



TECHNICAL MEMORANDUM

TRACKING THE SUCCESS METRICS OF RESTORE ACT CENTER OF EXCELLENCE FOR LOUISIANA - RFP1 CYCLE

Friday, December 18, 2020

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Re: RESTORE Act Center of Excellence for Louisiana – RFP1 Cycle Success Metrics

Introduction

This technical memorandum summarizes the success of the first phase of RESTORE Act Center of Excellence for Louisiana (LA-COE) including 1) the assessment of success metrics developed for the first cycle of the Request for Proposals (RFP1), 2) the constructive feedback from the External Review Board (ERB) members, which was requested after completion of the fourth year of LA-COE operations (Appendix B), and 3) the RFP1 feedback from the research subrecipients (also referred to herein as the principal investigators), Technical Points of Contacts, and the CPRA Liaisons, which was solicited at the end of fifth year of operation to assist in evaluation of RFP1 performance and support improvement of future operations (Appendix C).

OVERVIEW OF SUCCESS METRICS DEVELOPED IN STANDARD OPERATING PROCEDURE VERSION 1

Success metrics reflect the operational success of the LA-COE and the quality of the research conducted by LA-COE research subrecipients. The success metrics are organized in the four following categories: 1) Competitive Grants Process, 2) Research Progress, 3) Research Accomplishments, and 4) Outcomes (Table 1). The Competitive Grants Process category refers to the solicitation, evaluation, and funding of research proposals. The Research Progress category represents the monitoring of in-progress research based on scheduled reporting that was conducted throughout entire funding cycle. Research Accomplishment refers to assessment of the research performance of funded projects via the tracking of publications produced, data collected, and students supported by the projects. Success within each of these categories is comprehensively assessed with quantitative targets dependent on the current budget and the number and size of awards associated with the competitive grants, and reflect the outputs produced by the RFP1 research subrecipients. Success metrics were co-developed by the Louisiana



Coastal Protection and Restoration Authority (CPRA), LA-COE, and the Executive Committee (EC). Amendments or changes to success metrics, assessment criteria, and targets require review and approval by the EC and are reflected in the Standard Operating Procedures (SOP). The LA-COE plans to submit updated reports to CPRA to quantitatively track progress towards targets, determine successes, and identify future challenges for the program.

Success metrics developed for SOP Version 1 (V1, Darnell et al., 2016) were used to monitor the progress of LA-COE projects that were funded under the first Request for Proposals (RFP1). The tracking of success metrics enables LA-COE to identify important events and trends of subawards as well as guide the LA-COE to improve management of future funding cycles. Furthermore, the tracking of success metrics allows for clear and objective communication with research subrecipients to focus their efforts (e.g., see Table 1 for Research Progress, Research Accomplishments and Outcomes) and drive their performance. Success metrics have been improved for SOP V2 (RESTORE Act Center of Excellence for Louisiana, 2019) and V3 (RESTORE Act Center of Excellence for Louisiana, 2020). However, the LA-COE processes, research progress, accomplishments, and outcomes from the RFP1 projects were evaluated based on success metrics developed in SOP V1, which are outlined in this Technical Memorandum, so as to remain consistent in regard to related RFP1 reporting to the US Department of Treasury.

Table 1. Success metrics, assessment criteria, and targets from SOP V1 for RFP1 cycle.

Success Metric	Metric Assessment	Target
Competitive Grants Process	Percent of submitted proposals including more than one Louisiana-based institution	>50%
	Percent of submitted proposals including collaborations between colleges/universities and industry/non-profits/agencies	>25%
	Percent of proposals that provide training opportunities for graduate/undergraduate students or postdocs at Louisiana-based colleges/universities	>90%
	Percent of topical areas identified in the Research Strategy addressed by the proposals	100%
	Maximum time from initiation of the contract to execution	10 weeks
Research Progress	On-time reporting	100%
	On-time completion of deliverables	100%
	On-time adherence to data management procedures	100%
	Percent of proposals for which no-cost extensions are requested	<20%
Research Accomplishments	Number of publications per funded project within one year of project completion	1–3
	Percent of funded projects that train graduate/undergraduate students or postdocs at Louisiana-based colleges/universities	>90%
Outcomes	Number of Coastal Master Plan projects and programs that directly utilize research findings within one year of project completion	>10



METHODOLOGY FOR ASSESSING SUCCESS METRICS

The term “assessment” in the context of the LA-COE success metrics refers to the process of summarizing the performance of LA-COE-funded RFP1 projects based on the success metrics and information collected from RFP1 proposals, final reports, and other deliverables. In order to establish a consistent framework with which to describe the results of success metrics, it is important to define how the collected information was assessed and how evaluations were conducted with the efficient and effective use of available information. The methodology developed at the start of the RFP1 grant cycle for assessing success metrics has been documented in this section and is listed in the “Methodology” column of Table 2. For the RFP1 grant, the LA-COE received a total of 76 proposals including 15 for graduate studentships, 10 for collaborative awards and 51 for research awards, from which a total of six graduate studentships, five research awards and two collaborative awards were funded. A series of essential equations used for assessing success metrics are listed below and in Table 2:

- The success metric “percent of submitted proposals including more than one Louisiana-based institution” is calculated as:

$$\text{Percent} = \frac{A}{C+R} \times 100\% \quad (1)$$

where A=20 represents the number of proposals that included more than one Louisiana-based institution; C=10 and R=51 indicate total number of proposals for collaborative and research awards, respectively. Note that the additional 15 proposals for graduate studentship are not included in this assessment.

- The success metric “percent of submitted proposals including collaborations between colleges/universities and industry/non-profits/agencies” are assessed using:

$$\text{Percent} = \frac{B}{C+R} \times 100\% \quad (2)$$

where B=21 represents the number of proposals which had collaborations between colleges/universities and industry/non-profits/agencies; C=10 and R=51 indicate total number of proposals for collaborative and research awards, respectively.

- The success metric “percent of proposals that provide training opportunities for graduate/undergraduate students or postdocs at Louisiana-based colleges/universities” are obtained by:

$$\text{Percent} = \frac{D}{C+R+G} \times 100\% \quad (3)$$

where D=72 is the total number of proposals that provide training opportunities and G=15 is the number of proposals for graduate studentships; C=10 and R=51 indicate total number of proposals for collaborative and research awards, respectively.

- The success metric “percent of topical areas identified in the Research Strategy addressed by the proposals” are evaluated by:

$$\text{Percent} = \frac{E}{T} \times 100\% \quad (4)$$



where E=8 is total number of topical areas that appeared in RFP1 proposals, T=8 is total number of topical areas listed in the LA-COE “Research Strategy” (RESTORE Act Center of Excellence for Louisiana, 2016).

- The success metric “maximum time from initiation of the contract to execution” is evaluated by subtracting “Award Initiation Date” from “Award Execution Date”:

$$\text{Maximum time} = \text{Execution Date} - \text{Initiation Date} \quad (5)$$

- The success metric “on-time reporting” was calculated based on the on-time submission rate for quarterly Performance Progress Reports (PPR) for the 13 RFP1 projects:

$$\text{On-time rate} = \frac{\sum Q_3 + Q_4 + \dots + Q_{11}}{N} \quad (6)$$

Where Q_i is the on-time reporting rate of the i th PPR. All RFP1 projects were executed in March/April 2018, whereas deadline for Q_1 and Q_2 PPR were November 30, 2017 and February 28, 2018, see more details in section “*Maximum time from initiation of the contract to execution*”. Thus, nine (n=9) out of 11 PPRs were considered because Q_1 and Q_2 were excluded from the assessment due to contracting delays.

- The success metric “on-time completion of deliverables” is mainly evaluated for final reports and deliverables as follows:

$$\text{On-time rate} = \frac{F}{N} \times 100\% \quad (7)$$

where F=2 represents projects that submitted their final reports less than 30 days after project completion, which was considered as “on time”; in addition, F refers to the projects that requested no-cost extensions (NCE) but submitted deliverables before the requested NCE date. Further, n=8 indicates the number of final reports that have been received from eight projects.

Table 2. Success metrics, assessment criteria, and targets from SOP V1.

Success Metric	Metrics Assessment	Target	Methodology	RFP1 Results
Competitive Grants Process	Percent of submitted proposals including more than one Louisiana-based institution [1]	>50%	Equation 1	33%
	Percent of submitted proposals including collaborations between colleges/universities and industry/non-profits/agencies	>25%	Equation 2	34%
	Percent of proposals that provide training opportunities for graduate/undergraduate students or postdocs at Louisiana-based colleges/universities	>90%	Equation 3	95%
	Percent of topical areas identified in the Research Strategy addressed by the proposals	100%	Equation 4	100%
	Maximum time from initiation of the contract to execution	10 weeks	Equation 5	32 weeks



Success Metric	Metrics Assessment	Target	Methodology	RFP1 Results
Research Progress	On-time reporting	100%	Equation 6	62%
	On-time completion of deliverables	100%	Equation 7	50%
	On-time adherence to data management procedures	100%	N/A	Ongoing
	Percent of proposals for which no-cost extensions are requested	<20%	All projects requested NCE	100%
Research Accomplishments	Number of publications per funded project within one year of project completion	1–3	N/A	Ongoing
	Percent of funded projects that train graduate/undergraduate students or postdocs at Louisiana-based colleges/universities	>90%	All projects provide training opportunities	100%
Outcomes	Number of Coastal Master Plan projects and programs that directly utilize research findings within one year of project completion	>10	N/A	Ongoing

[1] Louisiana-based institutions are defined as those institutions with their main office based in Louisiana.

RESULTS AND DISCUSSION

Existing results for 1) Competitive Grant Process, 2) Research Progress, 3) Research Accomplishments, and 4) Outcomes, are provided in Table 2. First, success metrics in Competitive Grants Process were fully evaluated and indicate that overall performance met or exceeded the targets with exception of two success metrics, “percent of submitted proposals including more than one Louisiana-based institution” and “maximum time from initiation of the contract to execution”. Second, the success metrics in Research Progress and Research Accomplishments were partially determined based on completed RFP1 projects. Assessment for some of success metrics in the Research Progress (e.g., on time adherence to data management procedures), Research Accomplishment (e.g., publications), and Outcomes categories are in progress. Those metrics will require relatively long-term tracking to consider the duration of time it takes to publish, summarize results, and integrate them into the Coastal Master Plan.

COMPETITIVE GRANTS PROCESS

Percent of submitted proposals including more than one Louisiana-based institution

This success metric was designed to evaluate the collaborations established between Louisiana-based institutions from RFP1 proposals. Louisiana-based institutions are defined as those that have a main office based in Louisiana. LA-COE encourages more collaborative research to be conducted in Louisiana, which could motivate in-depth research with science and practice enriched by collaboration among individuals with diverse but complementary perspectives. In addition, collaborative research will enhance more concrete networks built through Louisiana. It was found that the percent of RFP1 grant proposals received that included more than one Louisiana-based institute was 33%, which is lower than expected (50%; Table 2). The RFP1 grant process supported three types of awards including collaborative, graduate studentship, and research awards. This success metric was assessed only for collaborative (N = 10) and research awards (n = 51). It was found that two out of ten full proposals (20%; Figure 1) for



collaborative awards included more than one Louisiana-based institution. Furthermore, 18 out of 51 proposals in the research award category (~35%; Figure 1) included more than one Louisiana-based institution. It is worthy of note that none of the 15 Graduate Studentship proposals included more than one Louisiana-based institution because this category supports graduate students working with a single principal investigator (PI); and thus, students and PIs were generally from the same organization.

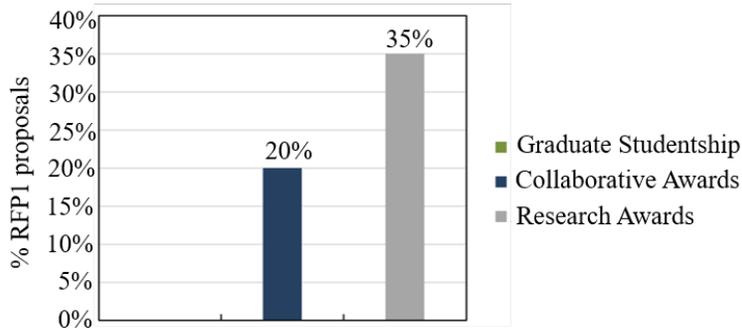


Figure 1. Percent of submitted proposals including more than one Louisiana-based institution.

Percent of submitted proposals including collaborations between colleges/universities and industry/non-profits/agencies

This success metric was selected because collaborations between colleges/universities and industry/non-profits/agencies can bring distinct expertise to a project. It was found that 34% of the full proposals for collaborative and research awards (n=61) had collaborations between colleges/universities and industry/non-profits/agencies. Furthermore, there were five out of ten collaborative award proposals (50%; Figure 2) with PIs from colleges/universities that partnered with industry/non-profits/agencies, including the U.S. Geological Survey, ARCADIS, Center for Planning Excellence, Audubon Louisiana, National Oceanic and Atmospheric Administration National Marine Fisheries Service, and the U.S. Naval Research Laboratory. In comparison, a relatively low percentage (31%; Figure 2) of research award proposals established collaborations with industry/non-profits/agencies, most of which had collaborations with colleges and universities.

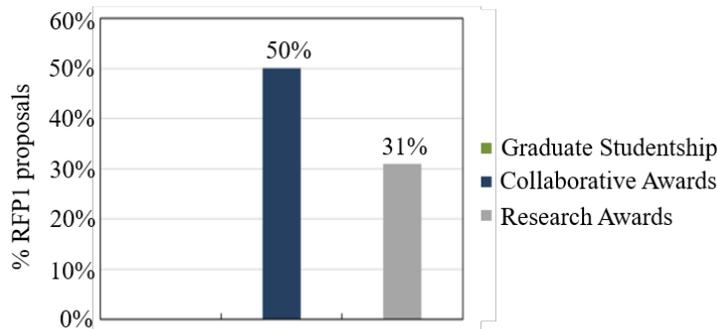


Figure 2. Percent of submitted proposals including collaborations between colleges/universities and industry/non-profits/agencies.



Percent of proposals that provide training opportunities for graduate/undergraduate students or postdoctoral researchers at Louisiana-based colleges/universities

LA-COE encourages funded projects to provide additional opportunities for outstanding students who are pursuing full-time, research-based master's and doctoral degrees or post doctoral experience and conducting high priority research in areas relevant to CPRA's Louisiana Coastal Master Plan. Thus, this success metric was designed to help evaluate training opportunities that were included in proposals. It was found that all the proposals for graduate studentship and collaborative awards provided training opportunities for undergraduates, graduates, or postdocs (100%; Table 2). In comparison, it was found that nearly 92% of proposals for research awards provided training opportunities.

Percent of topical areas identified in the Research Strategy addressed by the proposals

This metric was designed to determine the level of popularity for research topics and needs defined in Research Strategy. Of the RFP1 proposals, all of them (100%; Table 2) covered topical areas developed in the LA-COE Research Strategy (RESTORE Act Center of Excellence for Louisiana, 2016). There were eight topical areas developed, including 1) Riverine Hydrology, 2) Coastal and Estuarine Ecology, 3) Geotechnical and Structural Engineering, 4) Deltaic Geology, Delta Building and Subsidence, 5) Coastal and Estuarine Hydrology, 6) Geomorphology and Sediment Dynamics, 7) Physical Climatic Processes, and 8) Regulatory Policy Issues. Each PI listed up to four topics that their RFP1 proposal would help to address. The number of topical areas that were listed in each RFP1 proposal are shown in Figure 3. Among these eight topical areas, topic 2, "Coastal and Estuarine Ecology", was the most popular in the RFP1 process, and was listed 86 times in RFP1 proposals. Topic 5, "Coastal and Estuarine Hydrology" was the second most popular topic in RFP1 proposals, appearing in 40 proposals. Topic 8, "Regulatory Policy Issues," received the least attention in RFP1 proposals compared to other topical areas—only appearing six times in RFP1 proposals.

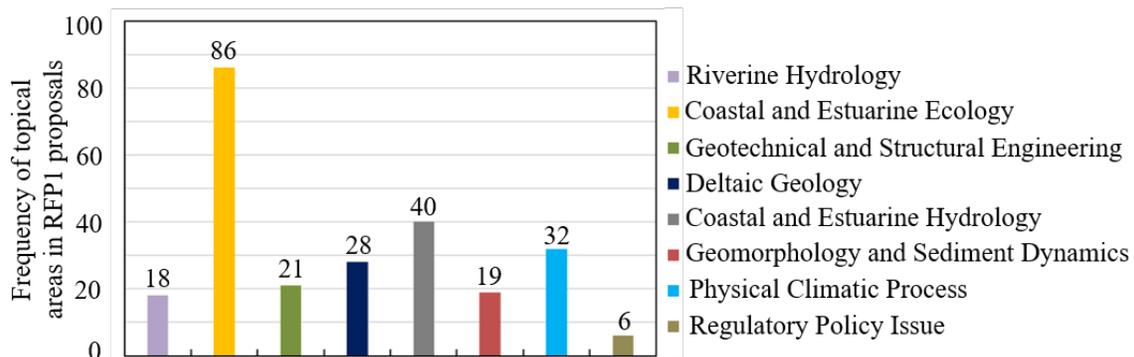


Figure 3. Topical areas identified in the Research Strategy addressed by the RFP1 proposals.

Maximum time from initiation of the contract to execution

Contract initiation and execution are two important phases of the project life cycle. Monitoring the maximum time between contract initiation and execution can help to understand how long each stage requires, and what issues may cause delays in contract execution, which could make these processes more efficient throughout future grant cycles. For RFP1, the awards were initiated on July 21, 2017. The awards execution date depends on the length of the negotiation processes with individual universities. The awards could not be fully executed until The Water Institute of the Gulf (the Institute) and CPRA established additional monitoring procedures that had potential impact on the awards, which is also the



main reason for the low “on-time reporting rate” in Research Progress category. The time of award initiation and award execution is shown in Table 2. The awards were formally executed by the Institute in March and April 2018. All 13 awards took longer than the 10 week target; The maximum time from award initiation date (08/01/2017) to the award execution date (04/01/2018) was 32 weeks for the project led by Drs. Xu and Chen from Louisiana State University (Table 3); this longer time period was due to a need to obtain special approval for international travel and for a subcontractor’s indirect cost rate (IDC), respectively (Table 3).

Table 3. Time spent from initiation of the research subrecipient contract to execution for each LA-COE funded RFP1 project.

No.	PI Last Name	Award Initiation Date	Award Sent to Universities Date	Award Execution Date	Notes	Award Type
1	White	7/21/2017	8/14/2017	3/7/2018		Graduate Studentship
2	Tsai	7/21/2017	8/14/2017	3/7/2018		Graduate Studentship
3	Twilley	7/21/2017	8/14/2017	3/1/2018		Graduate Studentship
4	Nelson	7/21/2017	8/30/2017	3/1/2018	Needed prior approval of IRB ¹ from CPRA & Treasury	Research Awards
5	Xu & Chen	7/21/2017	12/7/2017	4/6/2018	Needed prior approval from CPRA & Treasury for international travel	Collaborative Awards
6	Habib	7/21/2017	8/11/2017	3/8/2018		Graduate Studentship
7	Hagen	7/21/2017	12/7/2017	3/14/2018	Subcontractor rate needed approval due to IDC	Collaborative Awards
8	Kulp	7/21/2017	8/14/2017	3/8/2018		Research Awards
9	Quirk	7/21/2017	8/15/2017	3/7/2018		Research Awards
10	Tewari	7/21/2017	8/14/2017	3/7/2018		Graduate Studentship
11	Xu	7/21/2017	8/15/2017	3/9/2018		Research Awards

¹ International Review Board. Permission from the IRB must be obtained for any social science research involving human subjects.



No.	PI Last Name	Award Initiation Date	Award Sent to Universities Date	Award Execution Date	Notes	Award Type
12	Xue	7/21/2017	8/14/2017	3/7/2018		Graduate Studentship
13	Leberg	7/21/2017	8/14/2017	3/8/2018		Research Awards

RESEARCH PROGRESS

The LA-COE has been managing research subrecipient awards that were executed in March/April 2018 under the first request for proposals (RFP1). A total of 13 awards were granted including six graduate studentship awards, two collaborative awards, and five research awards, one of which was terminated because Dr. Sanjay Tewari moved out of state in fall 2018. The LA-COE reviewed the quarterly performance progress reports (PPRs) and their final deliverables for technical content (via the Technical Point of Contact) and to ensure research results will help implement the Louisiana Coastal Master Plan (via CPRA Liaisons). The summary of each RFP1 project can be found in Appendix A and on the LA-COE website (www.LA-COE.org).

On-time reporting

The success metric of on-time reporting is important in order to assess if a project is adhering to the planned timeline, which can assist in determining if a project may be deemed successful. The on-time reporting rate for RFP1 projects was 62% (Table 2), which was calculated based on the scheduled and actual submission date of quarterly PPRs and the final report. On-time reporting rates for each quarter were available to calculate the average on-time reporting rate. Quarters 1 and 2 were not included in the calculation because of contracting delays. It was found that the on-time reporting rate for Q3 was lowest (23%) and improved with the highest rate (92%) appearing in Q5 (Table 4). Overall, on-time reporting was lower during Q9–11, which could be attributed to the influence of COVID-19 and disturbance from an active hurricane season. Q12 showed the highest reporting rate (100%) because four projects remaining in Q12 submitted their final reports and other deliverables before the previously requested no-cost extension (NCE) deadline.

Table 4. LA-COE reporting schedule along with on-time reporting rate for RFP1 projects.

Reporting Period	Quarter	Date Due	On-time Reporting Rate
August – October	Q1	November 30, 2017	N/A
November – January	Q2	February 28, 2018	N/A
February – April	Q3	May 31, 2018	23%
May – July	Q4	August 31, 2018	61%
August – October	Q5	November 30, 2018	92%
November – January	Q6	February 28, 2019	50%
February – April	Q7	May 31, 2019	75%
May – July	Q8	August 31, 2019	83%



Reporting Period	Quarter	Date Due	On-time Reporting Rate
August—October	Q9	November 30, 2019	33%
November- January	Q10	February 28, 2020	60%
February – April	Q11	May 31, 2020	44%
May- July	Q12	August 31, 2020	100%
August - October	Q13	November 30, 2020	N/A
Averaged on time reporting rate = (23%+61%+92%+50%+75%+83%+33%+60%+44%+100%)/10=62%			

Percent of proposals for which no-cost extensions (NCE) are requested

All LA-COE funded RFP1 projects requested NCEs; detailed information regarding this is shown in Table 5. This is much higher than the target of 20% (Table 2). It was also found that a total of two out of eight projects (25%) submitted their final reports and other deliverables before the NCE date for Q11, which will be considered as on-time reporting for the final report and completion of deliverables. Four remaining projects requested NCEs with a deadline of September 18, 2020 in Q12, (due to COVID-related challenges of virtual learning and impacts from Tropical Storm Marco and Hurricane Laura). These four projects were all completed before the requested NCE deadline.

Table 5. Summary of requested NCE date, and final report submitted date for 13 LA-COE funded RFP1 projects.

No.	PI Last Name	Requested NCE Date	Final Report Submission Date	On-time completion of deliverables
1	White	10/31/2019	1/13/2020	No
2	Tsai	12/31/2019	1/28/2020	Yes
3	Twilley	1/31/2020	2/24/2020	Yes
4	Nelson	4/30/2020	6/9/2020	No
5	Chen	4/30/2020	6/28/2020	No
6	Habib	4/30/2020	7/13/2020	No
7	Hagen	9/18/2020	09/17/2020	Yes
8	Kulp	9/18/2020	09/17/2020	Yes
9	Quirk	9/18/2020	09/17/2020	Yes
10	Tewari	N/A	N/A	Terminated on 08/31/2018
11	Xu	4/30/2020	8/15/2020	No
12	Xue	4/30/2020	6/3/2020	No
13	Leberg	9/18/2020	08/25/2020	Yes



RESEARCH ACCOMPLISHMENTS

Number of publications per funded project

In this Technical Memorandum, we assessed the peer-reviewed publications produced by each project using those peer-reviewed publications that provided at the time of project completion (Table 6 and Figure 4), rather than those provided within one year of project completion as indicated in Table 1. In addition, manuscripts from research subrecipients that were submitted or were under review at the time of project completion were not included in this evaluation. This metric will be re-assessed after one year. The most basic metric related to publication data is the number of peer-reviewed publications produced by each LA-COE funded RFP1 project. In most scientific fields, an impact factor of 10 or greater is considered an excellent score while 3 is flagged as a good score, and an average score is typically less than 1². Thus, we further used the impact factor (IF) > 3 of journals to denote high-impact publications produced by each project to highlight unique research efforts and the quality of funded research. A total of six out of 13 projects have at least one peer-reviewed publication. The project “Constructing Mississippi River Delta Plain soil stratigraphy - Implications for coastal land building and compactional subsidence” led by PI Dr. Tsai had the most publications (n=3), with one publication having an IF >3. In addition, the “Integrating High-Fidelity Models with New Remote Sensing Techniques to Predict Storm Impacts on Louisiana Coastal and Deltaic Systems” project co-led by PIs Drs. Xu and Chen produced two publications with IF >3 (Table 6 and Figure 4).

Table 6. Summary of publications thus far for 13 LA-COE funded RFP1 projects.

No.	PI Last Name	# Peer Review Publications	# of Impact Factor >3	Journals and Impact Factors (IF)	Award Type
1	White	0	0		Graduate Studentship
2	Tsai	3	1	(1) in <i>Journal of Hydrology</i> , IF=4.405 (2) in <i>Geo-marine Letters</i> , IF=1.492 (3) in <i>Hydrogeology Journal</i> , IF=1.718	Graduate Studentship
3	Twilley	1	0	(1) in <i>Estuarine, Coastal and Shelf Science</i> , IF=2.33	Graduate Studentship
4	Nelson	0	0		Research Awards
5	Xu & Chen	2	2	(1) in <i>Geomorphology</i> , IF=3.948 (2) in <i>Coastal Engineering</i> , IF=4.119	Collaborative Awards
6	Habib	1	1	(1) in <i>Remote Sensing</i> : 4.118	Graduate Studentship
7	Hagen	0	0		Collaborative Awards
8	Kulp	0	0		Research Awards
9	Quirk	0	0		Research Awards

²<https://www.scijournal.org/articles/good-impact-factor>



No.	PI Last Name	# Peer Review Publications	# of Impact Factor >3	Journals and Impact Factors (IF)	Award Type
10	Tewari	N/A	N/A	N/A	Graduate Studentship
11	Xu	1	0	(1) in <i>Estuarine, Coastal and Shelf Science</i> , IF=2.33	Research Awards
12	Xue	2	0	(1)&(2) in <i>Water</i> , IF=2.5	Graduate Studentship
13	Leberg	2	1	(1) in <i>Scientific Report</i> , IF=3.992 (2) in <i>Restoration Ecology</i> , IF=2.721	Research Awards

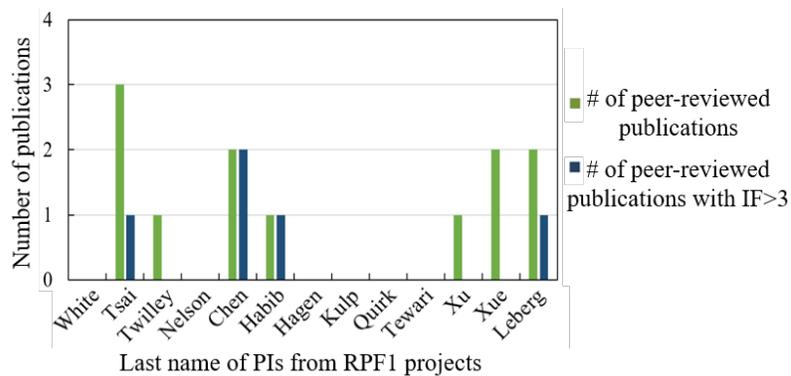


Figure 4. Summary of publications for 13 LA-COE funded RFP1 projects.

Percent of funded projects that train graduate/undergraduate students or postdoctoral researchers at Louisiana based colleges/universities (100%)

A total of 100% of LA-COE-funded RFP1 projects provided training opportunities for students or post-doctoral researchers at Louisiana-based colleges/universities with the project led by Dr. Leberg providing the greatest number of training opportunities (Figure 5).

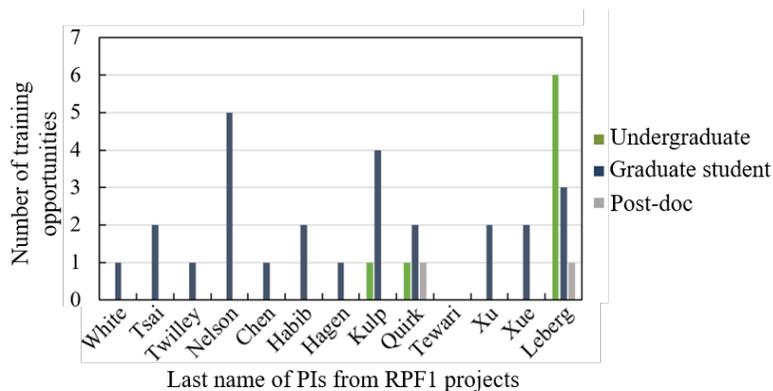


Figure 5. Summary of training opportunities for undergraduate students, graduate students, and post-doctoral researchers from 13 LA-COE funded RFP1 projects.



Among the graduate students supported by LA-COE funded RFP1 projects, a total of seven students graduated based on the number of theses/dissertations successfully defended by Oct 31, 2020 (Figure 6). These theses and dissertations were from projects lead by Drs. White, Tsai, Twilley, Xu, Kulp, and Quirk, among which Dr. Kulp’s project had two students graduate during RFP1.

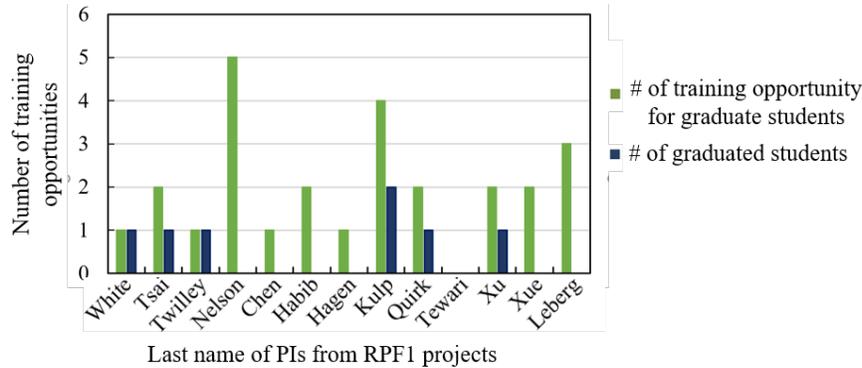


Figure 6. Detailed analysis on the how many students were trained and graduated based on the thesis/dissertation successfully defended.

A total of seven out of 13 RFP1 projects had at least one presentation (oral/poster) at a conference to present their RFP1 project results. Note that presentations that were accepted by conferences (e.g., State of Coast, 2020) that were postponed by COVID-19 were considered in the evaluation. The “Constructing Mississippi River Delta Plain soil stratigraphy - Implications for coastal land building and compactional subsidence” project led by PI Dr. Tsai gave the most poster presentations (n=5; Figure 7) and Dr. Kulp’s project “An evaluation of faulting in Holocene Mississippi river delta strata through the Mississippi River delta strata through the merger of deep 3-D and 2-D seismic data with near surface imaging and measurements of vertical motion at three study areas” gave the most oral presentations (n=5; Figure 7).

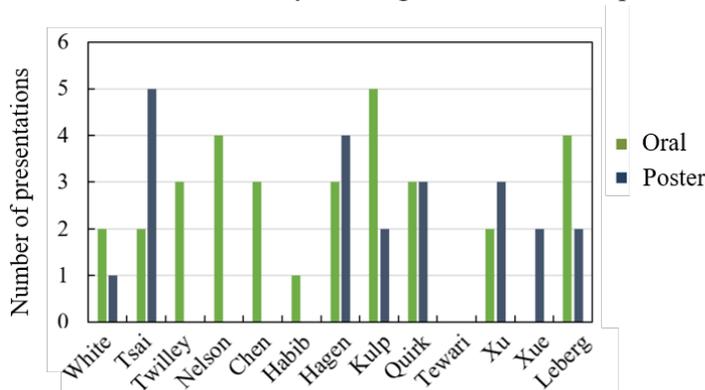


Figure 7. Summary of presentations for 13 LA-COE funded RFP1 projects.

The number of datasets generated or collected from 13 RFP1 projects are listed in Table 6. It was found that the “Constructing Mississippi River Delta Plain soil stratigraphy - Implications for coastal land building and compactional subsidence” project led by PI Dr. Tsai developed the most datasets (n=7; Table 7) with two datasets already made publicly available online with Digital Object Identifiers (DOI) listed in Table 7. There are a total of three datasets available from projects led by Drs. Hagen and Kulp. In addition, one dataset is also partially available online from the project led by PI Dr. Habib (n=1) with a second dataset coming soon. Further, all datasets obtained during RFP1 from projects led by Dr. Hagen



(n=3) and Dr. Kulp (n=3) are currently available online. Raw data from the project led by Dr. Nelson are confidential to protect the identify of participants that were interviewed.

Table 7. Summary of datasets currently available from RFP1 projects.

PI Last Name	# of Data Sets	# of Data Sets Currently Available	DOI (or repository)	Note
White	1	0		Will be available by 12/01/2020
Tsai	7	2	10.4211/hs.55222b131564471cb0337dcc0b8196e0 http://www.hydroshare.org/resource/55222b131564471cb0337dcc0b8196e0	The rest of the datasets will be available by 05/30/2022
Twilley	2	0		Will be available by 02/01/2022
Nelson	5	0		N/A
Chen	6	0		Will be available by 05/30/2022
Habib	1	1	http://doi.org/10.5281/zenodo.2797482	partially available, “Calcasieu” will come soon
Hagen	3	3	https://doi.org/10.5281/zenodo.3981956 https://doi.org/10.17605/OSF.IO/2PD87 https://doi.org/10.17605/OSF.IO/YXEWA	Currently available
Kulp	4	1	2. Louisiana SONRIS data system (http://sonlite.dnr.state.la.us/pls/apex/f?p=108:2:1851084497611)	The rest of the datasets will be available by summer 2021
Quirk	5	0	1.Coastal Carbon Research Coordination Network (https://ameriflux.lbl.gov/year-of-methane-partnership-coastal-carbon-research-coordinati) 2. DRYAD	Will be available by 11/01/2020, 12/01/2021 and 06/01/2022 respectively
Tewari	N/A	N/A		Project terminated early
Xu	5	0		Will be available by 05/01/2022
Xue	2	0		Will be available by 05/01/2022
Leberg	7	1	https://doi.org/10.6084/m9.figshare.12811643	The rest of the datasets will be available 2 years after final report



OUTCOMES

The outcome of the “number of Coastal Master Plan projects and programs that directly utilize research findings within one year of project completion” assessment will be evaluated in October 2021, one year after completion of projects. LA-COE will work closely with CPRA to determine the methods for monitoring long-term impact of funded research from a suite of reliable metrics. For example, CPRA will be notified of the research and provided summaries of the results. Users of the information and/or data will be required to cite the funded research in their documentation, and these citations will be tracked over time by staff at CPRA Research section. Otherwise, working with the CPRA Liaisons and other staff, opportunities will be identified for the direct usage of the information, data, and models from the funded research to CPRA’s planning and project development process. This will ensure the maximum application of the research results to the Coastal Master Plan.

SUMMARY AND NEXT STEPS

Most of success metrics for RFP1 cycle have been evaluated in this document. Success metrics for “Competitive Grant Process” for RFP1 funded projects showed that overall performance met or exceeded targets, except for the assessments conducted for “percent of submitted proposals including more than one Louisiana-based institution” and “maximum time from initiation of the contract to execution”. To improve the results of “submitted proposals including more than on Louisiana-based institution”, LA-COE will emphasize the importance of collaboration among Louisiana-based institutions by clearly indicating that future proposals will be evaluated against this metric. Further, success metrics in Research Progress showed overall poor results for “on-time reporting” with a high rate of RFP1 projects applying for a NCE, for which, COVID-19 is an important reason for the delayed reporting in the second half of reporting schedule. The assessment of “on-time adherence to data management procedures” is currently being evaluated based on information from final reports and will be further evaluated because research subrecipients are required to submit data to a repository two years after the completion of projects, according to data management procedures detailed in SOP V1 (Darnell et al., 2016). In the “Research Accomplishment” category, the success metrics results exceeded targets, most notably in the 100% training opportunities provided by RFP1 projects, as well in the number of current publications for completed projects. In addition, the outcome of “Number of Coastal Master Plan projects and programs that directly utilize research findings within one year of project completion” will be evaluated in the next year based on publications, data usage, and questionnaire tracking. Next steps that could facilitate tracking the current unevaluated success metrics include:

- Create LA-COE Google Scholar account to track all the publications, conference abstracts supported by LA-COE, their citations, and the impact of journals. A link to the Google Scholar account could be available on the LA-COE [website](#) for dissemination purposes, so that contributions of research products can also be viewed by the public.
- LA-COE could build a new webpage to monitor data usage, which could include links for deposited datasets from all LA-COE funded projects. This could enable LA-COE to track the data via their DOI. Further, web server logs that record page reviews and downloads is another indication of the level of interest in the dataset and the awareness of its existence.



LA-COE may also consider regularly sending questionnaires to research subrecipients, Technical Points of Contact and CPRA Liaisons to better track the implementation of results from RFP1 funded projects to the Coastal Master Plans. Questions could be designed to help obtain updates on research accomplishments (e.g., publications, patents, new techniques, and datasets) and the results of their training opportunities (e.g., graduation of students and jobs obtained). Further, questions could emphasize the evaluation and update of the research achievements from RFP1 cycle that were used to derive new knowledge or incorporation into larger data products by CPRA.

Success metrics developed for RFP1 cycle helped LA-COE determine the likelihood of success of a project, evaluate a project's status, foresee risks and assess team productivity and quality of work. RFP1 cycle metrics also facilitate LA-COE to better plan for the usage of products (e.g., publication and data) in future funding cycles. LA-COE will continuously work closely with CPRA to refine success metrics for future funding cycles and discuss how to improve the evaluation results



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Appendices

APPENDIX A: SUMMARY OF LA-COE RFP1 FUNDED PROJECTS

Determining the influence of surface water diversions on physical and nutrient characteristics of wetland soils (\$83,328)

John White, Professor of Department of Oceanography and Coastal Sciences, Louisiana State University

Sediment and nutrient deprivation as well as saltwater intrusion are driving widespread organic soil erosion and coastal marsh loss in the Mississippi River Delta. Freshwater diversions were designed to reintroduce river water and dissolved nutrients into the adjacent basins to manage salinity and slow land loss by maintaining marsh vegetation and nutrient cycling. In this study, a soil characterization is presented for the receiving marsh of the Davis Pond diversion in 2007 and again in 2018 after 11 years of operation. Data for the top 0–10 cm of soil from the same 140 stations were used in spatial analysis to model soil properties. As a result of diversion operation, there has been a significant increase in soil mineral content and consequently soil bulk density. Elevated $\delta^{15}\text{N}$ isotope values and increased inorganic soil P stocks delineated areas of diversion influence and nutrient enrichment of the wetland. These conditions led to increased organic matter and carbon sequestrations in diversion-influenced regions of the wetland. Multivariate methods demonstrate the effectiveness of certain parameters for monitoring impacts of river diversions on wetlands. The $\delta^{15}\text{N}$ is an important indicator of the exposure to dissolved river water N, and changes in inorganic soil P can identify areas of river sediment subsidy. Results have implication for continued freshwater diversion operation as well as far field effects of large sediment diversions on wetland soil properties.

Constructing Mississippi River delta plain soil stratigraphy – implications for coastal land building and compactional subsidence (\$70,070)

Frank Tsai, Professor Department of Civil and Environmental Engineering, Louisiana State University

The Mississippi River Delta (MRD) is socioeconomically important to the state of Louisiana and the United States. Various types of land-water system data have been collected in the MRD. However, very few efforts have been made to utilize these datasets in modeling regional stratigraphy and groundwater dynamics in the MRD, especially for the upper 50 m of the depth. In this interval of depth, the Mississippi River and surrounding interdistributary bays intensively interact with the groundwater system. The lack of knowledge in regional stratigraphy and groundwater dynamics hinder an understanding of how hydrogeological setting affects processes such as surface-groundwater interaction, subsidence, and sediment erosion. In this study, topobathymetric, geological/geotechnical, and hydrological data were used to construct multiple 3-D stratigraphy models and a groundwater flow model in the MRD. Ordinary kriging, compositional kriging, and multiple indicator methods were found to be efficient in regionalizing different types of geological/geotechnical data. The stratigraphy models and groundwater model reveal a complex hydrogeologic setting in the MRD. Mississippi River channel cut through clayey delta plain deposits into buried sands between -10 m and -35 m. Sands deposited at depth and near the surface provide pathways for groundwater to interact with surface waters. Groundwater flow rate is 3–4 orders of magnitude smaller than the river discharge rate. The groundwater system actively interacts with surface water system in the Mississippi River and in the surrounding bays, especially during flood, storm, and



hurricane events. Dramatic increase in pore water pressure and sharp groundwater recharge-to-discharge reversion are estimated to occur during hurricane and right after hurricanes respectively. High pore water pressure during and after hurricanes may destabilize sediments and compromise safety of coastal infrastructures such as the ring levees. Groundwater activities may contribute to vertical movement in the delta.

Multiple tools for determining the fate of nitrate in coastal deltaic floodplains (\$63,100)

Robert Twilley, Louisiana Sea Grant College Program Executive Director

Coastal deltaic floodplains provide important ecosystem services of land building and water quality improvement. Wetland plants, soils, and microbes within these floodplains functionally remove nitrate through uptake, burial, and denitrification, thereby reducing algal blooms and hypoxia in the Gulf of Mexico (GOM). This study was part of larger effort to understand nitrate removal capacity by measuring factors that control denitrification rates and other nitrogen pathways in a developing delta. Our study area, Wax Lake Delta (WLD), is a young (<40 years) and actively prograding delta located within the Atchafalaya Bay in southeastern Louisiana. The objective of this project was to quantify transformation of nitrate by wetland plants, soil, and microbes of deltaic floodplains of WLD. To determine nitrate uptake rates across WLD, we conducted several field incubation tracer experiments using 15NO_3 . These experiments measured nitrate uptake, denitrification, dissimilatory nitrate reduction to ammonium, and estimated assimilation of nitrate by plants and microbial communities in surface sediments. Total nitrate uptake rates, as well as denitrification rates, increased with soil organic matter content. Plant and soil assimilation of nitrogen was limited due to disturbance caused by Hurricane Barry, which killed vegetation and reworked surface sediments across the delta. Total nitrate uptake rates were incorporated into a Delft-3D Water Quality model.

From adapting in place to adaptive migration: designing and facilitating an equitable relocation strategy (\$295,338)

PI: Marla Nelson, Associate Professor Planning and Urban Studies, University of New Orleans
Co-Investigators: Traci Birch, LSU Coastal Sustainability Studio; Anna Brand, University of California-Berkeley; Renia Ehrenfeucht, University of New Mexico

In vulnerable areas across coastal Louisiana, nonstructural interventions are necessary to reduce risk and potential harm to residents and property. While nonstructural mitigation has primarily focused on helping people adapt in place, resident relocation will become increasingly necessary. This project responds to the need for effective programs that help people move away from risky areas in the face of ongoing environmental change and increasing disasters. The primary objective of these recommendations is to assist in implementation of nonstructural mitigation measures in Louisiana's 2017 Comprehensive Master Plan for a Sustainable Coast to shape equitable relocation assistance that helps enable people to preserve their coastal cultures. The project addresses two questions and interrelated sub-questions: Research Question 1: How do residents respond to threats from immediate and long-term environmental change? What factors drive decisions of whether, when, and where to relocate? What factors drive decisions to stay in place? Research Question 2: How do public officials and land managers respond to threats from immediate and long-term environmental change? How can local officials facilitate equitable relocation for residents in at risk areas? How can communities develop low risk residential land use that accommodate relocating residents?



To answer the first question, we conducted interviews with 58 residents who live in Terrebonne Parish's bayou communities or who have relocated within or outside the parish. In answering the second question we interviewed 29 local officials, planners, nonprofit and business leaders, and university researchers. We coded and analyzed the transcribed interviews for key themes using Dedoose qualitative analysis software. Additionally, we analyzed buyout and relocation programs in the US to identify useful lessons, promising practices and pitfalls to avoid during the relocation process. Results address the conditions associated with long term environmental change, the relationships among land loss and increased flooding and larger economic and population shifts, the diverse and changing circumstances of people living in at-risk communities, and their priorities when participating in initiatives to reduce risk and property damage. Based on our results we present recommendations to inform relocation policies and programs that move beyond merely acquiring at risk properties and lead to just outcomes for communities and residents on the frontline of dealing with disasters from both extreme weather events and ongoing environmental change. Just and equitable policies and programs must be flexible, inclusive and transparent, and work beyond disaster recovery to ensure long term, inclusive and just adaptation.

Integrating high-fidelity models with new remote sensing techniques to predict storm impacts on Louisiana coastal and deltaic systems (\$501,270)

PI: Kehui (Kevin) Xu, Associate Professor, Department of Oceanography and Coastal Science, Louisiana State University (acting PI).

Co-Investigators: Qin Jim Chen, Professor, Civil and Environmental Engineering, Northeastern University; Claire Jeuken, Deltares USA; Ap van Dongeren, Robert McCall, and Mindert De Vries, Deltares; Brady Couvillion, U.S. Geological Survey.

The successful implementation of the Louisiana Coastal Master Plan depends on 1) a thorough understanding of the deltaic system dynamics of barrier islands, shallow estuaries, and coastal wetlands as well as their connection in order to manage sediment budgets, and 2) the development of the modeling capability to quantify the effectiveness of these natural landscapes in mitigating storm-induced waves and surges, and thus reduce hydraulic loads on flood defenses. The effectiveness of the deltaic system in flood risk reduction has thus far been difficult to quantify accurately. An outstanding issue is that state-of-the-art numerical models need spatially—and temporally—varying input parameters of vegetation biophysical properties, that are not easily obtained *in-situ* for large areas and at regular time intervals, and both remotely-sensed parameters and numerical models require validation by field measurements in coastal Louisiana. Moreover, the sediment fluxes during storms between the barrier islands, back-barrier wetlands, shallow lakes and open bays, and the marshes are not well understood. To address both issues, this project has developed an innovative model system, which integrates state-of-the-art numerical modeling of physical processes, *in-situ* measurements, and satellite-sensed vegetation properties. Caminada Headland Complex serves as a testbed. These products will have direct applicability and utility in support of the implementation of the Coastal Master Plan.

Evaluation of radar-based precipitation datasets for applications in the Louisiana Coastal Master Plan (\$71,148)

Emad Habib, Professor of Department of Civil Engineering, University of Louisiana at Lafayette



Despite the potential advantages of using spatially-continuous, high-resolution radar rainfall products in hydro-ecological modeling and ecosystem applications, few studies assessed the quality of these products over coastal regions that lack adequate *in-situ* rainfall observations. This study evaluates two radar rainfall products, the National Center for Environmental Prediction (NCEP) Multi-sensor Stage IV and the National Severe Storms Laboratory (NSSL) Multi-Radar Multi-Sensor (MRMS), over the Louisiana coastal region in the United States. Surface reference rainfall observations from two independent rain gauge networks were used in the evaluation analysis.

Coupling hydrologic, tide and surge processes to enhance flood risk assessments for the Louisiana Coastal Master Plan (\$499,882)

PI: Scott Hagen, Professor & Director, Louisiana State University Center for Coastal Resiliency (LSU CCR)

Co-Investigators: Matthew Bilskie, LSU CCR; John Atkinson, ARCADIS; Donald Resio, University of North Florida

Traditional coastal flood hazard studies do not typically account for rainfall runoff processes in the quantification of flood hazard and related cascading risks. This study addresses the potential impacts of antecedent rainfall-runoff, tropical cyclone (TC)-driven rainfall, and TC-driven surge on total water levels and its influence in delineating a coastal flood transition zone for two distinct coastal basins in southeastern Louisiana. Rainfall-runoff from antecedent and TC-driven rainfall along with storm surge was simulated using a new rain-on-mesh module incorporated into the ADCIRC code. Antecedent rainfall conditions were obtained for 21 landfalling TC events spanning 1948–2008 via rain stations. A parametric, TC-driven, rainfall model was used for precipitation associated with the TC. Twelve synthetic storms of varying meteorological intensity (low, medium, and high) and total rainfall were utilized for each watershed (Barataria and Lake Maurepas) and provided model forcing for simulations of coastal inundation. First, it was found that antecedent rainfall (pre-TC landfall) is influential up to three days pre-landfall. Second, results show that antecedent and TC-driven rainfall increase simulated peak water levels within each basin, with antecedent rainfall dominating inundation across upper portions of the basin. Third, the delineated flood zones of coastal, transition, and hydrologic show stark differences between the two basins.

An evaluation of faulting in Holocene Mississippi River Delta strata through the merger of deep 3D and 2D seismic data with near surface imaging and measurements of vertical motion at three study areas (\$349,174)

PI: Mark Kulp, Associate Professor of Earth and Environmental Sciences and Director of Coastal Research Laboratory, University of New Orleans

Co-Investigators: Nancye Dawers, Tulane; Rui Zhang, University of Louisiana at Lafayette; David Culpepper, The Culpepper Group; John Lopez, Lake Pontchartrain Basin Foundation; Kevin Yeager, University of Kentucky

The focus was to map the geographic extent and history of displacement on Cenozoic fault systems that trend across the Holocene Mississippi River delta plain. The work was concentrated in Terrebonne-Timbalier Bay, Bayou Lafourche near Golden Meadow, and Lake Pontchartrain/Lake Borgne. Each of three Louisiana universities involved in this project hold license agreements with energy companies, who



have provided access to high-quality, industry-standard 3-D and 2-D seismic reflection data that image Cenozoic strata in the study areas. These data allow for an assessment of whether deep-seated faults are present and if these faults extend upward into overlying strata. These seismic datasets are essential for the success of any study attempting to document the potential impact of faults on geomorphology, deltaic geology, and the stability of Holocene sedimentary units of the north-central Gulf coast. Louisiana Coastal Master Plan efforts strongly rely upon an understanding of vertical elevation changes and if modern fault motion is occurring, Coastal Master Plan efforts could be jeopardized. The research unites industry seismic reflection data (3-D, 2-D) with additional methods of data analysis including high-resolution seismic imaging, construction of near-surface stratigraphic sections, geochronology, GPS surveys and quantification of sediment accumulation rates. Primary research questions included: 1) Do geologic structures influence modern Mississippi River delta plain evolution?, 2) Are fault slip rates variable across the delta plain because of proximity to major late Pleistocene and Holocene depocenters and interaction with underlying ductile salt bodies?, 3) Can Holocene motion be detected using shallow, high-resolution seismic imaging, radiocarbon stratigraphic horizons, GPS surveys, and sediment accretion rates. All three of the industry seismic datasets image an array of faults, with variable lengths and geometries. The depth to which the faults can be projected upward varies between the datasets because of the quality of the industry seismic data but maps of suspected shallow faults can guide decision making and an assessment of potential fault impacts to Holocene strata and geomorphology. Only locally does high resolution seismic data clearly image the subsurface of the study areas because of shallow water and gas-charged sediments. Radiocarbon-dated horizons locally indicate offset of Holocene strata, as do geomorphologic features at the surface. Continued efforts to fully document the exact location and overall extent of latest Quaternary fault offsets across all of the delta plain should include the acquisition of additional industry seismic data, shallow seismic data, sediment cores, GPS surveys and radiocarbon dated strata.

Plant and soil response to the interactive effects of nutrient and sediment availability: Enhancing predictive capabilities for the use of sediment diversions and dredging (\$292,914)

PI: Tracy Quirk, Assistant Professor, Department of Oceanography and Coastal Sciences, Louisiana State University

Co-Investigator: Sean Graham, Nicholls State University

Marshes in the Mississippi River Delta are rapidly deteriorating due partly to inadequate sediment supply to equilibrate to a high rate of relative sea-level rise. Restoration strategies include sediment diversions and marsh creation. However, high nutrient loading into existing and newly created marshes may have potential negative impacts on belowground biomass and soil organic matter accumulation. The goal of this research is to provide critical information on the interactive effects of nutrient- and sediment availability on marsh nutrient cycling, plant productivity, decomposition and soil organic matter accumulation and accretion. In a field study across three marsh types, low nutrient-enrichment stimulated both the accumulation and decomposition of dead roots across marsh types. Intermediate marsh plugs in a greenhouse had lower species richness, stem density, aboveground biomass, root productivity at lower elevations. Nutrient-enrichment tended to negatively affect plant structure at low elevations without sedimentation and positively affect plant processes at high elevations and/or with sediment deposition. *Spartina patens* in a greenhouse had greater aboveground biomass and root productivity in mineral rather than organic soils. Overall, these results show that the effects of nutrient-enrichment on plant productivity



and soil processes are strongly dependent on elevation and sediment availability, which have a greater influence on the vegetation and soil.

Enhancing sediment retention rates of receiving basins of Louisiana sediment diversions (\$292,495)

PI: Kehui (Kevin) Xu, Associate Professor, Department of Oceanography and Coastal Sciences, Louisiana State University (LSU)

Co-Investigators: Samuel Bentley, LSU; Yanxia Ma, LSU; Zuo George Xue, LSU

Mud and sand represent >80% and <20% of sediment load in the Mississippi/Atchafalaya Rivers, respectively, so the loss of mud represents a substantial issue in the land-building process. Muddy sediment dynamics, however, is complicated and has widely been recognized to be controlled by multiple nonlinear processes. Operation strategies, based on results of this project, can be considered that allow sediment consolidation and reduce sediment loss/bypass. This can be used in rotations in multiple receiving basins to maximize total land gaining. A new hydrodynamics and sediment dynamics study is proposed to quantify: (1) cohesive muddy sediment characteristics in a receiving basin, (2) mud retention rate in a receiving basin, (3) settling and compaction of dredged sediment to be used to build marsh and Sediment Retention Enhancement Device (SRED), (4) the impact of SREDs on wave-induced shear stress, and (5) the impact of SREDs on sediment retention rate. This project helps evaluate the interaction and interdependence between sediment diversion and marsh creation; dredged materials for marsh creation, either from river channels or wetland canals, can be placed in the receiving basin as SREDs to enhance the retention of sediment diversion. This project also helps the design and implementation of engineering structures like wave attenuation and sediment collection devices in near future.

Project Louisiana rivers' sediment flux to the coastal ocean using a coupled atmospheric-hydrological model (\$77,015)

Zuo (George) Xue, Assistant Professor, Department of Oceanography and Coastal Sciences, Louisiana State University

In this study we propose to incorporate sediment modules and oceanside boundary conditions to a newly developed hydrologic model (WRF-Hydro). Our long-term objectives are to: 1) Quantify water and sediment flux from Louisiana rivers to the Chenier Plain; 2) Project possible changes in water and sediment flux regarding future climate and ongoing/planned restoration activities of the Louisiana Coastal Master Plan. For this 2yr fellowship project we further developed and validated a SW Louisiana WRF-Hydro model and performed a 35-yr model hindcast. Our model detected a possible change-point around the year 2004, after which the monthly precipitation decreased from 140 to 120 mm, evapotranspiration slightly increased from 80 to 83 mm, and water surplus decreased from 60 to 38 mm. In addition, we successfully adapted a new sediment module to WRF-Hydro and applied the coupled hydrological-sediment model in a small test watershed in Mississippi. We also applied ocean boundary condition to drive the WRF-Hydro model and performed another test study for a hurricane event along the US east coast. Development and application of the sediment module and oceanside boundary condition confirmed WRF-Hydro's potential as a toolbox to assess the changes of water and sediment flux regarding future climate and ongoing/planned restoration activities along the Louisiana coast. Further improvement of model parameterization, parallelization, and the fully coupling with an ocean model is needed.



Assessment of coastal island restoration practices for the creation of brown pelican nesting habitat (\$299,733)

PI: Paul Leberg, Professor in Department of Biology, University of Louisiana at Lafayette

Co-Investigator: Jordan Karubian, Tulane University

There is limited understanding of the success of the most common restoration approaches in providing seabird habitat. In light of the threats coastal Louisiana faces, and the region's importance for seabirds, our goal was to address a suite of questions including how birds and colonies respond to a shifting mosaic of available islands and fisheries, how far they travel to provision nestlings, and the extent to which birds move between breeding and foraging areas in our dynamic coastal landscape. By tapping into the opportunities provided by numerous habitat restoration efforts in coastal Louisiana, this research increases understanding of which outcomes are due to the restoration, the location of the restoration in relation to marine and wetland resources, or the level of predation threat.

Because many coastal islands in Louisiana have experienced some level of restoration, this research employed a space for time substitution approach comparing restoration sites of varying ages, focusing on use by brown pelicans. To quantify the spatial extent of habitats, we gathered existing satellite and aerial imagery for nesting sites as well as unused islands. The extent of each habitat type and its change over time was determined. We quantified how factors altered by restoration such as vegetation type, predator communities, and site characteristics affect bird use of barrier islands as nesting habitat. Cameras and other survey techniques were used to monitor nests to determine nest success, the causes of nest failure, and the abundance of nest predators. We found evidence that seabirds readily used restored islands and that restoration created vegetation conditions that favored use by brown pelicans and other birds. However, restoration actions can also increase conditions that favor mammalian predators, so a balance must be struck in project planning.

The role of island location on nest success, movement and habitat is being characterized using GPS-based tracking devices. This research is ongoing as we are affected by delays in funding and by the pandemic. When completed, this information will be related to physiological condition, foraging ecology, breeding success, and survival. Telemetry data will be used to quantify foraging ecology (frequency, distance, and duration of foraging trips) and parental care (trips to their nests coupled with direct observations of food delivery to nestlings per visit). The research will quantify how connectivity and position of restoration and other potential colony sites, relative to hypoxic zones and salinity gradients, affect their use as nesting habitat.



APPENDIX B: SUMMARY OF LA-COE RFP1 PROGRESS: WRITTEN FEEDBACK FROM THE EXTERNAL REVIEW BOARD

Introduction

The mission of the RESTORE Act Center of Excellence for Louisiana (LA-COE) at the Water Institute of the Gulf (the Institute) is to provide research directly relevant to implementation of Louisiana's Coastal Master Plan led by the Coastal Protection and Restoration Authority of Louisiana (CPRA) by administering a competitive grants program and providing the appropriate coordination and oversight support to ensure that success metrics are tracked and achieved.

The LA-COE is finishing its fourth year of operation, which included establishment of standard operating procedures, release of the first request for proposals (RFP1), and management of the first round of research subrecipients. Please note that the first funding cycle is not yet complete. Constructive feedback from the External Review Board (ERB) members was requested to help evaluate past performance and to improve future operations.

A review package was provided to the ERB to help them provide written feedback. A webinar was hosted on September 19, 2019 by LA-COE to discuss the documents in the review package. After the webinar, an electronic survey was taken by each ERB member. The following feedback summary is organized based on the three major phases involved in operating the LA-COE: (A) Peer-review of Proposed Research, (B) Researcher Engagement, and (C) LA-COE Operations.

The ERB include six research scientists who are located at institutions outside of Louisiana. One ERB member was not able to provide feedback, therefore five standing ERB members responded to the survey and include:

- Tony Dalrymple, Johns Hopkins (emeritus)
- Jen Irish, Virginia Tech
- Kenny Rose, University of Maryland
- Don Scavia, University of Michigan (emeritus)
- Gavin Smith, North Carolina State University
- John Callaway, University of San Francisco – not available for providing feedback

Methods

The ERB members were asked a combination of ratings and open-ended questions about the three phases of LA-COE. Five ERB members provided feedback (n = 5). Quantitative responses from the ratings were synthesized in figures and are described in the results and summary. The written feedback from open-ended questions was mostly quoted word for word, and occasionally paraphrased for clarity.

The ratings results were analyzed by calculating the percent of ERB members that chose a specific rating for each question. All ratings ranged from one to five. In each figure, each of the colored bars represents each of the five ratings options (e.g., 1-5) that the ERB members could choose from, where 1



(purple) is a negative rating, and 5 (gray) is a positive rating. The x axis lists the questions, and the y axis represents the % of ERB members who chose a specific rating. As an example, for question C in Figure B1 asking whether the evaluation forms reflected the criteria described in RFP1, 80% of ERB members (or four members) “strongly” agreed, and 20% of ERB members (or one member) “somewhat” agreed. All figures can be interpreted as described in this example.

Peer-Review of Proposed Research

Review Package Documents

1. Quarterly webinar example (ppt)
2. Performance progress report (PPR) template
3. Evaluation results from the 2018 All-Hands meetings

Engagement with researchers throughout the duration of the research is critical to the success of LA-COE. ERB members were asked to provide feedback on the effectiveness of researcher engagement from three activities that included: quarterly webinars, performance progress reports, and the All-Hands meetings.

1. Each quarter, all research subrecipients were invited to a webinar during which the LA-COE staff presented program requirements and helpful suggestions such as effective data management strategies. Most importantly, however, each quarter, one to two research subrecipients presented updates on their funded research. An example of a quarterly webinar presentation from Quarter 3 was shared with the ERB.
2. In addition to these quarterly webinars, all awardees were asked to submit a quarterly performance progress report (PPR) indicating a summary of key accomplishments, challenges, presentations and publications, outreach activities, data management efforts, students involved, and estimated funds invoiced and remaining. The PPR template was provided to the ERB.
3. An All-Hands Meeting was held during each of the two award years, 2018 and 2019. All awardees, LA-COE Staff, CPRA Liaisons, and Institute scientists who were selected as Technical Points of Contact (TPOCs), attended the meeting. In 2019, members of the LA-COE Executive Committee were also invited. During these meetings, all awardees presented their research, and discussion among all guests were held in order to help tie their research to the Louisiana Coastal Master Plan. Evaluation results from the All-Hands meetings attendees were shared with the ERB.

Results

Eighty percent of ERB members found that the engagement with research subrecipients was “very” to “extremely” useful; only one ERB member (20%) found this type of engagement only “moderately” useful (Figure B2). The type (using CPRA Liaisons and Technical Points of Contact or TPOCs) and frequency of interaction (including webinars and quarterly reports), was considered between “moderately” (40%), “very” (40%), and “extremely” (20%) sufficient (Figure B3). Most of



the ERB members (60%) found that the annual All-Hands Meeting is “extremely” effective for the LA-COE recipients to discuss their research with CPRA and others, but 40% found it to be only “moderately” effective (Figure B4).

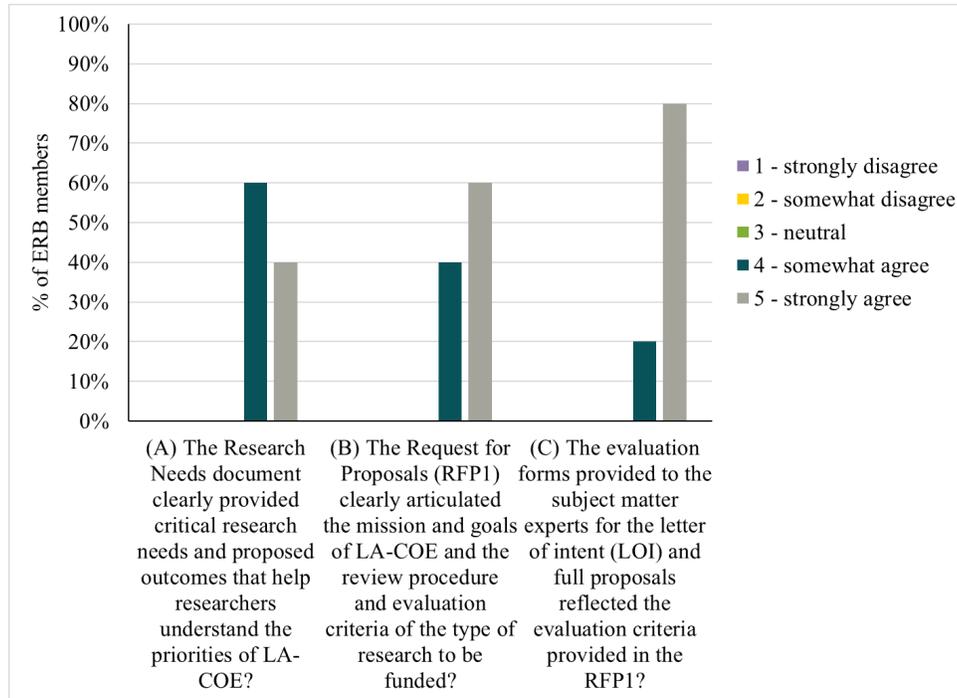


Figure B1. The ERB member responses (n = 5) about clarity of the (A) Research Needs document, (B) the RFP1, and (C) the proposal review forms.

The ERB members provided the following written recommendations concerning the peer-review of proposed research:

- General Comments:
 - The ERB members described the RFP and peer review process as “sound”, “robust”, “thorough”, and “valuable.”
 - Request written reviews from subject-matter experts not serving on the proposal review panel.
 - “As a participant in this process, a shortcoming I noted is not having available reviews by disciplinary experts for all proposals. It is noted that this is a shortcoming of any review process that is strictly based on review by a panel. A suggestion to overcome this shortcoming is to request written reviews from subject-matter experts not serving on the panel, to supplement the panelists’ reviews.”
 - Provide clarification to applicants about how much the LOI is utilized to screen encouragement for a full proposal.
 - “Provide applicants an idea of how much the letters of intent will be used to screen ideas. Sometimes LOI are used to get an idea of response and 95% are encouraged for full proposals, while other times 50% or more are rejected. Too much time and energy is spent on proposal preparation and



- review for proposals that have little chance of funding.”
- Reduce the Institute staff engagement in the review panel discussions.
 - “I felt the Institute staff were a little too engaged in the review panel discussions. In other programs that I have been involved in (e.g., Sea Grant, NOAA) the program officers were essentially observers and process managers. Because of the nature of this program and the fact that the staff were quite knowledgeable of the field and the community, perhaps it was ok.”
 - Ideas from the ERB members to modify or streamline the request and review proposal process for future RFPs:
 - “Consider placing greater emphasis on research tied to land use planning, policy making, and an assessment of how research findings are most effectively translated to practice in coastal Louisiana.”
 - “Ensure that the request is updated to reflect work accomplished during the four years (either by PIs or others).”
 - “Reduce the number of award types by combining the ‘Research Awards’ and ‘Collaborative Awards’, as the differences really seem to be related to team make up and budget cap. If combined, you are simply requesting the best possible proposals, regardless of team make up and budget.”
 - Provide “additional clarity and examples on what ‘Potential to support implementation of the Coastal Master Plan’ means. Some think any research related to the coast has the potential; others interpret this as a very direct connection is needed.”
 - “The Research Needs documents was a pretty typical shopping list, so the proposals reflected it. In the next round it might be good to be more integrative and synthetic.”

Summary

There was general agreement among all the ERB members that these documents were clear, though responses indicate that some improvements could be made to the Research Needs document. The ERB members provided clarification suggestions about the review process as well as ideas to streamline the RFP process in the future. Synthesis and integration of the research conducted through LA-COE funds, was recommended as a valuable exercise.

Researcher Engagement

Review Package Documents

1. Quarterly webinar example (ppt)
2. Performance progress report (PPR) template



3. Evaluation results from the 2018 All-Hands meetings

Engagement with researchers throughout the duration of the research is critical to the success of LA-COE. ERB members were asked to provide feedback on the effectiveness of researcher engagement from three activities that included: quarterly webinars, performance progress reports, and the All-Hands meetings.

1. Each quarter, all research subrecipients were invited to a webinar during which the LA-COE staff presented program requirements and helpful suggestions such as effective data management strategies. Most importantly, however, each quarter, one to two research subrecipients presented updates on their funded research. An example of a quarterly webinar presentation from Quarter 3 was shared with the ERB.
2. In addition to these quarterly webinars, all awardees were asked to submit a quarterly performance progress report (PPR) indicating a summary of key accomplishments, challenges, presentations and publications, outreach activities, data management efforts, students involved, and estimated funds invoiced and remaining. The PPR template was provided to the ERB.
3. An All-Hands Meeting was held during each of the two award years, 2018 and 2019. All awardees, LA-COE Staff, CPRA Liaisons, and Institute scientists who were selected as Technical Points of Contact (TPOCs), attended the meeting. In 2019, members of the LA-COE Executive Committee were also invited. During these meetings, all awardees presented their research, and discussion among all guests were held in order to help tie their research to the Louisiana Coastal Master Plan. Evaluation results from the All-Hands meetings attendees were shared with the ERB.

Results

Eighty percent of ERB members found that the engagement with research subrecipients was “very” to “extremely” useful; only one ERB member (20%) found this type of engagement only “moderately” useful (Figure B2). The type (using CPRA Liaisons and Technical Points of Contact or TPOCs) and frequency of interaction (including webinars and quarterly reports), was considered between “moderately” (40%), “very” (40%), and “extremely” (20%) sufficient (Figure B3). Most of the ERB members (60%) found that the annual All-Hands Meeting is “extremely” effective for the LA-COE recipients to discuss their research with CPRA and others, but 40% found it to be only “moderately” effective (Figure B4).

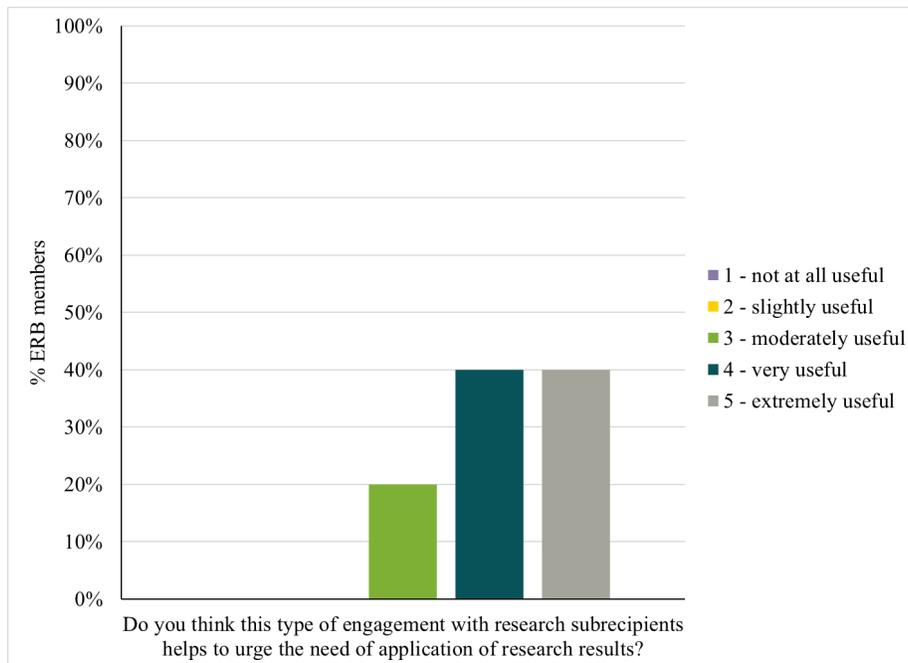


Figure B2. The ERB member responses (n = 5) about the following statement: Research scientists from The Water Institute of the Gulf served as Technical Points of Contact and worked with CPRA Liaisons to ensure that the funded research results and outcomes of research.

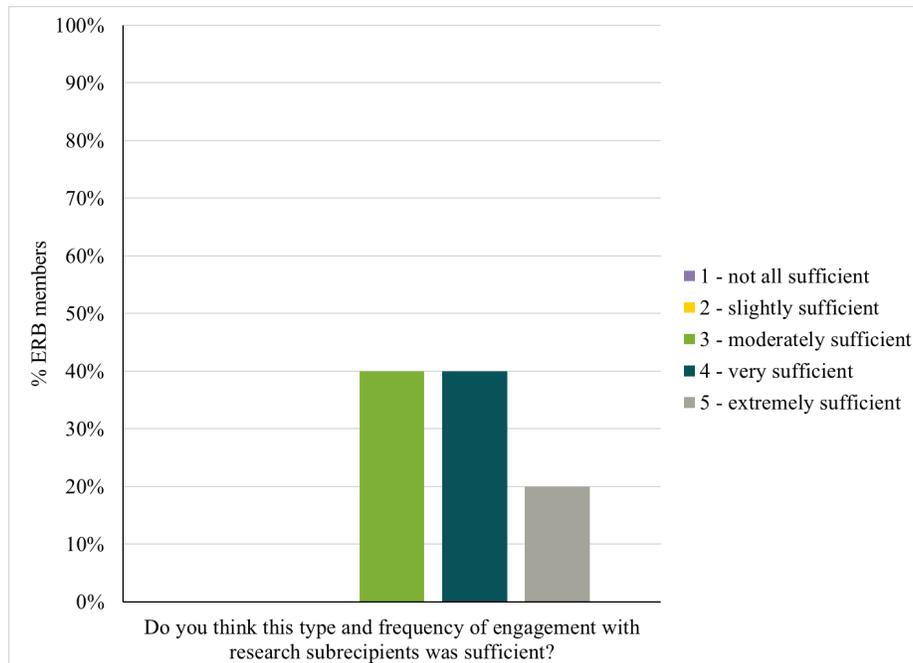


Figure B3. The ERB member responses (n = 5) about the following statement: Attendance of quarterly webinars and one-page updates via performance progress reviews (PPRs, one-page updates) were requested for two years to allow the research subrecipients to provide updates on their research projects and to discuss how it relates to CPRA’s needs, discuss data management best practices, and the dissemination of information requirements of CPRA.

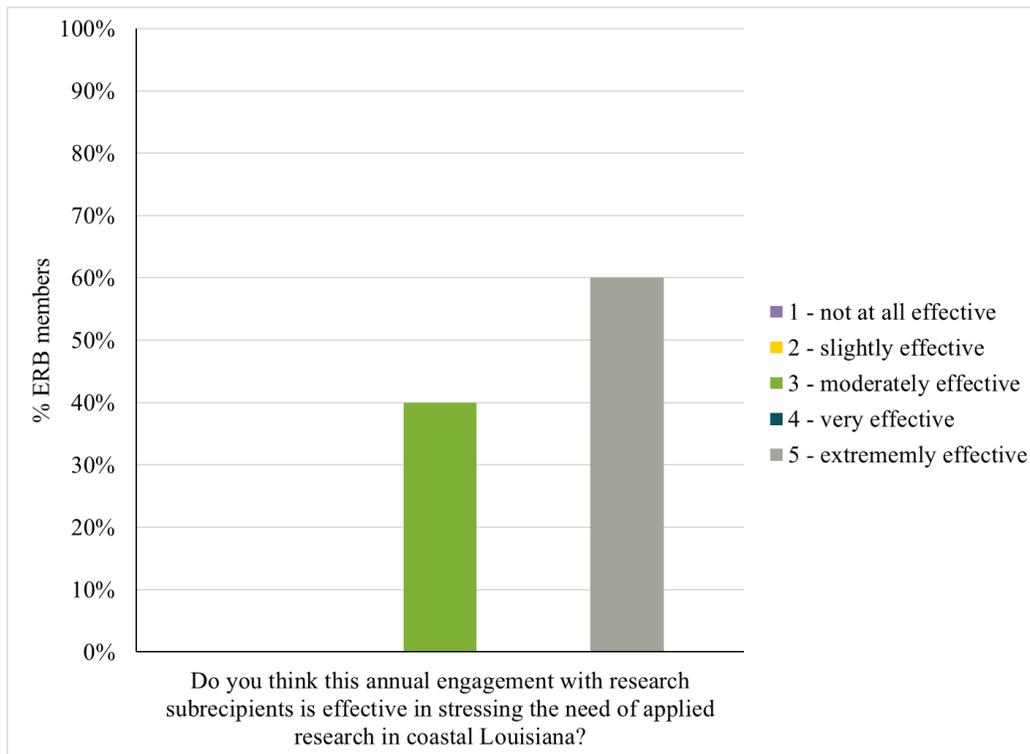


Figure B4. The ERB member responses (n = 5) about the following statement: An annual in-person All-Hands Meetings was hosted by LA-COE to bring research subrecipients, including their students and post-doctoral scholars, together to discuss coastal research that is relevant to CPRA.

The ERB members offered the following suggestions about how to improve Researcher Engagement in the future:

- Include dedicated funding to ensure technology transfer and integration of research to the Louisiana Coastal Master Plan.
 - “Faculty are so busy I suspect most PIs participate in these activities to satisfy the sponsor but do not have the bandwidth to put more than minimum effort towards them. Dedicated funding to ensure integration and tech transfer (to Master Plan or otherwise) would be more effective.”
- Establish specific metrics to help determine if researcher engagement with CPRA and the Institute impacts research direction and products from the RFP1 grants to keep research outcomes relevant to the Coastal Master Planning process.
 - “It is also not clear whether there are metrics being evaluated to determine if updates and interactions with [the Institute] and CPRA impacted research direction/products from the RFP1 grants, grant integration, or tech transfer in a positive way. Establishing specific metrics for such activities would assist with the goal of keeping research outcomes relevant to the Master Planning process.”
- Intentionally include more opportunity for the LA-COE grant recipients to undergo a synthesis and integration process, which can inform and generate new results.
 - “A key aspect of the [LA-COE] is how the total impact and usefulness of the funded



research is more than the sum of the individual research projects. Showing this is critical for the [LA-COE] to be effective as a center. It is good to have PIs communicate among themselves and with CPRA to exchange information but that is NOT synthesis and integration. That is collation. Synthesis and integration require people to merge information and modify what they do so it can be leveraged with the methods and results of other projects. What do we know about an important topic now that there are multiple projects generating new results?”

Summary

These results suggest that LA-COE is on the right track for engaging researchers, and that steps can still be taken to improve interactions between the research subrecipients and CPRA. Again, synthesis and integration of LA-COE funded research was recommended. The ERB members also suggest determining more specific metrics and dedicated funding for research subrecipients to translate their research into the Coastal Master Plan process.

LA-COE Operations

Review Package Documents

1. Summaries of research progress from the 2018 All-Hands Meetings (also available [here](#))
2. Standard Operating Procedure V2 (also available [here](#))

As a Center of Excellence, this program strives to provide exceptional research leadership, best practices, and focus on the application of research results to help implement the Coastal Master Plan. In this section, ERB members were asked to review the overall LA-COE operations and procedures.

1. Summaries of each LA-COE funded RFP1 award were provided to each of the ERB members to help them evaluate the breadth and depth of the research conducted under RFP1 and the application of the research results to the Louisiana Coastal Master Plan. This is intended to showcase how well LA-COE has achieved its mission in the first award cycle.
2. The purpose of the SOP is to establish a set of standard and guiding procedures for LA-COE. A copy of the SOP was shared with the ERB to help them evaluate LA-COE operations and procedures.

Results

The ERB members found that the LA-COE’s SOP is either “very” (80%) or “extremely” (20%) clear (Figure B5). In terms of informing others about the research being conducted via LA-COE funds, some ERB members (40%) thought that communication efforts were only “moderately” sufficient, and others thought that efforts were “very” (40%) to “extremely” (20%) sufficient (Figure B6). All ERB members believed that the review materials were “good” (40%) or “very” good (60%) (Figure B7). Finally, 100% of ERB members thought that the first four years of LA-COE operations was “very” good.

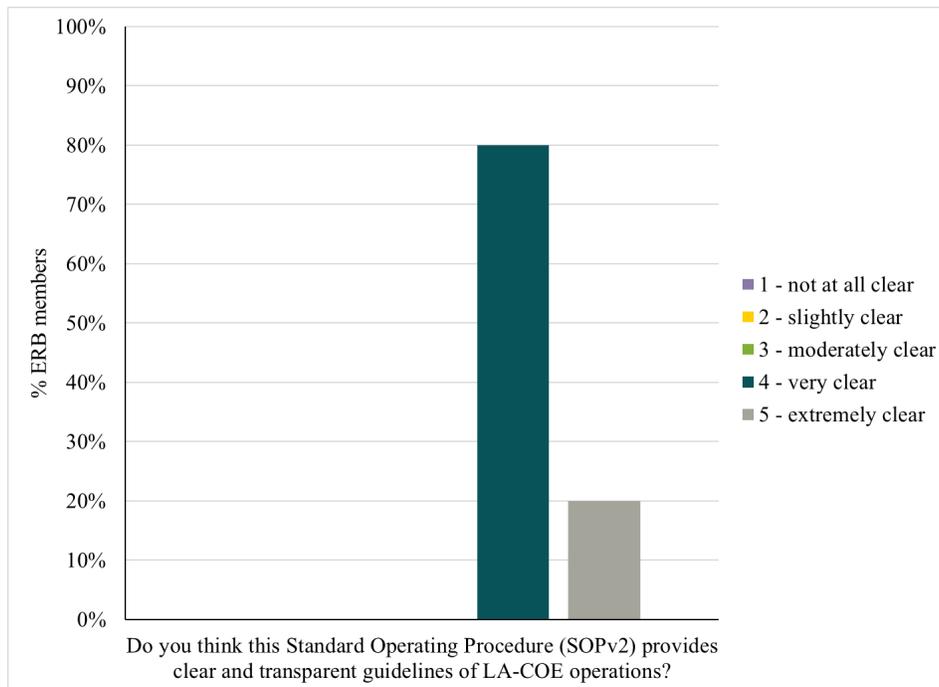


Figure B5. The ERB member responses (n = 5) about the following statement: The Standard Operating Procedure is the guiding document for LA-COE. This document (Version 2) is found on our website and is meant to provide clear and transparent information about how the LA-COE is operated.

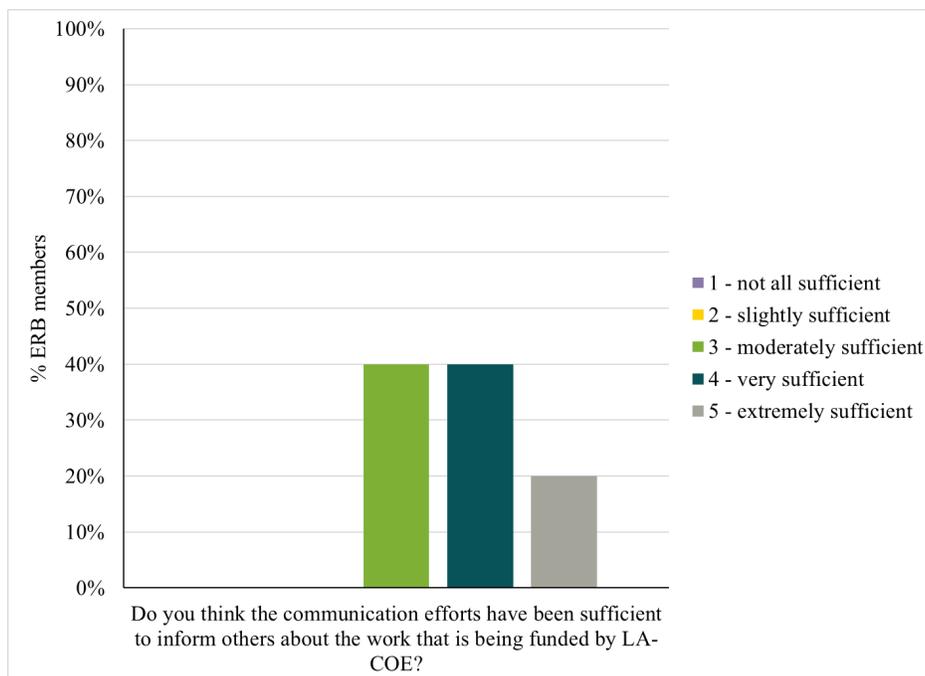


Figure B6. The ERB member responses (n = 5) about the following statement: Communicating the results of the funded researchers through press releases, website news such as summaries of research progress from the All-Hands Meeting, social media, and hosting conference sessions (e.g., GOMOSSES 2019) helps to get the word out about this applied research program.

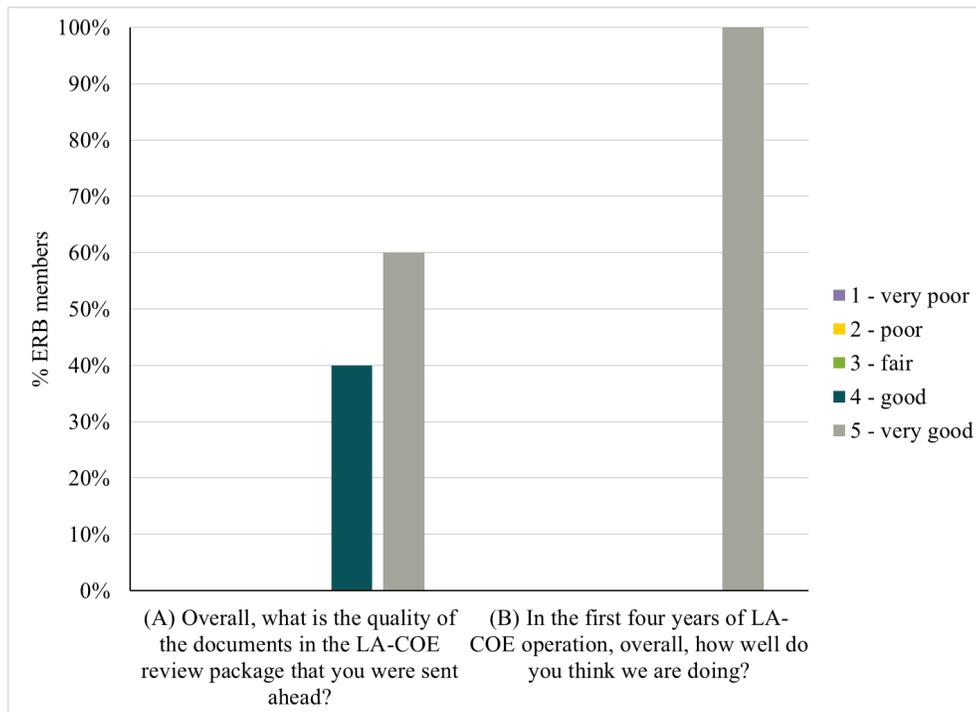


Figure B7. The ERB member responses (n = 5) about the quality of review materials and the overall success of LA-COE.

The ERB members provided the following additional feedback about the last four years of LA-COE operations, including ideas for modification or improvement:

- Provide “additional funding for researchers with the explicit intent of translating research findings to practice”, by “placing a greater emphasis on policy analysis-related research and translation.”
- “Consider financially supporting specific initiatives” for “project integration, tech transfer, and possibly policy development – particularly as it relates to informing the Coastal Master Planning process.”
 - “For example, longer-term grants awarded to extension faculty (e.g., at LA Sea Grant) and/or to other boundary organizations to be responsible for these activities may better ensure integration, tech transfer, and policy development”
 - “Very often the faculty who excel at the research are not the same faculty that excel in these other activities. This is a subject that arose as part of the recent National Academies study of the future of the Gulf coast: <https://www.nap.edu/catalog/25108/understanding-the-long-term-evolution-of-the-coupled-natural-human-coastal-system>”
- Distinguish LA-COE activities from Institute ones so that LA-COE receives the credit it deserves
 - “Important to separate the [LA-COE] from the daily operations of [the Institute]. It is



confusing for people, as they cannot distinguish [LA-COE] activities from Water Institute activities so that [LA-COE] does not get the credit it deserves.”

- Include a category in subsequent RFPs for synthesis and integration.
 - “This can be among LA-COE projects, but also bring LA-COE project results, which are new, into the broader historical body of knowledge.”
- “Track publications, presentations, and where the funded students go after graduation.”

Summary

The ERB members generally found that the first four years of LA-COE operations were successful. Survey results do suggest that communication efforts to inform others about the research being conducted via LA-COE funds can be enhanced. Here, again, ERB members are most concerned about implementing a process for research project integration and transfer of knowledge and technology to better and explicitly inform the Coastal Master Plan and its stakeholders. Examples are provided in their written feedback.

ERB Membership Evaluation

The following ERB members are interested in continuing their tenure with LA-COE:

- Jen Irish, Virginia Tech
- Kenny Rose, University of Maryland
- Gavin Smith, North Carolina State University

Current ERB members recommended the following individuals as potential ERB members who could assist LA-COE in the future:

- Traci Sempier – Alabama Sea Grant
 - Coastal Storms Outreach Coordinator
 - <http://masgc.org/about/staff/tracie-sempier-ph.d>
- Sam Brody – Texas A&M Galveston
 - Professor of Marine Sciences
 - Director of the Center for Texas Beaches and Shores
 - <http://www.tamug.edu/mars/faculty-bios/SamuelDavidBrody.html>
- Jeff Carney – University of Florida
 - Associate Professor of Architecture
 - Associate Director of the Florida Institute for Built Environment Resilience (FIBER)
 - <https://dcp.ufl.edu/faculty/carney-jeffrey/>
- Jim Chen – Northeastern University
 - Professor of Civil and Environmental Engineering
 - Professor Marine and Environmental Sciences
 - <https://coe.northeastern.edu/people/chen-qin-jim/>
- Gail Kineke -Boston College
 - Professor of Earth and Environmental Sciences



- Director of Graduate Studies
- <https://www.bc.edu/bc-web/schools/mcas/departments/eesc/people/faculty-directory/gail-kineke.html>
- Sergio Fagherazzi – Boston University
 - Professor of Earth and Environment
 - Professor of Marine Science
 - <https://www.bu.edu/earth/people/faculty/sergio-fagherazzi/>
- Lori Peek – University of Colorado
 - Professor of Sociology
 - Director of the Natural Hazards Center
 - <https://www.colorado.edu/sociology/lori-peek>
- Jamie Padgett – Rice University
 - Associate Professor of Civil Engineering
 - <https://cee.rice.edu/jamie-e-padgett>

Summary and Next Steps

In general, the ERB members provided very positive and constructive feedback on this first LA-COE grant cycle. A few key take-away points from their feedback that can be used for RFP2 are as follows:

- Reduce the number of award types combine the “Research Awards” and “Collaborative Awards”
- Clarify the objective of “Potential to support implementation of the Coastal Master Plan”
- Design the Research Needs to be more integrative
- Customize the review panel to reflect the disciplines covered by the full proposals that are received
- Explicitly include project synthesis and integration (e.g., technology transfer) with the Coastal Master Plan and its stakeholders – add as a metric and provide dedicated funding

“Overall, I view this first period of the COE as a success. A diverse array of projects were funded that are relevant to the research priorities and needs of Louisiana. [...] Congratulations on a job well done.” - LA-COE ERB member, September 30, 2019



APPENDIX C: SURVEY RESULTS FROM RFP1 PROCESS

The mission of the RESTORE Act Center of Excellence for Louisiana (LA-COE) is to provide research directly relevant to implementation of Louisiana’s Coastal Master Plan by administering a competitive grants program and providing the appropriate coordination and oversight support to ensure that success metrics are tracked and achieved.

The LA-COE is finishing its fifth year of operation, which included establishing the standard operating procedures, releasing the first request for proposals (RFP1), and managing the first round of research subrecipients. Constructive feedback from the research subrecipients (also known as the principal investigators), LA-COE Technical Points of Contact, and the CPRA Liaisons was requested to help evaluate past performance and to improve future operations.

Questions

The following survey questions are organized based on three major phases, Peer-review of Proposed Research, Research Engagement, and LA-COE Operations.

There were a total 13 responses including three from CPRA Liaisons, four from Research Subrecipients (i.e., principal investigators), and six from LA-COE Technical Points of Contact (TPOC).

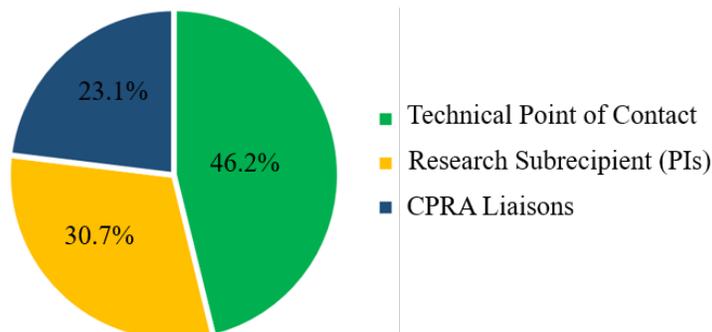


Figure C1. Respondents of LA-COE RFP1 survey.

A. Peer-review of Proposed Research

1. What is one aspect of the LA-COE request for proposal process (RFP1) that you appreciated?

Below are comments from different respondents:

- Technical Point of Contact
 - The proposal review process was well organized with a wide range of review input.
 - Fair and solid scientific review
- Research Subrecipient (principal investigator)
 - Flexibility in topical areas
 - Transparency
 - Specificity with respect to the LA Coastal Master Plan
- CPRA Liaison
 - The collaborative effort (LA-COE and CPRA) used to develop the RFP and review proposals.



2. What is one aspect of the LA-COE request for proposal process (RFP1) that you would modify or streamline?

Below are comments from different respondents:

- Technical Point of Contact
 - *“Narrowing the scope of the RFP would be helpful”*
- Research Subrecipient (principal investigator)
 - *“The LA CMP is obviously critical; however, I would suggest having a category that is not constrained by its direct benefit to the LA CMP. Open the call just a little to some basic science that the LA-COE may not see the immediate direct connection.”*
 - *“Early announcement of the RFP.”*
- CPRA Liaison
 - *“Reducing the number of proposals to review would increase the effectiveness and efficiency of the funding process.”*

3. Please provide any comments about how the **Peer-review of Proposed Research** phase was conducted.

Below are comments from different respondents:

- Technical Point of Contact
 - *“An automated online system for scoring and commenting.”*
- Research Subrecipient (principal investigator)
 - *“My project was funded so I loved it!”*
 - *“Seemed to work well”*
 - *“The reviewers and the panel provided constructive comments.”*
- CPRA Liaison
 - *“As mentioned above, the large number of proposals to review was a bit of a juggling act. CPRA probably should have more internal folks plugged into the process.”*

4. Overall, how satisfied are you with the LA-COE grant application process?

1- not at all satisfied, 5- extremely satisfied

All Research Subrecipients gave positive feedback with “very satisfied” and “extremely satisfied”. Two out of three responses from CPRA showed “not so satisfied”.

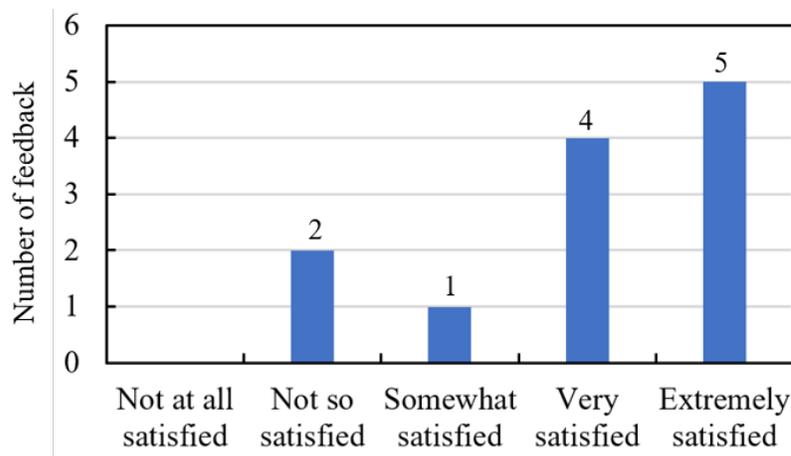


Figure C2. The RFP1 responses (n = 12) about the satisfaction of LA-COE grant application process.



Researcher Engagement

5. Research scientists from The Water Institute of the Gulf served as Technical Points of Contact (TPOC) and worked with CPRA Liaisons to ensure that the funded research results and outcomes of research subrecipients were relevant to implementing the Coastal Master Plan. Do you think this type of engagement with research subrecipients helps to emphasize the need of application of research results?

1- not at all, 5- extremely useful

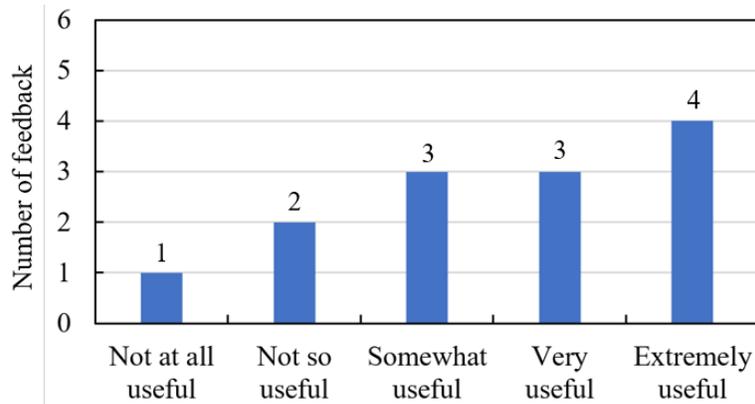


Figure C3. The RFP1 responses (n = 13) about the engagement of TPOCs and CPRA Liaisons.

6. Attendance of quarterly webinars and one-page updates via performance progress reports (PPRs, one-page updates) were requested for two years to allow the research subrecipients to provide updates on their research projects to Technical Points of Contact and CPRA Liaisons and to discuss how it relates to CPRA's needs, discuss data management best practices, and the dissemination of information requirements of CPRA. Do you think this type and frequency of engagement with research subrecipients was sufficient?

1- not at all sufficient, 5- extremely sufficient

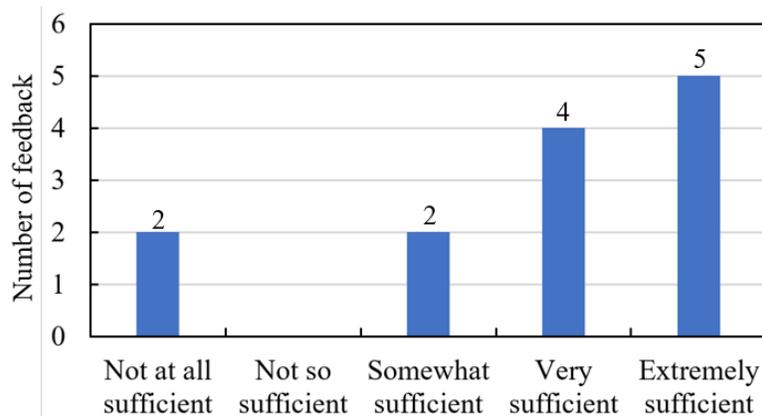


Figure C4. The RFP1 responses (n = 13) to the quarterly webinars and PPRs.

7. An annual in-person All Hands Meeting was hosted by LA-COE to bring research subrecipients, including their students and post-doctoral scholars, together with Technical



Points of Contact and CPRA Liaisons to discuss coastal research that is relevant to CPRA. Evaluation forms were provided to gain their feedback. Do you think this annual engagement is effective in stressing the need of applied research in coastal Louisiana?

1- not at all effective, 5- extremely effective

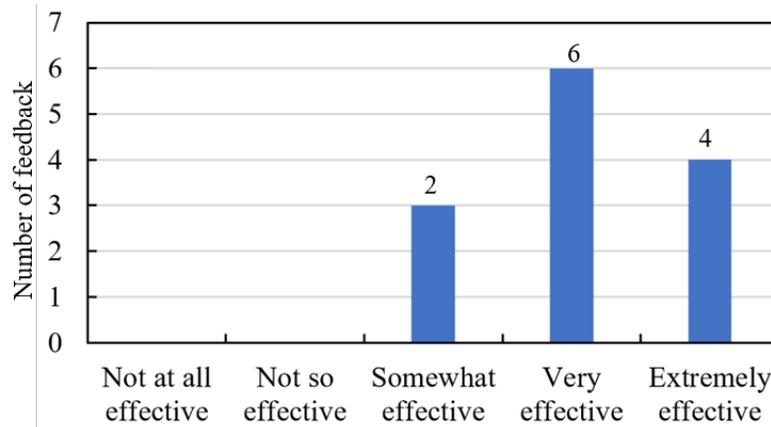


Figure C5. The RFP1 responses (n = 12) to the annual in-person All Hands Meetings

8. Please provide any other comments you have about the prior activities involved with **Researcher Engagement**.

Below are comments from different respondents shown in *Italics*:

- Technical Point of Contact
 - *“Having direct engagement to help with identifying cross-linkages of research with application was very helpful.”*
 - *“Honestly, the engagement was primarily administrative rather than technical. As a technical POC I benefited from learning more about the research and was able to assist the researchers navigate some administrative / political aspects of the work and COE - but I do not feel it had a major impact on the uptake of the work into CPRA.”*
 - *“In my view, the one-page progress reports provided nearly no useful information about the research and was purely a busy work exercise. While obviously needed to ensure timely performance from the PI, it was laughable how this was originally billed as a “technical” task. It was purely grant management marketed as technical collaboration.”*
- Research Subrecipient (principal investigator)
 - *“The Researcher Engagement greatly helps network with other PIs, Co-PIs and graduate students.”*
 - *“Overall, I was quite impressed. Feedback from the roundtables was valuable and productive to the project. One thing that was odd was the intense oversight of all presentations, publications, etc. that come out of the project. I have had funding from NSF, FEMA, NOAA, ONR, etc., and never experienced such requirements. The LA-COE provided grants to the experts so why would they need such oversight. Perhaps the oversight just needs better explanation.”*



- CPRA Liaison
 - *“The only real connection to these projects as a CPRA Liaison came during the in-person meeting and any review to the progress reports that were emailed. The progress reports were extremely minimal in information provided and did not really provide much insight into the research project's progress. I am not sure if there was any value added to the process via this Liaison approach. Any guidance or input regarding the impacts to the Master Plan seemed to come in the RFP process and the selection of projects to fund...after that, there did not seem to be much interaction, discussion, or dialogue at all.”*
 - *“The amount of oversight that the researchers received was probably too much. Perhaps engagement with the CPRA liaison could be focused at the start of the project, with subsequent engagement limited to quarterly/semi-annual progress reports and the annual meeting. Also, I feel that some of the researchers may have been confused about the role of the CPRA liaison.”*

B. LA-COE operations

As a Center of Excellence, we strive to provide exceptional research leadership, best practices, and focus on the application of research results to help implement the Coastal Master Plan.

1. Communicating the results of the funded researchers through press releases, website news such as summaries of research progress from the All Hands Meeting, social media, and hosting conference sessions (e.g., SOC 2018, GOMOSSES 2019) helps to get the word out about this applied research program. Do you think the communication efforts have been sufficient to inform others about the work that is being funded by LA-COE?

1- not at all sufficient, 5- extremely sufficient

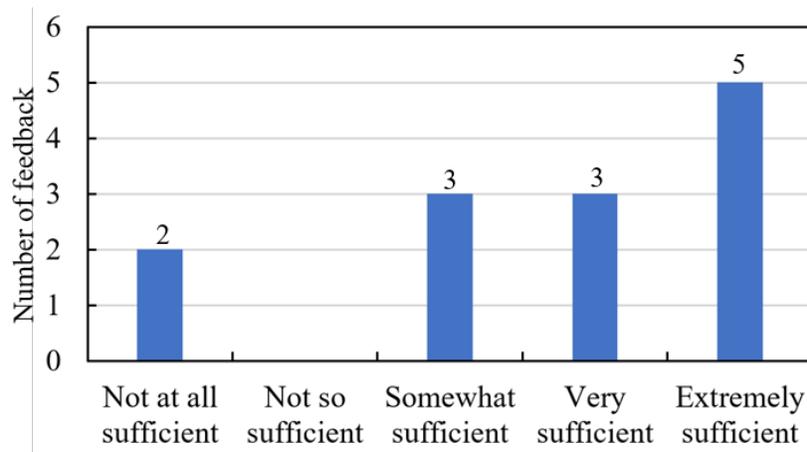


Figure C6. Responses (n = 13) to the communication efforts done by LA-COE during RFP1.

1. In the first five years of LA-COE operation, overall, how well do you think we are doing?

1- poor, 5- excellent

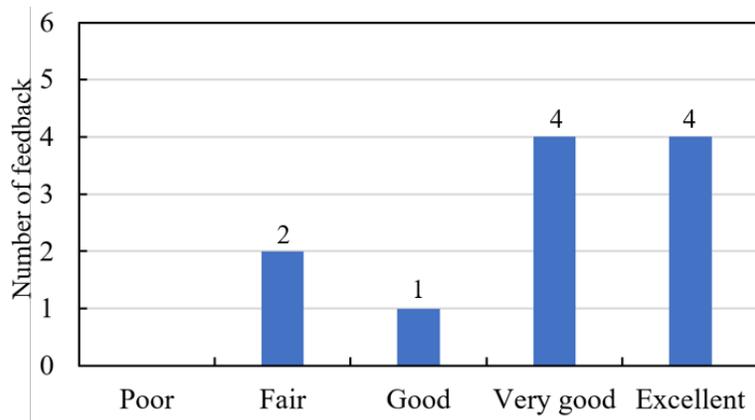


Figure C7. RFP1 Responses (n = 13) about the first five years of LA-COE operation.

2. Please provide any other feedback about the first five years of **LA-COE operations** and ideas for continuation or improvement?

Below are comments from different respondents shown in *Italics*:

- Technical Point of Contact
 - *“Worked well overall. More visibility and cross-linking to applications is always great.”*
 - *“The link between strategic and targeted knowledge gaps / research needs for current management and the research questions being addressed was not very explicit for RFP1. Seeking mechanisms to make that linkage stronger could greatly benefit the process, ensuring that the COE funded research is timely, applied, and has a specific mechanism to be utilized for coastal restoration management.”*
 - *“I think that the research projects funded are producing helpful and new science, so that is good. The LA-COE as a brand/messaging system (as the above question pertains to) seems wasteful to me to not have paid dividends.”*
- Research Subrecipient (principal investigator)
 - *“The alignment of the LA-COE with TWIG is a bit uncomfortable. Especially when scientists and leadership of TWIG are actively competing with the universities and consultants for research funding. Is important to realize where the historical, present and future scientific discovery and technical expertise has, is and will originate: universities within and outside of LA.”*
 - *“Reducing quarterly reports to mid-year reports.”*
- CPRA Liaison
 - *“Around the COE. I suppose there needs to be some accountability, certainly, but having several dozen people provide cursory oversight seems to be a very inefficient and ineffective way to handle this. A few dedicated staff would likely be a better approach, who can point researchers to technical staff as needed (for either data, questions, troubleshooting, etc.) may be more efficient.”*

3. Please provide ideas about what you would like to be done in future **LA-COE operations**?

Below are comments from different respondents:

- Technical Point of Contact



- *“Perhaps additional focused (by topic) sessions to cross-link work with management needs.”*
- *“Focusing future RFPs around a small number of specific and identified management/restoration knowledge gaps or research needs to feed into specific management decisions or processes (ongoing or planned for the future) would help greatly. Perhaps targeting research to a small number of specific restoration projects or project types could be a way to do that? This would also provide CPRA project managers that can specifically benefit from the research and may increase the likelihood of active engagement. I personally enjoyed being the WI technical POC - I am not sure I had much input to the science, but I did feel at times that I was able to advocate for the researchers and understood their work well enough to be able to do that (in particular in relation to the implication of delayed funding availability and need for NCE due to specific field sampling seasons etc.). The delay in funding availability after successful researchers had been notified and projects commenced was (obviously) a major challenge, so avoiding this in future RFPs would immediately solve many of the largest challenges from the first round of projects.”*
- *“I would streamline the progress report review process by having one (or two) dedicated administrative staff review these for accounting purposes. I would then provide a list of technical contacts and liaisons who are aware of the funded project list and will be available to provide data, make introductions, and troubleshoot on an ad hoc basis, rather than having dedicated technical contacts for each individual project.”*
- Research Subrecipient (principal investigator)
 - *“Work to remove “The Water Institute of the Gulf” from the logo below. If anything, it should be recognized as the CPRA RESTORE Act LA-COE. That was the original intent of the US Department of the Treasury.”*
 - *“Continue the Researcher Engagement.”*
- CPRA Liaison
 - *“See previous answer. I feel like an attempt was made to include EVERYBODY - at the detriment of meaningful involvement. Since everyone is expected to spend a few hours per RFP on this, it takes a limited resource and spreads it really thin across a bunch of people. I suspect that CPRA program manager and LA-COE director have much more informative opinions and thoughts on the program due to their in-depth involvement and perhaps concentrating the internal COE resources on depth as opposed to breadth may be a bit more efficient and effective.”*
 - *“My only comment would be that the list of applied research topics should be more specific and that it should be tied to identified research gaps.”*