

T1: Florida Coastal Access Guide

Presenter: Joseph Bauer, Government Operations Consultant I

Email: Joseph.Bauer@dep.state.fl.us

Institution: Florida Coastal Office, Florida Department of Environmental Protection

WEB ADDRESS: <https://floridadep.gov/fco/coastal-access-guide/content/florida-coastal-access-guide> (website)

<https://itunes.apple.com/us/app/explorer-for-arcgis/id860708788?mt=8> (iOS app)

<https://play.google.com/store/apps/details?id=com.esri.explorer> (Android app)

INTENDED AUDIENCE

Visitors to Florida's coastal areas. This tool is a great resource for visitors planning everything from big beach vacations for the family to a smaller weekend getaway with friends.

MAIN USE

Identification of public access points to Florida's coastal areas, along with information about those access points. This information includes (but is not limited to):

- Amenities: such as restrooms, picnic areas, boat ramps, and campgrounds
- Parking: both regular parking and ADA spaces
- Fees: either for entrance to the access point (such as a state park) or for parking

This allows a chance for visitors to familiarize themselves with what is available at their preferred access point before leaving for their trip, or learn more about nearby beach and coastal area access points while they are on their way.

GEOGRAPHY AND SCALE

This tool shows the coastal public access points for the entire coast of Florida, along with information about the points. Maps can be zoomed into specific regions of the state to help make the identification of sites by visitors easier.

ACCESSIBILITY

For the convenience of our visitors, the guide is available on the web through the Florida DEP website and as well as through ESRI's Explorer for ArcGIS mobile app for the iOS and Android platforms.

T2: Northern Gulf of Mexico Ecological Effects of Sea Level Rise **Data Visualization Tools**

Presenters, affiliation & email:

Christine Buckel – NOAA/National Center for Coastal Ocean Science,
Christine.Addison@noaa.gov

Virginia Crothers – NOAA/National Center for Coastal Ocean Science,
Virginia.Crothers@noaa.gov

Renee Collini – Northern Gulf of Mexico Sentinel Site Cooperative, rcollini@disl.org

WEB ADDRESS: Coastal Dynamics of Sea Level Rise: Simulated Storm Surge
(<http://noaa.maps.arcgis.com/apps/MapJournal/index.html?appid=964181e11b4d4736ac85d7ecd33104ab>)

and Coastal Dynamics of Sea Level Rise: Hydro-MEM
(<https://noaa.maps.arcgis.com/apps/MapJournal/index.html?appid=85242c8a228945f3b943f3ec7f01e035>)

INTENDED AUDIENCE

GIS analysts, Town planners/managers, resource managers/climate scientists

MAIN USE

The Ecological Effects of Sea Level Rise (EESLR) of the Northern Gulf of Mexico (NGOM) project, led by Dr. Scott Hagen at Louisiana State University, has developed storm surge inundation and marsh productivity predictions under a suite of sea level rise scenarios. These data will enable managers to assess vulnerability of coastal regions of the NGOM to sea level rise with increased certainty in scale, timing, and local detail. Managers will be able to more effectively assess alternative management strategies for mitigating future ecological and societal impacts. Two data visualization websites communicate the inputs and outputs of the storm surge and marsh productivity modeling efforts making these data more accessible to managers and analysts. Most importantly, these websites include user guided access and interaction with the project data and provides direct links to the NOAA data archive to retrieve data.

GEOGRAPHY & SCALE

data span from MS/LA state line east to the Big Bend region of Florida. Model data predictions are 10x10m grids within the study area.

ACCESSIBILITY

Currently available on the web – with links to the NOAA data archive to download the data

T3: Citizen Science – documenting elevated water levels

Presenters, affiliation & email:

Christine Buckel – NOAA/National Center for Coastal Ocean Science,
Christine.Addison@noaa.gov

Virginia Crothers – NOAA/National Center for Coastal Ocean Science,
Virginia.Crothers@noaa.gov

Renee Collini – Northern Gulf of Mexico Sentinel Site Cooperative, rcollini@disl.org

WEB ADDRESS: Water Level submission for mobile devices –

<https://noaa.maps.arcgis.com/apps/GeoForm/index.html?appid=3b55f51105d64d5895f252374e7c902a>

and Water Level Story Map & submission (for laptops and larger tablets)

<https://noaa.maps.arcgis.com/apps/MapSeries/index.html?appid=8e4a278576964f47b4fc050e51f344ca>

INTENDED AUDIENCE

General public, school groups, weather service, science / sea level rise communicators

MAIN USE

Users submit photographs of high (or low) water levels, a position on a map, and some very simple information about their image to document water levels in their neighborhood. Submissions can be from anywhere in the world. These contributions are used to help document observed conditions from acute events (such as rapid snow melts, hurricanes, or heavy rainfall) and more regularly re-occurring events (such as king tides). Provided information and photographs are used to help communicate future sea levels and previous weather events, validate scientific models, identify areas at risk to current/future flooding at a local scale, and to help the general public better understand water levels in their neighborhood. You can see water level images used as impact graphics in the [Inundation Dashboard](#) (from NOAA Tides & Currents – CO-OPS).

GEOGRAPHY & SCALE

worldwide

ACCESSIBILITY

Currently available on the internet. Future plans include a mobile app.

T4: Sea Level Rise Scenarios Two Pager

Presenter: Casey Fulford, Northern Gulf of Mexico Sentinel Site Cooperative, cfulford@disl.org

WEB ADDRESS: www.ngomssc.org

INTENDED AUDIENCE

This two-pager/template is for extension agents and outreach professionals wanting to utilize the dataset affiliated with the NOAA Technical Report 083 *Global and Regional Sea Level Rise Scenarios for the United States* for their municipality.

MAIN USE

New findings were made available in a NOAA CO-OPS technical report, *Global and Regional Sea Level Rise Scenarios for the United States*. This two-pager synthesizes the latest findings to provide updated global and regional sea-level rise scenarios. The Northern Gulf of Mexico Sentinel Site Cooperative worked closely with NOAA, USGS, EPA, and Rutgers to pull together this resource to make it easier to understand what the technical report means for a certain area.

GEOGRAPHY & SCALE

This two-pager can be applied to any coastal area in the United States. Information for specific grids that apply to a particular area can be found in the appendix of the template.

ACCESSIBILITY

This two-pager is available online through NOAA Sentinel Site Program website and at www.ngomssc.org. Contact a coordinator from your nearest Sentinel Site Cooperative to find help with this resource. The Northern Gulf of Mexico Sentinel Site Cooperative Coordinator can be reached at ngom.sentinel.site.cooperative@gmail.com.

T5: Gulf TREE, a new resource for climate resilience tools

Presenter: Mikaela Heming, Northern Gulf of Mexico Sentinel Site Cooperative/Dauphin Island Sea Lab, mheming@disl.edu

WEB ADDRESS: www.gulfTREE.org

INTENDED AUDIENCE

This resource is relevant for users of all experience levels and across the climate resilience spectrum including, but not limited to, natural resource professionals, planners, local and regional government agencies, extension and outreach professionals, researchers, and restoration and conservation specialists.

MAIN USE

Gulf TREE (Tools for Resilience Exploration Engine) is a filter-based search engine designed to match users with relevant climate resilience tools quickly, easily, and confidently. With over 100 tools relevant to the Gulf of Mexico (and more being added all the time), Gulf TREE sorts through all these options to match users with a climate resilience tool that meets their criteria. The new website, released February 2018, was created by the Northern Gulf of Mexico Sentinel Site Cooperative, Gulf of Mexico Alliance, and Gulf of Mexico Climate and Resilience Community of Practice. Input from nearly 200 prospective end-users across a wide variety of sectors was sought to create a solution to common obstacles faced by Gulf of Mexico stakeholders interested in climate resilience.

GEOGRAPHY & SCALE

Most tools are national in scale, but many are regional or local. Gulf TREE includes all climate resilience tools relevant to Gulf of Mexico shoreline and watershed counties (as defined by NOAA).

ACCESSIBILITY

Gulf TREE is available online at www.gulfTREE.org and is accessible by most web browsers. For full functionality, be sure you are viewing the website on a desktop computer. Due to the complex nature of Gulf TREE, we can only provide limited functionality on the mobile version.

T6: Innovation Through Citizen Science and Outreach: BCRS, CSIC, HABscope

Presenter: Dr. Tracy Fanara (tfanara@mote.org), Dr. Vince Lovko, Devin Burris

Institution: Mote Marine Laboratory

WEB ADDRESS: [Visitbeaches.org](http://visitbeaches.org)

INTENDED AUDIENCE

Neurotoxins from *Karenia brevis* blooms threaten aquatic and human health. When toxic aerosols are present, respiratory irritation or respiratory illness in people with chronic respiratory disease can ensue, resulting in negative beach experiences. The BCRS and CSIC applications were designed for citizens who live in close proximity to or frequently go to the beach. The HABscope was designed to be used by trained citizen scientists and for the data to be available to the public.

MAIN USE

Informing the public of beach conditions is an effective strategy to protect beachgoers by encouraging visits to beaches not experiencing effects. Three modern approaches to information dissemination and data collection were developed. Mote's Beach Conditions Reporting System (BCRS) is a website and smartphone application that displays bloom effects from 36 Gulf Coast beaches. The BCRS, originally created in 2006, has undergone a recent and successful redevelopment reflecting the interests of the community through public survey. To compliment BCRS, a Citizen Science smartphone reporting application called the Citizen Science Information Collaboration (CSIC), was released June 2017 to empower the public and provide geo-located real-time effect data to improve outreach efforts and spark public interest in environmental science. Statistical data analysis and ArcGIS mapping of these data, have led to findings on brevetoxin aerosol pathways, to be used in future monitoring and prediction efforts. The third outreach tool gathers real-time quantitative data provided by citizens through a National Aeronautics and Space Administration (NASA) ROSES funded project involving NOAA, GCOOS, and Mote Marine Laboratory. This device called HABscope, allows citizen scientists to use a smartphone microscope application which calculates cell concentrations from a water sample, to be used in a prediction model available to the public. This overall citizen science effort is a culmination of science, technology, community, and education to produce effective tools to better predict respiratory irritation and protect human health from the effects of *Karenia brevis* aerosols.

GEOGRAPHY & SCALE

The BCRS currently reflects the beach conditions of 36 Florida Gulf Coast beaches. The CSIC app is currently geared toward Florida's Gulf Coast with plans on expanding it nationwide. The HABscope is currently mainly used in Manatee County, FL down to Collier County, FL with plans to expand.

ACCESSIBILITY

The BCRS and CSIC applications can be downloaded on any smart phone using the Google Play Store or Apple Store. Additionally, the BCRS can also be viewed at visitbeaches.org. Currently, the data produced by the HABscope is not public. The goal however, is to display this data on the BCRS.

T7: Using Webinar Software and Facebook Live to Increase Engagement and Reach of Educational Programs and Scientific Conferences

Presenter: Becca Burton, Communications Coordinator, Florida Sea Grant

Email: rlburton@ufl.edu

Tool examples:

Coastal Science Symposium:

Facebook: <https://www.facebook.com/flseagrant/videos/1404119416291776/>

Youtube playlist: <https://www.youtube.com/playlist?list=PLkdx6TTJS-eSZTT6JNaOiZN2YSiidhzcP>

Florida Sea Grant Artificial Reef Workshops:

Facebook: <https://www.facebook.com/floridaartificialreefs/videos/897028207137235/>

YouTube playlist: <https://www.youtube.com/playlist?list=PLkdx6TTJS-eSrb1gIQ8IukyF2vAUVdUg->

INTENDED AUDIENCE

Communicators, extension agents, scientists, anyone who puts on public programs

MAIN USE

Using cheap (or free) webinar software, along with Facebook live, you have the opportunity to greatly extend the reach of any scientific conference, extension event or any other kind of public program. Florida Sea Grant has been using these set of tools for about two years now to broadcast education events, conferences, and other programs. Integrating webinar software with Integrating Facebook live with a webinar system gives you the ability to get a clear broadcast of the “screen within a screen” effect (or presenter and Powerpoint). Publishing these types of presentations on Facebook can help reach an audience that is not location limited, as well as help you gain more followers on your Facebook page at the same time.

For example, last year during our annual scalloping kickoff event in Steinhatchee, we had about 80 people attend the event in person. An additional 4,000 people tuned in to the broadcast on Facebook! Additionally, once a live broadcast is done, it is easy to archive the presentations, edit them a little, and then repurpose on other social media channels. (See our Youtube playlists above for an example of this).

The good thing about this tool is that it’s easy and cheap. Using free software and minimal equipment it is easy to start broadcasting your programs to a larger audience! During this presentation, I will bring along any necessary equipment and demonstrate the setup process.

GEOGRAPHY AND SCALE

Everywhere!

ACCESSIBILITY

This tool is very accessible and simply requires a Facebook account and a webinar software (I have examples of free versions available on the web).

T8: A Toolkit for Natural Resource and Coastal Resiliency Assessment & Planning

Presenter: Patrick Crist, PhD

Institution/Email: NatureServe, patrick_crist@natureserve.org

WEB ADDRESSES: www.natureserve.org/vista, [landscape.org](http://www.natureserve.org/landscape)

INTENDED AUDIENCE

This toolkit is comprised of multiple tools with component tools and functions suited to different audiences. The core tool, Vista, is designed for all practitioners and specialists in conservation and resource management planning in terrestrial, freshwater, and marine applications. Other tools that will be featured are primarily for conservation and resource management practitioners and specialists.

MAIN USE

Coastal resiliency assessment and planning is a highly complex activity that engages multiple stakeholders, resources, human assets, and threats and processes spanning the coastal-marine zone. Spatial decision support tools are extremely useful for facilitating integrated assessment and planning in coastal resiliency applications. Vista is a very broad geospatial tool for conducting scenario-based cumulative effects assessment and multi-objective planning from sites to regions. Vista supports applications in terrestrial, freshwater, and marine applications and across all 3 simultaneously. This demonstration will focus on its recent use in eight coastal resiliency assessment and prioritization applications around the U.S. building on GOM applications in FL and TX. These projects assessed the vulnerability of resources and human assets to coastal threats and then modeled areas suitable for developing resilience projects in conservation and restoration to benefit both resources and human assets.

GEOGRAPHY & SCALE

Vista can support applications from sites to regions and is most typically used from the scale of counties to ecoregions and allows the user to shift output resolution from meters to kilometers.

ACCESSIBILITY

Vista is available for free download at www.natureserve.org/vista

T9: USGS Coastal Change Hazards Portal

Presenter: Kara S. Doran

U.S. Geological Survey St. Petersburg Coastal and Marine Science Center, kdoran@usgs.gov

WEB ADDRESS: <https://marine.usgs.gov/coastalchangehazardsportal/>

INTENDED AUDIENCE

The USGS Coastal Change Hazards Portal provides a wealth of information about the vulnerability of our nations coastal resources for residents, emergency managers and local and national leaders.

MAIN USE

Science-based assessments of the vulnerability of coastal change to a variety of hazards are a valuable resource for coastal planners and emergency managers. Through the Coastal Change Hazards Portal, the USGS provides web-based access to coastal hazard assessments and products that can assist those working to protect resources, identify risk, and help prevent economic losses along the Nation's shorelines. The portal provides direct access to real-time and scenario-based predictions of storm-induced coastal change, historical shoreline positions and rates of change, and potential shoreline change driven by sea-level rise. Additionally, users can combine the information found on the portal with other data to identify where hazards pose the greatest risks to their communities, thereby allowing them to develop specific plans of action and prioritize resources to protect threatened homes, schools, businesses and critical habitats.

GEOGRAPHY & SCALE

The Coastal Change Hazards Portal covers the entire coastline of the United States, including Alaska and Hawaii. The interactive map provides information on scales ranging from 10 meters (coastal response likelihoods) to 1 kilometer (storm-induced change).

ACCESSIBILITY

The Coastal Change Hazards Portal is an online, mobile friendly tool.

T10: CPRA's Master Plan Data Viewer

Presenters: Andrea Galinski, Coastal Protection and Restoration Authority (CPRA), andrea.galinski@la.gov

Ashley Cobb, Coastal Protection and Restoration Authority

WEB ADDRESS: <http://cims.coastal.louisiana.gov/masterplan/>

OVERVIEW

The Master Plan Data Viewer is an online tool that lets residents learn more about their current and future coastal flood risk. The viewer was created in response to the public's number one question about the coast: "How bad is flooding going to get?" The viewer is an interactive tool that allows people to enter a location and learn how likely that place is to flood from hurricanes and coastal storm surge. People can also view estimated damages from storm surge flooding, as well as estimates of how flood risk could change as master plan projects are constructed. The viewer addresses the GOMA Priority Issues of Coastal Resilience; Education and Engagement; and Conservation, Restoration, and Resilience Planning.

INTENDED AUDIENCE

The viewer is primarily designed for coastal Louisiana residents, as well as local planners, parish/municipal officials, floodplain managers, emergency managers, and community groups.

MAIN USE

The viewer serves as a one-stop shop for data produced as part of the 2017 Coastal Master Plan. The viewer provides insight into current and future land change, flood depths, economic damage, coastal vegetation, social vulnerability, 2017 Master Plan Projects, and resources to reduce risk. Users can explore how the coast may change under different environmental scenarios and at different points in time over the next 50 years. For example, land change and coastal vegetation information is available at 10-year time steps. Flood depths are available for 10, 25, and 50 years into the future for various storm events. The tool is intended to enable coastal residents better understand their current and future coastal flood risk in order to inform family, neighborhood, community, municipal, and state decision-making processes and plans for increased coastal resilience.

GEOGRAPHY & SCALE

The viewer provides information for coastal Louisiana, including 24 parishes (all or portions of the parish): Acadia, Ascension, Assumption, Calcasieu, Cameron, Iberia, Iberville, Jefferson, Jefferson Davis, Lafayette, Lafourche, Livingston, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John the Baptist, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, and Vermilion.

The scale of the data varies according to data type. For instance, land/water and land change data is available at 30m resolution; coastal vegetation is available at 500m resolution; and flood depth and economic damage data is calculated for 1km grid points (or smaller 2010 U.S. Census blocks).

ACCESSIBILITY

The viewer is available online, and operates best in Google Chrome and Mozilla Firefox. To promote user accessibility, the viewer also contains FAQs to help first-time users navigate the website. CPRA has promoted the viewer through a series of public meetings across the coast, as well as an interdisciplinary professional lunch-n-learn training for members of the APA, ASLA, and AIA. Additionally, local media outlets including the *Times-Picayune*, *The Lens*, *Donaldsonville Chief*, and the *Mississippi River Delta Coalition* have all helped to promote public awareness of the tool.

T11: Distribution of Ecosystem Integrity Indicator Monitoring Efforts on the Coastal Resilience Mapping Portal

Presenter: Kathy Goodin

Institution: NatureServe, Kathy_goodin@natureserve.org

WEB ADDRESS: <http://maps.coastalresilience.org/network/>

INTENDED AUDIENCE

Those interested in understanding how well existing monitoring programs capture data on particular ecosystem integrity indicators

DESCRIPTION/MAIN USE

As part of an effort to identify a set of robust indicators for coral reef, oyster, seagrass, mangrove and salt marsh ecosystems, we have compiled ecosystem distribution maps and provide a footprint of all existing monitoring programs that are collecting data on our proposed suite of indicators. This tool provides generalized (100 km²) and actual footprints of the monitoring programs that are collecting data for particular indicators. The product can be used to understand where indicator data are being collected and identify areas where additional sampling may be needed.

GEOGRAPHY & SCALE

Gulf of Mexico

ACCESSIBILITY

Available online through the Coastal Resilience Mapping Tool in June 2018

T12: LandScope Gulf Coast: A Collaboration between The Strategic Conservation Assessment of Gulf Coast Landscapes and NatureServe

Presenters: Jennifer Roberts, Mississippi State University, Jennifer.roberts@msstate.edu
Kathy Goodin, NatureServe

WEB ADDRESS: <http://www.landscape.org/gulfcoast>

INTENDED AUDIENCE:

The LandScope Gulf Coast portal will house data derived from the Strategic Conservation Assessment project, which has as its primary audience the members of the RESTORE Council. However, these data are relevant to the broad land conservation community, including land trusts, federal and state agencies, nongovernmental organizations as well as private industry.

DESCRIPTION/MAIN USE:

The Strategic Conservation Assessment Team is partnering with NatureServe to develop the LandScope Gulf Coast portal. This web portal will be a spatially-enabled digital library that will act as a clearinghouse of data layers, important documents, and pertinent resources relative to land conservation in the Gulf Coast Region. Data will reflect local and regional objectives and priorities for Gulf Coast landscape conservation.

BACKGROUND:

The Strategic Conservation Assessment (SCA) of Gulf Landscapes Project is funded by the RESTORE Council and is being implemented by the U.S. Fish and Wildlife Service and Mississippi State University. The SCA team is working to develop land conservation tools that can be used to inform and identify landscape-scale conservation projects that will:

- make the greatest contribution to restoring & protecting the natural resources of the Gulf;
- build upon existing coastal restoration plans or programs, and;
- provide long-term ecosystem resilience to areas most impacted by the Deepwater Horizon oil spill.

The ultimate product of the SCA project will be a dynamic map-based tool that will allow users to weigh ecological and socioeconomic priorities and view the conservation opportunities that meet those criteria. The SCA tool will provide the science that can aid stakeholders in prioritizing land conservation projects in the region. While this final dynamic SCA tool will be available in 2020, the data layers and building blocks of the SCA project will be available to stakeholders immediately on LandScope Gulf Coast.

GEOGRAPHY & SCALE:

The Gulf Coast Region, which includes all the coastal zones within the five Gulf states (TX, LA, MS, AL, FL), plus 25 miles inland.

ACCESSIBILITY:

SCA decision support tools will be available sequentially, beginning in 2018-2020.

T13: DIVER (Data Integration, Visualization, Exploration, and Reporting) Tool

Presenter: Marti McGuire Goss

Institution: NOAA Office of Habitat Conservation, Restoration Center

WEB ADDRESS: <https://dwhdiver.orr.noaa.gov/> which includes information on how data is organized and managed, and how to access and download data.

INTENDED AUDIENCE

The Deepwater Horizon DIVER data warehouse and query application was designed for the Trustees responsible for assessing damage and implementing restoration in the Deepwater Horizon Natural Resource Damage Assessment (NRDA), and for public access to environmental datasets collected and used for the NRDA and Restoration.

MAIN USE

The DIVER (Data Integration Visualization Exploration and Reporting) application is a data warehouse and query tool that manages the integration of environmental data and restoration project information and monitoring data, and makes this data available to stakeholders, scientists, and the public for querying and download for further analysis. The vast majority of environmental data that supports the Programmatic Damage Assessment and Restoration Plan (PDARP) that was collected by Trustees (Federal/State/Local) is available through DIVER Explorer. The data warehouse aspect of the DIVER application supports the ability to bring in and organize field collected data including observations, samples, photographs, oceanographic data and laboratory analysis- and make the results and supporting information available for query and download. The DIVER data warehouse provides the opportunity to bring in or link restoration monitoring data from across the Gulf of Mexico and make data available through the DIVER Explorer query tool. DIVER Explorer is a querying tool which provides the user with the ability to search and filter environmental data and information by keywords (e.g. “salt marsh”) or a specific project or workplan; search by a specific area (draw a shape on the map or choose from existing state or water boundaries); and download results with metadata and additional notes and documentation.

GEOGRAPHY & SCALE

The Deepwater Horizon DIVER data warehouse and query tools covers the entire Gulf of Mexico including coastal and deep water areas. The data in DIVER scale from broad datasets that cover the entire Gulf of Mexico to very specific samples collected at a specific location. NOAA has also developed a National DIVER application which covers the entire coastal United States.

ACCESSIBILITY

The DWH DIVER data warehouse and DIVER Explorer application for querying and downloading environmental data and information is publicly accessible on the website.

T14: Coastal Flood Exposure Mapper

Presenters: Heidi Stiller, NOAA Office for Coastal Management (heidi.stiller@noaa.gov)
Becky Allee, NOAA Office for Coastal Management

WEB ADDRESS: <https://coast.noaa.gov/floodexposure>

INTENDED AUDIENCE

The NOAA Coastal Flood Exposure Mapper is intended for use by community planners, floodplain managers, emergency managers, natural resource managers, and NGOs.

MAIN USE

A major challenge for coastal communities is planning for the impacts of current and future flood hazards. The first step in planning for these impacts is to understand your community's exposure to coastal flood hazards. The Coastal Flood Exposure Mapper is a new resource developed by NOAA's Office for Coastal Management that helps coastal communities get the conversation started around flood hazard risks and vulnerabilities by providing maps and information showing where people, places, and natural resources are at risk. The Mapper displays shallow coastal flooding, flood zones, storm surge, sea level rise, and a composite view of flood hazards along with societal, infrastructure, and ecosystem information. Maps can be downloaded or shared online with stakeholders to begin planning for these impacts.

GEOGRAPHY AND SCALE

This tool is available for the Gulf of Mexico region. It includes national data sets presented at the county level. The mapper was developed to get the conversation started around coastal flood hazard risks and associated vulnerabilities, but we encourage users to obtain local data to conduct more detailed analyses, if necessary. Map data are displayed from roughly the extent of the continental United States down to the neighborhood level (1:18,000).

ACCESSIBILITY

The mapper is presented in a Web mapping application format and can be found online at this address: <https://coast.noaa.gov/floodexposure>.

T15: ENOW Explorer

Presenters: Kristin Ransom, The Baldwin Group for NOAA Office for Coastal Management
kristin.ransom@noaa.gov

Marian Hanisko, The Baldwin Group for NOAA Office for Coastal Management

WEB ADDRESS: <https://coast.noaa.gov/enowexplorer>

INTENDED AUDIENCE

The Economics: National Ocean Watch (ENOW) Explorer is intended for use by natural resource managers, elected officials, and NGOs.

MAIN USE

This tool streamlines the task of obtaining and comparing economic data at both the county and national level, for the six sectors dependent on the ocean and Great Lakes: living resources, marine construction, marine transportation, offshore mineral resources, ship and boat building, and tourism and recreation. Data are derived from [Economics: National Ocean Watch \(ENOW\)](#), available on NOAA's Digital Coast. This tool can be used to assess changes to the local economy caused by hazards such as hurricanes and oil spills.

GEOGRAPHY AND SCALE

This tool is available for the Gulf of Mexico region. ENOW provides data for 402 counties, 30 coastal states, 8 regions, and the nation. The basic geographic footprint for ENOW's county-level data is a suite of "Coastal Shoreline Counties" as determined by the Federal Emergency Management Agency's definition, which states that a coastal county must: 1) have a coastline bordering the open ocean or the Great Lakes; or 2) contain coastal high hazard areas (V-zones).

ACCESSIBILITY

The viewer can be found online at this address:

<https://coast.noaa.gov/enowexplorer>

T16: Citizen Science Database

Presenters: Kira Krall, Nature's Academy Education Specialist kira@naturesacademy.org
Sarah Pecoraro, Nature's Academy Education Coordinator

WEB ADDRESS: <http://gulfcitizenscience.org/>

INTENDED AUDIENCE: Students, Teachers, Stakeholders, Community Members, Decision Makers, Scientists

MAIN USE: Nature's Academy is a partner in an exciting cross-regional water quality monitoring project. The Gulf of Mexico Coastal Ocean Observing System (GCOOS) developed a website where citizen science data on water quality, biodiversity, and coastal cleanups can be uploaded and analyzed. Nature's Academy and the Galveston Bay Foundation (TX) are the first two organizations participating in this pilot project, allowing students in Florida and Texas to see and compare each other's data. Citizen Science happens when the general public helps to collect and analyze data from the natural world. Oftentimes this is done through collaborative projects that are monitored by professional scientists. Citizen Science allows students and community members to participate in collecting real, meaningful data that can be used by scientists and policy-makers. Students are actively engaged in carrying out part of a scientific investigation, so they are truly "learning by doing" while actively contributing to a solution for a problem. Nature's Academy recently launched a **Microplastics Citizen Science Project** and we hope to incorporate microplastics data into the database within 2018.

GEOGRAPHY & SCALE: This database spans the Gulf of Mexico, with active data being contributed from the Galveston Bay area in Texas and the greater Tampa Bay area in Florida.

ACCESSIBILITY: Online only

T17: A Beginners Guide to Merging Science Communication and Phone Apps

Presenter: Philip Lee Ph.D.

Institution: National Academy of Science (NAS) Gulf Research Program Policy Fellow

Host Office: Environmental Protection Agency (EPA) Gulf of Mexico Program

E-mail: lee.philip@epa.gov or leephilip4511@gmail.com

WEB ADDRESS: Depending on audience feedback throughout the meeting, this may be developed for future use.

INTENDED AUDIENCE:

The tool being presented is designed for individuals, groups, or agencies that are interested in designing their own phone apps for education and engagement purposes (e.g. water quality updates, beach monitoring, health advisories, local conservation information, tourism). No prior phone app design experience is expected and the intended outcome of this tool is to help those with limited experience in phone app design get started.

MAIN USE:

The tool provided is a guide to get phone app ideas moving forward. It will highlight a number of programs that are commonly available and can be utilized in preparing phone apps. In addition to highlighting useful programs, this tool will also help users begin in the actual app development using Android studio. Moving forward with this tool, I hope to develop a forum with individuals that are focused on developing useful phone apps for a variety of purposes throughout the Gulf of Mexico region.

GEOGRAPHY & SCALE:

No current geographic limitations exist for this tool, it is applicable throughout the Gulf of Mexico and beyond. In regard to scale, the tool presented is currently limited because it is a beginner's guide. However, once individuals begin working on their own ideas for phone apps, what can be developed is limitless. Also, depending on the overall interest this tool will continue to evolve to better suit the needs of users.

ACCESSIBILITY:

During the Tools Café the tool will be provided in a printed version and all presentations will be made available to the GOMA All Hands Meeting attendees. Depending on feedback and enthusiasm during the meeting an online website may be designed to disseminate this tool online and to act as a forum for those who are interested in moving forward with phone app(s) development for the Gulf of Mexico. The website would also be used to display ongoing phone app projects throughout the Gulf of Mexico and act as a forum for feedback and questions.

T18: How's My Waterway

Presenter: Amy Newbold, Newbold.amy@epa.gov
Institution: USEPA

WEB ADDRESS: <https://www.epa.gov/mywaterway/>

INTENDED AUDIENCE:
Intended for public use

MAIN USE:

How's My Waterway can be used to learn about your water, explore data and stories and find out what's happening in your community. You can enter an address, zipcode or place in the search bar to find information on the condition of your waterways. This information is shown on four different scales: community (watershed level), county, state and national.

How's My Waterway draws from multiple databases in the EPA's Office of Water as well as other offices within EPA and other organizations. These databases include; land use data, drinking water information, water quality assessments, monitoring data, NPDES permit data, nonpoint source grants, TMDLs, and much more! All of these sources help tell the water story in a comprehensive yet easily understood way.

By visiting the site, you can:

- Learn about the health of your waters, potential issues, and why they matter
- Discover if your waterways are being monitored and the location of local monitoring stations, and
- Learn what pollutants might be affecting your waterways, and what's being done to restore and protect them.

GEOGRAPHY & SCALE:

National tool, all 50 states, territories and tribes.

ACCESSIBILITY:

This tool is still under development, but once completed users will find the upgraded version at <https://www.epa.gov/mywaterway/>

T19: NOAA National Centers for Environmental Information (NCEI) Web Map Gallery

Presenter: Kate Rose^{1,3}, Angela Sallis^{2,3}

Institution: 1. Northern Gulf Institute, Mississippi State University; 2. General Dynamics Information Technology; 3. NOAA National Centers for Environmental Information

Email: kate.rose@noaa.gov

WEB ADDRESS:

<http://noaa.maps.arcgis.com/apps/MapAndAppGallery/index.html?appid=aab4272821214d4d9c4b101a8a7da564>

INTENDED AUDIENCE

Scientific researchers, ocean and coastal resource management and planning communities, environmental and economic policy developers, environmental advocates, educators at all levels.

MAIN USE

NCEI archives hold vast amounts of weather, climate, oceanographic, geophysical, and other scientific data, some of which are visualized and made discoverable via an array of web mapping applications. The NCEI Web Mapping Applications Gallery, hosted on the NOAA instance of Esri's ArcGIS Online (AGOL) website, provides access to NCEI applications and data from a central location. The Gallery consists of a dashboard showing thumbnail images of 35 different web map applications; each thumbnail links to an information page that gives an overview of the application's purpose and content, a link to the application itself, and to other resources where applicable. This allows users to quickly and easily preview available NCEI datasets and locate the authoritative source with a single click.

GEOGRAPHY AND SCALE

Geographic extent and scales vary from global to sub-regional, including the Gulf of Mexico, and are specific to each dataset.

ACCESSIBILITY

This tool is freely accessible on the World Wide Web using free browser software (ex., Chrome, Firefox, Safari, Internet Explorer).

T20: Gulf of Mexico Research Initiative Information & Data Cooperative (GRIIDC) Data Management System

Presenters: James Gibeaut, Sandra Ellis, William Nichols, and Rosalie Rossi

INSTITUTION AND EMAIL: Texas A&M University - Corpus Christi/Harte Research Institute for Gulf of Mexico Studies, Sandra.Ellis@tamucc.edu

WEB ADDRESS: <https://data.gulfresearchinitiative.org>

INTENDED AUDIENCE:

Gulf of Mexico Research Initiative (GoMRI) funded investigators and administration; RESTORE Act Centers of Excellence funded investigators and administration; academic researchers; natural resource managers; policy makers; emergency responders; non-governmental organizations; and the general public.

MAIN USE:

The tool was initially designed to manage and distribute data generated by Gulf of Mexico Research Initiative (GoMRI) funded projects. The data management applications that assist with planning, documenting, and submitting data to GRIIDC are designed for investigators and data managers. These tools are available to GoMRI and RESTORE Act Centers of Excellence funded investigators in Florida, Mississippi, and Texas. The GRIIDC program hopes to develop new partnerships to continue our mission of ensuring a data and information legacy that promotes continual scientific discovery and public awareness of the Gulf of Mexico ecosystem. Potential partnerships with Louisiana and Alabama RESTORE Act Centers of Excellence, the National Academy of Sciences Gulf Research Program, and others, will allow more investigators to use these tools to manage and share their data using the GRIIDC system. The system allows data submissions to be tracked through the data package workflow by both investigators and program administration via the dataset monitoring application. The GRIIDC data discovery portal and dataset landing pages are designed for anyone who is interested in obtaining data about the Gulf of Mexico, including academic researchers, natural resource managers, policy makers, emergency responders, non-governmental organizations, and the general public.

GEOGRAPHY & SCALE:

The tool is focused on Gulf of Mexico data; however, limited datasets are available related to other locations including the North Sea and the Pacific Coast of North America. The majority of data available through the tool have been generated after the 2010 Deepwater Horizon incident. Datasets available through the tool have been produced through lab, field, and modeling activities describing phenomenon ranging from microscopic fluid dynamics to large scale ocean currents, bacteria to marine mammals, and detailed observations to synoptic mapping.

ACCESSIBILITY: This tool is available online only.

T21: MyCoast: Using Citizen Scientists to Collect Data on Storm Damage, Litter, Tides, and More

Presenter: Wes Shaw, Blue Urchin, LLC. (wes@blueurchin.com)

WEB ADDRESS: MyCoast.org

INTENDED AUDIENCE:

People who are interested in using crowdfunding or technology tools to document coastal events and conditions.

Reports on storm damage, high water, abandoned boats, beach litter, living shorelines, etc are input by members of the general public via MyCoast mobile apps (iOS and Android) or directly through the website. Data are ingested and processed by members of the general public AND specialists, generally at state or federal agencies.

MAIN USE:

MyCoast makes it easy for the general public to submit photos and information on coastal conditions and events. It is used to document storm damage, high tides, weather, and abandoned boats as well as for monitoring living shorelines and other resilience work. Submitting reports has two primary benefits from the perspective of state and federal agencies: 1) the act of participating helps raise awareness among users of whatever is being reported (e.g., tidal flooding, beach erosion, or beach litter); 2) the volume of data that this style of reporting can gather is often much larger than what would be possible were reporting is limited to agency employees – as of spring 2018, over 2,300 MyCoast users have submitted more than 6,400 reports with over 12,000 photographs. In the panhandle of Florida alone, volunteers have used MyCoast to track nearly 46,000 pieces of litter picked up over 360 volunteer hours.

The geo-referenced data in these reports are used for a number of purposes by end users including guiding storm-damage response, monitoring potential threats to current and future development, keeping beaches clean, and tracking abandoned boats. All of the information in MyCoast is accessible and portable for agencies, meaning they can download their data whenever they wish in a spreadsheet format for further analysis, including in a dedicated GIS system.

GEOGRAPHY & SCALE:

MyCoast is available in various states around the country including the five Gulf of Mexico states (Texas, Louisiana, Mississippi, Alabama, and Florida).

ACCESSIBILITY:

MyCoast can be accessed at MyCoast.org or through its iOS and Android apps (available for free on their respective app marketplaces).

T22: Reaching Beyond the Science to Positively Impact Society

Presenters: Chris Verlinde, UF/IFAS Santa Rosa County Extension Agent, Florida Sea Grant, christinav@santarosa.fl.gov

Steve Ashby, Co-Director, Northern Gulf Institute, sashby@gri.msstate.edu

INTENDED AUDIENCE:

This tool supports and engages members of the GOMA Priority Issue Teams and Cross Team Initiatives, especially scientists, researchers, and natural resource conservation and restoration practitioners.

MAIN USE:

This flow chart presents steps that scientists and researchers should consider to ensure effective education, outreach, or engagement activities are completed in association with their scientific or technical projects.

Natural resource science, research, and conservation are expensive. Funders and society need to know that funds have been invested wisely; they need to know that your work will positively impact society. Therefore, it's essential that you, the scientist, researcher, or practitioner, can articulate why it is important for other people to understand your work. This can be accomplished via thoughtful education, outreach, or engagement activities or components. Whether it is educating the public or helping a policy maker, accomplishing meaningful education, outreach, or engagement requires several essential elements including:

- a clear definition of audience,
- expertise in reaching the targeted audience,
- knowledge of effective methods,
- evaluation,
- a reasonable budget.

Join members of the Education and Engagement Team for an interactive experience where you can learn more about these elements, brainstorm their functionality and methods of implementation as part of a technical project, and engage in dialogue on overcoming barriers to accomplishing each element. The team will also provide examples of successful education, outreach or engagement projects that have been completed in association with science, research, or conservation projects.

GEOGRAPHY & SCALE:

This tool is initially envisioned to support GOMA research, science, and conservation projects in the five Gulf States, but can be used for most such projects in any location, at any scale.

ACCESSIBILITY:

This tool is currently in draft form and available in print. Once feedback from researchers and scientists is gathered and addressed, the tool will be finalized and made available on the GOMA website. Members of the GOMA Education and Engagement Team are available to further explore and apply the tool.

T23: Monitoring Community of Practice: Council Monitoring and Assessment Program (CMAP)

Presenter: Randy Clark, NOAA NCCOS, Marine Spatial Ecology Division, Biogeography Branch, Stennis Space Center, MS; randy.clark@noaa.gov

The monitoring and assessment program, administered jointly by NOAA and the U.S. Geological Survey, will fund the development of basic, foundational components for Gulf region-wide monitoring to measure beneficial impacts of investments in Gulf restoration by the RESTORE Council. The program, in coordination with the Gulf of Mexico Alliance (GOMA) and through collaboration with the Gulf States, Federal and local partners, academia, non-governmental organizations, and business and industry, will leverage existing resources, capacities, and expertise and build on existing monitoring data and programs. The program will also utilize a Community of Practice (CoP) in coordination with GOMA (funded through AL_RESTORE_002_001_Cat1) to gain substantial input from partners.

Activities: The Council Monitoring and Assessment Program will conduct an inventory and gap analysis of existing data and monitoring systems; develop and provide recommendations to the Council for common standards and protocols for monitoring; establish metrics needed to measure the influence of water quality and habitat restoration; establish baseline habitat and water quality conditions; and provide recommendations to supplement and refine existing monitoring programs to address information gaps and future needs.

The minimum monitoring and assessment standards will be used to efficiently evaluate and report on the effectiveness of Council-selected restoration projects and programs, and assess progress towards reaching the Council's comprehensive ecosystem restoration goals and objectives. The program will also support the Council in its yearly reporting requirements to Congress.

Environmental Benefits: The program will enable the Council to achieve its mission of science-based comprehensive Gulf ecosystem restoration. This includes providing a program that supports the Council's decision-making process and assists in prioritizing management needs, selecting and implementing restoration actions, and measuring the results of individual projects to determine progress and adjust course as needed. The program will be developed to provide information pertinent to individual projects as well as regional information for use in evaluating progress toward the Council's goal of comprehensive, Gulf-wide restoration.

Please stop by this booth to learn more about CMAP efforts and to review the water quality and habitat monitoring inventory CMAP has assembled.

T24: Barriers to and opportunities for landward migration of tidal saline wetlands under sea-level rise and urbanization

Presenters Nicholas M. Enwright¹, Michael J. Osland¹, and Kereen T. Griffith²

Institutions: ¹ U.S. Geological Survey, Wetland and Aquatic Research Center; ² Griffith Consulting at U.S. Geological Survey, Wetland and Aquatic Research Center, Lafayette, LA, 70506, USA

E-mail address of lead presenter: enwrightn@usgs.gov

Web addresses for the tool:

- For viewing the data in a map viewer, follow this link to the LCC Conservation Planning Atlas Gallery: <http://gcpolcc.databasin.org/galleries/bbfff0152bb14aa5aea5012d02f3156f>
- For downloading the data, follow this link to the ScienceBase site: <https://www.sciencebase.gov/catalog/item/55f742a8e4b0477df11c0a2b>
- For the Data Series html report, follow this link: <http://pubs.er.usgs.gov/publication/ds969>
- Enwright NM, Griffith KT, Osland MJ. 2016. Barriers to and opportunities for landward migration of coastal wetlands with sea-level rise. *Frontiers in Ecology and the Environment*, 14, 307-316. <https://doi.org/10.1002/fee.1282>
- Borchert SM, Osland MJ, Enwright NM, Griffith KT. In-press. Coastal wetland adaptation to sea-level rise: quantifying the potential for landward migration and coastal squeeze in northern Gulf of Mexico estuaries. *Journal of Applied Ecology*.

INTENDED AUDIENCE

Conservation planners working to develop future-focused adaptation strategies for conserving coastal landscapes and the ecosystem good and services provided by tidal saline wetlands.

MAIN USE

Within this century, accelerated sea-level rise and coastal development are expected to greatly alter coastal landscapes across the Gulf of Mexico. The future of mangrove forests, salt marshes, and salt flats (i.e., tidal saline wetlands, collectively) is uncertain, and coastal environmental managers are increasingly challenged to develop conservation strategies that will increase the resilience of these valuable ecosystems. One strategy for preparing for the effects of sea-level rise is to ensure that there is space available for tidal saline wetlands to adapt to sea-level rise. In this study, we used alternative future sea-level rise and urbanization scenarios to show where tidal saline wetlands may adapt via landward migration, where barriers may prevent landward migration, and how existing protected lands might accommodate expected landward migration. Our analyses and products span five U.S. gulf coast states (TX, LA, MS, AL, and FL). The primary product of this work is a dataset that identifies locations where landward migration of tidal saline wetlands is expected to occur under alternative future sea-level rise and urbanization scenarios. In addition to identifying areas where landward migration of tidal saline wetlands is possible because of the absence of barriers, these data also identify locations where landward migration of these wetlands could be prevented by barriers associated with current urbanization, future urbanization, and levees. Collectively, our analyses provide information that can be used

to develop future-focused adaptation strategies that will improve the potential that the ecosystem goods and services provided by tidal saline wetlands will continue to be available for future generations.

GEOGRAPHY & SCALE

Our analyses and products span five U.S. gulf coast states (TX, LA, MS, AL, and FL).

ACCESSIBILITY

The tool is available online and in printed form.

- For viewing the data in a map viewer, follow this link to the LCC Conservation Planning Atlas Gallery: <http://gcpolcc.databasin.org/galleries/bbfff0152bb14aa5aea5012d02f3156f>
- For downloading the data, follow this link to the ScienceBase site: <https://www.sciencebase.gov/catalog/item/55f742a8e4b0477df11c0a2b>