

Developing an Integrated Coastal Water Predictive Capability to Promote Resilience to Water Risks:

The St. Johns River Prediction System

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<https://comt.secoora.org/>



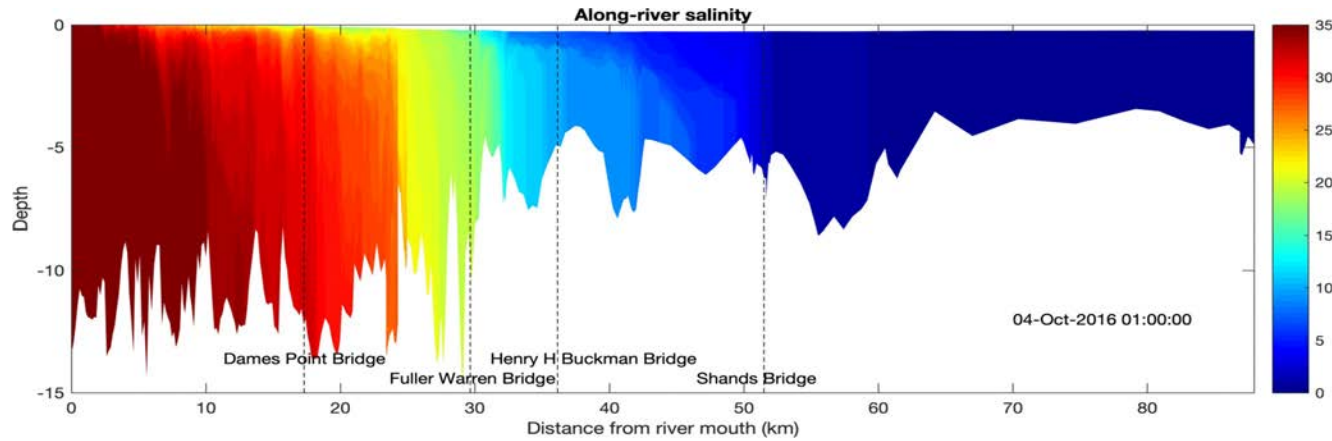
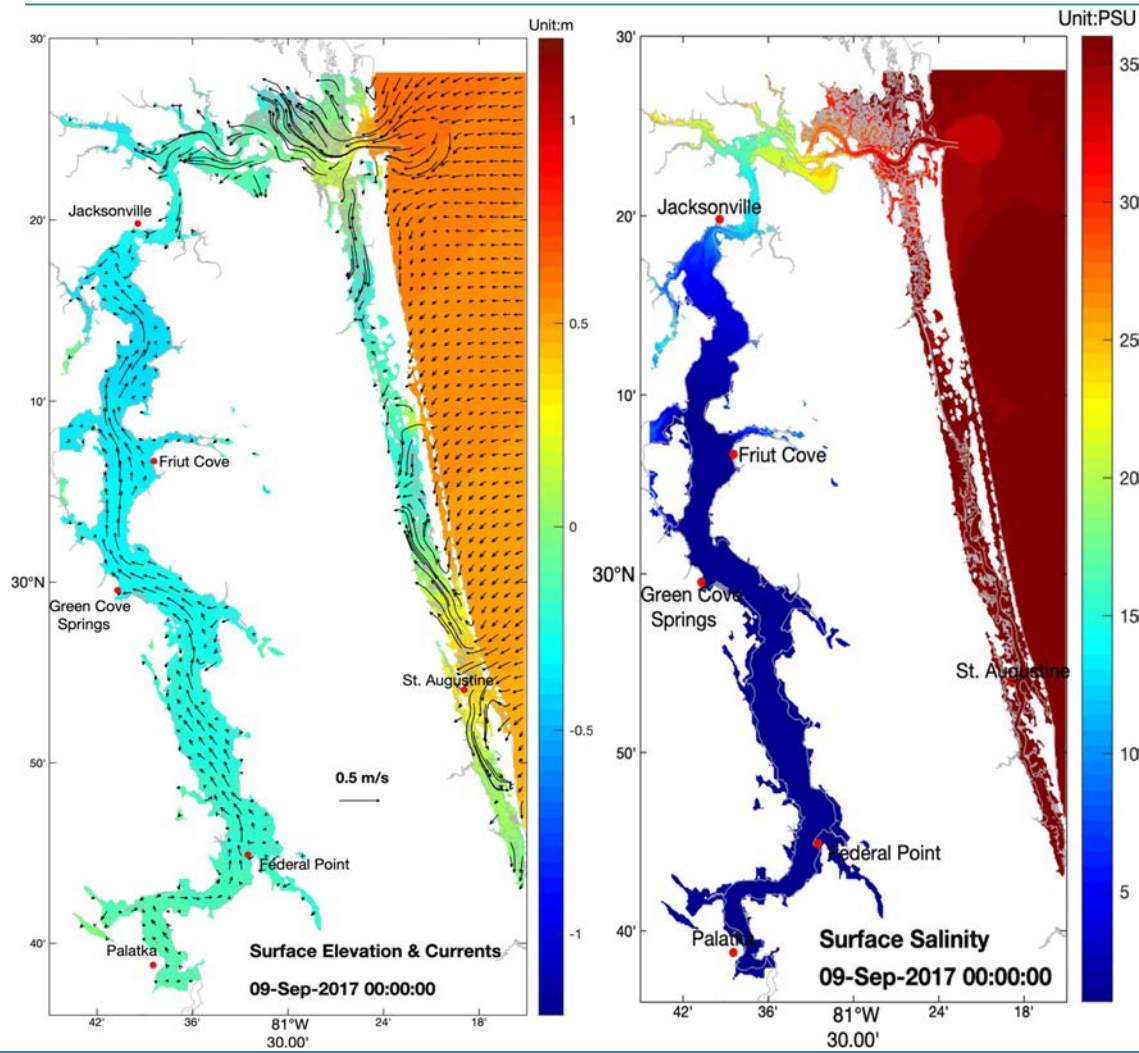
Project Goal

To develop a **3D coastal water predictive tool** that:

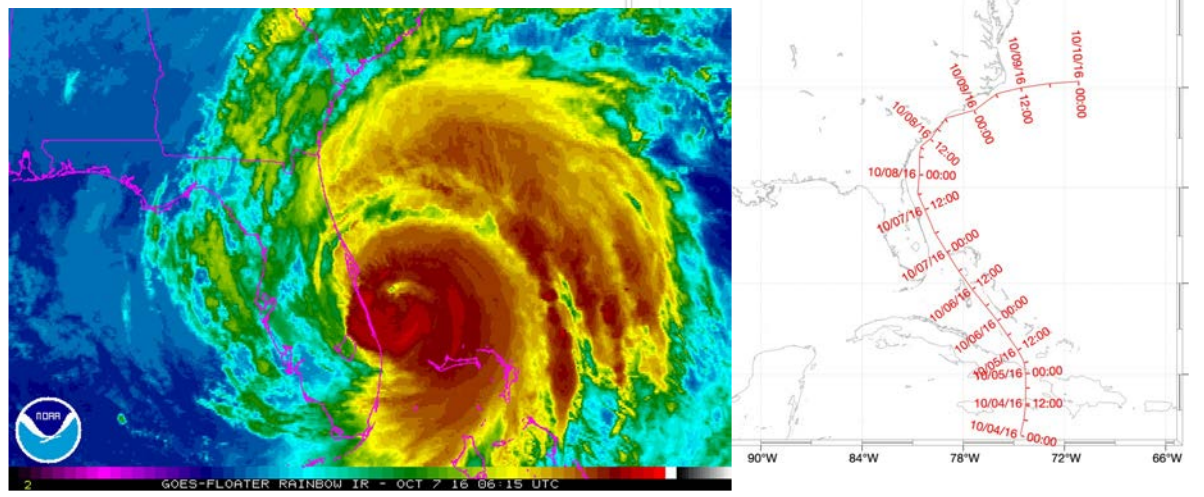
- links 3D coastal ocean predictions with NOAA's National Water Model (NWM)
- describes interactions between terrestrial hydrology and coastal ocean at high resolution and fidelity
- delivers new information and products on water physics and water quality (e.g., salinity)
- supports decision making for both events and chronic situations



Accomplishments: Developed new SJR system at 80 m resolution



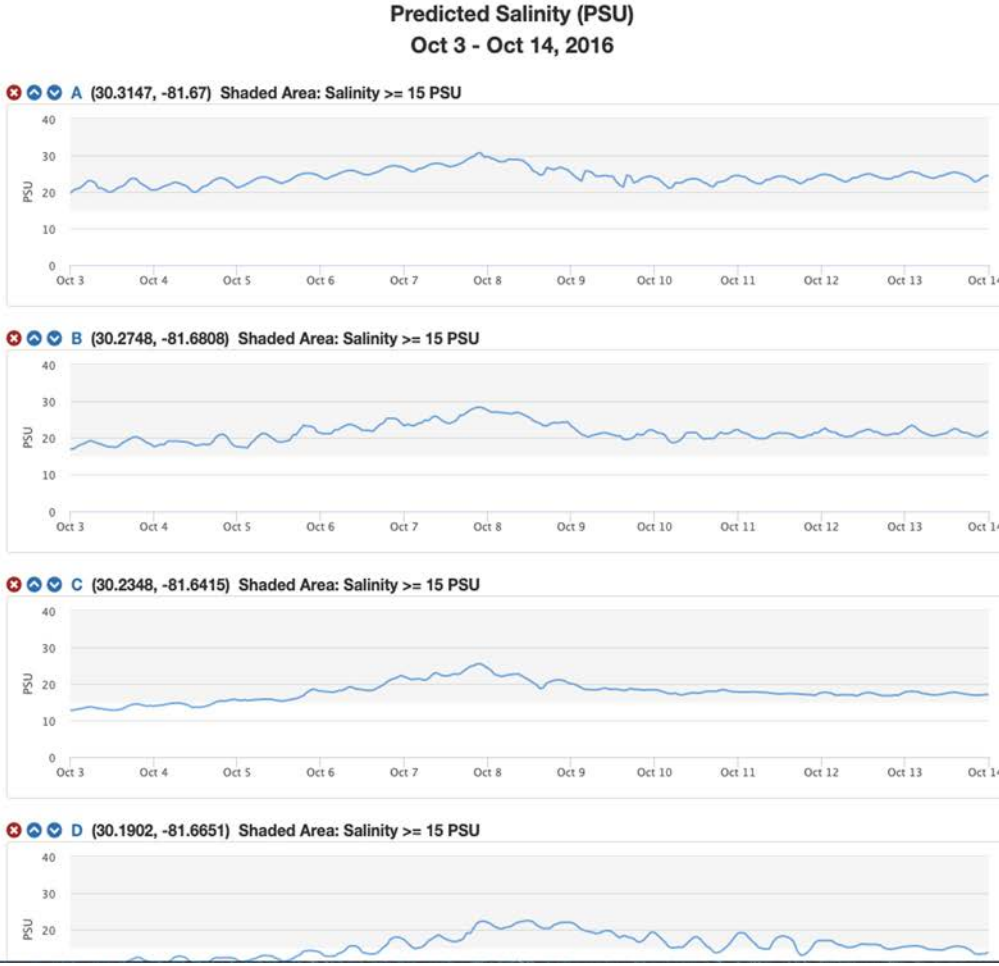
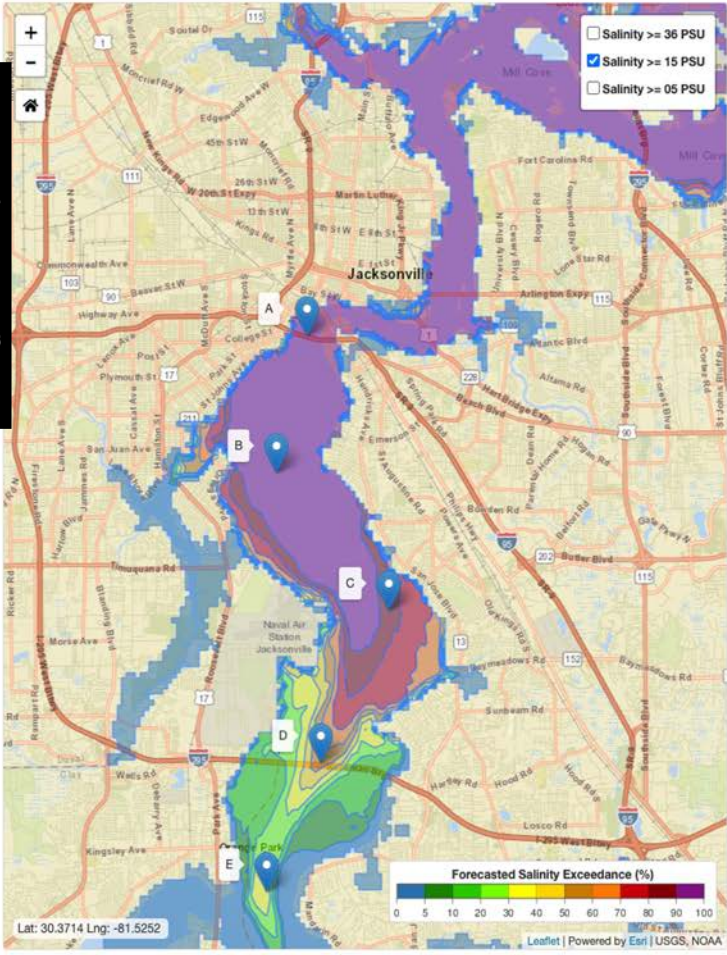
Hurricane Matthew in 2016



Accomplishments: Detailed skill assessment; Prototype made

Station: I-295 Bridge
 Observed data time period from: /02/23/2021 to /02/01/2022 with gaps of 0.00 days
 Data gap is filled by SVD method
 Data are not filtered

VARIABLE	X	N	IMAX	SM	RMSE	SD	NOF	CF	POF	MDNO	MDPO	WOF	CORR	SKILL
CRITERION	-	-	-	-	-	-	<1%	>90%	<1%	<N	<N	<.5%		
SCENARIO: TIDAL SIMULATION ONLY														
H			8401	0.074										
h			8401	0.007										
H-h	15 cm	24h	8401	0.067	0.076	0.036	0.0	99.6	0.0	0.0	0.0	0.0	0.97	0.93
AHW-ahw	15 cm	24h	676	0.028	0.037	0.023	0.0	100.0	0.0	0.0	0.0	0.0	0.98	
ALW-qlw	15 cm	24h	676	0.101	0.104	0.024	0.0	99.3	0.0	0.0	0.0	0.0	0.98	
THW-chw	0.50 h	25h	676	0.197	0.633	0.602	0.0	60.8	0.3	0.0	0.0	0.0	0.00	
TLW-tlw	0.50 h	25h	676	0.036	0.823	0.823	3.3	50.0	2.7	37.0	12.0	0.0	0.00	



Stakeholder Outreach



Accomplishments and Next Steps

- Developed a high-resolution baroclinic ocean model for the SJR system to deliver new water intelligence products and information vital for decision making
- Continue extensive validation against observations from regional networks; documentation and publication
- Continue transition of the system to NOAA-NOS

