

Coastal Resilience Community of Practice Meeting

Wednesday, June 15 – 10:00am - 12:00pm

Purpose of the COP: Bring together diverse coastal stakeholders to focus on how ecosystem resilience can build local community resilience. We don't necessarily have to have a "thing" to work on but will take on projects as appropriate and mutually agreed on. Website: <https://deq.nc.gov/coastal-resilience-cop>

Agenda

10:00am Welcome & Introductions. Attendees:

- Whitney Jenkins, Coastal Reserve & DCM, lead COP
- Rachel Love-Adrick: DCM work with local communities on land use planning, try to include resilience in land use plans
- Stacey Feken, Albemarle Pamlico National Estuary Partnership, Policy & Engagement Manager, variety of projects including resilience, interstate coordination with MOU, hydrologic restoration
- Jacob Boyd: habitat enhancement section chief DMF/ CHPP, DEQ resilience and NWL activities
- Sarah Spiegler: NC Sea Grant, Coastal Resilience Specialist, physically located in Morehead / work with Mackenzie on RCPP
- Savannah Newbern: Currituck County planning department
- Cayla Cothron: Climate resilience extension associate with NCSG
- Adrianna Weber: town of Leland participate in RCPP work with Dawn
- Chad Strawn: planning director Craven County participate in RCPP
- Dawn York: senior coastal planner Moffat and Nichol, Wilmington, work on coast for almost 20 years, working with coastal communities on various projects, grants, Cape Fear River partnership coordination fish passage
- Kara Nunnally: NCCF building coastal leadership institute from ground up, geared towards local government leaders along coast, professional development, networking opportunities
- Eryn Futral, NC Floodplain Management Program, Eastern Branch Planner for NFIP, Wilmington, assist communities with floodplain management with training tech assistance, etc.
- Gloria Putnam: NC Sea grant; work on variety of natural resource issues, learn what others doing, how plug in projects on coast
- David Holcomb: CRS Specialist Coastal Communities, jholcomb@iso.com 803-518-0641
- Karl Dudman: PhD student from UK, field work here in NC hosted at NCSU, Carteret County, how vulnerable coastal counties and institutions communication about sea level rise and climate change
- Kyle Bruer: surf city, island wide resilience from Topsail beach
- David Holcomb: SC CRS contact for coastal communities learn more about what we're doing put contact info in the chat box
- Kacy Cook: land conservation biologist with WRC / minimize wildlife impacts across state
- Steve Bevington: NCLWF oversee flood risk reduction program/ open enrollment right now LOI due July 31/ try to do outreach to communities with need: nature-based solutions to address flooding
- Mackenzie Todd: DCM Coastal resilience specialist/ work on RCPP great to see additional communities joining this group
- Forest Shepherd / NCDEQ Basin Planning Branch
- Margaux Kerr: Town of Nags Head
- Adrianna Weber: Town of Leland

- Nathan Dollar: research scientist at UNC population institute
- Elizabeth Frankenberg, Director, UNC Carolina Population Center

10:15am **DEEPP project at UNC (Dynamics of Extreme Events, People, and Places) – Nathan Dollar, Ph.D. Candidate, UNC-CH**

In Ocracoke present results to community, can't stay whole time look forward to participating moving forward.

Dr. Frankenberg: Climate resilience in the coastal zone: high tide flooding/ better understand climate and resilience in coastal zone. Look at stressors but also frequency of high tides, sunny day flooding. Large events threaten lives destroy property expose people to trauma, but more moderate events disrupt daily life and impact as well try understanding both problems. Need for policies and programs that promote healthy people, sustain comm, resilient ecosystems. Interplay health/natural ecosystem goals and economic goals

DeeP: Fund by UNC and NSF. Integrate across 4 different areas see slide: public policy planning, coastal hazard.

Eastern NC as a lab on frontlines of climate change: rural farming complex shorelines with fragile barrier islands and shallow bar-built estuaries, economies built on farming / see slide.

Depth damage curves: does response relationships: curves relationship b/w depth and damage degree of damage and / exposure/ dose response what degree of exposure create a reaction amongst human population/ to get this need two inputs, data on depth, and data on what happens to people, try assemble two types of resources and combine.

ADCIRC Prediction system created by Dr. Rick Leutich: predict flooding. Nathan: use data from ADCIRC, we're sociologists and demographers, our role understand how people and communities prepare for, and are affected by extreme events.

Florence 2018 Dorian 2019 storms very different, slow moving storm generate surge, Dorian graze OBX generate strong surge core banks, Ocracoke Hatteras, contrast between two, use Rick's model good data on depth/ gauge-based data use to ground truth model predictions / work on hind casts in terms of surge, so data come from Rick model / generate depth measurement for entire coast. Dorian 2019 Ocracoke: flood impacts, / high precision data on depths, residential buildings.

Damage to human populations: household survey / 20plus communities 5 diff sites tax parcel data, random selection of addressed, interview resident 15 and above, questions develop with input from all project scientists and community and state stakeholders recruit and train local interviewers 90% participation rate in site 1 do a lot of outreach in communities / very in-depth survey could take up to 2 hours / people receptive, want to tell story, how prepare and respond /

Damage to human populations: what ask? Experience during storm, modules on post traumatic stress and depressive symptoms, disruptions to work, school, impacts on income, business activity, property damage,

Psychological health as a function of depth and exposure: higher water relative to flow height more likely a home to be flooded, individuals that were flooded experience larger number traumatized experience / long process: recovery and affects occur months even years after f=storm 12-18 months later / thing to think about when work with communities

Study sites in eastern NC years 1-2: dare county Hatteras Island, all mainland Hyde County all communities in down east, adjacent communities Merriman and North River

Flooding from tide and rain causes frequent disruptions: flood tides and rains in addition to extreme storms, hub / another prof at UNC interest in recurrent flooding, built questions into survey with frequency and type of disruptions, almost half respondents parcel flood outside of hurricanes, work, run errands, school, social activities, bus routes /

how better measure recurrent flooding? Custom sensors detect flooding on roads, Miyuki Hino UNC/ built template, sunny day flood sensors, water level sensor in storm drain, communication, and camera, as water rise kicks on pressure sensor / real time measurements of flood events/ sensors transmit water levels and pictures in real time

Beaufort: tides 3 points where get up and surpass road elevation/ detect 35 floods over road surface in ~10 months. NOAA prediction ~4 / year so more frequent flooding / IMS engineers, Miyuki, just now get sensors install in new Bern, hope to get some in Ocracoke in coming year

What's next for our team?

- Evaluate compound flooding models near the coast and upstream innovate in measurement incorporate in survey: 2nd round: attitudes toward financial and climate risk, decision making about the future in fragile environments, benefits of ecosystem services and historical ties for connection to place, tradeoffs b/w sustainability and economic opportunity, water quality surveillance
- Incorporate green engineering
- Want to expand up into Neuse, Tar-Pamlico basins, into different communities/ replicate in other river basins
- Acknowledgement: UNC, NSF, various folks (see slide)
- Work to recruit and train local residents to participate

Questions?

Gloria: kudos on survey / pretty amazing, interest on post-traumatic stress and symptoms, have you seen correlations with impacts down road vs. ages, how long someone been there, etc. previous experiences / Dr. Frankenberg: women tend be more vulnerable, higher rates post-traumatic stress, older more vulnerable than younger/ amount of time hasn't come up/ variations in what people experience, all of Ocracoke significant surge / motivating data on hurricanes often not focus on health outcomes / survey incl connections to place, how long live, how many generations, intentions to migrate /

Me: how connect with local communities? Talked to people about advice on how to connect, flyers, sent letters, so when show up in person not first time heard of this, not politics, something clearly had affected, sometime people eager, sometimes not, eager at end that there could be value, increase folks comfort level interaction, Nathan do incredible job at outreach / go into communities, identify community leader, speak first, snowball from there, conversations / face to face is huge / phone base/web based on work/ relocation reticent, extractive scholarship, to work with university scholars, transparent about what do, how use data, build trust, blood sweat and tears

10:40am NC Sea Grant Climate Resilience Advisory Group Discussion – Cayla Cothron

Cayla: background in long range community and environmental planning/ experience broadly land use and environmental planning and community economic development, and X

Role at SG: 3 main categories: climate resilience extension, build on sentinel sites cooperatives into that focus, coordinate that within and support all over resilience work, collaborate with Sarah

Advisory capacity with this group, develop climate framework with resilience focus, address gaps and challenges, utilize this group get feedback and focus efforts as process progresses/ kick off engagement with this group dec 2021/ continue discuss in March 2022, framework see in google doc

Google doc: Developing a framework for a climate resilience extension focus on NC sea grant

Purpose: help guide and focus efforts to identify climates resilience needs and priorities, and opportunities for developing or expanding extension programming

Umbrella issues: broad buckets continue to drill down on/ great feedback on these needs/

Table: how to drill down more next meeting: goals, opportunities, etc. over next several meeting/ 20 minutes per goals/ think about potential fine-grained opportunities fill gaps and needs / priority

geographies: areas of coast need more help than others, target audiences, who is missing, which are high priority? / Potential partners, who is already working to address this need and who could help fill gaps

Opportunities: Lora Eddy, not able to be there, add some information? any thoughts add?

Kacy: work to enhance Green Growth Toolbox with resilience info: in terms of maps communtieis can readily understand,

things might be lacking, fabulous maps but challenging for busy local govts interpret / when developing maps/tools anything do for ease of use/interpretation for local govt

Sara: questions is there not data we need or not connected to right people places researchers/or not know? Kyle surf city / feel data available, ease of finding, apply to hyperlocal application / as town manager, not great central location for a lot of info, resilience

Stacey: Maintenance of data: finer scale /how to house and maintain

local roadway flooding/ apply for stormwater grant/ ask stormwater / no way to communicate to funder / know important data to provide to tell story, difficult to synthesize into a manner to show where problem is, 1.2 inches in 24-hour period

Application of data/ barriers/ data available how communicate / great data, but not in a way where can communicate/erosion rates on the sound site, what mean try to tackle, what does 2 inches per year really mean, help prioritize certain projects /

Savannah Newbern Currituck: experience more tech info than in prior years, feels disjointed from policy decisions being promoted or popular with public, not always aligned, limited scope of data available, not a lot of monitoring for your areas

Cayla: monitoring: metric important to determine where thresholds exist, monitoring a big disconnect/ not a lot of long-term monitoring just post project monitoring

Kyle talk to Mayor this am Roadside flooding project/ partial funding complete study/ billions of dollars, have fraction of funding, execute projects then monitor to see if worth apply for other phases, how to monitor is the question, road closure, dept in roadway, not send police officer put ruler in road after 1.2 inches, follow up hopefully a good problem to have / state friends, able deploy funds, what the follow up /

What about priority geographies?

Eryn: Communities with smaller budget smaller staff /

Stacey: differences in data coastal/OBX communities vs inner banks communities/ different issues & data needs/ different framework perhaps?

Savannah: have more data on ocean front and shorelines, less on estuarine shorelines, interconnected/

Sarah less data for northeast than other coastal communities

Email/ reach out to Cayla more as needed / add thoughts to google docs

Round robin

Kyle Breuer: Surf City: Phase 3 of RCCP roadside / hotspots all 3 towns, ground truth area and design, see replicable product use in other areas, educate public works staff on what to do; Applied for Ph. 3 of the RCCP to implement roadside stormwater (nature-based) collection and infiltration. Looked at "hot spots" throughout all three towns and will hopefully ground truth the areas and design. I would also like to see a replicable product that we can use in other areas simply through educating our public works staff on how/what to do. Awarded \$250k from Golden LEAF to address the S. Shore stormwater feasibility study, identifying areas to move stormwater for underground infiltration. Then, was just notified this morning that we're going to receive another \$510,000 from NCEM to continue to implement that same study. Working with Coastal Fed on living shoreline project at our public Sound side Park, as well as a standing sill wall installation. Few other minor things, working with our EM folks on identifying nuisance/critical flood levels for sunny day flooding, using our Hohonu? gauge and the community alert feature.

Stacey: continued work to engage Tribal communities on resilience, hydrologic study on northern Albemarle-Pamlico peninsula with Washington and Tyrrell counties, Albemarle Commission, stay tuned, NEPs receiving Bipartisan Infrastructure Law funding will know more soon

Mackenzie: phase 3 Resilient Coastal Communities Program, work on review applications will announce later this summer

Steve: flood risk reduction program focus on fresh water flowing vs. storm surge/ restoration other funds living shorelines, etc. more coastal related small program innovative stormwater, small grants around 75K or so/ great point on estuarine side coast go way upstream/ excellent opportunities on pocosin/peatlands, etc. areas away from storm surge, riverine flooding program likely kick in / DCR taking resilience seriously but growth area
Steve b: <https://nclwf.nc.gov/grants/apply-grant/flood-risk-reduction-grant-program>

Savannah & Gloria: no updates at this time

Sarah: exciting phase 3 application, review vulnerability assessment from phase 2 work with Mackenzie/ Core sound museum Harker's Island? Student intern from duke education and outreach ghost forest down east/ do people notice, know why happening, how communicate in a more creative way, photos, vides. Etc. NC coastal conference host every 2 years, new date this Nov 7-8 in Raleigh, researcher's agency folks that come, great to have local govt representatives as well/ submit abstract due sept 2, wide representation at conference this year: <https://ncseagrant.ncsu.edu/2022-north-carolina-coastal-conference/>

Kacy: highlight remind about partners for GG funding modest funding work to enhance resilience, help local govt conserve larger connected blocks of wildlife habitat, complementary, support resilience work / July 21

American the Beautiful nationwide grant, any conservation project kitchen sink: wildlife habitat connectivity / local govt can? The NC Wildlife Commission Green Growth Toolbox can be used to enhance community resilience by protecting natural infrastructure (wildlife habitat). We offer funding to communities that qualify. See the following for more information on our Partners for Green Growth funding.

<https://www.ncwildlife.org/Conserving/Programs/Green-Growth-Toolbox/Technical->

Assistance Other grants for conservation coming up: July 21 America the Beautiful nation-wide grant is due, eligibility = Tribes, federal and state gov't, some local govt eligibility. Grants awarded to eligible applicants can be passed to NGO's and local gov'ts. Restoring America's Wildlife Act passed the US House! It could triple budget, slow the extinction crisis, conserve wildlife in a more holistic way helps resilience as well /

Rachel: recently incorporate nature-based solutions and features into access grant program/ protect access sites, with nature/ green parking, rain gardens, stormwater bent etc. applications close this year but keep in mind for next year

Kara: still working on coastal leadership institute: initiative of NCCF to bring together local govt officials and staff, partners, like all of n this call engineers partners etc. professional development anything support them be more successful at their jobs, tangible things for folks to take away from/ networking, etc. more formal update at next meeting in September, feel free to reach out, learn how partner together, build capacity for local govt leaders, find resources to support folks do on the groundwork

Jacob: work on implement 2021 CHPP amendments, RCCP workgroup work to incorporate recs of CHPP into exiting efforts, along with recs from RR NWL plan, work with NCORR into RISE program/ public private partnership/... develop water quality summit new Bern oct 12 / partner with pew and NCCF put together a group of diverse stakeholders, folks not been in conversation about issues previously / SAV greenhouse gas inventory, draft soon, statewide resilience clearinghouse partner with NCCORR all-encompassing hub for climate resilience / USCA funding, interviews start developing recommendations database, all of the good roadmap work done in RR plan, 2 years into fast easy way to check off boxes how working on, source for recs / gov budget lots of great things NWL/CHPP annually/ will see. **CHPP Information:**

<https://deq.nc.gov/about/divisions/marine-fisheries/habitat-information/coastal-habitat-protection-plan>

Forest: have a summer intern / work with cape fear river basin plan, down 2 staff work with 7 out of 9 people / public comment by October, deep river, all sections of cape fear, middle section to coast of NC. / Nora Deamer lead, take feedback to take issues forward in basin plan/ intern stakeholder engagement piece, folks across river basin, go out soon to groups, disseminate more broadly, look forward, may have a different person who dedicated to this group, moving forward he move to diff position depend on hires, interim hire, still work with ne communtieis as warranted /

Eryn: link in chat box: updates; NFIP through FEMA fully gone into new flood insurance policy rating system updated over last few years, update document in link, hope fully address risk rating 2.0 approach to rating policies and changes, been some outreach, but hasn't gotten to a lot a folks, insurance went up this doc may be helpful tool. Hurricane season now, ramp up with substantial damage training, how better helps communities been damaged during an event, get local participation help with damage assessment, training folks do work along with state, state NFIP resource to not only have information to people who have experienced damage, but folks that have experience damaged, help take load off. **This link is to the updated Flood Policy Risk Rating 2.0**

Answers to Questions About the NFIP:

<https://agents.floodsmart.gov/sites/default/files/fema-answers-to-questions-about-the-NFIP.pdf>

Dawn: link story map ongoing project battleship NC and lower cape fear utilize living with water theme rather than keep water out of site, let water in, go on about a year, advance planning, permitting and design phase hope contract late winter early spring, cool timelapse videos, willingness of battleship to give up property to

allow flooding to occur unique, great to see if other sites let this happen, work on several other coastal resile project in NC: Rachel Carson revers, design implement living shoreline carrot island east end, others,
Ongoing project in the lower Cape Fear River at the Battleship North Carolina - see Story map link for more information. <https://storymaps.arcgis.com/stories/5a1169bc127f48e3b94eb52986c9186e>

David: try to participate more in future, anyone in program, CRS notification / recertification notification should've received today, annual cc notification / understand difference between the two / attend as well, don't hesitate call or email, even just introduce

Adrianna: town of Leland / submit RCPP phase 3 for flood issues along roadways, hope to hear back, in past 2 days received award for NC emergency management transportation resilience grant/ review mem of agreement, post RFP/RFQ shortly to start that

Margo: Town of Nags Head: no updates enjoy listening to everyone / Currituck County similar issues, good information

Cayla: meet more frequently with her program schedule separate meeting anyone interested in it as potential option, better utilize folks time/

11:55am

Next meeting:

- Next meeting in September. Whitney will send a meeting poll.
- Next meeting topics –
 - Coastal Leadership Institute – Kara Nunnally, NC Coastal Federation
 - Climate Central's Coastal Tools Overview – Dan Rizza
 - Other agenda item ideas?