

## PROJECT INFORMATION

Project Director's Name*	Maureen Lichtveld
Organization*	Tulane University
Project Title*	Climate, culture, movement: Navigating decision-making in a shifting landscape for a resilient United Houma Nation
Reporting Period*	10/1/19-9/30/23

**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.\*

Goal: To enable the United Houma Nation (UHN) to determine how to best support its citizens to sustainably adapt to climate and related acute and long-term stressors while maintaining the integrity of its community and culture.

Objective 1: Characterize the role of movement in UHN and the implications for resilience at the individual, household, and community levels.

Objective 2: Strengthen climate action in six case communities.

Objective 3: Build UHN decision-making capacity to identify and implement resilience strategies to counter the triple burden of ecosystem, climate, and social stressors.

Objective 4: Translate and disseminate research findings into actions to bolster the resilience of UHN and other Gulf Coast communities.

**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.\***

Objective 1: Characterize the role of movement in UHN and the implications for resilience at the individual, household, and community levels.

Interviews and ethnographic research

The University of Arizona Bureau of Applied Research in Anthropology (UA) and UHN community researchers were responsible for in-depth collaborative ethnographic research and key informant interviews. The ethnographic and interview data were designed to “explore in depth what tribal citizens in each community are facing, what they are already doing, how they frame their experiences and responses, and what they believe they need to do in the future” and to “document and analyze the decision-making process regarding movement through the lens of culture.” Data collected between December 2020 and June 2023 included ethnographic research and interviews—both online and in-person—supported by regular meetings between university-based and community ethnographers.

Structured around concepts of sending and receiving communities, the initial study design envisioned ethnographic research in Golden Meadow and Jean Lafitte and key informant interviews in six case study communities: Dulac, East Houma, Golden Meadow, Jean Lafitte, St. Bernard, and Slidell. The COVID-19 pandemic and Hurricane Ida caused severe disruption in all the communities and led to significant changes in plans. Given the original framework was no longer viable due to the destruction and disruption across the region, the research areas were redefined to be: (1) central to southern Lafourche and Terrebonne parishes, and (2) areas outside that region. Restrictions on travel for researchers as well as massive dislocation of tribal citizens during the first two years of the research led to modifications of the research methods as well. In addition to adapting to remote observation via web and social media sites and to online rather than in-person interviews, the researchers incorporated residential timelines (personal histories of movement) into the data collection protocols. Data were collected in six phases: (1) December 2020 (virtual interviews); (2) Fall 2021 (virtual ethnography with two week in-person scoping visit to inform the research redesign); (3) February 2022 to January 2023 (community ethnographer onsite and university-based ethnographers mostly remote); (4) mid-April to May 2022 (in-person ethnography and interviews); (5) October 2022 (in-person interviews and project wrap-up); and May 2023 (in-person ethnography). University-based and community ethnographers remained in contact throughout the study and met weekly during 2022; these weekly team meetings were critical to the collection, analysis, and synthesis of the data and the notes from these meetings constitute an important dataset. Data analysis took place throughout the project with information from each phase informing the remaining ones. In 2021 and 2022, themes were identified and summarized to inform the other project elements, especially the participatory mapping.

Throughout this study, UHN individuals, households, extended families, and communities received huge amounts of information under emotionally—and often politically—charged conditions, while at the same time the COVID-19 pandemic and Hurricane Ida caused significant impacts. Consequently, UA and UHN team members began searching for ways to translate the findings from the ethnographic and interview data collection into an interactive tool that would facilitate exploration of complex information representing multiple perspectives. The team members concluded that the most appropriate tool would make information available in a structured but nonlinear manner, allowing each user or group of users to move through the material in whatever order they chose and at their own pace. Team members consulted with tribal leaders who supported the creation of the interactive tool but urged the team to build in safeguards to prevent users from spending too much time in “dark” places. Consequently, several key principles guided the design of the interactive tool:

1. The tool must be available for use by individuals still living in the core tribal communities in southern Louisiana and elsewhere.
2. The tool (or portions of it) should be available to non-tribal citizens to help them understand the experiences and perspectives of tribal citizens.
3. The medium itself must be deeply reflective of the culture; users' experience with the tool must reflect the collective experience as well as individual perspectives of tribal citizens.
4. The tool incorporates secondary data and information from other elements in this study (maps) to help users contextualize the information gathered during the ethnographic research and key informant interviews.
5. The tool must allow people to process loss and grief but also focus on other aspects of their communities; it must provide a virtual space to think about and try out different scenarios.
6. Example messages include: the bayou never leaves you; decisions to stay and to leave are complex and can both be motivated by love.

The team members and tribal leaders settled on a web-based tool that could be designed, constructed, and demonstrated during the project period and passed to the UHN for continued development and use beyond the project. Thus was born the ADAPTUHN webtool. The interactive webtool was developed in five phases with tribal input during each phase and official approval by the tribal council. The tool has been built, but is awaiting final tribal review and approval prior to going public.

## Survey

Arizona State University (ASU), Tulane University and UHN created a cross-sectional survey measuring participants' ethnic identity, historical trauma, discrimination, self-reported mental health, social support network, perspectives of environmental change, household and individual level resilience, and movement. The team started recruiting for the movement and resilience survey in May 2022 and closed survey recruitment in August 2023 with a total of 124

participants. We anticipated starting survey recruitment in fall 2021 when COVID-19 cases were reduced, but with Hurricane Ida occurring in August 2021, we delayed until May 2022.

In year four, staffing changes at UHN required a new recruitment protocol. Jasmine Fournier at Tulane trained three staff people at UHN to conduct survey recruitment and to administer the survey according to the study protocol (interviewer-assisted administration either in-person, on the phone or via zoom). Fournier also administered the survey, as did Shanondora Billiot at ASU. Despite the continued efforts of the study team, survey participation was lower than anticipated; the planned sample size was 261. Feedback from UHN personnel indicated that there were many competing priorities for tribal citizens, which impacted enthusiasm for research participation. Recruitment methods from May 2022 to August 2022 included snail mail letter, phone calls, and text messages to a random sample of 866 tribal citizens. In September 2022, we switched to convenience recruitment and information was distributed on UHN's social media sites, via in-person outreach, and by contacting internal lists of potential participants (e.g., a list of tribal elders).

Preliminary data analysis shows that the sample was primarily from the sending communities (71%), with more females than males (68%), and over the age of 55 (49%). Work was done by the Tulane team and recruiters at UHN to contact more individuals outside of the sending communities, but the response rate was low. Staff at Tulane worked closely with the Tribe, UNO and Experian (the data analytics company) to obtain new contact information for tribal citizens. However, delays with the data and capacity at the Tribe did not allow for the new information to be used in the recruitment process as previously planned. Shanondora Billiot and Maureen Lichtveld (PI) at the University of Pittsburgh will take the lead on completing the analysis of the survey data and preparing a peer-reviewed journal article. Aggregated survey results and the dataset will be provided to the Tribe.

## Objective 2: Strengthen climate action in six case communities

### Participatory mapping

LSU and UNO initially planned to conduct participatory mapping interviews with 10 tribal citizens in the study area. LSU and UNO pivoted activities to be more relevant to working with UHN project partners given the ongoing pandemic and on-the-ground conditions post Hurricane Ida. Considering these challenges, we adapted our engagement strategies with the Tribe for informing the participatory mapping activities. The group decided to implement focus groups in place of in-depth interviews. The focus groups included aspects of participatory mapping.

The LSU and UNO team worked with the UHN project partners in a series of meetings to determine the number, location, and participant make-up of the focus groups, develop and refine focus group questions, and identify potential map content for the participatory mapping. LSU and UNO also worked with the UA team to leverage their

ethnography efforts for the focus groups and planning participatory mapping exercises. The UA team shared a summary of the preliminary themes that emerged from analyses of the ethnography interviews. Working with the UA team, we used that information to identify data sources that could inform maps developed for the focus group meetings and identified questions and concepts that could warrant further inquiry in the focus groups, or that the UA team could follow up on with their remaining key informant interviews.

The UHN project partners recruited a total of 13 participants for three focus groups. Focus groups were conducted between March and September 2023 in three study areas: Terrebonne and Lafourche parishes (3 participants) Jefferson Parish (5 participants) and St. Mary Parish (5 participants). To help facilitate information sharing and to spark conversation during the focus group meetings, the LSU team developed maps based on a combination of information and data shared by the UHN, such as Hurricane Ida damage surveys of Tribe members, the Tribe's priorities related to coastal hazards risk assessment, response, and recovery, and publicly available geospatial datasets. The UHN hosted the LSU team at their office in Houma for a 'map meeting' to go over initial versions of the maps to be used in the focus groups and provide feedback and input to finalize the maps.

We also realized from the map meeting and subsequent discussions that we needed to identify a way to present the information on the maps in a way that was interactive, but relatable to participants who may not be tech savvy or spatially oriented learners. Therefore, we developed a method of using transparency overlays on printed base maps to represent the data and information to be shared while also offering a straightforward way that participants can write and draw directly on the transparency overlays to record their observations. Each data layer was printed on a separate transparency that was oriented so that it could be overlaid on the base map and/or other data layer transparencies during the facilitated conversations.

Data and information included in the maps and transparency overlays included:

- Terrebonne & Lafourche Parish Elevation
- Hurricane Ida Inundation and Max Wind Speed
- Hurricane Ida UHN Member Damage Assessment
- Jefferson Parish Elevation
- Hurricane Katrina Max Inundation & Max Wind Speed all with UHN Residential Properties
- St. Mary Parish Elevation
- Hurricane Barry Inundation with UHN Residential Properties
- Levees and restoration projects for the three focus group area sites
- Historical land loss for the three focus group area sites

Besides helping to facilitate information sharing during the focus group meetings, the Tribe determined that the map data could:

- 1) help recruit more members to provide damage assessment information in service areas where they have sparse responses (both help the Tribe prioritize areas for recruitment efforts and elicit more information from members once they see how the data they provide can be used);
- 2) help the Tribe better assess wind versus water damage (insurance treats these very differently) and provide information to help members make more informed decisions about adaptation decisions including if and where to relocate and what type of home to relocate to or build (risk versus cost);
- 3) aid the Tribe in its Hurricane Ida relief efforts and applications for mini-grants related to recovery efforts. (This includes helping the Tribe to prioritize relief efforts to members/areas most vulnerable to another storm given their status in still recovering from Ida).
- 4) be useful for the Tribe's federal recognition process if historical relocations are included.

UHN project partners requested additional mapping support for the focus groups/map meetings that was leveraged across multiple project activities as the team continued to adapt to the challenges faced by the UHN post-Hurricane Ida. As an example, the LSU and UNO teams summarized and mapped the residential timeline data from the UA team's ethnographies as a pilot to develop a method of mapping this information so that it could be included in the visualization platform that the UA team created as a final product for the UHN.

We were successful in developing a Town Type Map that shows Dulac serving as the origin of the movement, the towns used as intermediate stops, and the towns of final destination. We also developed an Intermediate Stops Map that shows the number of times a town was utilized as an intermediate stop, and a Final Destination Map shows the number of times a town was a final destination. We successfully developed and tested the mapping methods on the Dulac dataset, but other areas where ethnographies were conducted could be summarized and mapped in the same way.

As another example of additional mapping support, the UHN asked us to try and identify where the historical communities of Fala and L'Eskine are on a map. These were once UHN communities that have been lost due to land loss and the out migration of residents. The LSU team was able to identify the community of Fala using records in historical archives and data from the USGS and NOAA. We mapped and presented this information to the UHN via a PowerPoint format. These maps and information were also shared with the UA team to be included in the data visualization platform they developed.

In addition, a draft StoryMap developed by the LSU team that includes GIS-based maps and information developed from the Hurricane Ida impact data provided by UHN and other sources were shared with UHN for input and feedback. This feedback is being incorporated and the final version will be provided to UHN to be used as an outreach and engagement tool as part of broader project deliverables.

## Digital Storytelling

Tulane worked closely with the Tribe to determine the best use of program funds for digital storytelling. The Tribe lost GRP funded staff in year 4 and decided to work with UA on a virtual webtool instead of the original digital storytelling project to be implemented in collaboration with Tulane.

## Archives and Research Center

In January 2023, Melanie Moriarty (previously Hayes), part-time archivist, resigned to pursue other work. In March 2023, Kathleen Bergeron, part-time archivist and tribal elder, sadly passed away. The Tribe did not fill these positions and they were vacant for the final months of the project. Before their work ended, Mss. Moriarity and Bergeron were able to complete a portion of the document digitization and actively participated in planning for an archive when the Tribal Center is restored to full capacity. (Renovations of the Tribal Center after Hurricane Ida are ongoing.)

## Objective 3: Build UHN decision-making capacity to identify and implement resilience strategies

### Internal Evaluation

For our internal evaluation, we are most interested in learning how our partnership worked and what we could do to improve effectiveness. We focused on a few key questions: What is working well? What are some barriers/challenges to our work and how can we address them? In year 3, we implemented reflection discussions during two monthly team meetings on pre-selected topics. Partners were able to provide input ahead of time using a Qualtrics form and gave input on issues that were most important to them. Hannah Covert (University of Pittsburgh) guided the discussions and Jasmine Fournier took detailed notes. After the second reflection session, the partners decided to postpone further reflections until more data were collected. In year 4, we held a final reflection session at a monthly team meeting. Final reflections included the following: a) the importance of maintaining UHN at the center of all work, b) we had to pivot our research plans several times and try multiple methods, c) we stuck with the project, despite nothing going as planned, d) the proposed project was ambitious (perhaps overly ambitious), e) the loss of team members and staff turnover posed challenges, f) due to the pandemic and the hurricane, much of our work was condensed to January 2022 to September 2023, and g) it is necessary to plan for disasters when implementing future projects in the region.

### Plan Analysis

The UNO team conducted an analysis of existing plans to identify relevant resilience strategies for UHN. For the plan analysis the UNO team collected and coded 18 local, state, and federal-level documents. The documents include parish hazard mitigation plans, LA SAFE Adaptation Strategies, the 2017 Louisiana Coastal Master Plan, the Louisiana Climate Action Plan, federal agency adaptation plans, and tribal climate adaptation guides. We coded the plans for key themes using Dedoose qualitative analysis software. We used both a deductive approach

based on key concepts in the adaptation literature and an inductive approach to identify emergent themes. We utilized a two-level code aggregation, identifying first-order codes that we categorized into second-order themes.

The analysis of local and state plans has helped us to document current adaptation efforts in the case communities and the implementation of existing climate change-related efforts. The federal and tribal climate adaptation guides have provided guidance on other efforts that can be undertaken to protect local traditions and culture when planning for environmental impacts. LSU and UNO will present focus group and plan analysis findings to the Tribe for their feedback on the maps and thematic summaries and development of recommendations to consider in combatting future impacts.

Objective 4: Translate and disseminate research findings into actions to bolster the resilience of UHN and other Gulf Coast communities.

Tulane and University of Pittsburgh personnel met with the UHN Principal Chief and the Tribal Administrator to discuss how to best disseminate research findings to tribal citizens. Tribal leadership emphasized that they would take the leadership role in dissemination and were primarily focused on using the ADAPTUHN webtool, which is an information product, not a research deliverable. Tribal leadership worked closely with UA and UNO to determine what information would be available through the webtool. The project's other information products and the research data (as outlined below) will be provided to the Tribe by the university-based study teams to disseminate as they see fit.

## 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.

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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## 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	1
Graduate students	11
Postdoctoral scholars	2
Citizen Scientists	0
Other Trainees	3

2.1a. Other Trainees \*

Please describe who are the "other trainees" involved in your project.

The "other trainees" listed are post-baccalaureate interns at University of Arizona who were working on the virtual ethnography data collection.

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. \***

The original data management plan was drafted when the proposal was written in 2018. In year one of the project, we realized this plan was inadequate for the project's purposes and did not reflect the need to foster an ethical, equitable research partnership with UHN. We consulted with the Indigenous Wellness Research Institute at the University of Washington on data sharing agreements with Tribes, implications of public access data repositories for AIAN community protection, and ways for reducing risk to AIAN research participants. Protecting identifiers of a AIAN community is just as important as protecting identifiers of individual participants. Then, Hannah Covert researched data repositories and determined that the originally selected repository, ICPSR, did not accommodate data sovereignty issues. Moreover, much of our generated data is classified as confidential and restricted. Later, GRP selected GRIIDC as the repository for all GRP funded projects. Dr. Covert drafted a new Data Management and Sharing Plan (DMSP) in January 2023 which indicates GRIIDC as the selected repository for the project. This plan has been updated periodically. The plan was shared with GRP personnel (Robert Gasior and Rachel Lipsy) after a zoom meeting with them in August 2023. The project team has carefully determined what data are confidential and restricted, and thus will not be deposited at GRIIDC. This determination is reflected in the new DMSP and also in this report.

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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](mailto:gulfgrants@nas.edu). A member of GRP's data management staff will reach out to you.

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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](mailto:gulfgrants@nas.edu). A member of GRP's data management staff will reach out to you.

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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.

Nothing to report.

### 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*

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### 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.

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

All datasets generated by the University of Arizona relate to and inform one another. The ethnographic field notes informed the questions and focus of interviews, helped researchers interpret interview responses, and informed team meeting discussions. Likewise, interview responses informed areas of focus in the ethnographic field notes and team meeting discussions, and team meeting discussions contextualized findings from and guided the ethnographic data collection and interviews.

The datasets/maps used and produced by UNO and LSU all relate to aspects of coastal hazards and risk that were determined to be useful to include in outreach and informational products provided to UHN through input and feedback shared during the team Zoom meetings, the map meeting at the UHN offices in Houma, and focus group meetings.

The survey dataset is related to ethnographic mapping, ethnography, the coastal hazards, risk and adaptation. They survey recorded moves in the past 20 years and the reason for moving. This same data was also collected in the focus groups and key informant interviews, though the data collection methods were different and there was little to no participant overlap.

**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. \***

UNO and LSU produced:

- 1) Codebook for plan analysis
- 2) Focus group interview guide
- 3) Base maps

The University of Arizona produced:

- 1) Key informant interview guide
- 2) Structured codebook for interviews and participant observation

The codebook was developed following Kathleen MacQueen and Eleanor McLelland (1998; "Codebook Development for Team Based Qualitative Data Analysis," Cultural Anthropology Methods 10(2):31-36) and was used to code the data from interviews and participant observation. The codebook includes examples for each code and these examples contain potentially identifiable information. Thus, the codebook is confidential.

ASU, Tulane and University of Pittsburgh produced:

- a) Movement and resilience survey tool
- b) Data dictionary for survey

**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? \***

There is a need to limit data sharing for this project. Informed consent documents are silent on the scope and extent of data sharing and future research use and Tribal policy prohibits public access to data concerning the Tribe. UHN will receive copies of data generated by the project and can use them as appropriate for their needs, which may include an application for federal recognition.

**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? \***

No

**3.4b (no). For the sensitive, confidential, and /or proprietary data products that were not described in the data management plan of the approved project plan, please describe why they must remain confidential. Please note if (and when) you plan to make these data publicly available in the future or if they must remain confidential indefinitely. \***

As described above, we have a new Data Management and Sharing Plan that replaces the original plan submitted with the proposal. This new plan was shared with GRP in August 2023. All confidential and restricted data are listed in the new plan and will not be deposited at GRIIDC. These data will remain confidential indefinitely due to Tribal policy and lack of informed consent for data sharing and future research use.

**3.4c (no). Please describe any other changes to your plan for managing restricted access to and re-use of confidential data since the approval of the project plan that are not captured in Question 3.4b (no). Briefly describe the new plans and procedures. If there are no other changes that are not captured in Question 3.4b (no), please state that in the text box.\***

Below is the list of data generated from the project.

#### UNO and LSU Data Products

Not Confidential, Sensitive or Proprietary:

- 1) Coding data from plan analysis
- 2) Hurricane Ida Inundation and Max Wind Speed
- 3) Levees and restoration projects for the three focus group area sites
- 4) Historical land loss for the three focus group area sites
- 5) The 'land lost' archival communities layers representing historical community of Fala.

Confidential, Sensitive or Proprietary:

- 1) Focus group data (researcher notes)
- 2) Hurricane Ida UHN Member Damage Assessment
- 3) Hurricane Katrina Max Inundation & Max Wind Speed all with UHN Residential Properties
- 4) Hurricane Barry Inundation with UHN Residential Properties
- 5) Dulac ethnography residential timeline Town Type Map
- 6) Dulac ethnography residential timeline Intermediate Stops Map
- 7) Dulac ethnography residential timeline Final Destination Map

#### University of Arizona Data Products

Confidential, Sensitive or Proprietary:

- 1) Ethnographic field notes
- 2) Key informant interview notes.

#### Arizona State University, Tulane University & University of Pittsburgh Data Products

Confidential, Sensitive or Proprietary:

- 1) Survey data (source data)

## 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.

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**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 |
| 2. Websites or data portals   |
| 4. GIS applications   |

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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.

NA
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## Websites or data portals \*

Please provide a list of project websites and data portals (including the website URL).

### UNO and LSU Information Products

- 1) StoryMap – confidential
- 2) Report of plan analysis – not confidential

### University of Arizona Information Products

- 1) Interactive webtool – not confidential. This product was delivered to the UHN with a separate staging website link that is unsearchable but can be shared with tribal officials for thorough review. Once the review and necessary edits are complete and the UHN leaders are ready for the site to be made public, it will be linked to the domain name, [adaptuhn.com](http://adaptuhn.com). Relevant search engine optimization tags will be created to increase the online keyword search reliability and the speed of the site, and increase web ranking as relevant to the content of the site.

### ASU, Tulane and University of Pittsburgh Information Products

- 1) Survey results report (aggregate) – confidential.

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**How long beyond the grant period will you maintain the project website/data portal and its contents? Please describe plans to archive the website/data portal and its contents after regular maintenance concludes.\***

The webtool and the elements from which it was created (audio and video files, photographs, tables and graphs with secondary data), along with written consent for tribal use of those elements, were delivered to the UHN prior to September 30, 2023. The domain name for the webtool, [adaptuhn.com](http://adaptuhn.com), has been purchased for five years and can be renewed for as long as the site is relevant to the UHN. The site can be updated and expanded by the UHN as needed.

**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).

NA

**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? \***

Once the tribal officials have completed the review and any necessary editing, the webtool will be available at the UHN official website, URL: <https://unitedhoumanation.org/>. Overall, there is a need to limit information sharing for this project. Tribal policy prohibits public access to information concerning the Tribe. UHN will receive copies of the information products generated by the project and can use them as appropriate for their needs.

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

Yes

**4.3a (yes). Were these information products that are confidential, proprietary, or subject to special license agreements described in the data management plan of the approved project plan? \***

No

**4.3b (no).** For those information products that are confidential, proprietary, or subject to special license agreements and not described in the data management plan of the approved project plan, please describe why they must remain confidential. Please note if (and when) you plan to make these data publicly available in the future or if they must remain confidential indefinitely. \*

As described above, we have a new Data Management and Sharing Plan that replaces the original plan submitted with the proposal. This new plan was shared with GRP in August 2023. All confidential and restricted information products are listed in the new plan and will not be deposited at GRIIDC. These products will remain confidential indefinitely due to Tribal policy.

**4.3c (no).** Please describe any other changes to your plan for managing information products that are confidential, proprietary, or subject to special license agreements since the approval of the project plan that are not captured in Question 4.3b (no). Briefly describe the new plans and procedures. If there are no other changes that are not captured in Question 4.3b (no), please state that in the text box.\*

Nothing more to report.

## 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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*\* denotes required fields*

### 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. \***

-Key outcomes for the University of Arizona include increased learning, knowledge, skills, and motivation to advance ethnographic research in the following areas: (1) virtual ethnography and interviewing; (2) collaborative research integrating ethnography with other approaches across multiple institutions and academic disciplines; and (3) development and production of an interactive webtool to share the findings of ethnographic research with the community in lieu of a written document.

-Knowledge was generated for the Tribe about movement patterns of tribal citizens, location of a historical community, and spatial information on hurricane damage to residences.

-Team members gained skills in conducting community-based participatory research during disasters.

**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? \***

There is greater understanding of the cyclical patterns of movement of individuals and families who leave coastal communities but then return—often repeating this cycle multiple times. Movement is not unidirectional. These patterns have significant implications for health and community resilience.

## **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.

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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**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. \***

We experienced almost all of the challenges listed above: staffing changes, changes in the community, challenges accessing the field site, and low recruitment rates (for the survey and focus groups). We had to pivot research methods and experienced multiple delays in project timelines due to the pandemic as well as Hurricane Ida and continuing recovery (damage to the Tribal Center and homes causing displacement; mental stressors and fatigue). Changes related to overall project team staff, including turnover of UHN staff and the death of Ms. Kathleen Bergeron, caused additional setbacks. Finally, communication and information sharing across partners was fairly limited, perhaps because each study team was often working independently with the Tribe and did not have established working relationships prior to 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. \***

-In terms of methods, the use of low-tech transparencies for the mapping was effective and very accessible to focus group participants. Likewise, in-person survey administration was more successful than administration via phone or zoom.

-Contingency plans must in place to accommodate for events as hurricanes and pandemics, that may necessitate changes to the overall course of the project (i.e., timeline, methods, appropriate deliverables).

-The integration of community and university-based ethnographers was critical to the success of the ethnographic research component led by University of Arizona team. While this team's research has benefitted from this approach in prior collaborations, the environmental and social conditions brought on by the COVID-19 pandemic and Hurricane Ida made it imperative in this study.

-Overall, collaboration among partners was impeded by siloed working groups, exacerbated by the pandemic and the hurricane. The lack of previous working relationships among the university partners was a further challenge when dealing with the major disruptions we experienced. When in-person interaction and trust-building is impossible (as was the case for much of this project), it is helpful to have study partners that you have successfully worked with in the past.

**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? \***

-Continue to work with UHN to identify how project deliverables can best be packaged to ensure usability.

-University of Arizona developed the interactive webtool based on experience working with other Tribes and sensitive data, but the circumstances of this study required greater innovation. This enabled them to rethink the development and application of this alternative mechanism for sharing findings of ethnographic work beyond the project team and participants.

-The survey team worked to develop a resiliency scale appropriate for American Indian populations. This tool took into account a non-western theoretical framework to better capture the ability of American Indians to adapt in an changing coastal environment. The scale, which was ultimately not implemented in this project, could be used in future work.

**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. \***

The university partners participated in this project due to prior collaboration with UHN. This experience broadened and deepened our relationship and connection with other researchers in southern Louisiana. There are, however, no new specific collaborations or partnerships to report.

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

It is unlikely there will be positive changes in state-level policy as a result of our work. In terms of practice, we expect our work will inform how the Tribe interacts with tribal citizens and develops future initiatives around environmental change and movement.

**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? \***

Proposals for projects in the Gulf Coast region need to include contingency plans due to the large-scale disasters in the region. These plans needs to allow for making significant changes to research design and deliverables.

## 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*

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**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.

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**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. \***

After completing mapping activities to assess the damage to tribal citizens' residences of from Hurricane Ida, we realized that much of the highest reported damages were outside of the highest wind speed or inundation zones. Noticing this, UHN requested that we include datasets in the maps that relate to structure type, repetitive flood loss, or value information. Tribal citizens familiar with the areas and damages depicted in the maps noted that it looks like some members who have moved farther inland or 'up the bayou' over time to perceived less 'risky' areas incurred a lot of damage because they now reside in mobile homes or trailers to save cost; in reality these types of dwellings are vulnerable to storm damage. This illustrates the cost/benefit decision-making process that tribal citizens have been making over the years due to repetitive flood loss to more hardened structure-type homes closer to the coast or 'down the bayou'. The Tribe sees the maps as helping to inform these types of cost/benefit relocation decisions its citizens continue to make.



## 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.

Nothing to report.

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### 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.

Year 4

-The University of Arizona website tool will be available at [adaptuhn.com](http://adaptuhn.com).

Year 3

- EPP/MSI Undergraduate Scholar Summer Research Symposium (virtual presentation) by Tatyana Villela. Title: Impacts of Environmental Changes to the United Houma Nation; Mentors: Brooke Carney, Emily Maung-Douglass, and Matt Bethel, NOAA OAR/Sea Grant, August 3, 2022.

Year 2

-Nothing to report

Year 1

-A LSU press release announcing the award was published on 10/28/2019 that included information about LSU/Louisiana Sea Grant's involvement in the project:

[https://www.lsu.edu/mediacenter/news/2019/10/28engineering\\_seagrant\\_nasemgrants.php](https://www.lsu.edu/mediacenter/news/2019/10/28engineering_seagrant_nasemgrants.php)

-The University of New Orleans published a news story on the project on October 28, 2019. The story was posted on UNO's website and was included in the Spring 2020 edition of UNO's magazine, Silver & Blue. The original news story was found at: <https://www.uno.edu/news/2019-10-28/uno-researchers-study-community-resilience-part-of-55-million-grant>.

-Tulane issued a press release announcing the award on October 23, 2019 and it was circulated to the entire campus in the daily email called Tulane Today on October 24: <https://news.tulane.edu/pr/tulane-researchers-partner-united-houma-nation-climate-and-health-resilience-study>

<https://news.tulane.edu/sites/news/files/tulanetoday102419.html>

-The Tulane School of Public Health and Tropical Medicine posted the Tulane press release to their Facebook

page on October 22, 2019: <https://www.facebook.com/TUSPHTM/posts/10157950904774668>

-New Orleans City Business magazine (10/28/19) and US News and World Report (10/27/19) featured the same short article from The Associated Press about the project:

[https://neworleanscitybusiness.com/blog/2019/10/28/tulane-project-to-aid-united-houma-](https://neworleanscitybusiness.com/blog/2019/10/28/tulane-project-to-aid-united-houma-nation/)  
[nation/https://www.usnews.com/news/best-states/louisiana/articles/2019-10-27/tulane-project-to-aid-united-houma-](https://www.usnews.com/news/best-states/louisiana/articles/2019-10-27/tulane-project-to-aid-united-houma-nation)  
[nation](https://www.usnews.com/news/best-states/louisiana/articles/2019-10-27/tulane-project-to-aid-united-houma-nation)

-The Association of Schools and Programs of Public Health (ASPPH) posted the Tulane press release on their website under Member Research and Reports: [https://www.aspph.org/tulane-partners-with-united-houma-nation-on-](https://www.aspph.org/tulane-partners-with-united-houma-nation-on-climate-and-health-resilience-study/)  
[climate-and-health-resilience-study/](https://www.aspph.org/tulane-partners-with-united-houma-nation-on-climate-and-health-resilience-study/)

-Houma Today published an article on the project on October 31, 2019:

<https://www.houmatoday.com/news/20191031/project-to-help-tribes-future>

-Team members submitted a Research and Practice Highlight to the Annual Natural Hazards Research and Applications Workshop held virtually in July 2020. The submission was available online:

[https://hazards.colorado.edu/workshop/2020/abstract/research-highlight#navigating-decision-making-in-a-shifting-](https://hazards.colorado.edu/workshop/2020/abstract/research-highlight#navigating-decision-making-in-a-shifting-landscape-for-a-resilient-united-houma-nation)  
[landscape-for-a-resilient-united-houma-nation](https://hazards.colorado.edu/workshop/2020/abstract/research-highlight#navigating-decision-making-in-a-shifting-landscape-for-a-resilient-united-houma-nation)