UNIVERSITY OF NORTH FLORIDA
RESEARCH/ACADEMIC SERVICES AGREEMENT
FIRM FIXED PRICE

THIS AGREEMENT, made and entered into this ___ day of _____, 2021, (the "Effective Date"), by and between the **CITY OF JACKSONVILLE**, a municipal corporation existing under the Constitution and the laws of the State of Florida ("City") and the **UNIVERSITY OF NORTH FLORIDA BOARD OF TRUSTEES** ("UNF"), a constituent member of the Florida state university system existing pursuant to Section 7, Article IX of the Constitution of the State of Florida and is administered by The University of North Florida Board of Trustees, a public body corporate, pursuant to said Section and Section 1001.72, Florida Statutes, for and on behalf of UNF Office of Research and Sponsored Programs, for the development of a water quality model of the Lower St. Johns River Basin (the "Project")

RECITALS

WHEREAS, the UNF Office of Research and Sponsored Programs is a division of sponsored research authorized, existing and governed by Section 1004.22, Florida Statutes, and University regulations; and

WHEREAS, the City, subject to an appropriation by City Council, desires to engage UNF for the implementation and performance of services for the Project; and

WHEREAS, UNF agrees to implement and perform the services provided in this Agreement for the Project.

IN CONSIDERATION of the premises and of the mutual covenants and agreements herein contained, the Parties agree as follows:

Article 1. Incorporation of Recitals

The foregoing Recitals are incorporated herein by reference.

Article 2. Statement of Work

UNF shall use all reasonable efforts to perform the research and deliver the reports and other items for the Project as set forth in **Exhibit A**, and in accordance with the Project Budget and Schedule, attached hero as **Exhibit B**.

Article 3. Period of Performance

The Period of Performance under this Agreement commences on the Effective Date and shall continue through April 30, 2022 unless sooner terminated in accordance with the terms of this Agreement.

Article 4. Key Personnel

UNF shall provide Dr. Cigdem Akan as Principal Investigator, and Dr. Christopher J. Brown, P.E. as Co-Principal Investigator, for the work under this Agreement.

The City shall provided James Richardson, JEPB Administrator, as the City representative under this Agreement.

Article 5. Fixed Price: Cost and Payment Schedule

As required by Section 106.431, *Ordinance Code*, the City's maximum indebtedness for all products and services paid to UNF under this Agreement shall not exceed a firm, fixed-price amount not-to-exceed **Seventy-Four Thousand Nine Hundred Ninety-Three Dollars ($74,993.00)**. The City agrees to pay UNF upon receipt of invoices in accordance with the schedule below:

Date	Payment Amount	Activity
March 2021		Project Initiation
March 2021	$35,000	Due upon Council approval of appropriation
September 2021	$20,000	Completion of 6-month written progress report
March 2022	$19,993	Written Final Report
TOTAL	**$74,993**	

The City will remit any payments under this Agreement to:

Office of Research and Sponsored Programs
University of North Florida
1 UNF Drive
Jacksonville, FL 32224

Article 6. Equipment

All rights, title, and interest in any and all permanent and expendable equipment

purchased by UNF with funds under this Agreement shall vest in UNF at the time of purchase.

Article 7. Notices

All notices under this Agreement given by either party to the other shall be in writing and delivered by certified mail, return receipt required, or by other delivery with receipt to the following:

As to UNF:
John Kantner, Ph.D.
Associate Vice President for Research
Office of Research and Sponsored Programs
University of North Florida
1 UNF Drive
Jacksonville, FL 32224
Phone: (904) 620-2455
Fax: (904) 620-2457
E-mail: j.kantner@unf.edu

As to City:
James Richardson, JEPB Administrator
214 N Hogan Street – 5th floor
Jacksonville, Fl 32202
Phone: (904) 255-7213
Fax: (904) 630-8393
Email: jrichard@coj.net

Article 8. Independent Contractor

UNF is an independent contractor and shall be free to exercise its discretion and independent judgment as to the method and means of performance of the Project.

Article 9. Indemnification and Insurance

The City nor UNF shall by reason of this Agreement be obligated to defend, assume the cost of defense, hold harmless, or indemnify the other from any liability to third parties for loss of or damage to property, death, or bodily injury arising out of or connected with the work under this Agreement.

UNF shall maintain, for the duration of the Period of Performance, insurance in accordance with the Insurance Requirements, attached hereto as **Exhibit C**.

Article 10. Publicity

The City may not use the name or licensed marks of UNF or the University of North

Florida in news releases, publicity, advertising, or product promotion without the prior written consent of an authorized official of UNF. The Principal Investigator named in Article 4 cannot grant this consent. UNF must acknowledge the JEPB as a primary funder of the PROJECT.

Article 11. Rights in Data, Copyrights and Publication

Title to data first produced or composed by UNF employees in the performance of work under this Agreement shall be the sole and exclusive property of UNF. UNF shall have the sole right to determine the disposition of copyrights, or other rights, resulting from the work under this Agreement, provided, however, that UNF shall grant to the City a royalty-free, non-exclusive license to reproduce, modify, and use all such data for its own purposes.

The City recognizes the results of the Project must be publishable and the City agrees that UNF shall be permitted to present at symposia, national, or regional professional meetings, and to publish in journals, theses or dissertations, or otherwise of UNF's own choosing.

Article 12. Patent Rights

UNF owns any Inventions, defined here as discoveries, inventions, improvements, and prototypes, whether patentable or not, that are conceived or made by employees of UNF. The City owns any Inventions that are conceived or made by employees of the City. UNF and the City jointly own any Inventions that are conceived or made jointly by employees of UNF and the City.

UNF shall disclose in writing to the City any Inventions within thirty (30) days of UNF's written receipt of Invention from a UNF employee working under this Agreement. Within ninety (90) days of UNF's disclosure of Invention to the City, the City will direct UNF to prepare, file, and prosecute patent applications, at the City's expense, on said Invention in the United States and such other countries as the City shall determine.

In all such countries in which the City has not directed UNF to file within said ninety (90) day period, UNF may, at its sole cost and expense, prepare, file, and prosecute patent applications on said Invention. UNF shall notify the City of the filing of any such patent application, but the City shall have no rights with respect thereto. Any such patent application will not be subject to the terms of this Agreement or the option set forth herein.

UNF grants to the City, subject to the rights of the U.S. Government as set forth in 35 USC and 37 CFR Part 401, an exclusive option to negotiate an exclusive, worldwide license to make, have made, use, and sell UNF patent rights for any commercial indication or purpose, under commercially feasible terms including but not limited to performance milestones, milestone payments and royalties within the industry norm, and including the right to grant sublicenses. The option period will begin on the date of written disclosure of Invention by UNF to the City and will expire ninety (90) days from that date ("Option Period"). Provided that the City has directed that a patent application be filed as set forth above, the City may, upon written notice to UNF, extend the Option Period for one additional ninety (90) day period at no additional cost. the City may exercise its option at any time during the Option Period by giving written notice to UNF.

The parties agree to negotiate the terms of a license in good faith. Such agreement as to the terms of a license shall be reached within a reasonable period of time, not to exceed three (3) months from the date on which the City exercises its option. Said license agreement shall be executed promptly. Should the parties be unable to reach agreement with said three (3) month period, UNF will have no further obligations to the City with respect to the patent rights. Upon execution of the license agreement, the rights and obligations of the City and UNF with respect to the patent rights shall be governed solely by the terms of the license agreement.

Notwithstanding the grant of license to the City, UNF shall retain the right to use patent rights, Inventions and all results of the work conducted under this Agreement for educational and research purposes.

Article 13. Public Records

In accordance with Section 119.0701, Florida Statutes, the Contractor shall:

(a) Keep and maintain public records required by the City to perform the services; and

(b) Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided for in Chapter 119, Florida Statutes, or as otherwise provided by law; and

(c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the

duration of the Agreement and following completion of this Agreement if UNF does not transfer the records to City; and

(d) Upon completion of this Agreement, transfer to the City at no cost all public records in possession of UNF or keep and maintain public records required by the City to perform the Services. If UNF transfers all public records to the City upon completion of this Agreement, UNF shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If UNF keeps and maintains public records upon completion of this agreement, UNF shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City upon request from the City's custodian of public records in a format that is compatible with the City's information technology systems.

The above requirements apply to a "Contractor" as defined in Section 119.0701, Florida Statutes. **IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CITY'S CUSTODIAN OF PUBLIC RECORDS AT (904) 630-7678; PRR@COJ.NET; CITY OF JACKSONVILLE, PUBLIC RECORDS REQUEST, 214 N. HOGAN STREET, SUITE 1180, JACKSONVILLE, FLORIDA 32202.**

Article 14. Disputes

In the event a dispute should arise relating to either Party's performance under this Agreement, the Parties agree to use good faith efforts to resolve the dispute without resort to independent judicial or quasi-judicial authorities. In the event such good faith efforts fail to resolve the dispute, either party may seek relief or redress in the courts. Each Party irrevocably submits itself to the personal jurisdiction of the courts of the State of Florida, Duval County, and the personal jurisdiction of the United States District Court for the Middle District of Florida, for the purpose of any suit, action or other proceedings arising out of or in connection with this Agreement or its subject matter.

Article 15. Termination

Either Party may terminate this Agreement at any time by giving not less than thirty (30) days advance written notice to the other Party. Termination shall not affect the rights and obligations of the parties that accrued prior to termination. The City shall be liable for all

expenses incurred and all non-cancelable commitments made prior to UNF's receipt of the notice of termination and shall pay UNF for same on receipt of a final invoice. All data collected by UNF related to the work performed under this Agreement prior to receipt of notification of termination shall be released to the City.

Article 16. Limitation of Liability

Neither party shall be liable for incidental, consequential or special damages for breach. UNF shall not be liable for breach for money damages in an amount greater than the total amount of money to be paid by the City for the Project.

Article 17. State of Florida Provisions

Any obligations of UNF under this Agreement are subject to all applicable laws and regulations of the State of Florida. the City is aware of Chapter 112, of the Florida Statutes, and other laws and regulations concerning conflicts of interest in dealing with agencies of the State of Florida. For purposes of this Agreement, the City hereby certifies, to the best of its knowledge and belief: (1) that no officer or employee of UNF is also an employee of the City; (2) that no officer or employee of UNF has a contractual relationship with the City; (3) that the City has established equal opportunity practices which conform to both the spirit and the letter of all laws against discrimination and prohibit discrimination based on race, creed, color, sex, age, national origin, marital status or religion; and (4) that the City has not been placed on the convicted vendor list by the Department of Management Services, State of Florida.

The falsity of any of the certifications contained in this Article 18 shall be grounds for cancellation of this Agreement by UNF.

Article 18. Governing Law

This Agreement shall be governed and construed in accordance with the laws of the State of Florida.

Article 19. Assignment

Neither party to this Agreement may assign its rights or duties under this Agreement without the prior written consent of the other party.

Article 20. Amendments

This Agreement may be extended, renewed, or otherwise amended at any time by the mutual written agreement of the parties. No modification of this Agreement or waiver of the terms or conditions of this Agreement shall be binding upon either party unless approved in writing by the party's duly authorized representative. Principal Investigator named in Article 4 is not UNF's duly authorized representative for purposes of any such approval.

Article 21. Waiver

Failure by either party to enforce at any time any of the provisions of this Agreement or to require at any time performance by the other party of any provision of this Agreement shall not be construed to be a waiver of such provision or of the right of the party to thereafter enforce each and every such provision. No waiver of any breach of the Agreement shall be held to be a waiver of any other or subsequent breach.

Article 22. Entire Agreement

This Agreement constitutes the entire agreement between the parties and supersedes all previous agreements and understandings relating to the work to be performed.

[Remainder of page left blank intentionally. Signature page follows immediately.]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the Effective Date.

ATTEST:

By_____
James R. McCain, Jr.,
Corporation Secretary

CITY OF JACKSONVILLE

By_____
Lenny Curry, Mayor

ATTEST:

By_____
Signature

_____
Type/Print Name

_____
Title

UNIVERSITY OF NORTH FLORIDA BOARD OF TRUSTEES

By-_____
Signature

_____
John Kantner

_____
Associate Vice-President for Research

In accordance with the *Ordinance Code*, of the City of Jacksonville, I do hereby certify that there is an unexpended, unencumbered, and unimpounded balance in the appropriation sufficient to cover the foregoing agreement; and that provision has been made for the payment provided therein to be paid.

_____
Director of Finance
City Contract Number: _____

Form Approved:

_____
Office of General Counsel

EXHIBT A – Funding Request (Project Scope)

"Development of a Water Quality Model of the Lower St. Johns River Basin"

Proposal to the Jacksonville Environmental Protection Board

University of North Florida, Civil Engineering

Principal Investigator: Dr. Cigdem Akan
Co-Principal Investigator: Dr. Christopher J. Brown, P.E.

Executive Summary: The University of North Florida (UNF) is currently in the midst of developing a surface water simulation model for the St. Johns River. The primary model under development is a hydrodynamic model of the Lower St. Johns River watershed with a focus on Duval County that will be able to incorporate rainfall-driven flows, tides, storm surge, sea level rise, and future urbanization for the purposes of evaluating many water resources and water quality problems that will likely occur within the watershed. The hydrodynamic model will be coupled to an ocean model as well as sub-basin hydrologic models so that the model will realistically reproduce expected flow rates, flow direction, salinity, and water quality within the watershed. UNF is integrating existing hydrologic and flow models to the extent practical including data from the St. Johns River Water Management District (SJRWMD), City of Jacksonville, UNF/JU, and private firms in order to speed development of the new state-of-the-art model as well as to ensure the lowest development cost possible. Once the model has been calibrated and validated, it is expected that the new model will be an ideal tool for the evaluation of nutrient and toxics reduction within the City of Jacksonville. This proposal outlines the tasks required to add water quality components to the UNF model to make it a useful tool for the Environmental Protection Board. This proposal describes the proposed research team and includes key tasks, a proposed schedule, and an estimated cost for the effort.

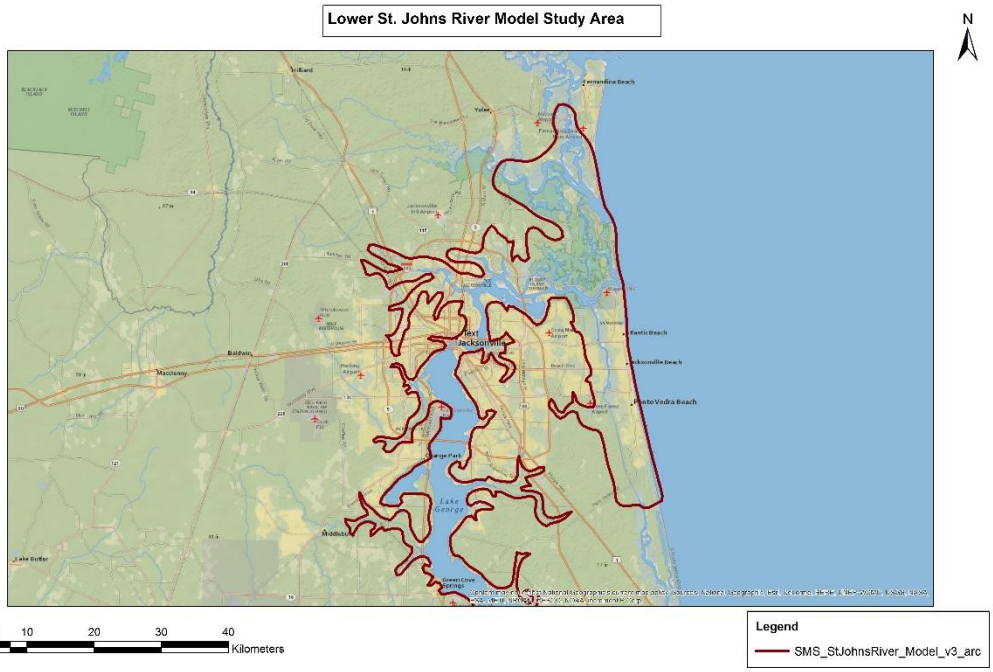
Table of Contents

Project Overview:

The University of North Florida (UNF) is in the midst of a substantial water resources model development effort. UNF is developing a hydrodynamic (e.g. flow and hydraulics) of the St. Johns River with a primary focus on the Lower St. Johns River and the City of Jacksonville, Florida (Duval County). The hydrodynamic model will be coupled to an ocean model at the mouth of the St. Johns River and will also be coupled to numerous sub-watershed hydrologic models that provide flow, salinity, and water quality inputs into the Lower St. Johns River. The hydrodynamic model will simulate water levels during low periods and during flood events including hurricane storm surge. The model tool will also simulate ocean tides, rainfall-driven flows, evapotranspiration, sea level rise, and urbanization effects. The model will be calibrated and validated using existing flow, stage, and salinity observation data at points throughout the model domain. Once the model hydrodynamics are valid and reasonably match real-world conditions, the model can be used for evaluation of various water resources scenarios.

This proposal outlines the efforts required to add a water quality simulation component to the model. The model tool would then be able to evaluate nutrient loads in the Lower St. Johns River, toxics, and possible chemical/oil spills. The tool could be a powerful ally to the Environmental Protection Board (EPB), allowing it to evaluate the impact of nutrient removal mitigation projects in a more holistic, watershed basis rather than in a stand-alone fashion. The model tool could also assist the EPB in strategic planning of long-term nutrient reduction for the entire City of Jacksonville. The proposed project study area is shown on Figure 1 along with a model domain under consideration.

Figure 1 – Model Study

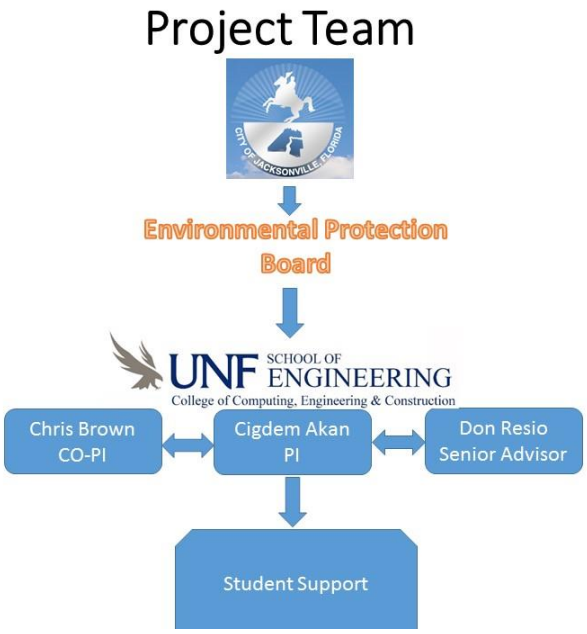


Area

Project Team:

The project team includes Dr. Cigdem Akan who will act as the Principal Investigator, Dr. Christopher J. Brown, P.E. who will act as the Co-Principal Investigator, Dr. Don Resio Senior Advisor, and two graduate students. Figure 2 depicts the proposed project organizational chart for the team.

Figure 2 – Project Organizational Chart



Principal Investigator: Dr. Cigdem Akan is currently an Assistant Professor at UNF. She has 12 years of experience in modeling turbulent processes in the environment, 7 years of which is specifically in regional and near-shore wave and circulation modeling. She worked at UCLA as a postdoctoral researcher before accepting her current position at UNF. Her project at UCLA involved simulating geographically realistic situations with high spatial resolution with a specific interest in the eddy activity in the region between the surf zone and the continental shelf as well as around the islands and headlands. The project was funded by ONR Departmental Research Initiative (DRI). Figure 3 shows the nested-grids for the California coast and Figure 4 shows an example output of model.

Figure 3 – Example model setup for U.S. West Coast. Simulation domains with resolutions varying from 1 km to 100 m.

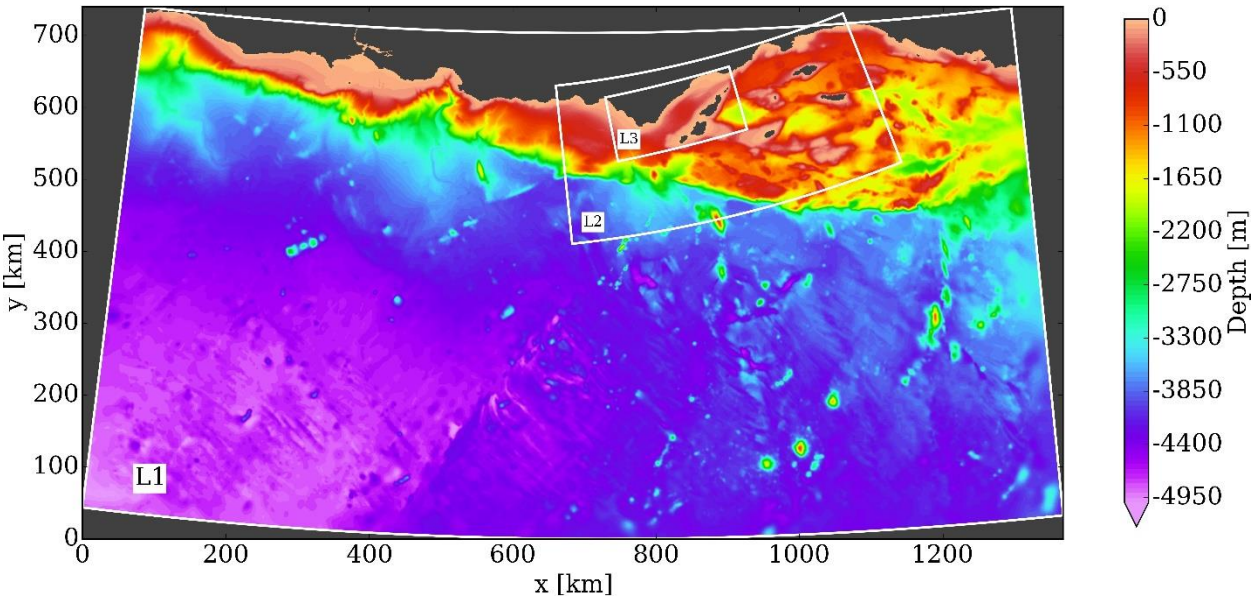
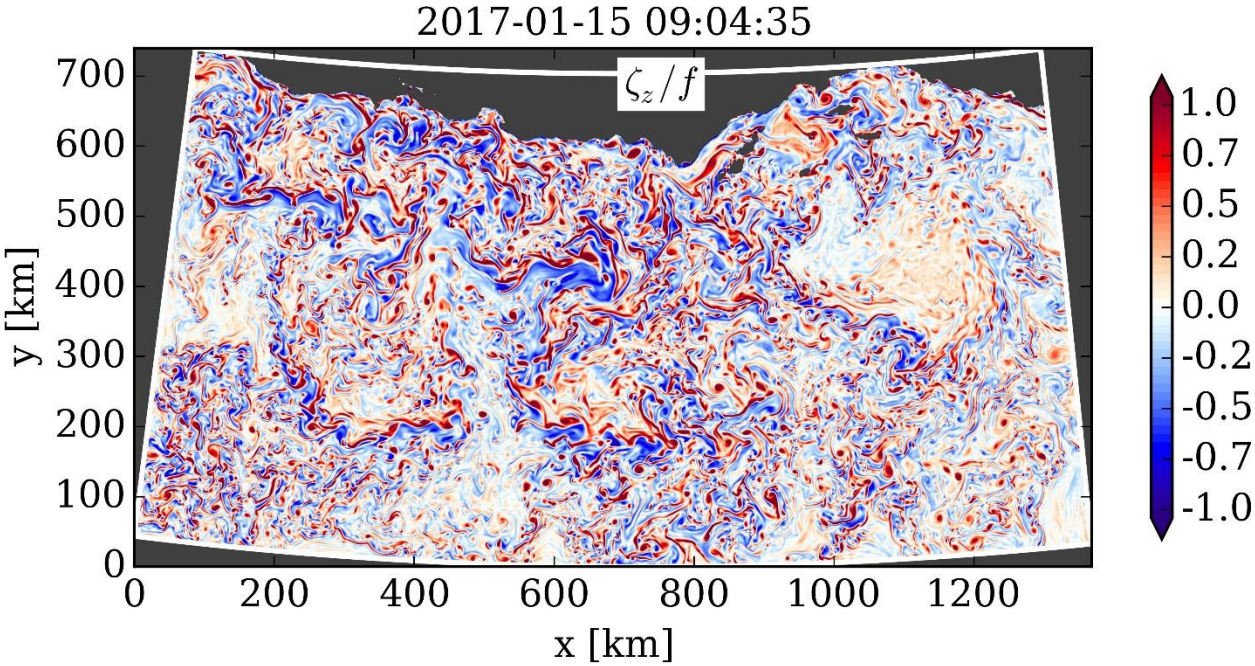


Figure 4 – Example ROMS output of U.S. West Coast simulation. The colormap shows normalized surface vertical vorticity for the 1 km resolution model on January 15, 2017 at 09:05 UT.



Co-Principal Investigator: Dr. Christopher Brown has almost 30 years of experience working in water resources. He currently teaches water resources engineering at UNF as an Associate

Professor and in the past has worked for the U.S. Army Corps of Engineers (USACE) and Golder Associates Inc. on a vast variety of projects involving water resources, groundwater, and water quality. Dr. Brown has significant expertise building large water resources simulation models and recently worked on HEC-HMS hydrologic models of the entire Upper St. Johns River Basin and the Fisheating Creek Basin. The model study of the Fisheating Creek Basin also included a full evaluation of nutrient loads within the entire watershed. Dr. Brown also has significant experience building and operating physical models to assess water treatment technology. In 2012, Dr. Brown and one graduate student built and tested a scale model of a chlorine contact chamber located at the Clay County Utility Authority (CCUA). The contact chamber was designed using dynamic similarity to ensure that dimensions were reasonable and that the model Froude number was identical to the prototype Froude number. Figure 5 depicts the scale physical model under construction.

Figure 5 – CCUA Model Chlorine Contact Chamber Under Construction

Senior Advisor: Dr. Don Resio is a Professor at UNF specializing in coastal engineering, hydrodynamics, and water resources. Dr. Resio is world renowned for his work for the USACE Engineer Research and Development Center (ERDC) where he served as the Senior Technologist for the USACE Coastal and Hydraulics Lab from 1994 to 2011. He has extensive experience working on large-scale physical and numerical models. Dr. Resio is one of the original developers of methodology to evaluate the effects of rainfall-driven flooding combined with storm surge. Dr. Resio has worked on a number of large hydrodynamic models including those simulating portions of Southern Louisiana.

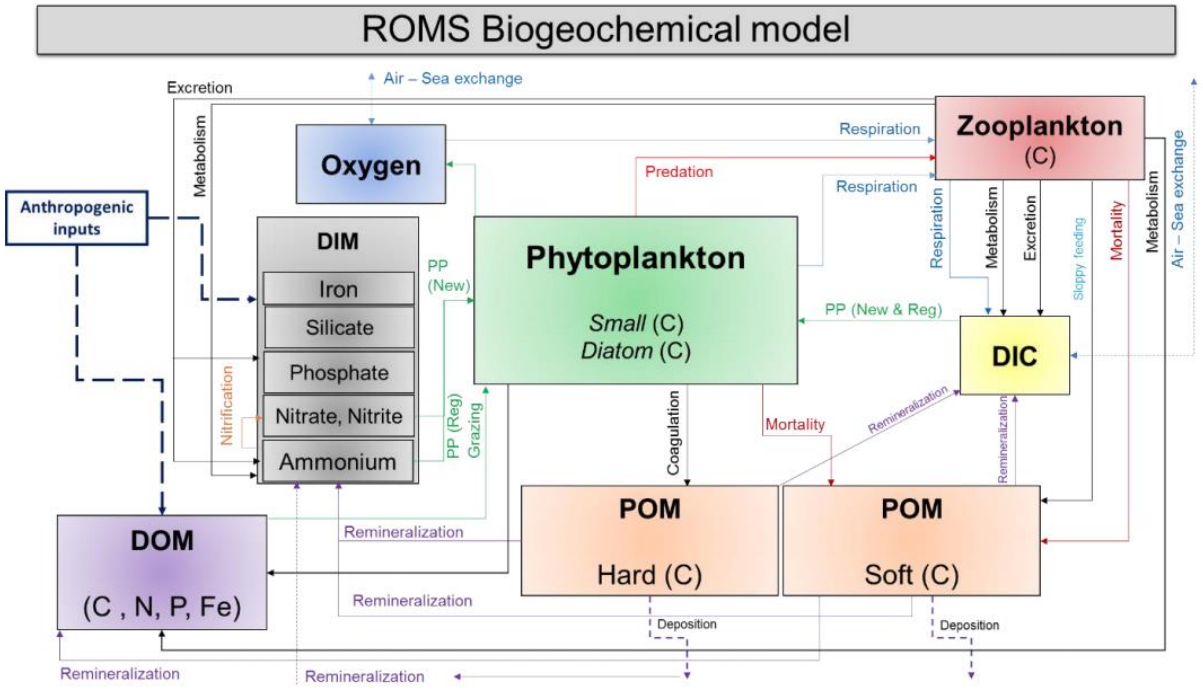
Description of the Model Code to be Used:

The research team proposes to use the Coupled Ocean-Atmosphere-Wave-Sediment Transport modeling system (COAWST) which was developed by Warner et al., 2010. This 3-way coupled system consists of following modules: an atmospheric model (Weather Research and Forecasting, WRF), a three-dimensional hydrostatic ocean model (Regional Ocean Modeling System, ROMS) and a wave generation and propagation model (Simulating Waves Nearshore, SWAN). COAWST modeling system also has the capability of coupling to an ecosystem and nitrogen-based biogeochemical model (Figure 6).

ROMS Circulation Model: It solves the hydrostatic equations for an incompressible fluid with free surface. It uses generalized terrain-following coordinates (i.e., a sigma model); the Boussinesq approximation using a realistic Equation of State (EOS) for seawater; general orthogonal curvilinear coordinates in horizontal directions; and a set of physical parameterizations for the Planetary Boundary Layer (PBL), as well as small-scale, subgrid mixing processes. ROMS has the nesting capability to simulate a limited area domain forced using external data supplied on open boundaries, and it allows coupling with other modules, such as biogeochemistry, sediment, atmosphere, and surface wave models.

Biogeochemistry Models: We will couple two different ecosystem models to ROMS: a NPZD ecosystem model (nutrient, phytoplankton, zooplankton, detritus), and a more complex, biogeochemical elemental cycling model BEC). Both ecosystem models include the oceanic oxygen and carbon cycles. This method of coupling has been used to simulate ecosystem and carbon cycle dynamics in the California Current System and has been shown to produce good results.

Figure 6 – Conceptual diagram of biogeochemical model components (Moore et al., 2002).



Project Deliverables and Key Task Description:

The deliverables proposed include oral presentations to the EPB as well as technical reports summarizing the work. Seven primary deliverables are proposed as part of the project:

- Project Kickoff Meeting with EPB members and staff;
- 4 Month Progress Presentation to be delivered to EPB Water Committee;
- 6 Month Progress Presentation to be delivered to the Lower St. Johns River Technical Advisory Committee;
- 8 Month Progress Presentation to be delivered to EPB Water Committee;
- 11 Month Progress Presentation to be delivered to the Lower St. Johns River Technical Advisory Committee;
- Draft Final Report – 11 months from Notice to Proceed (NTP); and,
- Final Report – 12 months from NTP.

As depicted on the project schedule below, a number of key tasks are included in the project.

Task 1 – Add Water Quality Modules

This is the heart of the project. This task involves modifying the hydrodynamic model to add the appropriate water quality modules for nutrient and toxic simulation. Since the water quality modules are directly coupled to the hydraulics of the model, the research team will also need to evaluate the model runtimes, transport time step, and water quality accuracy. In order to develop the water quality component, the research team will need to compile additional data from throughout the Lower St. Johns River Basin as well as estimate mass inputs from the Upper and Middle St. Johns River Basins. Some of the data collected will be needed to conduct calibration and validation of the water quality component.

Task 2 – Water Quality Model Calibration

As part of this task the research team will compare model predictions to actual observations obtained from field data. Typical goodness-of-fit measures will be used to ensure that the model adequately simulates the real environment. Typically, one time period is used for calibration purposes while a separate one is chosen for validation.

Task 3 – Water Quality Model Validation

As part of this task the research team will compare model predictions to actual observations from field data for a different time period than was used in the calibration effort. The same goodness-of-fit measures used to assess model performance for calibration will also be used for the validation period. Once both the calibration and validation periods demonstrate that the model is portraying the water quality of the real system adequately, the model will be finished and can be used for assessment and prediction purposes.

Task 4 – Development of One Water Quality Management Scenario

As part of this task the research team will run the model over a one year period and establish a water and mass flow budget for the St. Johns River within Duval County. The water and mass budgets will include all major tributaries to the St. Johns River and the main stem of the river itself. This scenario information can be used by the City of Jacksonville for future planning purposes.

Task 5 – Draft and Final Reports

The UNF team will deliver a hard copy and electronic copy of the DRAFT technical report to the EPB team. The report will summarize the model development effort and highlight the results of the Task 4 scenario development. The report will also outline how the model can be used in future planning efforts by City of Jacksonville staff and others. The EPB team will provide review comments and suggestions for revisions within 2 weeks of receiving the DRAFT report. Then, UNF will revise the DRAFT report and submit the final document to the EPB.

Project Schedule:

The project is expected to begin in March 2021 and last one year. The project start date is estimated based upon the expected approval process required for EPB projects. The actual duration will be one year from the NTP from EPB staff.

Project Cost:

The one year project as outlined in this proposal is expected to cost $74,993. Table 1 details the cost breakdown. Costs include:

- Salary for faculty research team;
- Graduate student stipends and tuition for 2 students;
- In-state travel;
- Misc. faculty and student benefits;
- Printing and mail costs;
- Misc. office/lab expenses tied to the modeling effort; and,
- Indirect overhead costs.

Table 1 – Proposed Cost Breakdown for Project

		Akan, Brown/City of Jacksonville Environmental Protection Board			
		FINAL			
		Project Dates: 3/1/2020 through 3/1/2021			
CAS?	Account Code	Budget Items	03/1/2020-3/1/2021		Total
		Wages			
No	712006	Faculty Supplemental Compensation Summer 2020 (OPS) for C. Brown	$	4,000	
No	712006	Faculty Supplemental Compensation Summer 2020 (OPS) for C. Akan	$	8,000	
No	711004	Graduate Research Assistant 2 GRA: 10 hours/week @$22.91/hours for 48 weeks	$	22,000	
		Sub-total	$	34,000	$ 34,000
		Employee Benefits			
No	629996	Faculty Supplemental compensation and Part Time @ 7.65%	$	918	
		Sub-total	$	918	$ 918
		Travel -			
No	772180	In State Travel	$	500	
		Sub-total	$	500	$ 500
		Materials and Supplies			
No	740881	Laboratory/Technical Supplies	$	4,450	
		Sub-total	$	4,450	$ 4,450
		Other			
No	761000	UNF Student Tuition / Scholarships / Educational Assistance - 2 Grad Students (5 courses each)	$	14,806	
No	771006	Freight / Courier Postage	$	300	
No	775080	Printing/Design Services	$	500	
		Sub-total	$	15,606	$ 15,606
		Total Direct Costs	$	55,473	$ 55,473
	771080	**F&A at 48% MTDC** Indirect Costs	$	19,520	$ 19,520
		TOTAL COSTS	$	74,993	$ 74,993
		CB 9/19/2019; Revised 10/11/2019			
		Indirect Cost Base: MTDC	$	40,667	
		F&A at 48%		0.480	

References:

Moore, J. K., Doney, S. C., Kleypas, J.C., Glover, D. M., Fung, I. Y., 2002. An intermediate complexity marine ecosystem model for the global domain, *Deep-Sea Res*. II, 49: 403-462.

Warner J. C., Armstrong, B., He, R., and Zambon, J., 2010. Development of a coupled ocean–atmosphere–wave–sediment transport (COAWST) modeling system, *Ocean Modell*., 35, 230–244.

EXHIBIT B - PROJECT BUDGET AND SCHEDULE

Budget

The budget request for this proposal is $74,993 to support the development of a water quality module of a hydrodynamic water simulation modeling program.

		Akan, Brown/City of Jacksonville Environmental Protection Board			
		FINAL			
		Project Dates: 3/1/2020 through 3/1/2021			
CAS?	Account Code	Budget Items		03/1/2020-3/1/2021	Total
		Wages			
No	712006	Faculty Supplemental Compensation Summer 2020 (OPS) for C. Brown		$ 4,000	
No	712006	Faculty Supplemental Compensation Summer 2020 (OPS) for C. Akan		$ 8,000	
No	711004	Graduate Research Assistant 2 GRA: 10 hours/week @$22.91/hours for 48 weeks		$ 22,000	
			Sub-total	$ 34,000	$ 34,000
		Employee Benefits			
No	629996	Faculty Supplemental compensation and Part Time @ 7.65%		$ 918	
			Sub-total	$ 918	$ 918
		Travel -			
No	772180	In State Travel		$ 500	
			Sub-total	$ 500	$ 500
		Materials and Supplies			
No	740881	Laboratory/Technical Supplies		$ 4,450	
			Sub-total	$ 4,450	$ 4,450
		Other			
No	761000	UNF Student Tuition / Scholarships / Educational Assistance - 2 Grad Students (5 courses each)		$ 14,806	
No	771006	Freight / Courier Postage		$ 300	
No	775080	Printing/Design Services		$ 500	
			Sub-total	$ 15,606	$ 15,606
			Total Direct Costs	$ 55,473	$ 55,473
	771080	**F&A at 48% MTDC**	Indirect Costs	$ 19,520	$ 19,520
			TOTAL COSTS	$ 74,993	$ 74,993
		CB 9/19/2019; Revised 10/11/2019			
			Indirect Cost Base: MTDC	$ 40,667	
			F&A at 48%	0.480	

Payment Schedule

Date	Payment Amount	Activity
March 2021		Project Initiation
March 2021	$35,000	Due upon Council approval of appropriation
September 2021	$20,000	Completion of 6-month progress report
March 2022	$19,993	Project Final Report
TOTAL	**$74,993**	

Exhibit C - Insurance Requirements

Without limiting its liability under this Agreement, UNF shall at all times during the Period of Performance procure prior to commencement of work and maintain at its sole expense during the life of this Agreement, insurance of the types and limits not less than amounts stated below:

Insurance Coverages

Schedule	Limits	
Workers' Compensation	Florida Statutory Coverage	
Employer's Liability	$ 100,000	Each Accident
	$ 500,000	Disease Policy Limit
	$ 100,000	Each Employee/Disease

This insurance shall cover UNF for those sources of liability which would be covered by the latest edition of the standard Workers' Compensation policy, as filed for use in the State of Florida by the National Council on Compensation Insurance (NCCI), without any restrictive endorsements other than the Florida Employers Liability Coverage Endorsement (NCCI Form WC 09 03), those which are required by the State of Florida, or any restrictive NCCI endorsements which, under an NCCI filing, must be attached to the policy (i.e., mandatory endorsements). In addition to coverage for the Florida Workers' Compensation Act, where appropriate, coverage is to be included for the Federal Employers' Liability Act, USL&H and Jones, and any other applicable federal or state law.

Commercial General Liability	$2,000,000	General Aggregate
	$2,000,000	Products & Comp. Ops. Agg.
	$1,000,000	Personal/Advertising Injury
	$1,000,000	Each Occurrence
	$ 50,000	Fire Damage
	$ 5,000	Medical Expenses

Such insurance shall be no more restrictive than that provided by the most recent version of the standard Commercial General Liability Form (ISO Form CG 00 01) as filed for use in the State of Florida without any restrictive endorsements other than those reasonably required by the City's Office of Insurance and Risk Management. An Excess Liability policy or Umbrella policy can be used to satisfy the above limits.

Automobile Liability $1,000,000 Combined Single Limit (Coverage for all automobiles, owned, hired or non-owned used in performance of the Agreement)

Such insurance shall be no more restrictive than that provided by the most recent version of the standard Business Auto Coverage Form (ISO Form CA0001) as filed for use in the State of Florida without any restrictive endorsements other than those which are required by the State of Florida, or equivalent manuscript form, must be attached to the policy equivalent endorsement as filed with ISO (i.e., mandatory endorsement).

Additional Insurance Provisions

A. Additional Insured. All insurance except Workers' Compensation and Crime shall be endorsed to name the City and its members, officials, officers, employees and agents as Additional Insured. Additional Insured for General Liability shall be in a form no more restrictive than CG2010 and CG2037, Automobile Liability CA2048.

B. Waiver of Subrogation. All required insurance policies shall be endorsed to provide for a waiver of underwriter's rights of subrogation in favor of the City and its members, officials, officers employees and agents.

C. UNF's Insurance Primary. The insurance provided by UNF shall apply on a primary basis to, and shall not require contribution from, any other insurance or self-insurance maintained by the City or any City members, officials, officers, employees and agents but only for claims arising out of UNF's activities.

D. Deductible or Self-Insured Retention Provisions. All deductibles and self-insured retentions associated with coverages required for compliance with this Agreement shall remain the sole and exclusive responsibility of UNF. Under no circumstances will the City and/or its members, officers, directors, employees, representatives, and agents be responsible for paying any deductible or self-insured retentions related to this Agreement.

E. UNF's Insurance Additional Remedy. Compliance with the insurance requirements of this Agreement shall not limit the liability of UNF or its subcontractors, employees or agents to the City or others. Any remedy provided to the City and/or its members, officials, officers, employees or agents shall be in addition to and not in lieu of any other remedy available under this Agreement or otherwise.

F. Waiver/Estoppel. Neither approval by the City nor failure to disapprove the insurance furnished by the Association shall relieve UNF of the UNF's full responsibility to provide insurance as required under this Agreement.

G. Certificates of Insurance. UNF shall provide the City with Certificates of Insurance that show the corresponding City contract number in the description, if known, Additional Insured as provided above, and waivers of subrogation. The Certificates of Insurance shall be mailed to the City of Jacksonville (Attention: Chief of Risk Management), 117 W. Duval Street, Suite 335, Jacksonville, Florida 32202.

H. Carrier Qualifications. The above insurance shall be written by an insurer holding a current certificate of authority pursuant to Chapter 624, Florida Statutes, or a company that is declared as an approved surplus lines carrier under Chapter 626, Florida Statutes. Such insurance shall be written by an insurer with an A.M. Best Rating of A- VII or better.

I. Notice. UNF shall provide an endorsement issued by the insurer to provide the City thirty (30) days' prior written notice of any change in the above insurance coverage limits or cancellation, including expiration or non-renewal. If such endorsement is not provided, then UNF shall provide said thirty (30) days' written notice of any change in the above coverages or limits, coverage being suspended, voided, cancelled, including expiration or non-renewal.

J. Survival. Anything to the contrary notwithstanding, the liabilities of UNF under this Agreement shall survive and not be terminated, reduced or otherwise limited by any expiration or termination of insurance coverage.

Notwithstanding any provision in this agreement to the contrary, the insurance requirements specified in this Exhibit C may be satisfied by certification of a valid program of self-insurance authorized pursuant to Section 768.28(16), Florida Statutes (which provisions are not expanded, altered or waived).