



SECOORA

Federal partners

Thursday, October 10, 9:45 - 10:45 AM

Session overview

- Federal partners
 - NOAA: Greg Dusek & Bob Heitsenrether
 - USACE: Tanner Jernigan
 - USGS: Meg Palmsten
- Topics
 - Hardware
 - Use cases
 - Connections to WebCOOS
- Format: 15 minutes each + 15 minutes Q&A at the end



NOAA: Greg Dusek



- Greg Dusek is a physical oceanographer and the Chief Scientist for the NOAA National Ocean Service (NOS) Center for Operational Oceanographic Products and Services (CO-OPS). He also serves as the NOS lead for Artificial Intelligence (AI) and as the chair of the NOAA AI Executive Committee. Greg has studied rip currents and beach hazards for over 15 years and his research broadly focuses on coastal oceanographic product development through the intersection of data science with coastal hazards. Greg has been at NOAA for 13 years, and prior to serving as Chief Scientist, he was an oceanographer on the currents team where he led a range of physical oceanographic projects. Greg completed his PhD in physical oceanography at the University of North Carolina Chapel Hill where he studied coastal processes and rip currents.



NOAA: Bob Heitsenrether

- Bob is the Manager of the Ocean Systems Test and Evaluation Program (OSTEP) at NOAA's National Ocean Service / Center for Operational Oceanographic Products and Services (CO-OPS) facilitates the transition of new technology into CO-OPS' suite of operational tools, including radar water level sensors, global positioning systems for vertical referencing of water level sensors, and easily deployed buoys for current surveys.





SECOORA

NOAA CO-OPS

**Greg Dusek, Bob Heitsenrether, Chris Sager
and Matt Conlin**

WebCOOS at CO-OPS NWLON Stations

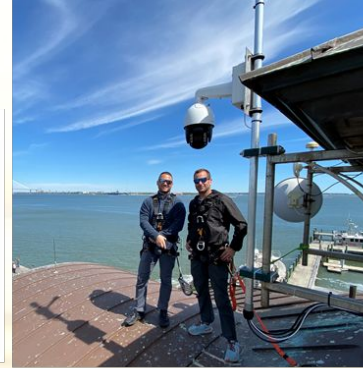
Coastal Flood Impacts

Cameras | Charleston Harbor, SC

Charleston Harbor, SC

This camera is positioned on the Charleston Branch Pilots pier overlooking Charleston Harbor, the Cooper River and nearby infrastructure, and is co-located with the nearby NOAA NOS CO-OPS tide gauge. It is a partnership between CO-OPS, the Charleston Branch Pilots and the WebCOOS team to monitor sea state and coastal flooding.

Partners *NOS Center for Operational Oceanographic Products and Services, Charleston Branch Pilots Association



Cameras | Beaufort, NC

Beaufort, NC

This camera is positioned at the NOAA NOS CO-OPS tide gauge located at the Duke University Marine Lab in Beaufort, NC. It is a partnership between CO-OPS, the Duke Marine Lab, and the WebCOOS team to monitor water levels and coastal flooding.

Partners

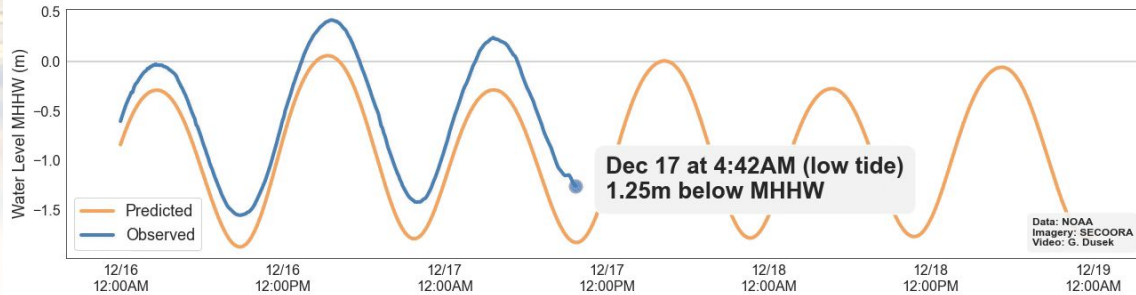
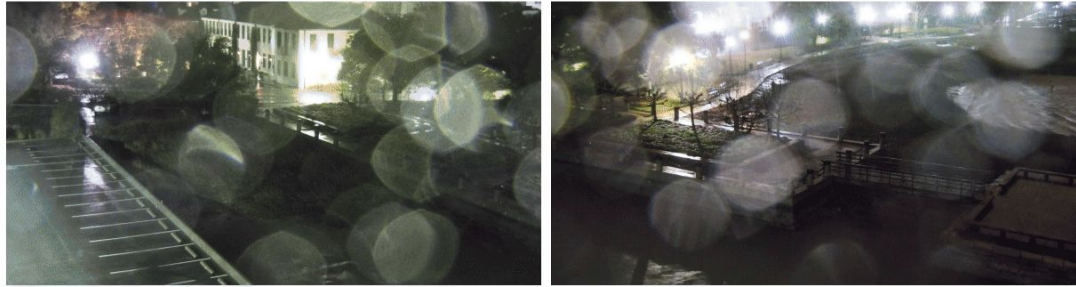
- NOS Center for Operational Oceanographic Products and Services
- Duke University Marine Lab



WebCOOS at CO-OPS NWLON Stations

Coastal Flood Impacts

Coastal Flooding on Dec 17, 2023 in Charleston, SC
WebCOOS imagery and NOAA water level data



WebCOOS at CO-OPS NWLON Stations

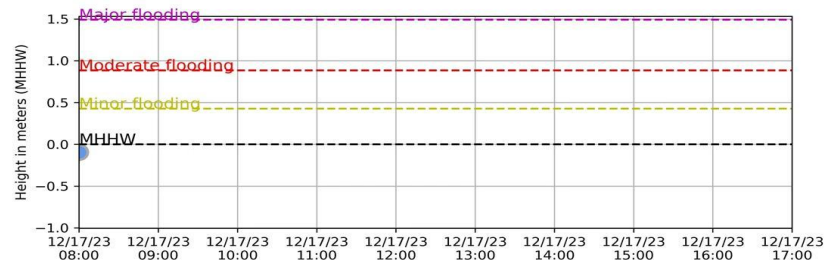
Automated time lapse videos

```
[ ]: import DataWebcamSyncher as dws

[ ]: camera = 'North Inlet-Winyah Bay National Estuarine Research Reserve Dock, Georgetown, SC'
     product = 'one-minute-stills'
     station = 8661070
     time_start = '202312170800'
     time_end = '202312171700'

[ ]: synchro = dws.synch(station=station,
                        camera=camera,
                        data_product='water_level',
                        camera_product=product,
                        value='all', # Can be all, highest, or a value #
                        time_start=time_start,
                        time_end=time_end,
                        interval=1, # In minutes. Can use to only take some data points #
                        cutoff=None, # Use with value to get what you want #
                        token=token,
                        save_dir='dir')
```

Camera: North Inlet-Winyah Bay National Estuarine Research Reserve Dock, Georgetown, SC
Gauge: 8661070



WebCOOS at CO-OPS NWLON Stations

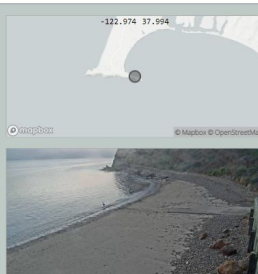
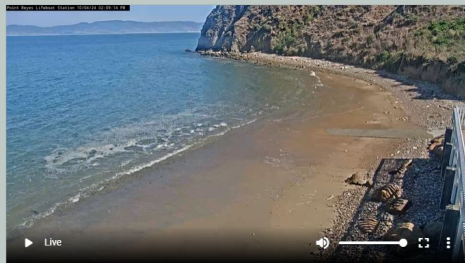
Partner Installed Stations

Point Reyes National Seashore, Point Reyes, CA

This camera located at the NOAA CO-OPS Tide Gauge and release point for The Marine Mammal Center is provided for general viewing purposes. The WebCOOS team is evaluating if it is possible to develop shoreline change products from the videos.

Partners:

- The Marine Mammal Center
- Point Reyes National Seashore
- NOS Center for Operational Oceanographic Products and Services



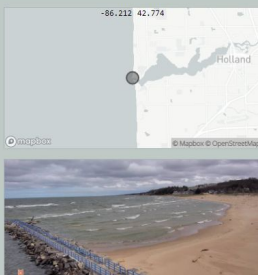
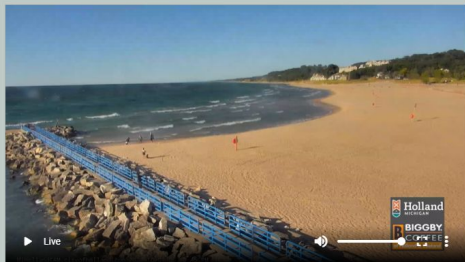
Holland, MI State Park

This camera was installed in May 2020 and added to the WebCOOS system in October 2022. This camera is for general viewing and rip detection.

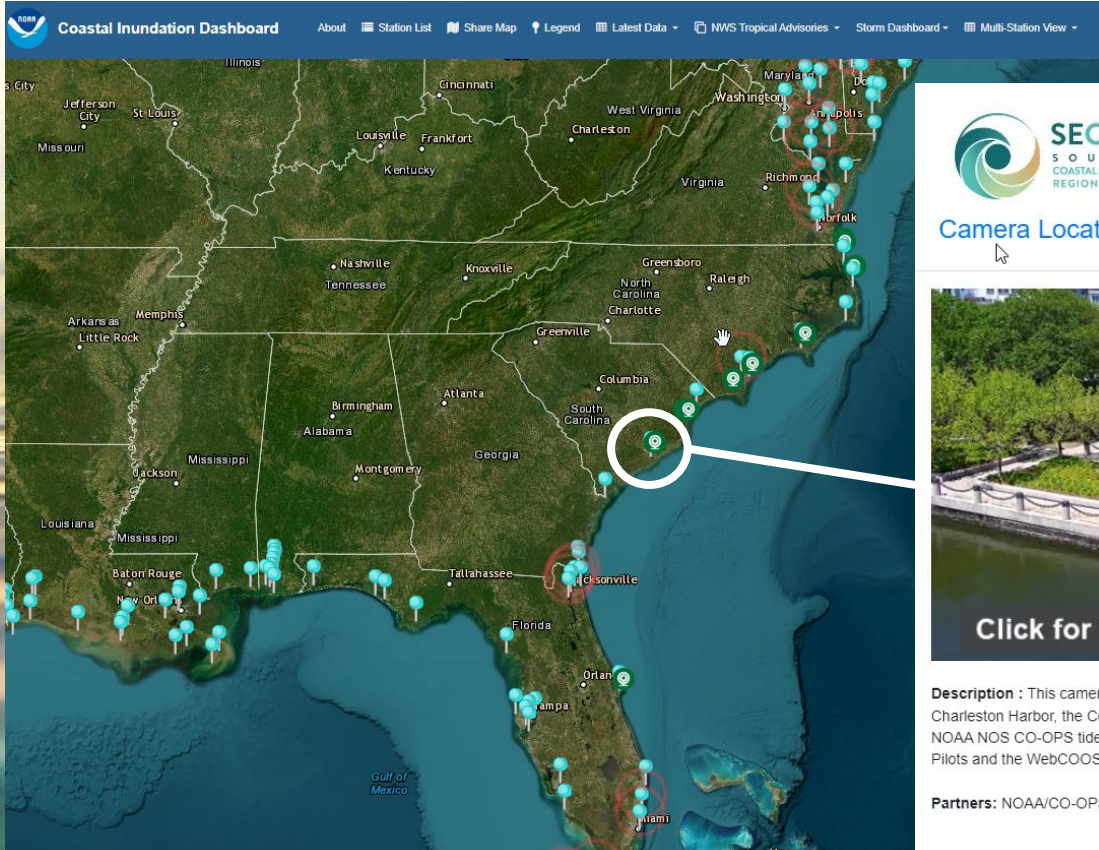
Partners:

- City of Holland
- Michigan DNR
- Park Township
- GLOS
- NOAA/CO-OPS

Note: The rip current detection products on the "Annotated-Image" tab are experimental. Not seeing a detected rip current in the images in that tab does not mean that it is safe to swim, or that a rip current is not present. [See here](#) for more information on rip current safety.

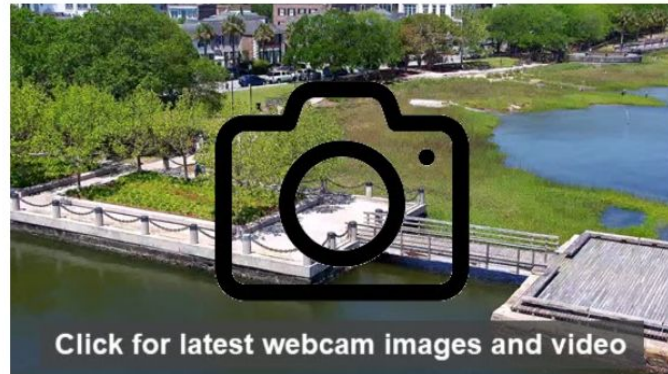


WebCOOS on Inundation Dashboard



WebCOOS

Camera Location: Charleston Harbor, SC



Description : This camera is positioned on the Charleston Branch Pilots pier overlooking Charleston Harbor, the Cooper River and nearby infrastructure, and is co-located with the nearby NOAA NOS CO-OPS tide gauge. It is a partnership between CO-OPS, the Charleston Branch Pilots and the WebCOOS team to monitor sea state and coastal flooding.

Partners: NOAA/CO-OPS, Charleston Branch Pilots Association

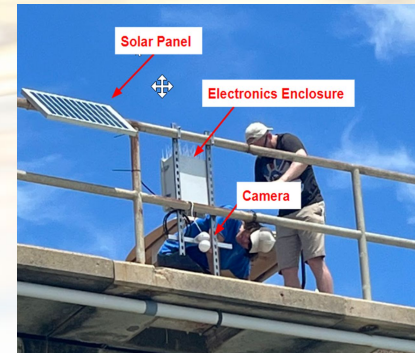
[More Info and Data](#)

Types of WebCOOS - CO-OPS Collaborations

WebCOOS purchased - CO-OPS installed

Partner installed on CO-OPS infrastructure

CO-OPS purchased and installed



CO-OPS Recent Development and Test Efforts

Evaluating 'standalone' systems options for sites where solar power and wireless internet are the only option.

Top level requirements:

- WiFi or Bluetooth wireless connectivity.
- Solar rechargeable power system with components typical to NWLON power (40Ah battery, 40W solar panel, 5-12V DC power) source)
- Capability to automatically record and send out still shots and/or video clips at user configurable rate and duration, via cellular internet connection



CO-OPS Recent Development and Test Efforts

Reolink, E1 outdoor security camera



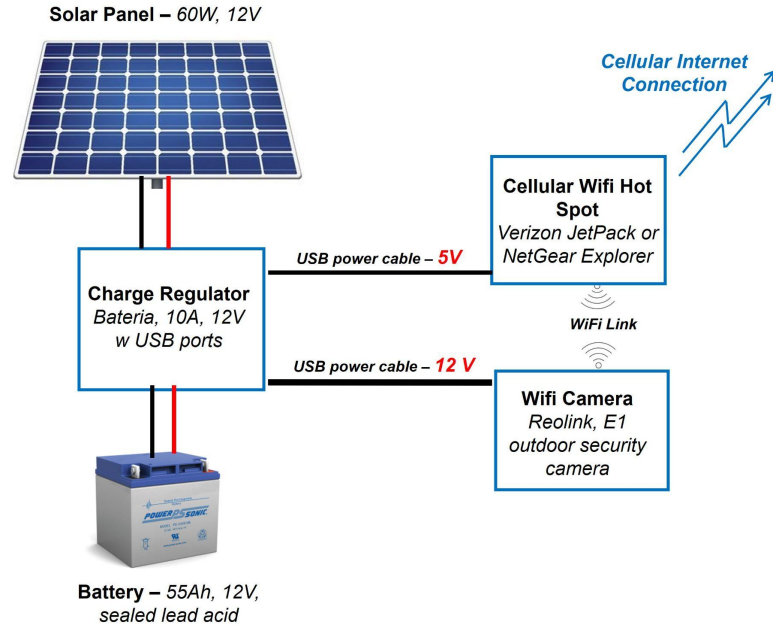
Bateria charge regulator, 10A, 12V w USB ports



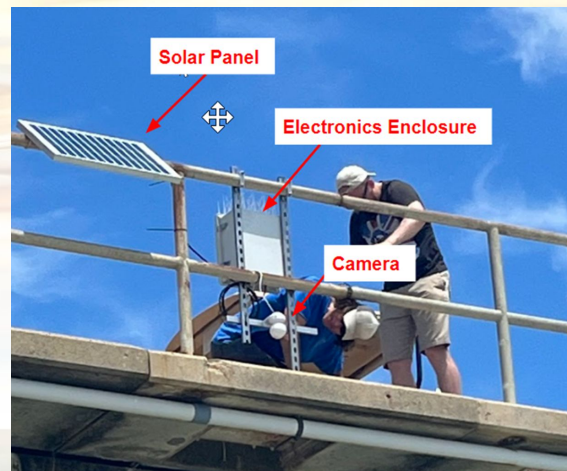
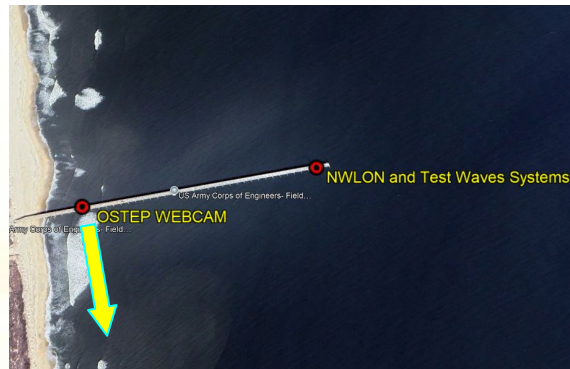
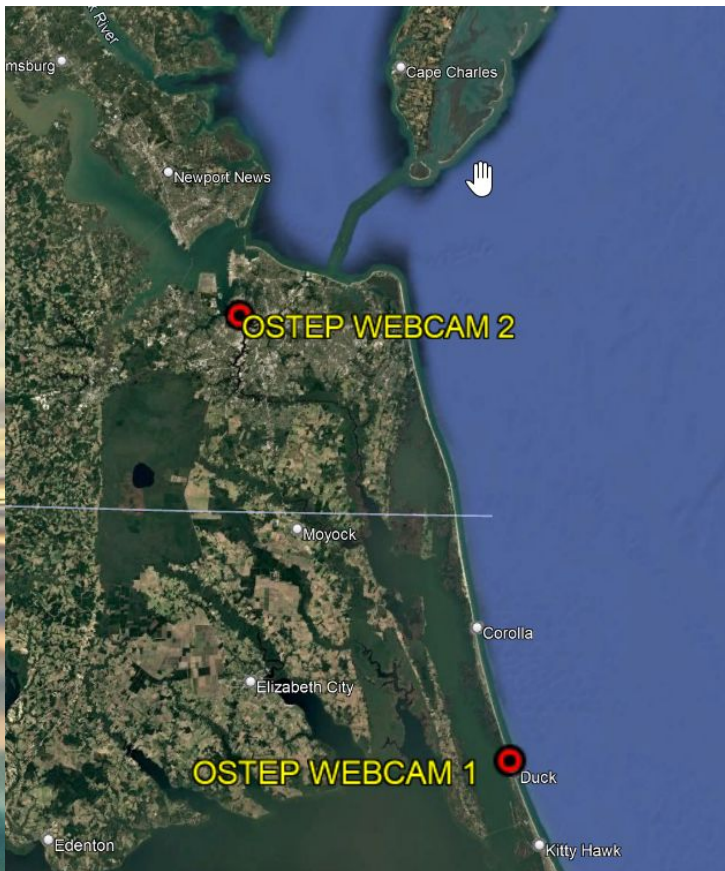
Jetpack 4G LTE Mobile Hotspot (with Verizon service)



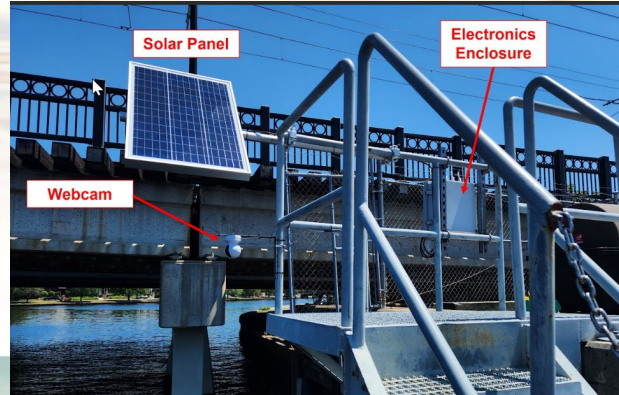
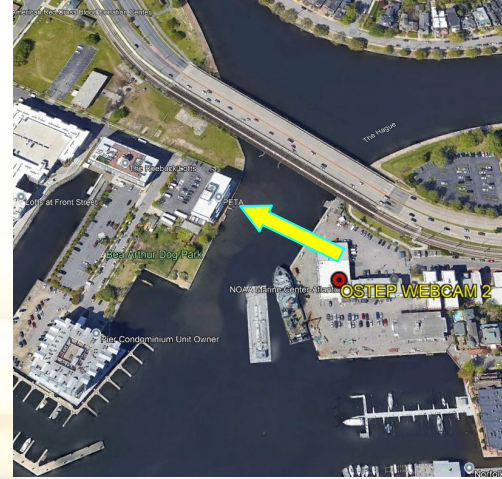
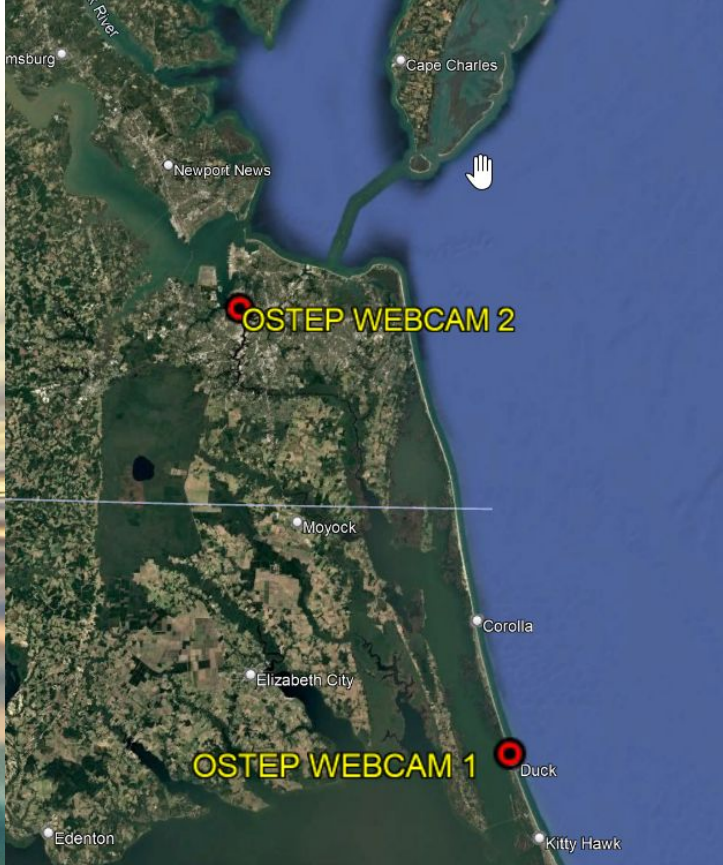
Netgear Unite Express Explorer 2 4G LTE Mobile WiFi Hotspot (with AT&T service)



Field Testing - Duck, NC NWLON



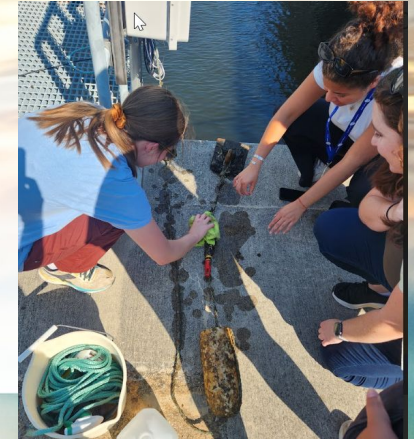
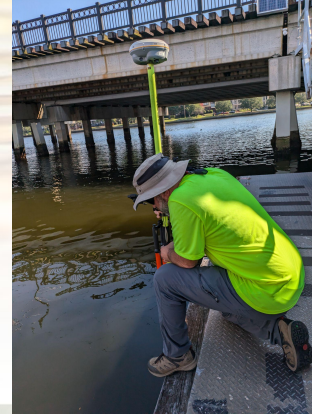
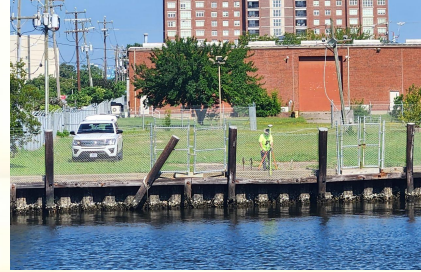
Field Testing - Norfolk, VA

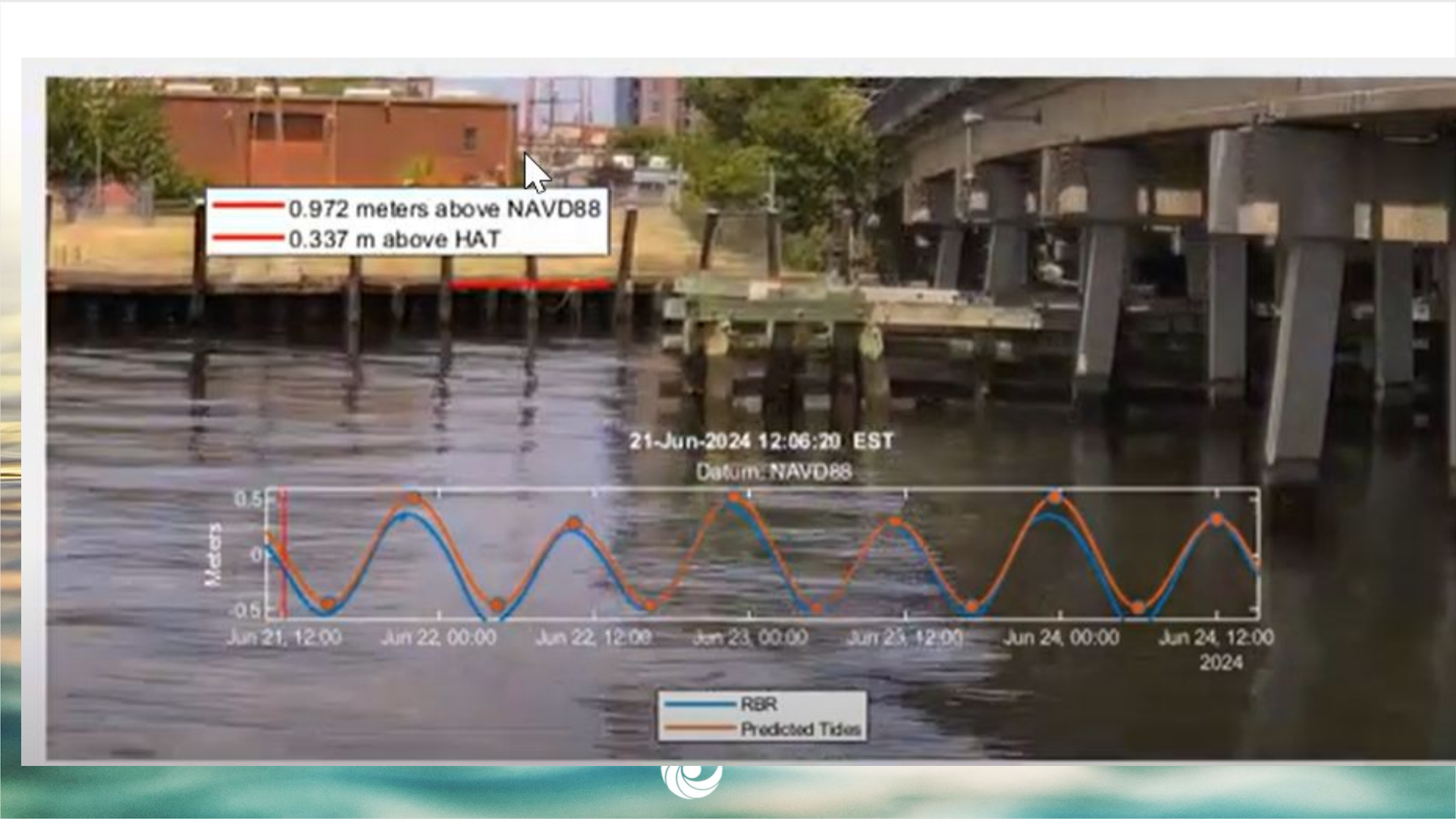


Field Testing - Vertical reference and tide gauge



OSTEP3

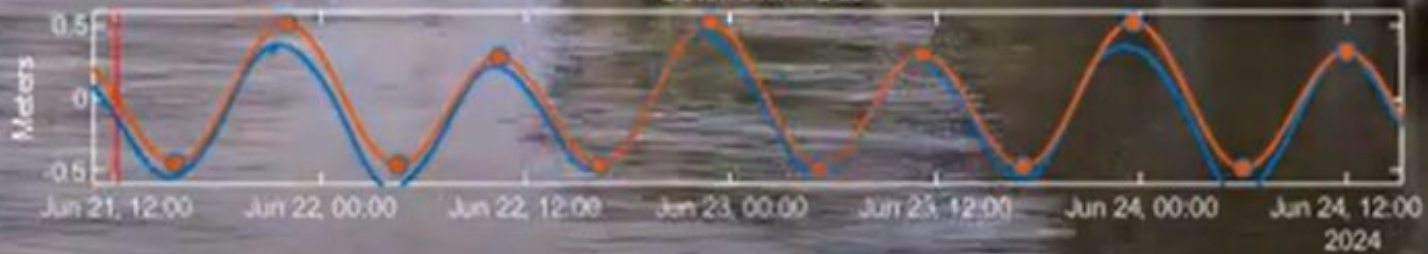




0.972 meters above NAVD88
0.337 m above HAT

21-Jun-2024 12:06:20 EST

Datum: NAVD88



RBR
Predicted Tides



Next Steps

- Figuring out the PII/privacy piece for displaying imagery on federal site
- Determine standard approach for broader CO-OPS - WebCOOS partnership
- Continue test/demo of standalone field systems at NWLON stations; explore alternative options
- Pursue addition of camera to CO-OPS nearshore, real-time currents buoy (CURBY)

