click "Mark as Complete" at the bottom of the page to save your work and return to the dashboard.

** denotes required fields*

Note to Grantees: In Section 7, we ask you to help us communicate the importance, progress, and accomplishments of your work. Information provided in this section will be used by the Gulf Research Program to highlight its funded projects in print and electronic informational and promotional materials. The intended audience for the information provided in this section is different and should be thought of as a general audience. When you return to the dashboard, you may upload images that represent and illustrate the work of your project.

7.1. Please describe the most exciting or surprising thing you have learned while working on this project in a way that is understandable by a general audience. *

One of the more unexpected findings in our project was that there is really no standard definition of fishing community in use on the federal or state level. In part, this is because the term “community” is quite fluid and can mean very different things to different people depending on the context. So, it would be difficult to construct a definition of a fishing community that would work in all situations. It is really important to keep this in mind when developing policy or conducting public engagement activities as the relevant community must be defined clearly for the particular context.

7.2. Do you have any stories that capture the impact of this project? (optional)

If so, please share one or two. Examples of what we are interested in include stories of people/communities that the project has helped; lives that have changed; work that led to policy change, such as legislation or regulation; and research breakthroughs.

N/A

7.3. Have any communications, outreach, or dissemination activities occurred in relation to your project?*

Please describe:

- Any press releases issued (other than that issued by the National Academies of Sciences, Engineering, and Medicine) about the project.
- Any media coverage or news stories about the project.
- Any social media accounts, websites, listservs, or other communication vehicles used to communicate information about this project. Please include relevant web addresses if available.

We presented the results of our research as public academic/professional research conferences:
Snyder, B.F. Preparing Coastal Communities for Decarbonization-Induced Socio-Ecological Stress. Oral presentation, State of the Coast, 6/2/2021 - 6/4/2021, New Orleans, LA 2021 (Virtual)

Polito, M.J.; Hooper-Bùi, L.M.; Morgan, E.; Lewis, K.A.; Moyo, S. Quantifying the trophic structure and energy pathways in Barataria Bay, Louisiana: Synthesizing isotopic data across studies to inform management. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

MacRae S.D.; Cowan J.H.; Fry, B; Russell M; Moyo, S.; Polito, M.J. The isotopic niche of Spotted seatrout across a salinity gradient in Barataria Bay, LA. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Otts, S.; Parks, V.; Hupp, K.; Paola, B.; Polito, M.J. Defining fishing communities in research and policy Parks, V.; Polito, M.J. Preliminary findings from the Survey of Recreational Fishers. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Snyder, B.F. Fishing communities as socio-ecological systems. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Moyo, S.; Bennadji, H.; Johnson, J.; López-Duarte, P.C.; Olin, J.A.; Martin, C.W.; Hooper-Bui, L.M.; Jensen, O.P.; Roberts, B.J.; Polito, M.J. Salinity changes shape the relative importance of different organic matter sources in saltmarsh food webs. Oral presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Morgan, E.; Polito, M.J.; Hooper-Bui, L.M.; Moyo, S.; Lewis, K.A. Calibrating food web models using stable isotope analysis: creating a framework to improve models for use in ecosystem management. Poster presentation, Gulf of Mexico Conference (GoMCon), 04/25/2022 - 04/25/2023, Baton Rouge, LA

Media coverage:

Ole Miss Researchers Part of Team Studying Louisiana Fishing Communities:

http://www.thelocalvoice.net/oxford/ole-miss-researchers-part-of-team-studying-louisiana-fishing-communities/