



Tyndall AFB Stakeholder Working Group/ Coastal Resilience Advisory Group Meeting Minutes

Date: June 5, 2024

Time: 1:00 pm – 2:30 pm CDT

Location: Teams

Prepared by: CDM Smith

Attendees:

Garey Payne (USAF AFCEC CFDP), Matt Lambert (USAF AFCEC CFD), Jonathan Feldman (AFCEC REPI Program Manager), William Chavez (AF REPI Program Manager), Cheri Moon (Tyndall AFB), Jim Roncaglione (Tyndall AFB Airspace Manager), Jay Shaffer (AFCEC REPI), Sydney Russell (AFCEC CFDP), Jon Cornman (USDA Tyndall AFB Flight Safety), Jessica Graham (SASJBEP), Darryl Boudreau (NFWFMD), Alina Maruniak (CDM Smith), Joy Brown (TNC), Lauren Goodman (TNC), Jeff DeQuattro (TNC Gulf of Mexico Program), Bob Bendick (TNC Gulf Program), Christine Shepard (TNC), Katie Konchar (TNC Gulf of Mexico Program), Mary Kate Brown (TNC Alabama Coastal Programs), Luce Bassetti (Jacobs), David Bell (Jacobs), Beatriz Marin-Diaz (University of Florida), David Bushek (Rutgers University), Meg Christopher (DEP Central Panhandle Aquatic Preserves), Keith Bryant (Bay County), Mike Sharp (NFWF), Cassidy Manzonelli (FWC), Simeon Urek (USFWS Wetland & Aquatic Research Center), Michelle Covi (UGA, SERPPAS CRRWAG), Jessica Black (NOAA Restoration Center), Catrina Martin (USFWS, Panama City), Melody Ray-Culp (USFWS, Coastal Program, Panama City), Erica Felins (NUWC Newport), Elizabeth Pendleton (USGS Woods Hole Coastal and Marine Science Center), Jake Goodwin (DARPA), Christine Whitcraft (CSU LB), Eric Christianson (Emerald Coast Regional Council), Ryann Rossi (SASJBEP), Kathy Sweezey (USGS), Laura Geselbracht (TNC), Kent Wimmer (Defenders of Wildlife), Jason Bird (Jacobs), Patricia Kelly (FWS)

Four-seven (47) attendees representing twenty-two (22) organizations participated in an information sharing session focused on resilience work being performed adjacent to Tyndall AFB including 60% designs for three of the key resilience projects.

Meeting Objective: The objective of this meeting was to inform stakeholders of the resilience work being performed near Tyndall AFB.

Meeting Summary:

Dr. Jessica Graham with St. Andrew and St. Joseph Bays Estuary Program (SASJBEP) started the stakeholder working group meeting.

Mr. Garey Payne (USAF) welcomed the attendees. Tyndall has reviewed the 60% Design submitted by Jacobs and TNC from the civil engineering and BASH perspective.

The Nature Conservancy (TNC) and Jacobs 60% Design Update

Ms. Katie Konchar (TNC) introduced the presentation. She noted the design has been informed by scientific modeling and surveys.

Mr. David Bell (Jacobs) presented a review of the 60% Design submittal for the Coastal Resilience Pilot Projects.

Background on the previously presented information was reviewed.

- All projects will be submerged below the mean lower low-water (MLLW) line.
- Expanded the evaluation of wave attenuation to include day-to-day/operational conditions instead of only storm conditions.
- The Seagrass enhancement project location was moved from the bay side to the gulf side behind the submerged shoreline stabilization project due to difficulties of the originally selected location informed through research in coordination with University of Florida.

Primary focus for the 60% Design at all three locations

- Optimization between wave attenuation, habitat, structural stability, and cost.
- Extreme wave conditions during storm events occur approximately 20% of the time. Non-storm conditions occur 80% or more of the time. The evaluation of wave attenuation was expanded to include these operational conditions.
 - Wave heights vary between 3 and 8 ft during storm conditions.
 - Wave heights vary between 1.6 and 2 ft during non-storm conditions.
- Wave attenuation behind the structures was evaluated.
 - Higher waves lead to less wave attenuation.
 - Spacing of the structures changes wave attenuation behind the structures: tighter spacing produced better wave attenuation compared to larger spacing, but sometimes this was not a drastic difference.
- Questions:
 - Mr. Darryl Boudreau (NFWFMD) asked about how the design will produce wave break while maintaining a low profile.
 - Mr. Bell responded by describing the optimization process. The goal of the design was to maximize width while minimizing cost.
 - Mr. Boudreau asked if the design team considered creating undulations on the reef instead of a rounded structure.
 - Mr. Bell responded that the design is to maximize oyster habitat with extra structures that stick out from the back of the reef like “fingers”. This allows the cross section to be wider.
 - Dr. Bushek also indicated that studies through the Reefense project did not find any significant differences with a rounded structure vs. undulations.

Initial Alternative Selection Process for REPI Sites

- The East Bay Living Shoreline (Living Shoreline) design alternatives were reviewed, and the final alternative optimization and decision-making process was explained.

- Three alternatives were evaluated with focus on the following parameters: number of structures, gap widths between the structures, and crest widths of the structure. The wave attenuation provided was determined for each of the alternatives.
 - The spacing of the structures and number of gaps did not affect the wave attenuation directly behind the structures. Reduced crest width decreased wave attenuation capability of the system. Alternative 3 was removed from consideration and Alternatives 1 and 2 were chosen for further evaluation.
- The East Bay Oyster Reef Breakwater (Oyster Reef Breakwater) design alternatives were reviewed and the final alternative optimization and decision-making process was explained.
 - Four alternatives were evaluated with the following parameters: varying number of structures, gap width between the structures, crest width of the structures, and the geometry (simple vs complex).
 - The goal was to evaluate complex vs simple geometries and spacing to see how this affected attenuation. Decreased crest width diminished wave attenuation performance. Alternatives 1 and 3 moved on to the next analysis.
- The St Andrews Sound Submerged Shoreline Stabilization (Submerged Shoreline Stabilization) design alternatives were reviewed and the final alternative optimization and decision-making process was explained.
 - Three alternatives were evaluated with the following parameters: varying number of structures, different gap widths between the structures, and crest width of the structures.
 - The goal was to determine how the varying parameters affected overall wave attenuation behind the structures. Alternatives 1 and 2 were selected for further evaluation.
- At each project site, area-wide wave attenuation was assessed beyond the immediate area (30 ft) behind the structures.
 - The area behind the reef was split into different zones to determine wave heights across the modeling period (1 month) and wave statistics within the modeling zone.
 - The velocities around the structures (between structures and at the end of the row) were modeled. There were no major differences observed between the alternatives, therefore velocity was not a factor used to inform alternative selection.
- Sediment transport was assessed.
 - DEM from 2010 and 2022 surveys was used to inform the modeling to see how sediment transport changed. The model resolution is not very reliable due to the quality of the model inputs.
 - Two scenarios were modeled: no project and with a project. There was little net change at all three sites between the two scenarios.
 - Question: Dr. Graham asked if there was there a predominant direction of current seen with the model?
 - Ms. Luce Bassetti (Jacobs) noted that usually the direction is west to east but there is rotation due to the barrier island size being wider and flow is currently east to west.

Alternative Final Selection Process

- The final two alternatives for the Living Shoreline project were evaluated based on the initial criteria and also considered area-wide wave attenuation, current velocity, and annual sedimentation rates.
 - By removing one structure and increasing gap width, area wide wave attenuation decreases marginally. Alternative 2 was selected because the same overall benefits will be realized with reduced structures and increased gap width.
- Oyster Reef Breakwater had similar area-wide wave attenuation with reduced structures and increased gap width. Alternative 2 was selected because of this.
- Submerged Shoreline Stabilization is the most dynamic location so Alternative 1 was chosen with all 12 structures and smaller gap width to try and keep the higher area-wide wave attenuation. Models show a new 2 to 4-inch increase in sediment accumulation. This is small and based on the model resolution and precision, may be within the error bounds. This project area could see some slight sediment accumulation which can be a benefit.

60% Design Package

- Delivered in May 2024 and included:
 - 3 basis of design reports (one per site)
 - summarize existing conditions, basis of design rationale, design and geometries, design justification, and constructability considerations.
 - 1 numerical modeling report.
 - 3 sets of design drawings.
 - 3 sets of technical specifications based on the design and work proposed.
 - Class 2 Cost Estimates (-15% to +20%), with updated unit costs. Additional updates listed below.
 - DARPA Reefense units will be included in the TNC Oyster Reef Breakwater project in the “fingers” of the reef structure,
 - 24-month escalation included (anticipated construction in 2026),
 - contingency reduced from 25% to 15%.

Next steps

- Receive and review feedback on the design packages, discuss constructability and site access, modify design based on cost and risk.
- 90% Design deliverable expected later in the summer.
- Planning to submit preliminary draft Environmental Assessment later in mid-June.

Questions

- Mr. David Bushek: Rather than increasing the gap and removing a structure, did the team consider increasing the number of gaps with smaller structures that still allow for reducing material costs?

- Each reef unit is 200 ft long and acts as the primary breakwater. More gaps causes the system to lose wave attenuation. There also needs to be ingress and egress for protected species in the gaps.
- Mr. Simeon Yurek: Did you model any type of sediment dynamics/geomorph evolution? Did you consider any alternatives that were not in a straight line?
 - No, didn't do a shoreline change model because it was on the bay side and is stable (erosion at small rate), and on barrier island didn't do a model because it is such a dynamic area that a model would not be accurate in the future. Modeling the alternatives at an angle didn't change much with wave attenuation in the model.
- Dr. David Bushek (Rutgers University): Florida requires 5 ft of gap for every 75 ft of structure, if the structure is 200 ft will this be an issue?
 - Mr. Bell noted that this regulation might be to qualify for a specific permit. Jacobs will look into this.
- Ms. Konchar: The projects have not been invited to submit full proposal to NFWF NCRF for this grant cycle.

DARPA Reefense

Dr. Bushek (Rutgers University) provided an update on the DARPA Reefense project.

- Draft Environmental Assessment completed, comment window closed June 5, 2024.
- Module production is underway. Installation of the first 50 meters of modules is expected at the end of July. Working with precasters and TNC on the production of the modules that will be installed at the Oyster Reef Breakwater.
- Half-scale modules have been sent to Engineering Research and Development Center (ERDC) to test stability in addition to wave flume testing and O2 scour testing that was completed in University of Western Australia. Initial tests of half-scale modules in Delaware Bay look promising.
 - O2 modeling showed that scouring occurs around edges and can be mitigated with shell bags or similar structures at the corners.
- Predation experiments at Mississippi State University are on-going with the goal of determining methods for deterring predators from the reefs, especially during early stages of oyster growth.
- Field testing underway on-site and at FSU at Panama City, Auburn's farm, and LSU, for testing species selection and breeding for disease tolerance and growth.
 - Third generation of selective breeding is underway.
- An assessment to optimize cost is ongoing.

SASJBEP Update

Dr. Jessica Graham (SASJBEP) presented updates.

- New Comprehensive Conservation and Management Plan (CCMP) for SASJBEP is complete and available on the website.

- SASJBEP has a new website and logo.
- Reports of potential increased urchin populations in St Andrew Bay. St Joseph Bay goes through periods of higher populations in certain areas.
 - There is a QR code for community members to report urchins in the bays.
- Grants
 - Submitted proposals to NFWF NCRF and were not asked to submit a full proposal.
 - Submitted proposal to America the Beautiful and were selected to submit a full proposal.

Northwest Florida Sentinel Landscape

Mr. Kent Wimmer (Defenders of Wildlife) presented the quarterly update for Northwest Florida Sentinel Landscape.

- In FY24, partners conserved over 23,000 acres in 10 tracts for \$44.3M.
- Quarterly report will be submitted soon.

Other Questions or Updates

- Dr. Bushek noted that coincident storm surge and general elevation of water considerations have been raised on other relevant projects. Has Tyndall considered nature-based solutions (NBS) or man-made solutions to protect uplands if structures are overtopped?
 - Mr. Payne (USAF): There are currently no plans in place to mitigate impacts if structures are overtopped. The Coastal Resilience Implementation Plan (CRIP) looked at effects of sea level rise combined with the 100-year storm; however, the utility of more in-depth modeling is limited because small changes in a hurricane's path can drastically affect the overall impact of a storm event locally.
- Ms. Meg Christopher will be taking over at the DEP Central Panhandle Aquatic Preserves for John Brucker (changing employment to USACE). If any communication or coordination is needed for the Aquatic Preserves, contact Ms. Christopher.
- Ms. Cassidy Manzonelli will be new Northwest Florida biologist for the Marine and Estuarine subsection of NW Florida FWC. She is taking over for Ms. Becca Hatchell (FWC) who is moving into a new role within FWC.
- Ms. Joy Brown is the new resilience specialist for NW Florida Sentinel Landscape.
- The next stakeholder meeting is tentatively scheduled for January 2025.