CHNEP Technical Advisory Committee Meeting
Thursday December 3rd, 2026, 9:30 am – 2:00 pm
Centennial Park Recreation Center, Large Multipurpose Room
1120 Centennial Blvd. Port Charlotte, FL 33953

AGENDA

1. Call to Order and Introductions — Stefan Kalev, Co-Chair

2. Agenda Additions or Deletions — Stefan Kalev, Co-Chair

3. Public Comment on Agenda Items — Stefan Kalev, Co-Chair

4. Technical Advisory Committee (TAC) August 6, 2026 Meeting Minutes — Stefan Kalev, Co-Chair

5. CHNEP Update — Jennifer Hecker, CHNEP

6. New Cheaper Easier Oyster Restoration Methods — Damon Moore and Abbey Kuhn, Oyster River Ecology, Inc.

7. Microbial Habitat Assessment Reveals Terrestrial and Wastewater Impacts on Coastal Microbial Water Quality after Hurricane Milton — Chamteut Oh, PhD., University of Florida

8. Assessing and Adaptively Managing Freshwater Lake Systems — Devon Moore, City of Winter Haven

9. TAC Membership Updates — Facilitated by Stefan Kalev, Co-Chair

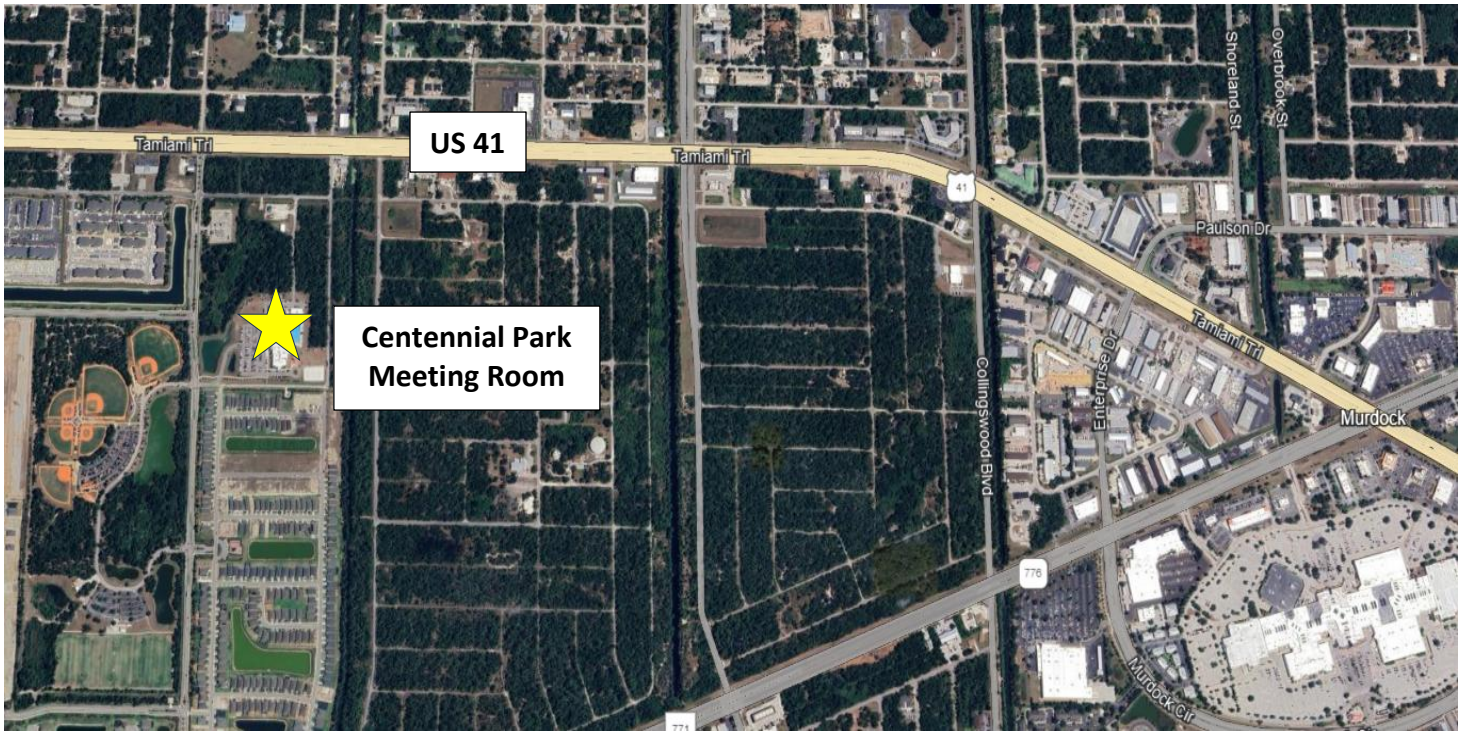
10. Public Comment — Stefan Kalev, Co-Chair

11. Future Meeting's Topics, Location and Date — Stefan Kalev, Co-Chair
    - Upcoming Dates for 2027: 4/8/27, 8/5/27, 12/2/27

12. Adjourn — Stefan Kalev, Co-Chair

DIRECTIONS TO MEETING LOCATION

Centennial Park Recreation Center, 1120 Centennial Blvd. Port Charlotte, FL 33953



Coming from the North:

1. Take I-75 S to Sumter Blvd (exit 182) in North Port.
2. Follow Sumter Blvd for 8 miles to US Hwy 41 S, then Turn left onto US Hwy 41 S
3. Follow US Hwy 41 S for 4 miles to Centennial Blvd., then Turn right onto Centennial Blvd.
4. Follow Centennial Blvd. ½ mile down, turn **LEFT** into Centennial Park/Pool Parking Lot.
5. Check in at Front Desk and they will direct you to the Large Multipurpose Room

Coming from the South:

1. Take I-75 N to Kings Hwy in Charlotte County (exit 170)
2. Use the left 2 lanes to turn left onto Kings Hwy (signs for Port Charlotte/Charlotte Sports Pk)
3. Follow for ½ mile, then Use the right 2 lanes to turn right onto Veterans Blvd.
4. Follow for 7 miles, the Turn right onto US Hwy 41 N
5. Follow for 2 miles, then Turn left onto Centennial Blvd.
6. Follow Centennial Blvd. ½ mile down, turn **LEFT** into Centennial Park/Pool Parking Lot.
7. Check in at Front Desk and they will direct you to the Large Multipurpose Room

CHNEP TAC meetings are in person.
If you are unable to attend in person or to arrange for an alternate do so, please email Keara Abel at kabel@chnep.org or call (941) 833-6580.

1. CALL TO ORDER AND INTRODUCTIONS

The CHNEP Technical Advisory Committee Co-Chair will call the meeting to order and then Committee members will introduce themselves, followed by CHNEP staff and any members of the public who are participating.

2. AGENDA ADDITIONS OR DELETIONS

If any Committee member would like to make an addition or deletion to the agenda, this item is the time to suggest such. Members will be asked to vote to approve the final meeting agenda.

3. PUBLIC COMMENT ON AGENDA ITEMS

Each participating member of the public is afforded up to 3 minutes total to speak on agenda topics only at this point in the meeting.

4. TECHNICAL ADVISORY COMMITTEE MEETING MINUTES

If any Committee member would like to make an addition or deletion to the agenda, this item is the time to suggest such. Members will be asked to vote to approve the final draft minutes from their prior Committee meeting.

Recommendation: Approval of the August 6, 2026 TAC Meeting Minutes.

Attachment: Draft August 6, 2026 TAC Meeting Minutes.

5. CHNEP UPDATE

The following represents program activity highlights since the beginning of the previous Management Conference cycle (August 6, 2026 – December 3, 2026) to the beginning of this one.

TASK 1: MANAGEMENT CONFERENCE: ADMINISTRATION, FINANCE, OPERATIONS

Program Administration

- Planned and executed the Technical Advisory Committee (8/6), Management Committee (9/4), and Policy Committee (9/17) meetings, including lining up presenters, drafting agenda packet, updating Committee webpage, creating PowerPoints, drafting minutes, etc.
- Sent on-boarding materials to four new Management Committee members, Libby Pigman, representing the South Florida Water Management District, Kari Holmes, representing Sarasota County, Derek Spoerl, representing the City of Fort Myers, and Sherri Swanson, representing Peace River Manasota Regional Water Supply Authority.
- Drafted 2027 Amended Master Work Plan and Budget, 2026 Executive Director Annual Evaluation with combined Policy Committee Responses, CHNEP Legislative Priorities, these were approved by CHNEP Policy Committee at 9/17 meeting.
- Welcomed new Conservation Specialist team member Sequoia Lipman, who is planning and representing CHNEP at public outreach events as well as handling CHNEP social media.
- Completed annual staff appraisals and held appraisal meetings with CHNEP staff.
- Sent fall FY27 invoice letters to CHNEP member counties and cities with the appropriate project and informational fact sheets relevant to their community.
- As a follow up to the 2026 Resiliency Summit in September, CHNEP shared the Summit playlist on YouTube and the updated Southwest Florida Resiliency page which now features

resources from all past summits, including agendas, speaker biographies, and videos organized by tags for easier public access.

Finance and Grants Management

- Compiled FY2026 National Estuary Program Online Reporting Tool (NEPORT) habitat, leveraging and IIJA data and submitted FY2026 end-of-year reports for EPA Section 320 and IIJA grants.
- Finalized the FY2027 FDEP programmatic support agreement for county approval and subsequent FDEP execution; finalized the amended FY2027 CHNEP Work Plan and Budget.
- Reviewed final deliverables and processed closeout payments for multiple FY2026 conservation grants – Calusa Waterkeeper, Future Forestry Corporation, and Keep Charlotte Beautiful; began reviewing FY2027 applications for December Citizens Advisory Committee input.
- Finalized edits to Amended FY2027 CHNEP Work Plan & Budget, these were approved by CHNEP Policy Committee at 9/17 meeting.
- Prepared and submitted FY26 annual End-of-Year reports for both EPA 320 and EPA IIJA grants.
- Received and processed FY27 membership dues to date from Polk, DeSoto, Hardee, and Highlands County, and the Cities of Fort Myers, Bartow, North Port, Punta Gorda, Sanibel, Venice, and Winter Haven (as of 11/25/26).
- Continued to process private donations received via check or PayPal.

TASK 2: PUBLIC ENGAGEMENT

Meetings that CHNEP Staff Attended

- CHNEP Water Atlas Monthly Meeting (multiple)
- CHNEP/ECCO Water Quality Trends Monthly Meeting (multiple)
- Lee County Adaptation Areas 15 & 16 Stormwater Planning Project Monthly Meeting (multiple)
- Lee County SEASCAPES Monthly Meeting (multiple)
- CHNEP Warm Mineral Springs Project Meeting (multiple)
- Sarasota County AAA Project Monthly Meeting (multiple)
- Tiki Point Living Shoreline Monthly Coordination Meeting (multiple)
- 2026 National Estuary Program's Tech Transfer Meeting (multiple)
- One Water Commission Monthly Meeting (multiple)
- EPA-ANEP Monthly Check-In Meeting (multiple)
- C-HAWQ Meeting (multiple)
- Tiki Point Living Shoreline Coordination Meeting (multiple)
- ANEP External Affairs Committee Meeting (multiple)
- Glades County AAA Project Monthly Meeting (multiple)
- Yucca Pens Monthly Meeting (multiple)
- SE CASC Advisory Committee Meeting (8/4)
- Yucca Pens Site Visit (8/5)
- FDEP Quarterly Resilience Forum (8/5)
- CHNEP Technical Advisory Committee Meeting (8/6)
- CHNEP-Polk County Lake Idyl Sediment Inactivation Project Initial Scoping Meeting (8/7)
- RM Negotiation Glades County Adaptation Areas Planning Project Meeting (8/7)
- DeSoto County Board of County Commissioners Meeting (8/11)
- Florida Shellfish Group Meeting (8/11)

- NOAA RESTORE Florida NEPs Discussion Meeting (8/12)
- Tiki Point Harborwalk Living Shoreline Design & Permit Kick-Off Meeting (8/12)
- CHNEP-Glades County Scope Review & Response Meeting (8/17)
- Highlands County Board of County Commissioners Meeting (8/18)
- CHNEP-Manatee County Oyster Restoration Project Monthly Meeting (8/19)
- Hardee County Board of County Commissioners Meeting (8/20)
- Joint Working Group/Science Coordination Group Meeting (8/25)
- CHNEP-Hendry County Pollywog Creek Stabilization Project Negotiations (9/1)
- CHNEP-FDEP Grant Revisioning Discussion Meeting (9/1)
- CHNEP-Manatee County Oyster Restoration Project Scope Discussion Meeting (9/1)
- CHNEP-Hendry County Pollywog Creek Response & Tiki Point Change Order Response Meeting (9/2)
- Florida Lake Management Society 37th Annual Technical Symposium (9/3)
- CHNEP Management Committee Meeting (9/4)
- Tiki Point Living Shoreline Site Visit (9/10)
- US Government Accountability Office and CHNEP Meeting (9/10)
- CHNEP Yucca Pens Wetland Habitat Enhancement Flooding Improvements-Charlotte Harbor Kick-Off Meeting (9/14)
- Sportfish Ponds Team Meeting (9/16)
- FLERA Water Resources Committee Meeting (9/16)
- CHNEP Policy Committee Meeting (9/17)
- Florida Bivalve-Seagrass Restoration Consortium Meeting (9/18)
- CHNEP Glades County AAA Kick-Off Meeting (9/18)
- Southwest Florida Resiliency Summit (9/22)
- Grant Opportunities Discussion Meeting (9/29)
- CHNEP GIS Onboarding Meeting (10/1)
- Critical Gap Discussion Meeting (10/2)
- Closed FY26 and Restoration Projects Review & Approval Meeting (10/12)
- Southwest Florida Water Management District Environmental Advisory Committee Meeting (10/13)
- Charlotte County CVA Change Orders Meeting (10/13)
- Water Quality Trend Analysis & Dashboard Meeting (10/14)
- SWFL Regional Ambient Monitoring Program (RAMP) Meeting (10/14)
- Water Atlas Partner Meeting (10/16)
- ANEP Communicators Network 40th Anniversary Meeting part 1 (10/20)
- Sarasota County AAA Project Kick-Off Meeting (10/21)
- ANEP Communicators Network 40th Anniversary Meeting part 2 (10/22)
- Myakka River Management Coordinating Council (MRMCC) Meeting (10/23)
- Habitat Enhancement Hardee Lakes Meeting (10/26)
- ANEP Communicators Network Monthly Meeting (10/27)
- Science & Environmental Council (SEC) Board Meeting (10/29)
- Oyster River Ecology Site Visit (10/30)
- Hendry County Pollywog Creek Stabilization Project Kick-Off Meeting (10/30)
- CHNEP Finance Meeting (11/3)
- CHNEP-FGCU Coordination Meeting (11/3)
- CHNEP County Budget Meeting (11/10)
- Hendry County Pollywog Creek Site Visit (11/13)

Presentations

- Presented DeSoto, Highlands and Hardee County Adaptation Action Area plans to County boards and the DeSoto plan to the City of Arcadia in August; the three county boards accepted the plans by resolution.
- Presented *An Evaluation of the Relationships between the Duration of Red Tide and Watershed Nitrogen Loads in Southwest Florida* – which is research on relationships between red tide duration and watershed nitrogen loads at the Florida Lake Management Society 37th Annual Technical Symposium in September.

Publications and Outreach Initiatives

- Planned and hosted the September 22 Southwest Florida Resiliency Summit, attended by approximately 175 participants; subsequently published presentation videos and organized past summit materials on the Southwest Florida Resiliency webpage.
- Produced monthly newsletters, website news and events updates, educational social media posts and updated state and federal funding resources; conducted outreach at the Old Miakka Fall Hootenanny and Alligator Creek Fest, engaging approximately 200 visitors combined.
- Designed, printed and approved proofs for the 2027 CHNEP Nature Calendar; updated mailing lists and sought printing quotes for additional children's activity books.
- Prepared and published project fact sheets for the Water Quality Trends and Dashboard and Manatee County Oyster Restoration projects; updated the CHNEP website with project information and resources.
- Closed out conservation grants for Calusa Land Trust, Sarasota Bay Watch, Calusa Waterkeeper, Future Forestry and Keep Lee County Beautiful following review of final deliverables and payment processing and began the submission and evaluation process for FY27 applicants.
- Contacted potential printers for a mass printing of the Kids Activity Book, which will be produced in English and Spanish.
- Contacted potential members for Management Conference Committee vacancies.

Digital Outreach Insights / Media

- Maintained CHNEP's website, Water Atlas resources, event calendar, newsletters and social channels; promoted the Resiliency Summit, National Estuaries Week, restoration site visits and upcoming volunteer opportunities.
- Updated the State and Federal Funding Fact Sheet to feature funding programs that are currently accepting applications.

Current Social Media Metrics

- 5,592 subscribers for CHNEP educational mailings
- 4,170 unique visitors and 5,402 page views of CHNEP website since last cycle
- 19 new Instagram followers for a total of 683
- 53 new Facebook followers for a total of 2,141
- YouTube: 21,112 views, 128 subscribers, and 380 videos

Below are updates on research and/or restoration projects (or phases of projects) recently completed or currently underway (with project fact sheets available on the CHNEP website: https://www.chnep.org/resources).

TASK 3: RESEARCH COORDINATION

Coastal Charlotte Harbor Monitoring Network (CCHMN) [Task 3.1]

- Followed up with CCHMN project partners to obtain outstanding Chain of Custody (COC) forms; all requested forms were received as of August 11, 2026.
- Completed monthly water quality sampling at the five Lower Charlotte Harbor locations and received August sampling data sheets and September laboratory reports, COC forms, and water quality data.
- Submitted the quarterly report and FY26 year-end invoice, both of which were approved; monthly Lower Charlotte Harbor water quality monitoring continues.

CHNEP Water Atlas Maintenance and Improvements [Task 3.2]

- Completed the annual water quality trends analysis, expanded water quality contour maps and trend analyses with new parameters (E. coli, Enterococcus, and True Color), updated algae and seagrass information, and reviewed new color data for accuracy.
- Incorporated county vulnerability assessments and Adaptation Action Area projects, redesigned the Water Atlas menu, added an FFWCC report to the Digital Library, and prepared FDEP biennial assessment data for integration into the Water Quality Dashboard.
- Completed FY 2026 maintenance and improvement revisions, change orders, quarterly and final reports; coordinated with data partners regarding outstanding deliverables; and held monthly project meetings and the FY 2027 kickoff to prioritize upcoming tasks and improvements.

Charlotte County Vulnerability Assessment [Closed out so removed from Work Plan]

- Coordinated with Charlotte County and FDEP to finalize Task E1 deliverables, including confirmation of the final VA Report submission on August 19, 2026.
- Completed final review and approval of all Task E1 deliverables and processed the final invoice on October 28, 2026.
- Final invoice has been processed and paid; the project is officially complete and closed out.

Highlands County Adaptation Action Area (AAA) Plans [Closed out so removed from Work Plan]

- Presented the project with CFRPC and EnSafe at the August 18, 2026, Highlands County BCC meeting; the project was formally accepted by resolution.
- Received, reviewed, and approved all final deliverables for Tasks 1 and 5; processed associated invoices on September 29, 2026.
- Completed all invoicing and administrative requirements, officially declaring the project complete and fully closed out.

DeSoto County Adaptation Action Area (AAA) Plans [Closed out so removed from Work Plan]

- Presented the project with CFRPC and KHA at the August 11, 2026, DeSoto County BCC meeting, where it was accepted by resolution. All Task 1 deliverables were received and approved, and the invoice was processed August 21, 2026.
- Received and approved all final Task 5 deliverables and processed the final invoice on September 29, 2026.
- Project has been fully invoiced, declared complete, and officially closed out.

Hardee County Adaptation Action Area (AAA) Plans [Closed out so removed from Work Plan]

- Presented the project with CFRPC and KHA at the August 20, 2026, Hardee County BCC meeting, where it was formally accepted by resolution.
- Reviewed and approved all final deliverables, processed final invoices for Tasks 1 and 5, and completed full project closeout.

Sarasota County Adaptation Action Area (AAA) Plans [Task 3.3]

- Conducted project initiation and coordination meetings with Sarasota County Public Utilities, Stormwater staff, and project partners to establish project goals, review prior vulnerability assessments, and coordinate development of Adaptation Action Area (AAA) plans.
- Initiated Task 2.1, reviewing existing vulnerability assessments, adaptation plans, and related County projects to identify information gaps, confirm project inventories, and document findings in a draft memorandum submitted to the County.
- Refined the critical asset database and developed a preliminary scoring matrix to support prioritization of critical assets and identification of preliminary AAA boundaries, incorporating County feedback and updated methodology.
- Coordinated upcoming County workshops and departmental reviews, including preparation of maps, spreadsheets, and informational materials to obtain staff input, verify critical asset information, and support development of AAA plans.

Lee County Adaptation Plan Focus Areas 15 & 16 Stormwater Planning [Task 3.4]

- The ILA was approved by the Town Council on August 3, 2026, fully executed on August 27, and submitted for recording. CHNEP and the Town continued coordination through regular project management meetings and finalized revisions to the Contractor Scope of Work.
- Procurement was completed, and the Notice to Proceed was issued to the Town on September 18, 2026. The initial engineering firm declined the assignment on October 8, and a second firm's proposed cost exceeded the $200,000 PO amount. The Town intends to cover the difference.
- The Town continues efforts to procure an engineering consultant as quickly as reasonably possible. Once selected, the consultant can proceed with the project work.

Glades County Adaptation Action Area (AAA) Plans [Task 3.5]

- Scoped the AAA project with Glades County, selected a consultant, finalized the Work Assignment, developed the project management timeline, and held the project kickoff on September 18, 2026. Continued coordination with County staff and municipal partners to identify priorities, contacts, and available data.
- Reviewed and refined methodologies for critical asset identification, data curation, and flood exposure and sensitivity analysis. Coordinated with County departments and previous project consultants to obtain GIS data, infrastructure information, and supporting vulnerability assessment materials.
- Refined the critical asset inventory, standardized GIS asset identification and naming conventions, and advanced flood-exposure screening and asset verification. Completed Task 2a Critical Asset Refinement Methodology Technical Memorandum and Task 2b refined GIS inventory, supporting asset spreadsheet, and Refinement Results Memorandum on October 30, 2026.

Water Quality Trend Assessment and Dashboard Tool [Task 3.6]

- Held project kick-off (July 9) and monthly coordination meetings. Acquired, reviewed, cleaned, and integrated 2022–2025 water quality data with the historical 2000–2021 dataset, including additional Matlacha Pass chlorophyll-a data. Resolved data discrepancies in coordination with partner agencies and shared curated datasets and metadata via GitHub.
- Completed the Task 1 Technical Memorandum documenting data protocols, methods, and limitations. Completed Task 2 nonlinear trend analysis using generalized additive models

(GAMs), including R scripts, results tables, visualizations, and thresholds, delivered October 15 ahead of schedule.

- Completed Quarterly Project Management Report #1 and continued monthly project meetings. Scheduled a November 5 meeting with the USF Water Atlas team to discuss integration of the water quality trends dashboard into the Water Atlas.

Peace River Basin Water Pollution Hotspot Assessment [Task 3.7]

- Had discussions with various stakeholders and potential project partners including Florida Gulf Coast University, Charlotte County, Central Florida Regional Planning Council, etc. and scheduled November 19th Peace River Collaborative Technical Working Group with those entities to collectively discuss scoping of the project.
- This is FY26 IIJA funded so have until September 30, 2030 to complete and pay out project.

TASK 4: WATERSHED COORDINATION / RESTORATION

Pine Island Flatwoods Preserve Wetland Habitat Enhancement [Closed out so removed from Work Plan]

- Reviewed and finalized the educational sign design with Lee County and CHNEP, incorporated feedback, procured a contractor, and completed sign fabrication.
- Received and approved all as-builts, certificates of completion, and final permit closeout documentation, including ACOE and LDO submissions.
- Reviewed and approved all final deliverables for Tasks 1 and 2, processed the final invoice on October 13, 2026, and officially closed out the project.

Tiki Point Harborwalk Living Shoreline Pilot Project [Task 4.1]

- Established the project in Wrike and conducted the August 12 kickoff meeting. Held monthly project partner meetings in September and October to review progress, deliverables, findings, timelines, and next steps.
- Completed initial site observations, additional field data collection, geotechnical borings, and a marine resource survey. Received, reviewed, and approved deliverables for Tasks 1.1, 4.1, 4.3, 4.5, and 5.1. Draft reports for Tasks 4.2, 4.4, and 5.2 were also received and reviewed.
- Prepared and submitted Contract Amendment #1 on October 23, 2026, to revise timelines for Tasks 2, 3, 4.2, and 4.4 and adjust the scope parameters for Task 4.4. The amendment was approved at the November Charlotte County BCC meeting.
- Received and processed invoices for Tasks 1.1, 4.1, 4.3, and 5.1, with all payments processed by September 29, 2026.

Yucca Pens Hydrological Restoration Project Phase 1 [Task 4.2]

- Participated in an August 5, 2026, site visit at Yucca Pens with SFWMD, FWC, Owen Environmental, and Environmental Science Associates to coordinate ongoing and planned projects and share regional knowledge.
- Finalized HDR's Scope of Work, fees, and Charlotte County contract; secured contract execution and issued a Notice to Proceed via purchase order on September 8, 2026.
- Held the project kickoff meeting on September 14 and an October 27 site visit/project meeting to coordinate project activities, schedules, data needs, and partner communications. Established Wrike project folders and reviewed and approved monthly deliverables.
- Continued advancing technical project development through acquisition and review of topographic, cross-sectional, and LiDAR data, and prepared Contract Amendment #1 to adjust costs for Tasks 1, 4, and 7.

Submerged Aquatic Vegetation and Water Quality Restoration [Task 4.3]

- Met with potential project partners on November 10th including Florida Sea Grant, Florida Dept. of Environmental Protection, Sanibel Captiva Conservation Foundation, Florida Fish and Wildlife Conservation Commission, etc. The consensus is to redirect this budgeted funding for the development of an Aquatic Habitat Restoration Model and Plan that would identify all the suitable habitat restoration areas in the region for seagrasses, oysters, clams, etc. to help evaluate and guide aquatic restoration efforts across the CHNEP area.
- As this project has not been scoped and is subject to change, no fact sheet is available online as of yet.
- This is FY26 EPA IIJA funded so have until September 30, 2030 to complete and pay out project. CHNEP would likely directly procure contractor; reviewing work products/deliverables in coordination with other partners.

Lee County SEASCAPES Project [Task 4.4]

- Held a City of Cape Coral Waterways stakeholder meeting on August 10, 2026, with 16 attendees representing water quality, boating, dredging, and other interests. Overall feedback was positive.
- Continued negotiations with Tetra Tech through October. Following review of a second proposal that did not meet project expectations, the City and CHNEP mutually decided to end negotiations and began contacting smaller local firms.
- Held monthly project meetings in August, September, and October to discuss procurement, project progress, deliverables, and next steps. Reviewed and provided comments on Task 2 deliverables, including the Site Data Needs Memo and Suitable Areas Assessment Report.
- Continued site evaluations, including bathymetric surveying and water quality sampling at Lake Finisterre, to support the project's ecological assessment and identification of suitable project areas.

Manatee County Oyster Restoration Project [Task 4.5]

- CHNEP and Manatee County developed and finalized the Work Assignment and Contractor Scope of Work. The ILA was fully executed in August, and a Purchase Order was issued September 14, 2026, serving as Manatee County's Notice to Proceed.
- Manatee County continued procurement and contract negotiations with Cummins Cederberg, including review of updated scopes, fees, and contract terms. The procurement package was submitted to the County's Grants Department for review.
- CHNEP and Manatee County held scoping meetings in August and September. Monthly meetings paused in October due to County staffing changes, with project coordination expected to resume in November. Project implementation will begin following contractor procurement.

Sarasota County Warm Mineral Springs Habitat Restoration Initiative [Task 4.6]

- Interlocal Agreement with the City of North Port was executed May 19, 2026, and the Work Assignment/Purchase Order serving as the Notice to Proceed (NTP) was issued June 22, 2026.
- The City finalized and advertised RFB 2026-22 on September 11, 2026, conducted a pre-bid meeting and site visit on September 21 with approximately eight vendors, and closed bidding on October 19. Five bids were received and are under review.
- The City completed site visits to verify planting areas, site conditions, and access for invasive species removal. Roles and responsibilities between the City and contractor were clarified, including the contractor's $8,500 meeting participation allocation.

- Monthly meetings were held August 31, September 14, and October 28. Monthly agendas, minutes, and progress reports were reviewed and approved. Recurring coordination meetings are scheduled for the second Monday of each month, beginning November 9, 2026.
- Advanced contractor solicitation and site assessments; the City of North Port opened bids in September and received five bids by the October 19 closing date, with evaluation underway.

Polk County Lake Idyl Sediment Inactivation [Task 4.7]

- Held an initial scoping meeting with the City of Winter Haven on August 7, 2026, providing project guidance and discussing logistics. The City confirmed it will lead procurement and project management.
- The City of Winter Haven initiated and continued development of the project Scope of Work.
- CHNEP's next step is to draft an Interlocal Agreement (ILA) between the City of Winter Haven and Charlotte County/CHNEP.
- This is FY26 EPA 320 funded so have until September 30, 2030 to complete and pay out project.

Charlotte County Exceptional Ponds Initiative [Task 4.8]

- Met with Charlotte County staff to begin project planning and they are presently in process of developing a project scope. CHNEP and County to develop MOU regarding project as well.
- As this project has not been scoped and is subject to change, no fact sheet is available online as of yet.
- This is FY26 EPA 320 funded so have until September 30, 2030 to complete and pay out project.
- Charlotte County will lead procurement and oversee contractor, with independent review and approval of technical deliverables by CHNEP prior to reimbursement.

Hardee Lakes Park Habitat Enhancement & Conservation Initiative [Task 4.9]

- Held multiple coordination meetings with Hardee County (July 29 and October 26, 2026) to discuss project scoping, procurement, and project management responsibilities.
- Supported development of the Scope of Work by providing an example RLI scope, reviewing draft versions, and providing feedback (August 21 and October 28, 2026).
- Finalize the Scope of Work, have Hardee County review Charlotte County's engineering contractor library and confirm procurement/project management responsibilities, then proceed with the appropriate procurement process.
- This is FY26 EPA 320 funded so have until September 30, 2030 to complete and pay out project.

Hendry County Pollywog Creek Stabilization [Task 4.10]

- Finalized project scoping, solicited and reviewed Letters of Intent, and selected DRMP as the highest-ranked contractor. Vendor recommendation forms were submitted to Charlotte County Purchasing on July 30, 2026.
- Completed contract negotiations and finalized the Scope of Work and fees. The Charlotte County Board approved the project on September 22, 2026, and the contract and Purchase Order were finalized September 25, 2026, serving as DRMP's Notice to Proceed.
- Conducted the project kickoff meeting on October 30, 2026, initiated field surveys, coordinated a pre-application meeting with SFWMD for December 8, 2026, and established the project in Wrike to facilitate partner coordination and communication.

Research & Restoration TBD Project [Task 4.11]

- This funding is proposed to be divided to fund two new projects: the Lehigh Acres Municipal Service Improvement District Leeland Sinkhole project and an updated Terrestrial Habitat Restoration Model and Plan project.
- The Leeland Sinkhole has been proven to connect directly to the Sandstone Aquifer, a drinking water source. The project would be to restore native vegetation in a protective buffer around the sinkhole, as well as to install educational signage that would allow this important water supply conduit to be secured, inflow into it protected, and be outfitted to be a public educational resource for citizens to learn the importance of aquifers for drinking water supply and of the need to adequately protect waters flowing into them.
- The updated Terrestrial Habitat Restoration Model and Plan project would be to use latest climate science, as well as land conservation and habitat information to create a master regional plan for protecting and restoring exceptional terrestrial habitats in the CHNEP area. This is required by the US EPA to be completed within 10 years of the current CHNEP Habitat Restoration Needs Plan, which was completed in 2019 (Phase I) and 2020 (Phase II); therefore, the update is targeted for completion in 2029.
- This is FY26 EPA IIJA funded so have until September 30, 2030, to complete and pay out project. CHNEP would likely directly procure the contractor; reviewing work products/deliverables in coordination with other partners.

Jennifer Hecker, CHNEP Executive Director, will be presenting the CHNEP Update.

6. NEW CHEAPER EASIER OYSTER RESTORATION METHODS

This presentation by Oyster River Ecology (ORE), a 501(c)(3) nonprofit organization, will cover their innovative and fully open-source approach to large-scale oyster reef restoration using Oyster Rag Pots (ORPs), a low-cost cultching (i.e. placing substrate for the oyster spat to attach and grow on) method they developed to overcome the financial and logistical limitations of conventional restoration techniques. Founded in 2022, ORE has rapidly advanced from developing this method to implementing large-scale restoration projects in Southwest Florida. Working with community volunteers, ORE has manufactured and deployed more than 65,000 ORPs in the Manatee River, restoring over 1.4 acres of subtidal oyster habitat. Monitoring results demonstrate exceptional oyster recruitment, averaging 101 oysters per ORP after one year, with adjacent structures coalescing into continuous reef habitat. The presentation will explore the ecological and historical considerations informing site selection, the importance of three-dimensional substrate complexity, and the strategies behind ORE's success.

Oyster rag pots (ORPs)

An ORP consists of cement-coated cotton fabric formed into an open, three-dimensional structure, supported by a metal pin and shaped using a wooden spacer. The hardened material provides surfaces on which larvae of the eastern oyster (*Crassostrea virginica*) can settle. It is a lower-cost alternative to conventional limestone, shell, and other reef-building substrates.

The design has several practical advantages:

- *High settlement surface area:* The open structure exposes multiple surfaces for oyster recruitment.
- *Reduced material requirements:* Thin, cement-coated fabric provides hard substrate without requiring large volumes of rock.
- *Suitability for soft bottoms:* The broad footprint can help distribute weight over unconsolidated sediments.

- *Modular deployment:* Individual units can be installed manually in shallow-water restoration areas.
- *Biological reef development:* As oysters grow, adjacent structures can become connected through shell accretion.

Documented restoration results

Reported installation of 56,000+ ORPs by September 2026. Observed recruitment ~101 Oysters per sampled ORP after ~1 year. Typical spacing is 1 ft reported center-to-center spacing.

The September 2026 presentation to the Plan Hillsborough Technical Advisory Council reported substantial oyster recruitment and observations of crabs, toadfish, snapping shrimp, and other organisms on restored structures.

These findings suggest that ORPs can rapidly establish oyster-bearing hard-bottom habitat at suitable locations. However, long-term reef persistence, regional water-quality improvements, or comparative performance against conventional substrates will become clearer over time.

The key transferable lesson is that restoration performance should be evaluated through oyster survival, reef development, and ecological function—not simply the number of units deployed.

Technical considerations for transferring the method

Technical component	ORE approach or observation	Transferable implication
Substrate	Cement-coated cotton fabric	Test settlement suitability, durability, and environmental compatibility
Structural design	Open, three-dimensional pot	Maximize accessible attachment surface while avoiding sediment burial
Installation	Approximately one-foot centers	Evaluate spacing for reef connectivity and hydrodynamic conditions
Recruitment	Approximately 101 oysters per sampled unit after one year	Quantify live oyster density and recruitment variability
Reef development	Adjacent units can coalesce as oysters grow	Measure reef continuity, height, and structural complexity
Site selection	Restoration of historic oyster habitat	Screen salinity, water depth, recruitment supply, sediment, and freshwater exposure
Costs	Lower-cost alternative to rock placement	Compare full lifecycle costs, including labor and monitoring
Community involvement	Volunteer fabrication and installation	Develop standardized fabrication procedures and quality assurance

Site suitability is particularly important. The Manatee River experience cannot be assumed to translate directly to the Peace River, Myakka River, Caloosahatchee River, or other Southwest Florida estuaries. Freshwater inflows, salinity variability, sedimentation, larval supply, and local hydrodynamics may produce very different restoration outcomes. For example, a site may have adequate larval recruitment but experience high mortality during prolonged low-salinity events.

Another site may maintain suitable salinity but have excessive sediment deposition that buries young oysters. Therefore, scientists should evaluate whether oyster recruitment, survival, and reef persistence are limited primarily by available substrate or by environmental conditions before selecting ORPs as the restoration intervention.

Scientific monitoring protocol

To make ORE's findings reproducible and useful to other scientists, a standardized monitoring framework could be implemented.

Monitoring indicator	Recommended method	Frequency
Oyster recruitment	Count live spat and juveniles on randomly selected ORPs	3, 6, 12 months
Oyster survival	Record live and dead oysters by size class	Quarterly
Shell growth	Measure shell height in millimeters	Quarterly
Reef development	Measure reef elevation, coverage, and connectivity	6 and 12 months, annually thereafter
Salinity	Deploy continuous salinity loggers	Continuous
Temperature and dissolved oxygen	Multiparameter sondes	Continuous where feasible
Sedimentation	Sediment pins, deposition measurements, and burial observations	Quarterly and after storms
Associated fauna	Standardized quadrat or habitat sampling	Initial 3 & 6 months and then annually
Structural durability	Inspect breakage, movement, and exposure of support materials	Initial 3 & 6 months and then after storms and annually
Cost effectiveness	Record material, fabrication, deployment, and maintenance costs	Throughout project

Scientists could also document the number of ORPs sampled, sampling design, site characteristics, variability, and confidence intervals.

Potential experimental design

A regional pilot could compare three treatments:

1. Oyster rag pots.
2. Conventional oyster restoration substrate, such as oyster shell or limestone.
3. Unrestored reference plots.

It could use replicated, randomized plots where feasible, with comparable environmental conditions and a minimum of two years of monitoring. Could include additional reference sites representing functioning natural reefs. This would allow researchers to determine whether ORPs provide comparable or superior oyster recruitment, survival, habitat development, and cost effectiveness.

Economic and operational considerations

ORE's approach is particularly significant because restoration costs often limit the acreage that can be restored. ORE has reported material costs around $1 each in materials, allowing ORE to create oyster reef habitat for just $6–$8 per square foot, including all direct and indirect project costs…while one conventional limestone-placement estimate was approximately $635,600 per acre. These figures are not directly comparable because the limestone estimate and ORP material estimate cover different cost categories. The production process is also designed for community participation. ORE reports that approximately 10 volunteers can produce 450 ORPs in less than two hours. The simplicity of ORP production and installation also allows ORE to engage the public directly in meaningful, hands-on restoration, connecting community participation with measurable ecological outcomes. Moore and Kuhn will demonstrate how this combination of affordability, ecological effectiveness, and community engagement is opening new opportunities for large-scale oyster reef restoration.

Damon Moore, Founder & Executive Director and Abbey Kuhn, Ecological Projects Coordinator of Oyster River Ecology (ORE) will be co-presenting this item.

7. MICROBIAL HABITAT ASSESSMENT REVEALS TERRESTRIAL AND WASTEWATER IMPACTS ON COASTAL MICROBIAL WATER QUALITY AFTER HURRICANE MILTON

Tropical cyclones can alter coastal microbial water quality through terrestrial runoff, wastewater releases, and marine sediment resuspension, but the relative contributions of these sources remain poorly understood. A novel framework, Large-Language-Model-Assisted Microbial Habitat Assessment (LAMHA), was developed to track the sources of microbial contaminants. The LAMHA was applied to approximately 100 miles of Florida's Gulf Coast following Hurricane Milton. The findings demonstrate that this framework can quantify the contributions of terrestrial runoff and wastewater releases to coastal microbial water quality. In applying the LAMHA, it was also found that tropical cyclones can transport antibiotic resistance genes (ARGs) associated with solid particles, potentially increasing opportunities for the emergence of antibiotic-resistant marine pathogens. This research is presented in a scientific journal article that CHNEP was a co-author on, which is being published shortly in *Nature Communications*.

Main findings

- Researchers sampled water at 30 coastal locations one week and 30 weeks after the hurricane, with a smaller group also sampled after two weeks.
- One week after the storm, the water contained much higher levels of fecal-indicator bacteria, potentially harmful bacteria, and antibiotic-resistance genes than it did 30 weeks later.
- Five sites had poor swimming-water quality and three had moderate quality one week after the storm. By Week 30, all sites were rated good based on enterococci levels.
- Several contaminants remained elevated for at least two weeks, suggesting that the effects were not limited to the days immediately after landfall.

Where the contamination came from

The evidence pointed to three overlapping pathways:

- Runoff from land: Heavy rain, flooding, and retreating storm surge carried bacteria from soils, rivers, streets, and other inland environments into coastal water.
- Wastewater releases: Damage or disruption to sewer systems contributed bacteria and antibiotic-resistance genes. Sites within 10 km of a reported wastewater spill were about 10 times more likely to have high levels of wastewater-associated bacteria.
- Disturbed marine sediments: Waves and storm surge stirred up bacteria already present in coastal sediments. This pathway was associated with *Vibrio parahaemolyticus*, a naturally occurring marine bacterium that can cause illness.

The new LAMHA method

- The researchers developed a method called LAMHA. It uses information from a large public database to determine whether bacterial species are most commonly associated with marine environments, land, or wastewater. An AI language model helps interpret the database's inconsistent, free-text descriptions.
- LAMHA detected broader and more abundant environmental signals than conventional microbial source tracking, which looks for specific genetic markers linked to humans or animals. Those conventional markers were often too scarce to detect after being diluted in coastal water.
- LAMHA's classifications also followed expected environmental patterns: land-associated bacteria were more common in fresher, land-influenced water, while marine-associated bacteria were more common in saltier water.

Public health significance

Different sources were connected to different hazards:

- Enterococci, commonly used to judge recreational-water safety, were associated with both land runoff and wastewater.
- Several antibiotic-resistance genes were associated with wastewater.
- One resistance gene, *sul2*, was strongly associated with land-derived bacteria as well as wastewater.
- The marine pathogen *Vibrio parahaemolyticus* was associated with marine bacteria, supporting sediment disturbance as a possible source.

These distinctions could help authorities decide whether a problem calls for sewer repairs, runoff controls, public beach warnings, or monitoring of naturally occurring marine pathogens.

Important limitations

- The study cannot prove that every change was caused by Hurricane Milton. There were no samples from before the hurricane and no unaffected comparison sites, so seasonal changes or other events may have contributed.
- LAMHA also depends on incomplete and sometimes contradictory public database records. It assigns each species to one main habitat even though many bacteria live in several environments. Some of the weaker statistical relationships changed when the researchers used stricter data-quality rules.
- Overall, the paper presents LAMHA as a complement to existing testing methods, not a replacement. Its main value is helping interpret where microbial contamination may have come from after a storm, especially when traditional source markers have become too diluted to detect reliably.

Chamteut Oh, Ph.D., Assistant Professor in the Department of Environmental Engineering Sciences at the Engineering School of Sustainable Infrastructure & Environment / Herbert Wertheim College of Engineering, University of Florida will be presenting this item.

8. ASSESSING AND ADAPTIVELY MANAGING FRESHWATER LAKE SYSTEMS

The City of Winter Haven is home to nearly 50 lakes of critical social, economic, and environmental importance to the community. This high density of public waterbodies necessitated the development of a means to prioritize management efforts and funding. The vehicle for this assessment protocol was the Winter Haven Annual Lakes Report which has compiled water quality, hydrologic, and ecological data within a holistic lake health evaluation metric (i.e. the Lake Health Index) since 2018. In addition to providing a robust, data-driven mechanism for tracking lake health, each of the City's management practices are catalogued and related to strategic organizational goals. Moreover, the report was designed with accessibility in

mind—including an introductory section briefing readers on limnological concepts and the importance of the evaluation metrics. This living document serves as an important resource management and public education tool that ensures objective decision-making and organizational accountability. Transferrable technical information will be shared as to how other communities can develop and implement a similar approach to manage their freshwater systems.

The approach used in the City of Winter Haven's Annual Lakes Report provides a useful model for managing freshwater lakes, wetlands, and interconnected aquatic systems throughout Southwest and Central Florida. Its greatest value is the integration of long-term water quality monitoring, scientific assessment, watershed management, and public communication into a framework that supports informed management decisions. This approach is particularly relevant to freshwater systems within the Coastal & Heartland Harbor National Estuary Partnership (CHNEP) watershed, where changes in nutrient loading, hydrology, land use, and climate can affect freshwater habitats and downstream estuarine conditions.

Transferable lessons learned

1) Long-term monitoring is essential for identifying meaningful environmental change.
Individual sampling events provide snapshots of lake conditions, but consistent monitoring over multiple years allows managers to distinguish seasonal variability from persistent water quality trends. This is especially important for evaluating nutrient enrichment, algal blooms, and the effectiveness of restoration activities.

2) *Individual waterbodies must be evaluated within their broader watershed context.*
Freshwater systems are influenced by stormwater runoff, surrounding land uses, groundwater interactions, hydrologic connections, and upstream nutrient sources. Managing lakes as part of an interconnected system helps identify contributing pollution sources and prioritize watershed-scale solutions.

3) *Standardized assessments improve comparability and accountability.*
Consistent sampling methods, laboratory procedures, data analysis, and reporting metrics allow water quality conditions to be compared across lakes and over time. This provides a stronger scientific basis for prioritizing restoration investments and evaluating progress.

4) *Clear communication helps translate science into action.*
Annual reporting makes technical information accessible to local governments, resource managers, elected officials, and residents. Presenting trends, lake conditions, and management concerns in a consistent format improves transparency and encourages community participation in freshwater stewardship.

Transferable protocols and management practices

PROTOCOL	APPLICATION TO OTHER FRESHWATER SYSTEMS
Routine water quality monitoring	Collect consistent data on total nitrogen, total phosphorus, chlorophyll-a, water clarity, and other relevant indicators.
Standardized sampling and quality assurance	Use established field and laboratory procedures, documented sampling locations, and quality assurance/quality control protocols.
Annual lake condition assessments	Evaluate each waterbody using consistent indicators, including trophic state, nutrient concentrations, and historical trends.
Long-term trend analysis	Assess changes over multiple years while accounting for seasonal and hydrologic variability.

Watershed-based evaluation	Consider land use, stormwater inputs, hydrologic connectivity, and upstream sources when interpreting water quality conditions.
Consistent public reporting	Produce annual summaries with comparable metrics, graphics, interpretations, and management recommendations.
Adaptive management	Use monitoring results to adjust restoration priorities, identify data gaps, and assess management effectiveness.

Practical implications for freshwater management

Applying a similar approach across freshwater systems can improve the efficiency, effectiveness, and accountability of resource management programs.

- *Earlier identification of emerging problems***:** Routine monitoring can reveal deteriorating water quality before more severe ecological impacts develop.
- *Better prioritization of limited funding***:** Comparable Lake assessments help identify waterbodies with the greatest restoration needs or highest ecological significance.
- *Additional effective restoration strategies:* Linking water quality trends with watershed conditions helps managers select appropriate stormwater improvements, nutrient reduction measures, and habitat restoration activities.
- *Improved evaluation of management outcomes:* Long-term datasets provide a basis for determining whether implemented projects are producing measurable environmental benefits.
- *Stronger regional coordination:* Standardized reporting can facilitate data sharing among municipalities, counties, water management districts, and environmental organizations.
- *Greater public awareness and engagement:* Accessible annual reports help residents understand freshwater conditions and the role of individual and community actions in protecting aquatic resources.

Evidence from Winter Haven's experience

Winter Haven's reports demonstrate the value of evaluating freshwater health using integrated water quality, hydrologic, and biological indicators rather than relying solely on regulatory compliance.

For example, the 2024 report documented that 54% of its 37 assessed lakes met state water quality targets, compared with 37% in 2018. The 2025 report subsequently indicated that 51% met applicable standards, demonstrating both long-term improvement and the importance of continued monitoring.

The city's methodology also uses lake health scores to identify priority waterbodies, while its annual reports connect monitoring results with management initiatives and municipal strategic goals.

Opportunities for applying framework on regional scale

A comparable regional freshwater assessment could build upon Winter Haven's model by establishing a consistent framework for evaluating lakes, freshwater wetlands, and connected tributaries across multiple jurisdictions. The most transferable aspect of Winter Haven's approach is not simply producing an annual report, but establishing a repeatable, science-based decision-making process that connects monitoring, ecological assessment, restoration priorities, management accountability, and public engagement.

Devon Moore, Senior Environmental Scientist for the City of Winter Haven Natural Resources division, will be presenting this item.

9. TAC Membership Updates

Each member will have time to update the Committee on research or restoration projects currently underway or recently completed related to clean water and natural resources in the CHNEP area. This time also serves as an opportunity for members to make announcements or discuss other topics of interest with the Committee members.

TAC Co-Chair Stefan Kalev will be leading and facilitating this discussion.

10. Public Comment

Each participating member of the public is afforded up to 3 minutes total to speak at this point in the meeting.

11. Future Meeting's Topics, Location and Date

Please mark your calendar for the upcoming 2027 CHNEP TAC Meeting dates: 4/8/27, 8/5/27, 12/2/27.

If you have ideas of new research and restoration topics and/or presenters (including those outside the CHNEP area if applicable to CHNEP CCMP efforts), please email CHNEP at jhecker@chnep.org.

12. Adjourn