

A. COVER PAGE

Project Title: A Proposal to Scale from a Regional to a National Webcam Coastal Observation System (WebCOOS)	
Grant Number: NA23NOS0120243-T1-01	Project/Grant Period: 09/01/2023 - 08/31/2026
Reporting Period: 09/01/2023 - 02/29/2024	Requested Budget Period: 09/01/2023 - 08/31/2026
Report Term Frequency: Semi-Annual	Date Submitted:
Program Director/Principal Investigator Information: DEBRA HERNANDEZ , MS Phone Number: 8438646755 Email: mlee@secoora.org	Recipient Organization: SECOORA 1368 PHERIGO ST MOUNT PLEASANT, SC 294644825 DUNS: 829041339 UEI: EEL2LR5E2R85 EIN: 26-1215705 RECIPIENT ID:
Change of Contact PD/PI: No	
Administrative Official: MEGAN LEE 1368 Pherigo Street Mount Pleasant, SC 29464 Phone number: 8438646755 Email: mlee@secoora.org	Signing Official: MEGAN LEE 1368 Pherigo Street Mount Pleasant, SC 29464 Phone number: 8438646755 Email: mlee@secoora.org
Human Subjects: No	Vertebrate Animals: No
hESC: No	Inventions/Patents: No

B. ACCOMPLISHMENTS

B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?

Transition WebCOOS to a sustained, national network hosting multiple webcams from each RA integrated into the publicly accessible WebCOOS system providing long-term access to historical and real-time coastal webcam observations and products. The primary objectives are to 1) Identify locations for and install webcams, or integrate cameras of opportunity, in all IOOS RAs; 2) Apply open-source AI/ML and thresholding algorithms to newly installed webcams and convene to determine new applications of the data; and 3) Refine webcam installation and operation procedures, data management SOPs, and develop training materials to ensure transferability and continuity of operations.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File Uploaded : Box25_NatlWebCOOS_Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

For this reporting period, is there one or more Revision/Supplement associated with this award for which reporting is required?

No

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Objective 1.1) Determine user need (applications) for webcams

- SECOORA: continue working with IOOS RA representatives and partners to determine locations for at least year 1 cameras and ideally year 2 cameras. Work with a contractor to install cameras, and work with the project team to ingest camera streams onto the network.
- SECOORA/UNCW: continue working with U.S. Army Corps of Engineers (USACE) to compare methods from their CorpsCams projects and to identify locations of interest to USACE districts.
- SECOORA: Continue building partnership with USGS & CoastCam project to share knowledge & bring on cameras of opportunity. Continue to work and develop/build partnerships with users including USACE, USGS, and NOAA-NOS/NOAA-NWS to identify locations of interest to them and partners, and to connect them with RA representatives to inform camera siting priorities.

Objective 1.2) Train RA PIs or staff on site selection, installation, and operation techniques

- SECOORA: plan & host technical workshop in late summer/early fall with project team, partners, IOOS RA representatives, & camera operations contractor to share knowledge around camera installation & operations, and data management. Some volunteers for the steering committee have already been selected, and we are currently working on the optimal date & location for the workshop.
- Work with the project team to collate, refine, & update training documentation so it is easy to send out.

- Draft preliminary Spanish-language versions of materials. Perhaps with CariCOOS.

Objective 2.1) Test existing algorithms on new webcam images and video

- USC: Working with Axiom and internal group partners to further develop and test notification system for riptides or other activities.
- UNCW: Determine applicability of new locations for shoreline or extreme wave runup detection.
- Axiom: Refine data product services and add services to additional relevant cameras
- SECOORA: when new cameras are installed, work to apply relevant algorithms to them.

Objective 2.2) Host a workshop to explore new webcam uses and applications

- SECOORA: Nothing planned; this workshop will be in late summer/early fall 2025.
- UCSC: Potential use case for other applications of webcams –obtained local seed funding to study beach runups and shoreline changes as triggers for adaptation planning. Mona Zhao (MS student) working on the project. Currently extending earlier work on shoreline (wet/dry and water/land interfaces) detection, and also beach topography reconstruction from drone imagery (with Fahim Khan). USGS has DEM data of surfzone bathymetry of study areas (Seabright and Twin Lakes beaches) from 2017. So also plan to compare that dataset with 3D scene reconstruction results.
- UNCW: Exploring an Inlet Hazard Warning System for the National Weather Service using the Masonboro Inlet camera as a test. During an initial meeting we outlined some potential items to be included in the hazard analysis like sea fog, whitecapping/sea state, inlet shoaling, boat traffic, and extreme water levels. Will begin testing machine learning techniques to identify these hazards and have follow-up meetings with the NWS - Wilmington forecasters.

Objective 3) Refine webcam installation and operation procedures, data management SOPs, and develop training materials to ensure transferability and continuity of operations

- SECOORA: work with project team in advance of 2024 technical workshop to compile, review, & revise documentation on camera & site selection & installation.

Objective 1: Identify locations for and install webcams, or integrate cameras of opportunity, in all IOOS RAs

Obj. 1.1) Determine user need (applications) for webcams: 33% Complete

- SECOORA: hosted national kickoff meeting with IOOS RA representatives on December 11, 2023, with input & presentation from each group on WebCOOS team
- SECOORA: met with each IOOS RA in January/February 2024. AOOOS: meeting with initial partners (JOA, ADNR, USGS, Marine Exchange AK) in March 2024; interest in shipping, flooding, erosion. CariCOOS: engagement with Sea Grant & USGS, meeting in April 2024; interest in rip currents & water quality. CeNCOOS: interest in flooding, storm hazards, waves/rip currents; working on engagement with local municipalities. GCOOS: interest in rip currents & marine navigation; working with NOAA, Ports. GLOS: interest in water levels; working to ID high-priority locations. MARACOOS: interested in flooding & beach safety/rips; potential collaborations with Ocean City Beach Patrol, Philip Orton of Stevens Inst. of Tech., SHARC. NANOOS: interested in coastal change/hazards, rips, erosion, especially given history of Argus cameras at Oregon State U; working with state government & OSU researchers, potentially tribes & homeowner groups. NERACOOS: plan to install 1 camera per state & 1 additional, meeting with year 1 partners upcoming. PacIOOS: interest in coastal runoff/hazards, flooding, sea level rise, marine safety, marine debris; working with university & Port partners; likely sites in Maui, Oahu, American Samoa, Palau. SCCOOS: potential collaboration with CA state parks, lifeguards, local managers, DHS?, working with Adam Young & Mark Merrifield.

Obj 1.2) Train RA PIs or staff on site selection, installation, and operation techniques: 15% Complete

- SECOORA: compiled & sent information regarding camera selection & location & budget to RA representatives, January 2024-ongoing, especially as IRA proposals have been developed. Cothran of USC has consulted with RA staff on camera & site selection and installations. Other WebCOOS team members & PIs have connected with RA staff when the applications the RA is interested in overlap with the PI's area of expertise (e.g. Pang & Dusek connecting with CariCOOS on rip currents). WebCOOS meetings have also facilitated connections between IOOS RA staff and SECOORA's Water Level Manager, which is relevant to upcoming IRA proposal development & implementation.

Objective 2) Apply open-source AI/ML and processing algorithms to newly installed webcams and convene to determine new applications of the data.

Obj 2.1) Test existing algorithms on new webcam images and video: 5% Complete

- UCSC: Rip detection running on Currituck, NC with plans to run on Holland Beach, MI and Walton Lighthouse, CA next. Seal detection also(?) running at Point Reyes, CA. These cameras, while installed as part of a different project, are outside the SECOORA region and therefore applicable to this project as well.
- No new cameras installed in this project yet; so no tests on these performed as of yet.

Obj 2.2) Host a workshop to explore new webcam uses and applications: 5% Complete

- SECOORA: this workshop will be in late 2025. Some potential new applications have already been identified through conversations with IOOS RAs, including water quality and turbidity in CariCOOS, marine debris in PacIOOS, marine fog & visibility in GCOOS, and high and low water levels in GLOS.

Objective 3: Refine webcam installation and operation procedures, data management SOPs, and develop training materials to ensure transferability and continuity of operations. 10% complete.

- USC: Discussed with Dr. Philip Orton of the Stevens Institute of Technology about solar/cellular powered remote camera rooftop setup to monitor flooding location (periodic image snapshots only, not video). [Documentation developed](#) to aid in parts selection, purchase and assembly. Similar remote solar/cellular monitoring discussion with Uchenna Nwankwo, Assistant Research Scientist at Gulf of Mexico Coastal Ocean Observing System (GCOOS)/Geochemical and Environmental Research Group (GERG), Texas A&M University.
- SECOORA: Shared detailed information on camera selection, specifications, & costs with representatives from other RAs, including GCOOS, GLOS, and PaCIOOS because representatives asked about this for IRA proposal development. Developing these ad hoc email responses to these questions has helped shape a preliminary set of information that can be shared as training materials. Shared general information with all RAs on budgets & timelines, including estimated data storage costs, pertaining to this project & proposed IRA work.

C. PRODUCTS

C.1 PUBLICATIONS

Are there publications or manuscripts accepted for publication in a journal or other publication (e.g., book, one-time publication, monograph) during the reporting period resulting directly from this award?

No

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Category	Explanation
Data or Databases	www.webcoos.org

C.3 TECHNOLOGIES OR TECHNIQUES

NOTHING TO REPORT

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Have inventions, patent applications and/or licenses resulted from the award during the reporting period? No

If yes, has this information been previously provided to the PHS or to the official responsible for patent matters at the grantee organization? No

C.5 OTHER PRODUCTS AND RESOURCE SHARING

NOTHING TO REPORT

D. PARTICIPANTS

D.1 WHAT INDIVIDUALS HAVE WORKED ON THE PROJECT?

Commons ID	S/K	Name	Degree(s)	Role	Cal	Aca	Sum	Foreign Org	Country	SS
SECOORAPI	Y	Hernandez, Debra	MS	PD/PI	3.0	0.0	0.0			NA

<p>Glossary of acronyms: S/K - Senior/Key Cal - Person Months (Calendar) Aca - Person Months (Academic) Sum - Person Months (Summer)</p>	<p>Foreign Org - Foreign Organization Affiliation SS - Supplement Support RS - Reentry Supplement DS - Diversity Supplement OT - Other NA - Not Applicable</p>
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D.2 PERSONNEL UPDATES

D.2.a Level of Effort

Will there be, in the next budget period, either (1) a reduction of 25% or more in the level of effort from what was approved by the agency for the PD/PI(s) or other senior/key personnel designated in the Notice of Award, or (2) a reduction in the level of effort below the minimum amount of effort required by the Notice of Award?

No

D.2.b New Senior/Key Personnel

Are there, or will there be, new senior/key personnel?

No

D.2.c Changes in Other Support

Has there been a change in the active other support of senior/key personnel since the last reporting period?

No

D.2.d New Other Significant Contributors

Are there, or will there be, new other significant contributors?

No

D.2.e Multi-PI (MPI) Leadership Plan

Will there be a change in the MPI Leadership Plan for the next budget period?

NA

E. IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

NOTHING TO REPORT

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

Not Applicable

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

NOTHING TO REPORT

F. CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

- SECOORA: working to contract with a single camera operator for installations, operations, and maintenance. This standardization will reduce travel costs & personnel time in setting up, installing, troubleshooting, and ingesting cameras & their streams into the network, and promote innovation by allowing more time to be spent on the applications & products of the data.

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS

F.3.a Human Subject

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. SPECIAL REPORTING REQUIREMENTS SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

NOTHING TO REPORT

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

NOTHING TO REPORT

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Are there personnel on this project who are newly involved in the design or conduct of human subjects research?

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Does this project involve vertebrate animals?

No

G.8 PROJECT/PERFORMANCE SITES

Organization Name	UEI	Congressional District	Address

Primary: SECOORA	EEL2LR5E2R85	SC-01	1368 PHERIGO ST MOUNT PLEASANT, SC 294644825
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G.9 FOREIGN COMPONENT

No foreign component

G.10 ESTIMATED UNOBLIGATED BALANCE

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

No

G.11 PROGRAM INCOME

Is program income anticipated during the next budget period? No

G.12 F&A COSTS

Is there a change in performance sites that will affect F&A costs?

No

RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 1

UEI*: EEL2LR5E2R85

Budget Type*: Project Subaward/Consortium

Enter name of Organization: SECOORA

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

A. Senior/Key Person															
Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*			
1.	Debra		Hernandez		PI	0.00	0.27			3,438.00	928.00	4,366.00			
Total Funds Requested for all Senior Key Persons in the attached file															
Additional Senior Key Persons:											File Name:			Total Senior/Key Person	4,366.00

B. Other Personnel								
Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*	
	Post Doctoral Associates							
	Graduate Students							
	Undergraduate Students							
	Secretarial/Clerical							
1	Professional	6.0	0.0	0.0	34,500.00	9,315.00	43,815.00	
1	Total Number Other Personnel					Total Other Personnel	43,815.00	
							Total Salary, Wages and Fringe Benefits (A+B)	48,181.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 1

UEI*: EEL2LR5E2R85

Budget Type*: Project Subaward/Consortium

Enter name of Organization: SECOORA

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

C. Equipment Description	
List items and dollar amount for each item exceeding \$5,000	
Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel	
	Funds Requested (\$)*
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs	
	Funds Requested (\$)*
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K, BUDGET PERIOD 1

UEI*: EEL2LR5E2R85

Budget Type*: Project Subaward/Consortium

Enter name of Organization: SECOORA

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	0.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8.	0.00
9.	0.00
10.	0.00
11.	0.00
12.	0.00
13.	0.00
14.	0.00
15.	0.00
16.	0.00
17.	0.00
Total Other Direct Costs	0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	48,181.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
Total Indirect Costs			
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	48,181.00

J. Fee	Funds Requested (\$)*
	0.00

K. Total Costs and Fee	Funds Requested (\$)*
	48,181.00

L. Budget Justification*
File Name: SECOORA combined Budget Info.pdf

RESEARCH & RELATED Budget (F-K) (Funds Requested)



Project Title:	A Proposal to Scale From a Regional to a National Webcam Coastal Observation System (WebCOOS)					
Principal Investigator:	Debra Hernandez					
Institution:	SECOORA					
BUDGET ITEMS		No. of Individuals	Person-Months		Year 1	
Salary and Wages			Grant	Match		
1. Principal Investigator:	DH				\$ 6,875	
2. Associate Investigator:						
3. Professionals: WEBCOOS Operations	TJ				\$ 69,000	
4. Research Associates						
5. Research Asst. Grad. Students						
6. Prof. School Students						
7. Pre-Bac. Students						
8. Secretarial/Clerical						
9. Technical-Shop						
10. Other:						
TOTAL SALARIES and WAGES					\$ 75,875	
Fringe Benefits - Formula =	27%				\$ 20,486	
TOTAL SALARIES, WAGES and FRINGE BENEFITS					\$ 96,361	
TRAVEL						
1. Domestic					\$ 1,635	
2. Foreign (requires prior approval)						
PERMANENT EQUIPMENT (list)						
EXPENDABLE SUPPLIES, etc.					\$ 78.00	
Camera and installation supplies					\$ 60,000	
CONTRACTUAL COSTS						
Axiom Data Sciences					\$ 80,000	
OTHER COSTS						
Participant Travel					\$ 22,886	
Workshop Expenses					\$ 7,800	
Maintenance Expenses for Installed Cameras					\$ 15,000	
Subaward: UCSC					\$ 25,562	
Subaward: UNCW					\$ 25,790	
Subaward: USC					\$ 26,834	
Administrative fee					\$ 3,000	
TOTAL DIRECT COSTS					\$ 364,946	
INDIRECT COSTS						
	1. On campus - Formula =		10.00%		\$ 33,587	
	2. Off campus - Formula =		%			
TOTAL COST					\$ 398,534	

Revised Appendix 3: Detailed Budget Information

**SECOORA – PI Debra Hernandez
Budget Justification
TOTAL COSTS YEARS 1-3 = \$1,195,347**

Budget Justification Year 1

TOTAL COST YEAR 1: \$398,533

SALARY (\$75,875)

Debra Hernandez will be the project PI responsible for overseeing the project, and managing the Project Operations Manager. Hernandez also serves as the transition PI and will work with the Project Operations Manager to complete a draft Transition Plan in Year 1. 0.55 months of salary (\$6,875) is requested. Theo Jass will be the Operations Manager for this project. He will oversee the WEBCOOS project and install and operate between 15 and 20 new web cameras, and stream the data to the WebCOOS data portal at webcoos.org. 12 months of salary (\$69,000) is requested. This salary information reflects current rates.

Position Title & Name	Yearly Salary	% Time	No. of months	\$ Amount
PI/Executive Director/ Debra Hernandez	\$150,000	4.5%	0.55	\$6,875
Operations Manager/ Theo Jass	\$69,000	100%	12	\$69,000

FRINGE (\$20,486)

The fringe rate for the project PI and Operations Manager is 27% of total salary. Total fringe is \$75,875 (salary for PI and Operations Manager) x .27 = \$20,486. Fringe includes health, dental, vision and life insurance as well as contribution to individual SEP IRAs at a rate of 10% of salary after 1 year of employment.

TRAVEL (\$1,635)

SECOORA will collaborate with the IOOS Regional Associations to host a workshop focused on webcam installs, products, and standards. The 2-day workshop will be hosted in Q4 of the first year of the project. SECOORA anticipates hosting the workshop in Charleston, SC. There will be 2 SECOORA staff (Debra Hernandez and Theo Jass) attending. See Other Costs below for more detail about the workshop. Numbers based on 2022 rates for the Fulton Inn in Charleston, SC are used for travel estimating purposes. Travel anticipated to be 3 days/2 nights. All travel expenses are escalated by 20% based on recent experiences with increasing travel costs.

Staff Travel Expenses:

- Hotel: 2 people x 2 nights x \$313.27/night = \$1,253
 - Parking: 2 people x 3 days x \$20.40 = \$123
 - Per diem: 2 people x 3 days x \$43.20/day = \$259
- Total travel support for SECOORA staff to attend workshop = **\$1,635**

SUPPLIES (\$60,078)

Office supplies (\$78): Funds are requested general office supplies for the Operations Manager i.e. ink, paper, pens. Request based on precious cost experience.

Camera and installation supplies (\$60,000): Funds are requested to install two web cameras in each of 10 regional associations in Year 1, for a total of 20 cameras. Camera and installation supply costs are estimated based on previous work at \$3,000 each, for a total request of \$60,000. Estimated costs include remotely operated web cameras, and installation supplies such as brackets, screws, bolts, and cables.

CONTRACTUAL COSTS (\$80,000)

Axiom Data Science, LLC (\$80,000): See separate budget justification and SF424A.

OTHER COSTS (\$126,872)

Workshop – Participant Travel (\$22,886): SECOORA will collaborate with the IOOS Regional Associations to host a workshop focused on webcam installs, products, and standards. The 2-day workshop will be hosted in Q4 of the first year of the project. SECOORA anticipates hosting the workshop in Charleston, SC. There will be approximately 28 participants, including 1-2 representatives from each RA, the SECOORA funded PIs, and other Tier 1 users. Workshop funds will be used to support hotel and per diem for up to 28 non-federal meeting attendees who need travel support. 2022 rates for the Fulton Inn in Charleston, SC are used for travel estimating purposes. Travel anticipated to be 3 days/2 nights. All travel expenses are escalated by 20% based on recent experiences with increasing travel costs.

Invitational Travel Expenses:

- Hotel: 28 people x 2 nights x \$313.27/night = \$17,543
 - Parking: 28 people x 3 days x \$20.40 = \$1,714
 - Per diem: 28 people x 3 days x \$43.20/day = \$3,629
- Total travel support for 28 non-federal workshop attendees = \$22,886

Workshop Expenses (\$7,800): (see above for the description of the workshop)

- \$2400 for meeting expenses including room set-up, AV, and meeting materials
- \$5400 for breakfast, lunch, and snacks for 2 days

Maintenance Expenses for Installed Cameras (\$15,000): Funds are requested to maintain operation of 15 cameras in the SECOORA region. Costs include replacement parts, fees to camera operators such as Eastern Data, and for monthly cable and power utilities to operate the cameras and are estimated at \$1,000 each based on previous experience, totaling \$15,000.

Administrative Fee (\$3,000): A one-time Administrative Fee of \$3,000 is charged for each new federal award with between 5 and 10 contracts and subawards, to cover contract/subaward initiation expenses.

Subaward: University of California – Santa Cruz – PI Alex Pang (\$25,562). See separate budget justification and SF424A.

Subaward: University of North Carolina Wilmington – PI Joseph Long (\$25,790). See separate budget justification and SF424A.

Subaward: University of South Carolina – PI Dwayne Porter (\$26,834). See separate budget justification and SF424A.

TOTAL DIRECT COSTS (\$364,946)

INDIRECT COSTS (\$33,587)

SECOORA’s indirect rate is 10% (elected de minimus rate) on all eligible direct charges and the first \$25,000 of all subawards. IDC is not charged on participant travel and the administrative fee.

The rate is 10% and is computed on the following direct cost base \$335,874.

Direct Cost Categories	Direct Cost Base	IDC
Personnel	\$ 75,875	\$ 7,588
Fringe	\$ 20,486	\$ 2,049
Travel	\$ 1,635	\$ 164
Supplies	\$ 60,078	\$ 6,008
Contracts	\$ 80,000	\$ 8,000
Other	\$ 97,800	\$ 9,780
Totals	\$ 335,874	\$ 33,587

Budget Justification Year 2

TOTAL COST YEAR 2: \$397,463

SALARY (\$71,688)

Debra Hernandez will be the project PI, responsible for overseeing the project, and managing the Project Operations Manager. Hernandez also serves as the transition PI and will work with the Project Manager to complete a draft Transition Plan in Year 1. 0.215 months of salary (\$2,688) is requested for Debra Hernandez. Theo Jass, the Operations Manager for this project requests 12 months of salary (\$69,000).

Position Title & Name	Yearly Salary	% Time	No. of months	\$ Amount
PI/Executive Director/ Debra Hernandez	\$150,000	1.79%	0.215	\$2,688
Operations Manager/ Theo Jass	\$69,000	100%	12	\$69,000

FRINGE (\$19,356)

The fringe rate for the project PI and Operations Manager is 27% of total salary. Total fringe is \$71,688 (Salary for PI and Operations Manager) x .27 = \$19,356. Fringe includes health, dental, vision and life insurance as well as contribution to individual SEP IRAs at a rate of 10% of salary after 1 year of employment.

TRAVEL (\$1,635)

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- Total travel support for SECOORA staff to attend workshop = **\$1,635**

SUPPLIES (\$60,061)

Office supplies (\$61): Funds are requested general office supplies for the Project Operations Manager i.e. ink, paper, pens. Request based on previous cost experience.

Camera and installation supplies (\$60,000): Funds are requested to install two web cameras in each of 10 regional associations in Year 2, for a total of 20 cameras. Camera and installation supply costs are estimated based on previous work at \$3,000 each, for a total request of \$60,000. Estimated costs include remotely operated web cameras, and installation supplies such as brackets, screws, bolts, and cables.

CONTRACTUAL COSTS (\$80,000)

Axiom Data Science, LLC (\$80,000): See separate budget justification and SF424A.

OTHER COSTS (\$137,869)

Workshop – Participant Travel (\$22,886) : SECOORA will collaborate with the IOOS Regional Associations to host a workshop focused on webcam installs, products, and standards. The 2-day workshop will be hosted in Q4 of the first year of the project. SECOORA anticipates hosting the workshop in Charleston, SC. There will be approximately 28 participants, including 1-2 representatives from each RA, the SECOORA funded PIs, and other Tier 1 users. Workshop funds will be used to support hotel and per diem for up to 28 non-federal meeting attendees who need travel support. 2022 rates for the Fulton Inn in Charleston, SC are used for travel estimating purposes. Travel anticipated to be 3 days/2 nights. All travel expenses are escalated by 20% based on recent experiences with increasing travel costs.

Invitational Travel Expenses:

- Hotel: 28 people x 2 nights x \$313.27/night = \$17,543
 - Parking: 28 people x 3 days x \$20.40 = \$1,714
 - Per diem: 28 people x 3 days x \$43.20/day = \$3,629
- Total travel support for 28 non-federal workshop attendees = \$22,886

Workshop Expenses (\$7,800): (see above for the description of the workshop)

- \$2400 for room set-up, AV, and meeting materials

- \$5400 for breakfast, lunch, and snacks for 2 days

Maintenance Expenses for Installed Cameras (\$28,000): Funds are requested to maintain operation of 8-10 cameras in the SECOORA region, and the ~20 cameras installed in the other regional associations. Costs include replacement parts, fees to camera operators such as Eastern Data, and for monthly cable and power utilities to operate the cameras and are estimated at \$1,000 each based on previous experience, totaling \$28,000.

Subaward: University of California – Santa Cruz – PI Alex Pang (\$26,645). See separate budget justification and SF424A.

Subaward: University of North Carolina Wilmington – PI Joseph Long (\$25,956). See separate budget justification and SF424A.

Subaward: University of South Carolina – PI Dwayne Porter (\$26,582). See separate budget justification and SF424A.

TOTAL DIRECT COSTS (\$370,609)

INDIRECT COSTS (\$26,854)

SECOORA’s indirect rate is 10% (elected de minimus rate) on all eligible direct charges and the first \$25,000 of all subawards. IDC is not charged on participant travel.

Direct Cost Categories	Direct Cost Base	IDC
Personnel	\$ 71,688	\$ 7,169
Fringe	\$ 19,356	\$ 1,936
Travel	\$ 1,635	\$ 164
Supplies	\$ 60,061	\$ 6,006
Contracts	\$ 80,000	\$ 8,000
Other	\$ 35,800	\$ 3,580
Totals	\$ 268,539	\$ 26,854

Budget Justification Year 3

TOTAL COST YEAR 3: \$399,351

SALARY (\$70,750)

Debra Hernandez will be the project PI will be responsible for overseeing the project, and managing the Project Operations Manager. Hernandez also serves as the transition PI and will work with the Project Manager to complete a draft Transition Plan in Year 1. 0.14 months of salary Debra Hernandez salary

(\$1,750) is requested. Theo Jass, the Operations Manager for this project requests 12 months of salary (\$69,000).

Position Title & Name	Yearly Salary	% Time	No. of months	\$ Amount
PI/Executive Director/ Debra Hernandez	\$150,000	1.17%	0.14	\$1,750
Operations Manager/ Theo Jass	\$69,000	100%	12	\$69,000

FRINGE (\$19,103)

The fringe rate for the project PI and Project Operations Manager is 27% of total salary. Total fringe is \$70,750 (Salary for PI and Operations Manager) x .27 = \$19,103. Fringe includes health, dental, vision and life insurance as well as contribution to individual SEP IRAs at a rate of 10% of salary after 1 year of employment.

TRAVEL (\$9,000)

RA Training Travel: Operations Manager will travel to various RAs to assist with final training and/or installation of cameras to support final transition of camera operation to individual RAs. Dates and locations are TBD. Requested travel costs include airfare, 2 nights lodging including estimated taxes, 3 days per diem, taxi to/from airport, with an estimated cost of \$1,500 per trip based on estimated costs as shown in the table below. Total requested support for 6 trips: \$9,000

<u>TRAVEL Year 3</u>	<u>Airline</u>	<u>Hotel</u>	<u>Per diem</u>	<u>Taxi/uber</u>	<u>TOTAL</u>
Round trip to Honolulu	807	484.8	471	40	1802.8
Round trip to Seattle	401	556.8	237	40	1234.8
Round trip to Gulfport	551	235.2	177	40	1003.2
Round trip to Anchorage	1004	549.6	435	40	2028.6
AVERAGE					1517.35

Airfare https://www.kayak.com/flights/CHS-HNL/2023-11-13/2023-11-15?sort=bestflight_a&fs=specificleg=CHSHNL1699862400000UA13271699873200000UA3842|11b64110d0b2b76d3a9b97a4a431ffa3

Hawaii & Alaska travel https://www.travel.dod.mil/Portals/119/Documents/Allowances/Per_Diem/OCONUS/Current_OCONUS_Rates.pdf

Federal per diem https://www.gsa.gov/travel/plan-book/per-diem-rates/per-diem-rates-results/?fiscal_year=2023&state=MS&perdiemSearchVO_city=Gulfport&action=perdiems_report&zip=&op=Find+Rates&form_build_id=form-t0BrA0o9AI9cw8PcWDuphgpNisf7uNin8XcyfSDJfFY&form_id=perdiem_for

SUPPLIES (\$60,009)

Office supplies (\$9): Funds are requested general office supplies for the Operations Manager i.e. ink, paper, pens. Request based on precious cost experience.

Camera and installation supplies (\$60,000): Funds are requested to install two web cameras in each of 10 regional associations in Year 2, for a total of 20 cameras. Camera and installation supply costs are

estimated based on previous work at \$3,000 each, for a total request of \$60,000. Estimated costs include remotely operated web cameras, and installation supplies such as brackets, screws, bolts, and cables.

CONTRACTUAL COSTS (\$80,000)

Axiom Data Science, LLC (\$80,000): See separate budget justification and SF424A.

OTHER COSTS (\$131,503)

Maintenance Expenses for Installed Cameras (\$51,000): Funds are requested to maintain operation of 60 to 80 cameras installed, operated and/or streamed from the IOOS regional associations to webcoos.org. Costs include replacement parts and/or cameras, fees to camera operators such as Eastern Data, and for monthly cable and power utilities to operate the cameras and are estimated at between \$0 (for cameras of opportunity or sponsored cameras) and \$1,000 each based on previous experience, totaling \$51,000.

Subaward: University of California – Santa Cruz – PI Alex Pang (\$27,794). See separate budget justification and SF424A.

Subaward: University of North Carolina Wilmington – PI Joseph Long (\$26,127). See separate budget justification and SF424A.

Subaward: University of South Carolina – PI Dwayne Porter (\$26,582). See separate budget justification and SF424A.

TOTAL DIRECT COSTS (\$370,365)

INDIRECT COSTS (\$28,986)

SECOORA's indirect rate is 10% (elected de minimus rate) on all eligible direct charges and the first \$25,000 of all subawards.

Direct Cost Categories	Direct Cost Base	IDC
Personnel	\$ 70,750	\$ 7,075
Fringe	\$ 19,103	\$ 1,910
Travel	\$ 9,000	\$ 900
Supplies	\$ 60,009	\$ 6,001
Contracts	\$ 80,000	\$ 8,000
Other	\$ 51,000	\$ 5,100
Totals	\$ 289,862	\$ 28,986

RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 1

UEI*: VXUFPE4MCZH5

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of California Santa Cruz

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

A. Senior/Key Person												
Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Alex		Pang		PI	0.00	1.0					0.00
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons: File Name:											Total Senior/Key Person	0.00

B. Other Personnel							
Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
0	Total Number Other Personnel					Total Other Personnel	0.00
						Total Salary, Wages and Fringe Benefits (A+B)	0.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 1

UEI*: VXUFPE4MCZH5

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of California Santa Cruz

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

C. Equipment Description	
List items and dollar amount for each item exceeding \$5,000	
Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel	
	Funds Requested (\$)*
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs	
	Funds Requested (\$)*
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K, BUDGET PERIOD 1

UEI*: VXUFPE4MCZH5

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of California Santa Cruz

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	0.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8.	0.00
9.	0.00
10.	0.00
11.	0.00
12.	0.00
13.	0.00
14.	0.00
15.	0.00
16.	0.00
17.	0.00
Total Other Direct Costs	0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	0.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
Total Indirect Costs			
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	0.00

J. Fee	Funds Requested (\$)*
	0.00

K. Total Costs and Fee	Funds Requested (\$)*
	0.00

L. Budget Justification*
File Name: UCSC combined Budget Info.pdf

RESEARCH & RELATED Budget {F-K} (Funds Requested)



SOUTHEAST COASTAL OCEAN OBSERVING REGIONAL ASSOCIATION

Budget sheet covers a three year period.

Project Title: A Proposal to Scale From a Regional to a National Webcam Coastal Observation System (WebCOOS)
Principal Investigator: Alex Pang
Institution: The Regents of the University of California, Santa Cruz

BUDGET ITEMS	No. of Individuals	Person-Months		Year 1
		Grant	Match	
Salary and Wages				
1. Principal Investigator:				
2. Associate Investigator:				
3. Professionals: Lee				
4. Research Associates				
5. Research Asst. Grad. Students	1	4.50		\$ 10,167
6. Prof. School Students				
7. Pre-Bac. Students				
8. Secretarial/Clerical				
9. Technical-Shop				
10. Other:				
TOTAL SALARIES and WAGES				\$ 10,167
Fringe Benefits - Formula =	2%			\$ 234
TOTAL SALARIES, WAGES and FRINGE BENEFITS				\$ 10,401
TRAVEL				
1. Domestic				
2. Foreign (requires prior approval)				
PERMANENT EQUIPMENT (list)				
EXPENDABLE SUPPLIES, etc.				\$ 1,762
CONTRACTUAL COSTS				
OTHER COSTS				
Fees/Health Insurance				\$ 6,830
TOTAL DIRECT COSTS				\$ 18,994
INDIRECT COSTS	1. On campus - Formula =	54.00%		\$ 6,568
	2. Off campus - Formula =	%		
TOTAL COST				\$ 25,562

SUBAWARD

University of California, Santa Cruz, PI Alex Pang
TOTAL COSTS YEARS 1-3 = \$80,000

Budget Justification Year 1**TOTAL COST YEAR 1: \$25,562****SALARY (\$10,167)**

Graduate Student Researcher: Funds are requested to support a graduate student researcher's (GSR's) salary. Support for Year 1 for the GSR includes: three academic quarters (nine months at 50% effort): \$10,167. The standard "full-time" GSR appointment in the Engineering Department is 50% time. The advanced rate for the GSR is based on the 2022-2023 salary scale for a Level 8 GSR, which is \$6,162. The amount requested reflects GSRs' 2022-2023 academic-year salary and a 10% combined cost of living and anticipated pay increase the first year, and a 3% cost of living increase per year thereafter.

FRINGE (\$234)

Graduate Student Researcher: Fringe benefits for the GSR are charged at a rate of 2.3% of the base salary for the academic quarters, and are charged in accordance with UCSC's established policy. A total of \$234 ($\$10,167 \times 2.3\% = \234) is requested in fringe for the GSR.

SUPPLIES (\$1,762)

Funds of \$1,762 are requested for the following materials and supplies: Funds will cover costs related to the project such as computers, data collection supplies, etc.

OTHER COSTS (\$6,831)

Graduate student fees are requested to cover student health insurance and student fees for the GSR, covering three academic quarters for Year 1 (\$6,831). The University of California provides full tuition, fees and graduate student health insurance to all graduate students who are employed on-campus 50% time or greater during the academic year.

TOTAL DIRECT COSTS (\$18,994)**INDIRECT COSTS (\$6,568)**

Indirect costs are based on 54% modified total direct costs and are charged in accordance with UCSC's federally negotiated rate as determined by our cognizant agency: D.H.H.S. agreement dated 5/09/2018, Rate utilized is for on campus research, and is charged on Graduate Student Researcher salary, but not on tuition, fees or GSHIP.

Budget Justification Year 2**TOTAL COST YEAR 2: \$26,645****SALARY (\$10,472)**

SUBAWARD

Graduate Student Researcher: Funds are requested to support a graduate student researcher's (GSR's) salary. Support for Year 1 for the GSR includes: three academic quarters (nine months at 50% effort): \$10,472. The standard "full-time" GSR appointment in the Engineering Department is 50% time. The amount requested reflects GSRs' 2023-2024 academic-year salary and a 3% cost of living increase.

FRINGE (\$241)

Graduate Student Researcher: Fringe benefits for the GSR are charged at a rate of 2.3% of the base salary for the academic quarters, and are charged in accordance with UCSC's established policy. A total of \$241 ($\$10,472 \times 2.3\% = \241) is requested in fringe for the GSR.

SUPPLIES (\$1,762)

Funds of \$1,762 are requested for the following materials and supplies: Funds will cover costs related to the project such as computers, data collection supplies, etc.

OTHER COSTS (\$7,433)

Graduate student fees are requested to cover student health insurance and student fees for the GSR, covering three academic quarters for Year 2 (\$7,433). The University of California provides full tuition, fees and graduate student health insurance to all graduate students who are employed on-campus 50% time or greater during the academic year.

TOTAL DIRECT COSTS (\$19,908)

INDIRECT COSTS (\$6,737)

Indirect costs are based on 54% modified total direct costs and are charged in accordance with UCSC's federally negotiated rate as determined by our cognizant agency: D.H.H.S. agreement dated 5/09/2018, Rate utilized is for on campus research, and is charged on Graduate Student Researcher salary, but not on tuition, fees or GSHIP.

Budget Justification Year 3

TOTAL COST YEAR 3: \$27,794

SALARY (\$10,786)

Graduate Student Researcher: Funds are requested to support a graduate student researcher's (GSR's) salary. Support for Year 1 for the GSR includes: three academic quarters (nine months at 50% effort): \$10,786. The standard "full-time" GSR appointment in the Engineering Department is 50% time. The amount requested reflects GSRs' 2024-2025 academic-year salary and a 3% cost of living increase.

SUBAWARD**FRINGE (\$248)**

Graduate Student Researcher: Fringe benefits for the GSR are charged at a rate of 2.3% of the base salary for the academic quarters, and are charged in accordance with UCSC's established policy. A total of \$248 ($\$10,786 \times 2.3\% = \248) is requested in fringe for the GSR.

SUPPLIES (\$1,760)

Funds of \$1,760 are requested for the following materials and supplies: Funds will cover costs related to the project such as computers, data collection supplies, etc.

OTHER COSTS (\$8,091)

Graduate student fees are requested to cover student health insurance and student fees for the GSR, covering three academic quarters for Year 3 (\$8,090). The University of California provides full tuition, fees and graduate student health insurance to all graduate students who are employed on-campus 50% time or greater during the academic year.

TOTAL DIRECT COSTS (\$20,885)**INDIRECT COSTS (\$6,909)**

Indirect costs are based on 54% modified total direct costs and are charged in accordance with UCSC's federally negotiated rate as determined by our cognizant agency: D.H.H.S. agreement dated 5/09/2018, Rate utilized is for on campus research, and is charged on Graduate Student Researcher salary, but not on tuition, fees or GSHIP.

RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 1

UEI*: J22LNTMEDP73

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of South Carolina

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

A. Senior/Key Person															
Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*			
1.	Dwayne		Porter		PI	0.00		0.12		2,664.00	788.00	3,452.00			
Total Funds Requested for all Senior Key Persons in the attached file															
Additional Senior Key Persons:											File Name:			Total Senior/Key Person	3,452.00

B. Other Personnel							
Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
0	Total Number Other Personnel					Total Other Personnel	0.00
						Total Salary, Wages and Fringe Benefits (A+B)	3,452.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 1

UEI*: J22LNTMEDP73

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of South Carolina

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

C. Equipment Description	
List items and dollar amount for each item exceeding \$5,000	
Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel	
	Funds Requested (\$)*
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs	
	Funds Requested (\$)*
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K, BUDGET PERIOD 1

UEI*: J22LNTMEDP73

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of South Carolina

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	0.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8.	0.00
9.	0.00
10.	0.00
11.	0.00
12.	0.00
13.	0.00
14.	0.00
15.	0.00
16.	0.00
17.	0.00
Total Other Direct Costs	0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	3,452.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
Total Indirect Costs			
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	3,452.00

J. Fee	Funds Requested (\$)*
	0.00

K. Total Costs and Fee	Funds Requested (\$)*
	3,452.00

L. Budget Justification*
File Name: USC combined Budget Info.pdf

RESEARCH & RELATED Budget {F-K} (Funds Requested)



SOUTHEAST COASTAL OCEAN OBSERVING REGIONAL ASSOCIATION

Budget sheet covers a three year period.

Project Title: A Proposal to Scale From a Regional to a National Webcam Coastal Observation System (WebCOOS)					
Principal Investigator: Dwayne E. Porter					
Institution: University of South Carolina					
BUDGET ITEMS		No. of Individuals	Person-Months		Year 1
			Grant	Match	
Salary and Wages					
1. Principal Investigator:		1	0.25		\$ 4,928
2. Associate Investigator:					
3. Professionals: TBD		1	1.50		\$ 9,500
4. Research Associates					
5. Research Asst. Grad. Students					
6. Prof. School Students					
7. Pre-Bac. Students					
8. Secretarial/Clerical					
9. Technical-Shop					
10. Other:					
TOTAL SALARIES and WAGES					\$ 14,428
Fringe Benefits - Formula =	32%				\$ 6,169
TOTAL SALARIES, WAGES and FRINGE BENEFITS					\$ 20,597
TRAVEL					
1. Domestic					
2. Foreign (requires prior approval)					
PERMANENT EQUIPMENT (list)					
EXPENDABLE SUPPLIES, etc.					\$ 700
CONTRACTUAL COSTS					
OTHER COSTS					
TOTAL DIRECT COSTS					\$ 21,297
INDIRECT COSTS	1. On campus - Formula =		%		
	2. Off campus - Formula =		26.00%		\$ 5,537
TOTAL COST					\$ 26,834

SUBAWARD

University of South Carolina, PI Dwayne Porter
TOTAL COSTS YEARS 1-3 = \$79,998

Budget Justification Year 1**TOTAL COST YEAR 1: \$26,834****SALARY (\$14,428)**

Principal Investigator – 0.25 months summer support (\$4,928)

Professionals – 1.50 months (\$9,500)

Personnel funds are requested to support the activities of PI Porter for project administration and overall project management. A portion of Porter's time will also be in support of community engagement activities. The latter activities will be done in conjunction with the NIEHS-supported Center for Oceans and Human Health and Climate Change Interactions housed at the University of South Carolina. Partial support of a systems analyst and programmer is requested for development, implementation and management of the "Situational Monitoring and Reporting System" (SMRS) and for automated feature extraction algorithm development, validation and implementation.

FRINGE (\$6,169)

Fringe benefits are charged per State of South Carolina guidelines. Fringe for faculty and staff salary equals 31.99%. Insurance for the Professional is charged at the family rate. USC HR staff calculated the required benefits for the informatics specialist base applicable state rates (see: https://sc.edu/about/offices_and_divisions/sponsored_awards_management/essential_reference_information/fringe_benefits.php).

SUPPLIES (\$700)

Funds totaling \$700 are requested for basic IT supplies. Materials and supplies include all equipment and materials costing less than \$5,000 per item. Example items include backup power supplies at \$150 each, monitor at \$175 each, and other supporting IT, data management and data development items. Funds will also be used as partial support for continuation of GIS site license.

TOTAL DIRECT COSTS (\$21,297)**INDIRECT COSTS (\$5,537)**

IDC is calculated as 26.0% of allowable direct costs. This rate reflects USC's federally-approved IDC rate for off-campus research activities.

SUBAWARD

Budget Justification Year 2**TOTAL COST YEAR 2: \$26,582****SALARY (\$14,428)**

Principal Investigator – 0.25 months summer support (\$4,928)

Professionals – 1.50 months (\$9,500)

Personnel funds are requested to support the activities of PI Porter for project administration and overall project management. A portion of Porter's time will also be in support of community engagement activities. The latter activities will be done in conjunction with the NIEHS-supported Center for Oceans and Human Health and Climate Change Interactions housed at the University of South Carolina. Partial support of a systems analyst and programmer is requested for development, implementation and management of the "Situational Monitoring and Reporting System" (SMRS) and for automated feature extraction algorithm development, validation and implementation.

FRINGE (\$6,169)

Fringe benefits are charged per State of South Carolina guidelines. Fringe for faculty and staff salary equals 31.99%. Insurance for the Professional is charged at the family rate. USC HR staff calculated the required benefits for the informatics specialist base applicable state rates (see: https://sc.edu/about/offices_and_divisions/sponsored_awards_management/essential_reference_information/fringe_benefits.php).

SUPPLIES (\$500)

Funds totaling \$500 are requested for basic IT supplies. Materials and supplies include all equipment and materials costing less than \$5,000 per item. Example items include backup power supplies at \$150 each, monitor at \$175 each, and other supporting IT, data management and data development items. Funds will also be used as partial support for continuation of GIS site license.

TOTAL DIRECT COSTS (\$21,097)**INDIRECT COSTS (\$5,485)**

IDC is calculated as 26.0% of allowable direct costs. This rate reflects USC's federally-approved IDC rate for off-campus research activities.

Budget Justification Year 3**TOTAL COST YEAR 3: \$26,582****SALARY (\$14,428)**

Principal Investigator – 0.25 months summer support (\$4,928)

Professionals – 1.50 months (\$9,500)

Personnel funds are requested to support the activities of PI Porter for project administration and overall project management. A portion of Porter's time will also be in support of community engagement activities. The latter activities will be done in conjunction with the NIEHS-supported Center for Oceans and Human

SUBAWARD

Health and Climate Change Interactions housed at the University of South Carolina. Partial support of a systems analyst and programmer is requested for development, implementation and management of the "Situational Monitoring and Reporting System" (SMRS) and for automated feature extraction algorithm development, validation and implementation.

FRINGE (\$6,169)

Fringe benefits are charged per State of South Carolina guidelines. Fringe for faculty and staff salary equals 31.99%. Insurance for the Professional is charged at the family rate. USC HR staff calculated the required benefits for the informatics specialist base applicable state rates (see: https://sc.edu/about/offices_and_divisions/sponsored_awards_management/essential_reference_information/fringe_benefits.php).

SUPPLIES (\$500)

Funds totaling \$500 are requested for basic IT supplies. Materials and supplies include all equipment and materials costing less than \$5,000 per item. Example items include backup power supplies at \$150 each, monitor at \$175 each, and other supporting IT, data management and data development items. Funds will also be used as partial support for continuation of GIS site license.

TOTAL DIRECT COSTS (\$21,097)**INDIRECT COSTS (\$5,485)**

IDC is calculated as 26.0% of allowable direct costs. This rate reflects USC's federally-approved IDC rate for off-campus research activities.

RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 1

UEI*: L1GPHS96MUE1

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of North Carolina Wilmington

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

C. Equipment Description		Funds Requested (\$)*
List items and dollar amount for each item exceeding \$5,000		
Equipment Item		
Total funds requested for all equipment listed in the attached file		
	Total Equipment	0.00
Additional Equipment: File Name:		

D. Travel	Funds Requested (\$)*
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
	Total Travel Cost
	0.00

E. Participant/Trainee Support Costs	Funds Requested (\$)*
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget {C-E} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K, BUDGET PERIOD 1

UEI*: L1GPHS96MUE1

Budget Type*: Project Subaward/Consortium

Enter name of Organization: University of North Carolina Wilmington

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	0.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8.	0.00
9.	0.00
10.	0.00
11.	0.00
12.	0.00
13.	0.00
14.	0.00
15.	0.00
16.	0.00
17.	0.00
Total Other Direct Costs	0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	1,850.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
Total Indirect Costs			
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	1,850.00

J. Fee	Funds Requested (\$)*
	0.00

K. Total Costs and Fee	Funds Requested (\$)*
	1,850.00

L. Budget Justification*
File Name: UNCW combined Budget Info.pdf

RESEARCH & RELATED Budget {F-K} (Funds Requested)



SOUTHEAST COASTAL OCEAN OBSERVING REGIONAL ASSOCIATION

Budget sheet covers a three year period.					
Project Title:	A Proposal to Scale From a Regional to a National Webcam Coastal Observation System (WebCOOS)				
Principal Investigator:	Joesph Long				
Institution:	University of North Carolina Wilmington				
BUDGET ITEMS	No. of Individuals	Person-Months		Year 1	
		Grant	Match		
Salary and Wages					
1. Principal Investigator:	1	0.25		\$ 2,786	
2. Associate Investigator:					
3. Professionals: Lee					
4. Research Associates					
5. Research Asst. Grad. Students	1	3.00		\$ 10,500	
6. Prof. School Students					
7. Pre-Bac. Students					
8. Secretarial/Clerical					
9. Technical-Shop					
10. Other:					
TOTAL SALARIES and WAGES				\$ 13,286	
Fringe Benefits - Formula =				\$ 1,823	
TOTAL SALARIES, WAGES and FRINGE BENEFITS				\$ 15,109	
TRAVEL					
1. Domestic				\$ 1,850	
2. Foreign (requires prior approval)					
PERMANENT EQUIPMENT (list)					
EXPENDABLE SUPPLIES, etc.				\$ 350	
CONTRACTUAL COSTS					
OTHER COSTS					
TOTAL DIRECT COSTS				\$ 17,309	
INDIRECT COSTS	1. On campus - Formula =		49.00%	\$ 8,481	
	2. Off campus - Formula =		%		
TOTAL COST				\$ 25,790	

SUBAWARD

University of North Carolina Wilmington; PI Joseph Long
TOTAL COSTS YEARS 1-3 = \$77,873

Budget Justification Year 1**TOTAL COST YEAR 1: \$25,790****SALARY (\$13,286)**

Dr. Joseph Long will be the project PI (\$11,144 base salary/month; 9 month employee), responsible for overseeing the project, mentoring the graduate student, and reporting of project. 0.25 months of salary (\$11,144 base salary x 0.25 months = \$2,786) is requested.

A master's degree-seeking graduate student will be responsible for algorithm development and testing on new and existing webcams. A half-time research assistant salary (\$3250 per academic semester; 10hr/week) and summer research stipend (\$4000 during summer months; 20hr/week) is requested (total = \$10,500)

FRINGE (\$1,823)

The fringe rate for the project PI is 32.8% of total salary. Total fringe for PI is \$2,786 x .328 = \$915.

The fringe rate for the graduate student is 8.65% of the total salary request. Total fringe for the student is \$10,500 x .0865 = \$908.

TRAVEL (\$1,850)

Travel for a presentation of results at a scientific conference for the PI or graduate student is included. All travel originates from Savannah, GA. As conference rates change, the upcoming 2023 Coastal Sediments conference in New Orleans, LA has been used to estimate costs. Per diem is based on GSA reimbursement rates. SECOORA and all subawards comply with the Fly America Act.

Travel to New Orleans, LA.

- Hotel: \$158/night x 4 nights x 1 trip = \$632
- Airfare: \$348 (google flights)
- Ground Transportation: \$100
- Per diem: \$74/day x 5 days = \$370
- Registration: \$400
- Total trip cost: \$1,850

SUPPLIES (\$350)

Funds have been included for supplies necessary for testing and validating algorithms. This includes external hard drives, lab notebooks, miscellaneous hardware.

SUBAWARD

TOTAL DIRECT COSTS (\$17,309)**INDIRECT COSTS (\$8,481)**

Indirect costs are calculated as total direct costs less capital equipment, participant support costs, tuition remission and the amount in excess of the first \$25,000 of each subaward. UNCW's cognizant federal agency is the Department of Health and Human Services, representative Lucy Siow (301-492-4855). The rate is 49% and calculated on the total direct cost base of \$17,309 for a total indirect cost of \$8,481

Budget Justification Year 2**TOTAL COST YEAR 2: \$25,956****SALARY (\$13,370)**

Dr. Joseph Long will be the project PI (\$11,478 base salary/month; 9 month employee), responsible for overseeing the project, mentoring the graduate student, and reporting of project. 0.25 months of salary (\$11,478 base salary x 0.25 months = \$2,870) is requested.

A master's degree-seeking graduate student will be responsible for algorithm development and testing on new and existing webcams. A half-time research assistant salary (\$3250 per academic semester; 10hr/week) and summer research stipend (\$4000 during summer months; 20hr/week) is requested (total = \$10,500)

FRINGE (\$1,850)

The fringe rate for the project PI is 32.8% of total salary. Total fringe for PI is $\$2,870 \times .328 = \942 .

The fringe rate for the graduate student is 8.65% of the total salary request. Total fringe for the student is $\$10,500 \times .0865 = \908 .

TRAVEL (\$1,850)

Travel for a presentation of results at a scientific conference for the PI or graduate student is included. All travel originates from Savannah, GA. As conference rates change, the upcoming 2023 Coastal Sediments conference in New Orleans, LA has been used to estimate costs. Per diem is based on GSA reimbursement rates. SECOORA and all subawards comply with the Fly America Act.

Travel to New Orleans, LA.

- Hotel: \$158/night x 4 nights x 1 trip = \$632
- Airfare: \$348 (google flights)
- Ground Transportation: \$100
- Per diem: \$74/day x 5 days = \$370
- Registration: \$400

SUBAWARD

- Total trip cost: \$1,850

SUPPLIES (\$350)

Funds have been included for supplies necessary for testing and validating algorithms. This includes external hard drives, lab notebooks, miscellaneous hardware.

TOTAL DIRECT COSTS (\$17,420)**INDIRECT COSTS (\$8,536)**

Indirect costs are calculated as total direct costs less capital equipment, participant support costs, tuition remission and the amount in excess of the first \$25,000 of each subaward. UNCW's cognizant federal agency is the Department of Health and Human Services, representative Lucy Siow (301-492-4855). The rate is 49% and calculated on the total direct cost base of \$17,420 for a total indirect cost of \$8,536

Budget Justification Year 3**TOTAL COST YEAR 3: \$26,127****SALARY (\$13,456)**

Dr. Joseph Long will be the project PI (\$11,823 base salary/month; 9 month employee), responsible for overseeing the project, mentoring the graduate student, and reporting of project. 0.25 months of (\$11,823 base salary x 0.25 months = \$2,956) is requested.

A master's degree-seeking graduate student will be responsible for algorithm development and testing on new and existing webcams. A half-time research assistant salary (\$3250 per academic semester; 10hr/week) and summer research stipend (\$4000 during summer months; 20hr/week) is requested (total = \$10,500).

FRINGE (\$1,879)

The fringe rate for the project PI is 32.8% of total salary. Total fringe for PI is \$2,956 x .328 = \$971.

The fringe rate for the graduate student is 8.65% of the total salary request. Total fringe for the student is \$10,500 x .0865 = \$908.

TRAVEL (\$1,850)

Travel for a presentation of results at a scientific conference for the PI or graduate student is included. All travel originates from Savannah, GA. As conference rates change, the upcoming 2023 Coastal Sediments conference in New Orleans, LA has been used to estimate costs. Per diem is based on GSA reimbursement rates. SECOORA and all subawards comply with the Fly America Act.

Travel to New Orleans, LA.

SUBAWARD

- Hotel: \$158/night x 4 nights x 1 trip = \$632
- Airfare: \$348 (google flights)
- Ground Transportation: \$100
- Per diem: \$74/day x 5 days = \$370
- Registration: \$400
- Total trip cost: \$1,850

SUPPLIES (\$350)

Funds have been included for supplies necessary for testing and validating algorithms. This includes external hard drives, lab notebooks, miscellaneous hardware.

TOTAL DIRECT COSTS (\$17,535)**INDIRECT COSTS (\$8,592)**

Indirect costs are calculated as total direct costs less capital equipment, participant support costs, tuition remission and the amount in excess of the first \$25,000 of each subaward. UNCW's cognizant federal agency is the Department of Health and Human Services, representative Lucy Siow (301-492-4855). The rate is 49% and calculated on the total direct cost base of \$17,535 for a total indirect cost of \$8,592

RESEARCH & RELATED BUDGET - SECTION A & B, BUDGET PERIOD 1

UEI*: PRQBHUD4ZJ31

Budget Type*: Project Subaward/Consortium

Enter name of Organization: Axiom Data Science

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

A. Senior/Key Person														
Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*		
1.	Rob		Bochenek		PI	0.00	0.12			1,623.00	486.00	2,109.00		
Total Funds Requested for all Senior Key Persons in the attached file														
Additional Senior Key Persons:											File Name:		Total Senior/Key Person	2,109.00

B. Other Personnel							
Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
0	Total Number Other Personnel					Total Other Personnel	0.00
						Total Salary, Wages and Fringe Benefits (A+B)	2,109.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E, BUDGET PERIOD 1

UEI*: PRQBHUD4ZJ31

Budget Type*: Project Subaward/Consortium

Enter name of Organization: Axiom Data Science

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

C. Equipment Description	
List items and dollar amount for each item exceeding \$5,000	
Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel	Funds Requested (\$)*
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs	Funds Requested (\$)*
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K, BUDGET PERIOD 1

UEI*: PRQBHUD4ZJ31

Budget Type*: Project Subaward/Consortium

Enter name of Organization: Axiom Data Science

Start Date*: 09-01-2023

End Date*: 08-31-2026

Budget Period: 1

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	0.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8.	0.00
9.	0.00
10.	0.00
11.	0.00
12.	0.00
13.	0.00
14.	0.00
15.	0.00
16.	0.00
17.	0.00
Total Other Direct Costs	0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	2,109.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
Total Indirect Costs			
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	2,109.00

J. Fee	Funds Requested (\$)*
	0.00

K. Total Costs and Fee	Funds Requested (\$)*
	2,109.00

L. Budget Justification*
File Name: Axiom combined Budget Info.pdf

RESEARCH & RELATED Budget {F-K} (Funds Requested)



SOUTHEAST COASTAL OCEAN OBSERVING REGIONAL ASSOCIATION

Budget sheet covers a one-year period.					
Project Title:	A Proposal to Scale From a Regional to a National Webcam Coastal Observation System (WebCOOS)				
Principal Investigator(s):	Rob Bochenek				
Institution:	Axiom Data Science				
BUDGET ITEMS		No. of Individuals	Man-Months		Grant Funds Year 1
Salary and Wages			Grant	Match	
1. Principal Investigator (s)		1	0.24		\$ 3,245
2. Associate Investigator(s)					
3. Professionals		2	4.28		\$ 39,195
4. Research Associates					
5. Research Asst. Grad. Students					
6. Prof. School Students					
7. Pre-Bac. Students					
8. Secretarial/Clerical					
9. Technical-Shop					
10. Other					
TOTAL SALARIES and WAGES					\$ 42,440
Fringe Benefits - Formula =			30%		\$ 12,732
TOTAL SALARIES, WAGES and FRINGE BENEFITS					\$ 55,172
PERMANENT EQUIPMENT (list)					
EXPENDABLE SUPPLIES, etc.					
TRAVEL					
1. Domestic					
2. Foreign (requires prior approval)					
PUBLICATION COSTS					
OTHER COSTS					
TOTAL DIRECT COSTS					\$ 55,172
INDIRECT COSTS	1. On campus - Formula =				
	2. Off campus - Formula =		45%		\$ 24,828
TOTAL COST					\$ 80,000



“A Proposal to Scale from a Regional to a National Webcam Coastal Observation System (WebCOOS)”
Budget Justification

Axiom Principal Investigator: Rob Bochenek

Period of Performance: September 1, 2023 - August 31, 2024

Position Title & Name	Yearly Salary	% of Time	No. of Months	\$Amount
Principal Software Engineer, Josh Rhoades	\$ 111,000.00	30%	3.60	\$ 33,295
Principal Investigator, Rob Bochenek	\$ 162,250.00	2%	.240	\$ 3,245
Project Manager, Lauren Showalter	\$ 104,000.00	6%	0.68	\$ 5,900
Total			4.52	\$ 42,440

Principal Software Engineer – Josh Rhoades will ingest data products to the WebCOOS portal, and to assist with webcam visualization updates. Mr. Rhoades will also develop web services and process data into standard formats for access using interoperability services. Mr. Rhoades will also enhance the WebCOOS ingestion system, integrate real-time and historical datasets, and develop and enhance the data quality applications according to data standards. Josh’s annual salary is \$111,000.00 and will provide 3.60 months of effort for a total of \$33,295.

Principal Investigator – Rob Bochenek will manage the technical personnel, to coordinate with the WebCOOS team on the DMAC strategy, and to attend all project meetings and management communications. Rob’s annual salary is \$162,250.00 and will provide .24 months of effort for a total of \$3,245.

Project Manager – Lauren Showalter will provide architecting oversight for the project and manage the Axiom personnel. She will ensure that the development of the operational application attains transition milestones. Lauren’s annual salary is \$104,000.00 and will provide .68 months of effort for a total of \$5,900.

The fringe benefit rate for all employees is calculated at 30%. Fringe benefits include time off with pay, retirement, employee health benefits, worker’s compensation insurance and a comprehensive insurance package. The total fringe benefit expense is \$12,732.

Axiom has a federally negotiated indirect rate with the National Oceanic and Atmospheric Administration of 45% using the modified total direct cost formula. The total indirect costs are \$24,828.

J. MISCELLANEOUS DOCUMENTS

J.1 Other Documents

Please upload any additional attachments needed for your award that do not have a specific upload field in another section of the RPPR.

Department of Commerce

Research Performance Progress Report – Grants Online Electronic Template

Award Information: Complete Boxes 1 – 23 with the requested information

Box 1. Federal Agency – Department of Commerce/NOAA

Box 2. Federal Award Number – Assigned Award Number for the project

Box 3. Project Title

A Proposal to Scale from a Regional to a National Webcam Coastal Observation System (WebCOOS)

Box 4. Award Period of Performance Start Date

September 1, 2023

Box 5. Award Period of Performance End Date

February 29, 2024

Box 6. Principal Investigator’s Last Name

Hernandez

Box 7. Principal Investigator’s (PI) First and Middle Name

Debra

Box 8. PI Job Title

SECOORA Executive Director

Box 9. PI’s Email

debra@secoora.org

Box 10. PI’s Phone Number

843.906.8686

Box 11. Authorizing Official’s (AO) Last Name

Box 12. AO First and Middle Name

Box 13. AO Job Title

Box 14. AO Email

Box 15. Signature of Recipient Authorized Representative – Non Applicable

Box 16. Submission Date and Time Stamp

Box 17. Reporting Period End Date

February 29, 2024

Box 18. Reporting Frequency – Semi-annual

Box 19. Report Type – Not Final or Final

Not final

Box 20. Recipient Name

SECOORA

Box 21. Recipient Address

Post Office Box 13856, Charleston, SC 29422

Box 22. Recipient DUNS

Box 23. Recipient EIN

Accomplishments: Boxes 24 – 27 are required for the first initial progress report. Subsequent reports will be prepopulated with the information from the previous report and have a limit of 4,000 characters. Comment Box 28 is required but will not be pre-populated in subsequent reports.

Box 24. What were the major goals and objectives of this project?

Transition WebCOOS to a sustained, national network hosting multiple webcams from each RA integrated into the publicly accessible WebCOOS system providing long-term access to historical and real-time coastal webcam observations and products. The primary objectives are to 1) Identify locations for and install webcams, or integrate cameras of opportunity, in all IOOS RAs; 2) Apply open-source AI/ML and thresholding algorithms to newly installed webcams and convene to determine new applications of the data; and 3) Refine webcam installation and operation procedures, data management SOPs, and develop training materials to ensure transferability and continuity of operations.

Box 25. What was accomplished under these goals?

Objective 1: Identify locations for and install webcams, or integrate cameras of opportunity, in all IOOS RAs

Obj. 1.1) Determine user need (applications) for webcams: 33% Complete

- SECOORA: hosted national kickoff meeting with IOOS RA representatives on December 11, 2023, with input & presentation from each group on WebCOOS team
- SECOORA: met with each IOOS RA in January/February 2024. AOOS: meeting with initial partners (JOA, ADNR, USGS, Marine Exchange AK) in March 2024; interest in shipping, flooding, erosion. CariCOOS: engagement with Sea Grant & USGS, meeting in April 2024; interest in rip currents & water quality. CeNCOOS: interest in flooding, storm hazards, waves/rip currents; working on engagement with local municipalities. GCOOS: interest in rip currents & marine navigation; working with NOAA, Ports. GLOS: interest in water levels; working to ID high-priority locations. MARACOOS: interested in flooding & beach safety/rips; potential collaborations with Ocean City Beach Patrol, Philip Orton of Stevens Inst. of Tech., SHARC. NANOOS: interested in coastal change/hazards, rips, erosion, especially given history of Argus cameras at Oregon State U; working with state government & OSU researchers, potentially tribes & homeowner groups. NERACOOS: plan to install 1 camera per state & 1 additional, meeting with year 1 partners upcoming. PacIOOS: interest in coastal runoff/hazards, flooding, sea level rise, marine safety, marine debris; working with university & Port partners; likely sites in Maui, Oahu, American

Samoa, Palau. SCCOOS: potential collaboration with CA state parks, lifeguards, local managers, DHS?, working with Adam Young & Mark Merrifield.

Obj 1.2) Train RA PIs or staff on site selection, installation, and operation techniques: 15% Complete

- SECOORA: compiled & sent information regarding camera selection & location & budget to RA representatives, January 2024-ongoing, especially as IRA proposals have been developed. Cothran of USC has consulted with RA staff on camera & site selection and installations. Other WebCOOS team members & PIs have connected with RA staff when the applications the RA is interested in overlap with the PI's area of expertise (e.g. Pang & Dusek connecting with CariCOOS on rip currents). WebCOOS meetings have also facilitated connections between IOOS RA staff and SECOORA's Water Level Manager, which is relevant to upcoming IRA proposal development & implementation.

Objective 2) Apply open-source AI/ML and processing algorithms to newly installed webcams and convene to determine new applications of the data.

Obj 2.1) Test existing algorithms on new webcam images and video: 5% Complete

- UCSC: Rip detection running on Currituck, NC with plans to run on Holland Beach, MI and Walton Lighthouse, CA next. Seal detection also(?) running at Point Reyes, CA. These cameras, while installed as part of a different project, are outside the SECOORA region and therefore applicable to this project as well.
- No new cameras installed in this project yet; so no tests on these performed as of yet.

Obj 2.2) Host a workshop to explore new webcam uses and applications: 5% Complete

- SECOORA: this workshop will be in late 2025. Some potential new applications have already been identified through conversations with IOOS RAs, including water quality and turbidity in CariCOOS, marine debris in PacIOOS, marine fog & visibility in GCOOS, and high and low water levels in GLOS.

Objective 3: Refine webcam installation and operation procedures, data management SOPs, and develop training materials to ensure transferability and continuity of operations. 10% complete.

- USC: Discussed with Dr. Philip Orton of the Stevens Institute of Technology about solar/cellular powered remote camera rooftop setup to monitor flooding location (periodic image snapshots only, not video). [Documentation developed](#) to aid in parts selection, purchase and assembly. Similar remote solar/cellular monitoring discussion with Uchenna Nwankwo, Assistant Research Scientist at Gulf of Mexico Coastal Ocean Observing System (GCOOS)/Geochemical and Environmental Research Group (GERG), Texas A&M University.
- SECOORA: Shared detailed information on camera selection, specifications, & costs with representatives from other RAs, including GCOOS, GLOS, and PacIOOS because representatives asked about this for IRA proposal development. Developing these ad hoc email responses to these questions has helped shape a preliminary set of information that can be shared as training materials. Shared general information with all RAs on budgets & timelines, including estimated data storage costs, pertaining to this project & proposed IRA work.

Box 26. What opportunities for training and professional development has the project provided?

- Nothing to report.

Box 27. How were the results disseminated to communities of interest?

- Nothing to report.

Box 28. What do you plan to do during the next reporting period to accomplish the goals and objectives?**Objective 1.1) Determine user need (applications) for webcams**

- SECOORA: continue working with IOOS RA representatives and partners to determine locations for at least year 1 cameras and ideally year 2 cameras. Work with a contractor to install cameras, and work with the project team to ingest camera streams onto the network.
- SECOORA/UNCW: continue working with U.S. Army Corps of Engineers (USACE) to compare methods from their CorpsCams projects and to identify locations of interest to USACE districts.
- SECOORA: Continue building partnership with USGS & CoastCam project to share knowledge & bring on cameras of opportunity. Continue to work and develop/build partnerships with users including USACE, USGS, and NOAA-NOS/NOAA-NWS to identify locations of interest to them and partners, and to connect them with RA representatives to inform camera siting priorities.

Objective 1.2) Train RA PIs or staff on site selection, installation, and operation techniques

- SECOORA: plan & host technical workshop in late summer/early fall with project team, partners, IOOS RA representatives, & camera operations contractor to share knowledge around camera installation & operations, and data management. Some volunteers for the steering committee have already been selected, and we are currently working on the optimal date & location for the workshop.
- Work with the project team to collate, refine, & update training documentation so it is easy to send out.
- Draft preliminary Spanish-language versions of materials. Perhaps with CariCOOS.

Objective 2.1) Test existing algorithms on new webcam images and video

- USC: Working with Axiom and internal group partners to further develop and test notification system for riptides or other activities.
- UNCW: Determine applicability of new locations for shoreline or extreme wave runup detection.
- Axiom: Refine data product services and add services to additional relevant cameras
- SECOORA: when new cameras are installed, work to apply relevant algorithms to them.

Objective 2.2) Host a workshop to explore new webcam uses and applications

- SECOORA: Nothing planned; this workshop will be in late summer/early fall 2025.
- UCSC: Potential use case for other applications of webcams –obtained local seed funding to study beach runups and shoreline changes as triggers for adaptation planning. Mona Zhao (MS student) working on the project. Currently extending earlier work on shoreline (wet/dry and water/land interfaces) detection, and also beach topography reconstruction from drone imagery (with Fahim Khan). USGS has DEM data of surfzone bathymetry of study areas (Seabright and Twin Lakes beaches) from 2017. So also plan to compare that dataset with 3D scene reconstruction results.
- UNCW: Exploring an Inlet Hazard Warning System for the National Weather Service using the Masonboro Inlet camera as a test. During an initial meeting we outlined some potential items to be included in the hazard analysis like sea fog, whitecapping/sea state, inlet shoaling, boat

traffic, and extreme water levels. Will begin testing machine learning techniques to identify these hazards and have follow-up meetings with the NWS - Wilmington forecasters.

Objective 3) Refine webcam installation and operation procedures, data management SOPs, and develop training materials to ensure transferability and continuity of operations

- SECOORA: work with project team in advance of 2024 technical workshop to compile, review, & revise documentation on camera & site selection & installation.

Products: Comments are required in Boxes 29 – 32 are required the first initial progress report. Subsequent reports will be prepopulated with the information from the previous report and have a limit of 4,000 characters. If the comment is blank, the “Nothing to Report” checkbox must be checked.

Box 29. Publications, conferences papers and presentations

- PM Jass contributed to WebCOOS content in: M.Y. Ford and K. Fallon. January 29, 2024. Expanding a Diverse and Engaged Network to Improve Community Resilience to Coastal Hazards. Session 2.1 - Use of Data and Technology to Build a More Resilient Weather Ready Nation. 104th Annual Meeting of the American Meteorological Society. Baltimore, MD.

Box 30. Technologies or technique

- Nothing to report.

Box 31. Inventions, patent applications, and/or licenses

- Nothing to report.

Box 32. Other products

- Nothing to report.

Participants & Other Collaborating Organizations – Note that all comments boxes are required and the first report will always be blank. For comments boxes 33, 35 & 36 subsequent reports will be prepopulated with the information from the previous report. Comments boxes have a limit of 4,000 characters. For comments boxes 34 – 36, if the comment box is blank, the “Nothing to Report” checkbox must be checked.

Box 33. What individuals have worked on this project?

PI: Debra Hernandez, SECOORA Executive Director
SECOORA: Theo Jass, WebCOOS Project Manager
Lead Science-PI: Joseph Long, Univ. NC Wilmington
Co-PI: Dwayne Porter, USC
USC Research Associate: Louisa Schandera
USC Senior Software Developer: Jeremy Cothran
USC Graduate Students: Tametrya Brown and Tasnoba Tazrin

Co-PI: Alex Pang, Univ. California Santa Cruz

UCSC Graduate Students: Akila de Silva, Fahim Khan

UCSC Undergraduate Student: Mona Zhao (MS student in Computer Science program)

Co-PI: Kyle Wilcox, Axiom Data Science

Axiom Project Manager: Lauren Showalter

Co-PI: Rob Bochenek, Axiom Data Science

Axiom Project Manager: Lauren Showalter, Karina Khazmutdinova

Axiom Technical Lead: Josh Rhoades

Box 34. Has there been a change in the active other support of the Project Director/Project Investigator(s) or senior/key personnel since the reporting period?

- Axiom: Kyle Wilcox is no longer with Axiom. Key personnel at Axiom on this project include Rob Bochenek, Lauren Showalter, and Josh Rhoades. Karina Khazmutdinova filled in for Showalter while Showalter was on leave.

Box 35. What other organizations have been involved as partners?

- **SECOORA:** Primary/national: AOOS, NANOOS, CeNCOOS, SCCOOS, PacIOOS, GLOS, NERACOOS, MARACOOS, GCOOS, CariCOOS, NOAA, USGS, USACE. Secondary/local: UH-Manoa SOEST, Cameron and Calcasieu Parish Port Complex, Oregon State University, Oregon DOGAMI, Washington Department of Ecology, UC San Diego.
- UCSC: Seed funding is from UCSC CCCR – <https://officeofresearch.ucsc.edu/cccr/index.html>

Box 36. Have other collaborators or contracts been involved?

- NOAA CO-OPS: Greg Dusek
- Working to contract with a single camera operator for installations, operations, and maintenance. This standardization will reduce travel costs & personnel time in setting up, installing, troubleshooting, and ingesting cameras & their streams into the network, and promote innovation by allowing more time to be spent on the applications & products of the data. RFQ was disseminated during the reporting period, closed Feb 8, 2024, and contractor selected. Working to finalize the contract now.

Impact – Note that all comments boxes are required and the first report will always be blank. For comments boxes 37 - 43 subsequent reports will be pre-populated with the information from the previous report. Comments boxes have a limit of 4,000 characters. For comments boxes 37 - 43, if the comment box is blank, the “Nothing to Report” checkbox must be checked. For comment box 44, only the percent is required (even if it is a zero), the explanation is not required.

Box. 37. What was the impact on the development at the principal discipline(s) of the project?

- Nothing to report.

Box 38. What was the impact on other disciplines?

- Connections made between SECOORA’s Water Level Manager and staff from other IOOS RAs to facilitate communication & planning on water level studies.

Box 39. What was the impact on the development of human resources?

- UCSC: Akila De Silva got his PhD in CSE from UCSC and is now an assistant professor at San Francisco State University. Fahim Khan is expected to defend his dissertation in Spring/Summer and is currently interviewing for academic positions as well.

Box 40. What was the impact on teaching and educational experiences?

- UCSC: The RipFinder app (smartphone based rip current detection) was used as an example in a new class on Augmented Reality/Virtual Reality in Winter 2024.

Box 41. What was the impact on physical institutional and information resources that form infrastructure?

- Nothing to report.

Box 42. What was the impact on technology transfer?

- Preliminary talks with beach safety partner (Chris Dembinsky of Volusia County, FL) and potential industry partners (including Surfline, surfzone.ai, Watchtower) on leveraging each other's works.
- There have been some inquiries & interest from organizations & researchers abroad regarding rip current detection. Will likely have a small workshop to share ideas & information on this topic.
- Staff and partners in each IOOS RA are learning more about webcam monitoring technology and applications.

Box 43. What was the impact on society beyond science and technology?

- UCSC: received some media publicity that helped disseminate what we have so far which has broader impact beyond science and technology:
<https://www.ksbw.com/article/ai-used-by-california-researchers-to-prevent-drownings/45981343>
<https://www.mercurynews.com/2023/11/27/uc-santa-cruz-researchers-build-ai-to-prevent-drownings/>
<https://www.foxnews.com/media/ai-technology-soon-save-lives-beach-heres-how>

Box 44. What percentage of the award is budget was spent on foreign countries?

Enter Percent: 0%

Changes/Problems – Note that all comment boxes are required fields and have a limit of 4,000 characters. If the comment box is blank, the “Nothing to Report” checkbox must be checked.

Box 45. Changes in approach and reason for change

- SECOORA: working to contract with a single camera operator for installations, operations, and maintenance. This standardization will reduce travel costs & personnel time in setting up, installing, troubleshooting, and ingesting cameras & their streams into the network, and promote innovation by allowing more time to be spent on the applications & products of the data.

Box 46. Actual or anticipated problems or delays and actions or plans to resolve them

- Nothing to report.

Box 47. Changes that had a significant impact on expenditures

- Nothing to report.

Box 48. Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents

Not Applicable.

Box 49. Change of primary performance site location from that originally proposed

- Nothing to report.