



**Southwest FL Oyster Working Group Meeting 5**  
**Friday September 7, 2012**  
**1:30pm – 4:30 pm**  
**SWFRPC, 1926 Victoria Ave., Fort Myers, FL 33901**

**You may also join the meeting remotely via Teleconference &/or WebEx:**

- **To hear via Teleconference:** Dial (866) 385-9623 and enter Conference Code 576-723-6801 when prompted.
- **WebEx instructions will be sent out via email prior to the meeting.**

**AGENDA**

**Purpose:** The purposes of the Southwest FL Oyster Working Group Meeting 4 are:

- Review the Draft CHNEP Oyster Restoration Plan.
- Define the CHNEP Oyster Restoration Goals.

**Meeting:**

1. Welcome & Introductions – Judy Ott
2. Schedule for Oyster Restoration Plan Completion – Judy Ott
3. Overview of the Complete Draft CHNEP Oyster Restoration Plan – Jaime Boswell
4. Discuss CHNEP Oyster Restoration Goals – Judy Ott
5. Discuss Success Criteria – Jaime Boswell
6. Discuss Monitoring – Jaime Boswell
7. General Discussion/Comments – Judy Ott
8. Next Tasks, Duties & Schedule – Judy Ott

**THIS MEETING IS OPEN TO THE PUBLIC**

Two or more members of the Everglades West and Caloosahatchee Basin Working Groups, Peace River Basin Management Advisory Committee, Peace River Basin Management Working Group, or Southwest Florida Regional Planning Council may be in attendance, and may discuss matters that could come before the respective body.



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**September 7, 2012**  
**1:30 pm – 4:30 pm**  
**SWFRPC, 1926 Victoria Ave., Fort Myers, FL 33901**

**MEETING NOTES**

**Note:** The Southwest FL Oyster Working Group Meeting 5 was originally scheduled for August 27, 2012, but was rescheduled to September 7, 2012 due to Hurricane Isaac.

**Attendees:**

**On Site:** Jim Beever/SWFRPC, Lisa Beever/CHNEP, Anne Birch/TNC, Lucy Blair/FDEP, Loren Coen/FAU, Jim Culter/Mote Marine Lab, Holly Downing/City of Sanibel, Katy McBride/City of Cape Coral, Eric Milbrandt/SCCF, Judy Ott/CHNEP, Pete Quasius/Snook Foundation, Erin Rasnake/FDEP.

**Via WebEx:** Jaime Boswell/Independent Contractor, Mark Berrigan/FDACS, Becky Conway, Lizanne Garcia/SWFWMD, Steve Geiger/FWC, Andrea Graves/TNC, Marti Maguire/NOAA, Arielle Poulas/FDEP, Heather Stafford/FDEP; Paul Zajicek/FDACS.

**Purposes of the Meeting:**

- Review the Draft CHNEP Oyster Habitat Restoration Plan.
- Define the CHNEP Oyster Habitat Restoration Goals.

**Meeting Notes:**

**1. Welcome & Introductions – Judy Ott, CHNEP**

The meeting was called to order at 1:30 pm. Members introduced themselves & Judy Ott/CHNEP reviewed the purposes & agenda for the meeting, progress on the draft CHNEP Oyster Habitat Restoration Plan since the previous meeting (June 19, 2012) & thanked Jaime Boswell/Independent Contractor for her excellent work preparing the draft plan.

**2. Schedule for Oyster Restoration Plan Completion – Judy Ott, CHNEP**

Judy reviewed the schedule for completing the final draft CHNEP Oyster Habitat Restoration plan to allow presentation to the TAC at its October 10, 2012 meeting for approval, including:

- All comments on draft plan are due by September 10, 2012.
- Comments will be incorporated & the final draft plan will be prepared for TAC agenda packet by October 2, 2012, for TAC approval at its October 10, 2012 meeting.
- TAC comments will be incorporated & the final plan will be prepared for the Management Committee agenda packet by October 26, 2012, for Management Committee approval at its November 2, 2012 meeting.
- Management Committee comments will be incorporated & the final plan will be prepared for the Policy Committee agenda packet by November 9, 2012, for Policy Committee approval at its November 16, 2012 meeting.
- Final publication details will be incorporated & the approved CHNEP Oyster Habitat Restoration Plan will be published in mid-December 2012.

**Discussion:** (none).

**3. Overview of the Complete Draft CHNEP Oyster Restoration Plan – Jaime Boswell, Independent Contractor**

Jaime thanked the members for their contributions to compiling technical information & developing the draft plan. She began leading the discussion through the draft plan to solicit comments & edits. Significant discussion ensued & is summarized by section below.

**Copyediting/proofreading (throughout):**

- Jaime: We are currently working on proofreading & editing; comments are due to her by September 10.

**Discussion:** (none).

**References (throughout):**

- Jaime: We will add new references where suggested & use consistent format throughout the document & Literature Cited section.

- We are currently incorporating additional references; references are due to her by September 10.

**Discussion:** (none).

**Tables (throughout):**

- Jaime: We are currently formatting tables for consistency.
- We will include a table of data layers used to create the RSM with dates, sources, & resolution.

**Discussion:** (none).

**Figures (throughout):**

- Jaime: We will add sources for all data layers that were not created by CHNEP and/or SWFRPC will be included on the maps with dates.
- We will discuss making the scale consistent on all figures in Appendices C & D.
- We will discuss including a map of isohalines.
- Figure 3: We will clarify if the Water Management District boundaries cross through Charlotte Harbor; need to confirm with FDEP & WMDs.
- Figure 6, etc.: We will change colors on all maps to better distinguish between 100% & 80% suitability.
- Figure 7, etc.: We will correct the spelling of Accommodation on all maps.
- Figure 7, etc.: We will check with Aswani & Lesli Haynes to ensure accuracy & completeness of existing oyster restoration sites & change label to “Completed Oyster Restoration sites.
- Figure 8, etc.: We will add the two bird rookeries suggested by Pete Quasius, as well as other rookeries known by members and provided to Judy Ott.
- Appendix C: We will incorporate editorial changes suggested above.
- Appendix D: We will incorporate editorial changes suggested above.
- Cover: We need good photos of oyster restoration; please send photos to Jaime.
- Jaime & Judy will incorporate edits to figures.

**Table of Contents (pages iv-vi):**

- Jaime will continue to up-date the Table of Contents as edits are incorporated into the draft plan.

**Introduction (pages 2-5):**

- Jaime: The purpose of this section is to set the stage for why & how CHNEP is developing oyster restoration goals & define the objectives for the CHNEP Oyster Habitat Restoration Plan.

**Discussion:**

- Erin Rasnake/FDEP: Need to update the CHNEP Management Conference membership page; Lisa Beever/CHNEP & Judy will provide an up-dated membership list.
- Eric Milbrandt/SCCF: Need to change language in FW-1 from oyster bar to oyster habitat (page 2); Lisa would like to include the language from the current 2008 CCMP update & clarify that the definition will be updated in 2013 CCMP.
- Heather Stafford/FDEP: Is there a definition of oyster habitat? Jaime: In draft plan we included mangroves & seawalls, but will revise the language in the final draft plan to include mangrove prop root, reef & clump oysters.
- Eric: Oysters can be on prop roots; Jim Beever/SWFWPC: types of oysters vary by region within the CHNEP; Loren Coen/FAU: Predominate species in CHNEP is *Crassostrea virginica*.
- Jim B: CHNEP oyster restoration won't just be oyster reefs restoration, it will restore other habitats, too; Jaime: The plan does state that CHNEP will focus on restoration of “native species” of oyster; Heather: So oyster habitat contains live oysters, not a substrate that oysters can grow on, just putting a hard bottom down doesn't mean restoring habitat...; Jim B: goal is area of living oysters.
- Jaime & Judy will clarify definition of oyster habitat & species throughout document.

**Oyster Population & Habitat Loss (pages 5-7):**

- Jaime: We will add a paragraph on use of oysters by indigenous people in SW Florida.

- We will add some additional wording on sea level rise in Charlotte Harbor & incorporate reference to Laura Geselbracht's work at TNC.

**Discussion:**

- Jim B: Earlier we mentioned including history & indigenous species; one of major loss was direct habitat destruction & dredging & secondary effects from siltation & oyster mining; Jaime: do you have references; Jim B: doesn't have any; also can use nautical charts & historical records; Loren: need to rewrite introduction to reflect that the primary loss here hasn't been due to over harvesting; Jim B: references aren't in scientific journals, are more in history books; Steve Geiger/FWC &/or Mark Berrigan/FDACS might have records; Steve: doesn't have historical references; Lisa: Need to review historical nautical charts that are geo-referenced the CHNEP has; Lisa will find the GIS files.
- Loren: Need to add a mapping objective; Jaime: did not intend to do mapping as part of this plan & the objectives on page 5 are only for this CHNEP Oyster Habitat Restoration Plan, not the details for all the CHNEP oyster restoration in tasks; Eric: plan talks about doing mapping effort concurrently with restoring.
- Loren: Need to define success criteria & relate them to project goals.
- Jaime: We will clarify the plan objectives on page 5 & strengthen the Background section.

**Ecosystem Services (pages 7-8):**

- Jaime: We are trying to balance an introduction to some of the ecosystem services oysters provide with keeping the document readable; so the idea is to provide the basics of oyster ecosystem services.

**Discussion:**

- Loren: Need to include complete list of references, including current ones to table 1; would prefer references are listed by year not name; need to separate categories for water quality from bio-assimilation, especially as they relate to living shorelines; need to include indirect effects where restoration enhances SAV, like in Clam Bayou; the references are skewed to SW FL, need to include references for broader geographic scope.
- Jim B: Need to differentiate between documented services & hypothetical services; there is scientific debate about how oysters help or hinder storm & SAV; need to add review papers that summarize other references.
- Jim Culter/Mote Marine Laboratory: However, need to consider time constraints & level of detail appropriate for this plan (it is not a thesis) & not get lost into details; suggest adding the word "key" ecosystem services.
- Loren: There is also scientific debate if oysters are carbon sinks or sources & how they will be effected by pH change; Jim B: oysters could be carbon transformers.
- Anne Birch/TNC: Please provide additional references to Jaime ASAP.

**Oyster Life History (pages 8-9):**

- Jaime: we need to add life span of individual oysters & oyster reefs (page 9).

**Discussion:**

- Erin: Is there a typical life span for oysters & how do you estimate the life of an oyster reef?
- Jim B: Did provide references to Jaime suggesting oysters can live 20 years; Loren: oyster reefs can continue to grow for 1,000 years; Jim B: Under healthy conditions, individual oyster can live up to 20 years, & reefs have been documented to continue to grow for over 100s of years; Jim's rule of thumb is that oysters in CHNEP generally live intertidally for 3-5 years; remember that once oyster habitat is restored will provide habitat for future.
- Judy: Please provide references to Jaime & we will incorporate them into this section.

**Oyster Distribution (pages 9-11):**

- Jaime: We will add language & references regarding effects of pollution on oyster viability; need to review & include additional references from Erin Rasnake.

**Discussion:**

- Loren: This section could use some work & Loren has many comments, which he will provide to Jaime.
- Jaime: Steve also had a comment of needing new information.
- Loren: Need more current references for factors listed on page 10, including Kennedy, et al; DO isn't as critical for intertidal oysters; Jim B: most important problem is Dissolved Oxygen < 3ppt.

- Eric: Need to define & separate pollutant vs. disease vs. chlorophyll; quite a bit of debate about optimal conditions; need to mention nonpoint sources pollution & blue green algae blooms; distinguish contaminants vs. water quality.
- Jim B: Need to add chlorophyll, water quality & food availability; don't want Charlotte Harbor to be too "pristine" because need adequate food for oysters; tannic waters aren't a problem; need to add a paragraph about food & nutrient resources.
- Jaime: Need to refine this section; Judy: could split "pollutant" into 2 categories, contaminants & nutrients; Loren: either expand & clarify or lump into general paragraph.
- Loren: Need a discussion, section & references about sedimentation; some areas with high sediment have healthy oyster reefs; there are also additional conditions that have little effect on oysters (i.e. flatworms); need to bring this section up to date & either just provide a list or expand the descriptions in more detail.
- Loren: Also, need to clarify if focusing on intertidal or also including subtidal oysters, because the list will change, especially dissolved oxygen.
- Lisa: Need to look at the purpose of document & audience; these brief descriptions are useful & form basis of further goals; useful; Loren: should this section focus on CHNEP area or a broader geographic area; need to reword generalized statements.
- Jim C: For this section, these factors need to be more generalized & qualified with a sentence recognizing site specific consideration.

#### **Past Oyster Mapping Efforts (page 12):**

- Jaime: We have updated the 1950s map to remove the area off Fort Myers Beach & need to update the acres in the text.

**Discussion:** (none).

#### **Current Oyster Mapping Efforts (page 13):**

- Jaime: We will add Mike Savarese's work coring/mapping to list of monitoring/mapping (p13)
- We need to add the dates of the current mapping efforts; please provide dates for your monitoring & mapping efforts to Jaime.

**Discussion:**

- Loren: Be explicit about the locations & types of oyster that the mapping is referring to; Jaime: We introduce historical mapping briefly, but it isn't the scope of this plan to include the details of all mapping & monitoring efforts.

#### **Current Oyster Restoration Activities (page 13):**

- Jaime: We need dates for oyster restoration activities; please provide dates of your restoration activities to Jaime.

**Discussion:**

- Judy will help get values from Jay/SBEP.

#### **Shellfish Workshops & Working Groups (pages 13-14):**

- Jaime: The list of relevant oyster restoration workshops & working groups is included in the plan.

**Discussion:**

- Loren: Do you want to include ones that aren't relevant to SW FL oyster restoration?
- Erin: Need to add dates for meetings & start dates for working groups.
- Jim B: If we include names of contact people for meetings & working groups, need to add contact information; could include it as an appendix, or exclude the contact name.

#### **Regional Management Considerations (pages 14-17):**

- Jaime: We will expand the water management section to include more detail about FDEP work, including BMAPs & TMDLs.

**Discussion:**

- Loren: Need to define geographic scope of "regional"; Jaime: We are referring to SW FL & will clarify language throughout the document.

- Jim B: need to differentiate water volume/quantity vs. quality.
- Jaime & Judy will clarify water quality vs. water quantity language.

#### **Regulatory Permitting Considerations (pages 17-21):**

- Jaime: This section has been reviewed by FDEP, USACE, SFWMD, & FDACS & we have received comments from most agencies which will be incorporated.

#### **Discussion:**

- Loren: Do we need to bring in permitting as it might relate to other activities that include oysters like living shorelines; TNC is pulling together regulatory information about other activities; Judy: we will limit the discussions in this plan to restoration of oysters as habitat; Loren: What about reefs that are greater than a certain height?; Jaime: This is for projects where the primary goal is restoring oyster habitat.
- Anne: Are there regulations that would be different for living shorelines? Loren: Only as it distinguished between height, which is a function of the number of bags; Lucy Blair/FDEP: The discussion in the draft plan is adequate for FDEP concerns; Jim C: That determination would be up to permitting agencies;
- Anne: What is missing from this section? Loren: Discussions about permitting for larger multi-acre subtidal; could include permitting discussion from past restoration projects like those on Sanibel.
- Lucy: If write in this more specifically, will be out of date soon.
- Erin: Need to add a paragraph about a team approach to permitting to the 2<sup>nd</sup> paragraph after “Practitioners planning on implementing oyster restoration...”
- Jaime & Judy will work with Lucy & Erin to clarify language.

#### **Planning for Successful Oyster Habitat Restoration (page 22):**

- Jaime: This is the introduction to the oyster habitat restoration suitability analyses.

#### **Discussion:**

- Loren: This would be a good add to add need identify site selection process.
- Heather: Need to consistently use oyster restoration, not oyster habitat restoration; Lisa: CCMP focuses on habitat restoration; Jim B: The CHNEP Oyster Habitat RSM is based on habitat restoration, not just oyster restoration; Jim C: Oysters in effect create their own habitat so it’s a circular argument.
- Heather: Need to define oyster habitat restoration; the goal to restore oysters not oyster habitat; Jim B: Oyster habitat is more than 1 thing; can restore oysters using strings to settle spat, but that has limited habitat value; Heather: Red mangrove planting could be oyster habitat;
- Anne: We can define this in more detail when we get to project specific details; Paul Zajicek/FDACS: habitat restoration has longer term goals; Heather: OK with oyster habitat if end up with oysters;
- Marti Maguire/NOAA: Would prefer “habitat” because there are values to the benefits of both oysters & oyster habitat species.
- Loren: Clarify that goals refers to oyster habitat; Jim B: Need to implement oyster restoration appropriate to CHNEP.

#### **Oyster Restoration Suitability Model Development (pages 22 -23):**

- Jaime: We will include additional GIS information & may need to reorganize the section.
- Do we need to add a map of isohalines?

**Discussion:** (none).

#### **Restoration Suitability Model Scoring (page 24):**

- Jaime: The SW FL Oyster Working Group has already seen & accepted the RSM scoring scheme.

**Discussion:** (none).

#### **Restoration Suitability Model Component Descriptions (pages 25-29):**

- Jaime: The SW FL Oyster Working Group has already seen & accepted the RSM components.

**Discussion:** (none).

#### **Restoration Suitability Model Results (page 29):**

- Jaime: The SW FL Oyster Working Group has already seen & accepted the RSM results.
- We updated the text to include the additional acres of oyster restoration habitat that would result from an improved management flow in the Caloosahatchee River.

**Discussion:** (none).

**Additional Spatial Considerations for Oyster Restoration (pages 30-32):**

- Jaime: We will add a statement that there are other important factors to consider when planning oyster restoration, such as: “Some additional considerations include sea level rise, adjacent habitats, shoreline protection, water quality, recreational fishing. How each of these is considered will be determined by the goals of each project.”
- We will correct all the references to 1950s & 1999 oyster mapping efforts.

**Discussion:**

- Loren: Need to include substrate; Jim C: when sediment discussion came up, we couldn't come up with hard data; Jaime: We can add substrate to the Table 3.
- Figure 8: Mangroves & Bird Rookery Map – there are additional oyster restoration sites to add; there are additional bird rookeries to add; need to add mangroves from Shoreline Survey work or change legend to “vegetation”.

**4. Discussion of CHNEP Oyster Restoration Goals (pages 32-36)– Judy Ott, CHNEP**

**Suggested CHNEP Oyster Restoration Goals include (page 35):**

- Restore self-sustaining oyster habitat & related ecosystem functions to the historic level of 2,679 acres (10.9 km<sup>2</sup>) within the CHNEP study area over the long term.
- Maintain *or increase* the current extent of mangrove oyster habitat throughout the CHNEP study area.
- Map existing oysters consistently throughout the CHNEP area by the year 2020, including those on reefs, mangroves & seawalls, using the best scientific methods.
- Implement projects to restore 25 acres (0.1 km<sup>2</sup>) of oyster habitat each year within the CHNEP study area until the region-wide oyster mapping is completed & the CHNEP goals are reassessed or at least until 2020.
- Reassess CHNEP oyster restoration acreage & schedule goals once the oyster mapping is completed or at least by 2020.
- Increase public awareness of the ecosystem value of native oyster habitat by community stewardship components in each oyster restoration project.
- Assist partners in seeking state, federal & organizational funding opportunities to support oyster restoration projects.

**Lisa suggested consideration of the CERP C43 Reservoir EIS oyster restoration goals, which include:**

- Estimates of current acres of oysters as 3 acres of oysters in the lower Caloosahatchee estuary & 15 acres of oyster in lower Charlotte Harbor.
- Causes of the low number of oysters being primarily due to freshwater inflows, lack of suitable substrate & past shell mining.
- Preliminary oyster targets of 40 acres in the lower Caloosahatchee upstream from Shell Point & 60 acres in lower Charlotte Harbor (downstream from Shell Point), in the next 10-15 years.
- Future targets with the addition of hard substrate, could increase to 200-300 acres upstream from Shell Point & 150-200 acres downstream from Shell Point.

**Discussion:**

- Lisa: Need to add 1999 oyster acreages to Table 6; CHNEP used a similar method (comparing best available 1950s & 1999 aerial information) to estimate seagrass targets; using similar methods for setting oyster goals is technically consistent.
- Lisa: There are also some additional oyster acre estimates & goals in the EIS for C-43 Reservoir as part of the CERP process.
- Jim B: Need to focus on question we are trying to answer; need to add date certain, suggest 2020; doesn't matter what the historic or current oyster acres are; what does matter is that we set goals that can be achieved; can achieve & measure success in incremental fashion; can't do it all at once; need to decide what we can do in a reasonable time; need reasonable goal; need persistence of vision, not a get oysters quick scheme.

- Lucy: We did this comparison to put boundaries on the maximum number of acres of restoration & help identify appropriate restoration targets; need to look at cumulative efforts; need a reference point of balancing habitats.
- Pete Quasius/Snook Foundation: “Reasonable” goal definition depends on how much money is thrown at it; oyster restoration is a good fit for RESTORE Act funding.
- Anne: Historic acres is mute; we developed a model of suitable habitat; what is a feasible percentage; the goal is just an acreage goal; oyster habitat restorations about more than just acres of oyster reef; we need to define the goals for restoration & projects; there will be a suite of goals; suggest picking an acreage & give permission to adjust as needed in the future based on additional information.
- Jim B: Functionally when CHNEP sets goals, it has always exceeded them; don’t want to set goal as something we won’t achieve; Loren: Need to start small & monitor for success.
- Anne: Need to put in pilot projects & evaluate them & make sure we’re doing them correctly; need to test methods for success & replicate successful methods.
- Group discussion: By 2020, need to identify best way to achieve oyster restoration; state that a large scale project is needed – 1 - 2 acres; used to be an oyster bar all across the Caloosahatchee R that you could walk over.
- Group discussion: Need to consider current conditions & different habitat types; include different types of projects – intertidal, shoreline/rip rap, subtidal; include different estuaries, Lemon Bay vs. Caloosahatchee vs. Myakka R.
- Group discussion: Puts us at a disadvantage for competing for grants if we don’t have goals.
- Anne: Need to identify pilot projects throughout CHNEP to submit to RESTORE which will give us the science & mapping information we need to develop more specific oyster restoration goals; Pete: this is a unique opportunity to compete for RESTORE; Jim B: Could set a goal to get a project in ground by 2013 & monitor the results.
- Loren: Need to consider permitability; east coast project was subtidal because couldn’t get permits for intertidal restoration; Anne: we work within the regulatory confines & work to change the confines; Lucy: we are developing regulatory guidance complimentary to planning process; talked about 4 regulatory topics: 1) draft NGP, 2) guidance document for more consistent review of restoration projects, 3) partnering applicant with CAMA/FDEP & WMD to use existing GP for environmental restoration permitting & 4) conceptual permit that would show if project met guidelines; important that much of the permitting refers to restoration plans; Anne: there are regulatory options.
- Pete: In April, USACE provided \$7 billion for oyster restoration in Chesapeake; need to leave option open for larger scale projects.
- Lucy: Originally oyster restoration was at odds with critical smalltooth sawfish habitat due to lack of clarity of scale of restoration compared to size of sawfish habitat, but we all have a better understanding of scales now & discussions are going more smoothly; Jim B: sawfish live with oysters over the long term; sawfish shouldn’t drive oyster restoration goals.
- Jim B: Need to restore oysters in appropriate locations; need separate goals for different estuaries; need current oyster locations to know where we don’t need restoration; need to estimate oyster acres; need a variety of restoration of projects over variety of locations.
- Lisa: Would like to have a 2020 number.
- Eric: if know what you have, can increase by given percent
- Judy: can we agree on these goals:
  - **Map oyster habitat within CHNEP by 2020 by habitat type.**
  - **Design, implement & monitor success of a pilot oyster restoration project in a variety of habitats in 50% of the CHNEP estuary segments by 2020.**
  - **Increase public awareness of ecosystem value of native oyster habitat by including community stewardship components to each oyster restoration project.**
  - **CHNEP will assist partners in seeking state, federal & organizational funding opportunities to support oyster habitat restoration projects.**
- Group discussion: Restoration projects need to address specific scientific questions: depth; testing several methods; with replicates.
- Group discussion: Goals need to include qualifier about permitability.



- Holly Downing/City of Sanibel: If we have too much flexibility in the goals & variability in the projects, we may not get the new technical information we are seeking in the 8 years of the goal.
- Jim C: Could add goal to implement X number of pilot projects in each estuary segment in appropriate habitat.
- Eric: Were land conservation & acquisition goals set by quality of habitat? Jim B: set overall goals & achieved with partners; Eric: how were acre goals determined? Jim B: knew what current public acres were, connected pieces; Eric: that's not too different from setting oyster acre goals.
- Jim B: Need to gain more science before spending too much money & getting unintended consequences; Pete: Need to remember what is driving this oyster restoration plan.
- Erin: How do we define success? Science plus community education.
- Anne: Could consider compromise about acres: target goal is up to 10% of accommodation area, & we are going to accomplish it by initiating pilot projects; Lisa: could identify range, 1-5% of accommodation area = 1200 – 6,200 acres throughout the CHNEP.
- Jaime: Using accommodation area makes sense; gives us acres without having to rely on estimates of historic acres; accommodation area was used in a USEPA study of gulf estuaries & isn't based on hard science, but gives a percentage of what can be expected in gulf area; this is our estimate that could be changed in the future; also remember that this plan isn't a tradeoff between buying land & doing estuarine restoration – we're trying to accomplish both together.

### 3. Continued: Overview of the Complete Draft CHNEP Oyster Restoration Plan – Jaime Boswell Oyster Restoration Strategies & Methods (pages 36-45):

- Jaime: The SW FL Oyster Working Group has already seen & accepted the oyster restoration methods matrix.
- We clarified that the mesh is aquaculture grade & ≤1" mesh.
- We will add information about research regarding biodegradable mesh.
- Note from Jaime: Suggest adding language from Coen et al. poster presentation on evaluating stabilized mesh & related approaches, including study observations that: 1) no material was ideal & there are few biodegradable options; 2) in the restoration is subtidal, the materials are never exposed to biodegrade; & 3) if the restoration is intertidal, the materials are quickly incorporated into the oyster matrix & covered by sediments, etc."
- Note from Jaime: Also see TNC Shellfish Reefs at Risk report, especially the chapter with fish caught in larger mesh.
- Note from Jaime: Overall we need to note that function, location, & size opening need to be considered.

#### Discussion:

- Time constraints limited discussion. Please provide comments to Jaime.

### 5. Discuss Success Criteria – Jaime Boswell, Independent Contractor Oyster Restoration Success Criteria (page 46):

- Jaime: We will change *year* class to *size* class throughout the document & tables.
- Comment submitted from Mark Berrigan: Viable 3+ year-classes may not be necessary for a project to be successful, as long as oyster size-frequency distributions demonstrate successful recruitment, growth & survival; only a very small percentage of oyster populations on intertidal reefs will live beyond two years, but the reefs can be very productive.
- Comment submitted from Mark Berrigan: The issue of high mortality among oyster populations with "Dermo disease" is the basis for the statement about few oysters living beyond two years; natural mortality is extremely high on infected oysters on intertidal reefs in warm southern waters in Florida; by inference, few oysters survive & live into a third year.

#### Discussion:

- Eric: Is it reasonable to use an increase in reef foot print increase as a measure of success?
- Loren: it takes years for a reef to increase in size; next week monitoring document will be available & Loren will provide link; Anne: Is there a definition of success criteria in the monitoring document? Loren: There is a standard method for monitoring for measuring success criteria; Anne: Because of time constraints we can look at what we have in this draft plan, clarify the language & add Loren's information in once it's available.
- Jaime: Added levels of success criteria; Level I = 1 year; Level II & II over time (see page 48).

- Jaime: Would like the groups thoughts on including &/or deleting disease prevalence/intensity as a success criteria; many of the questions about region-wide criteria are related to disease; disease criteria aren't really relevant success criteria, so could be deleted as success criteria, but keep as an indicators.
- Loren: Concerned about considering some species as obligate species for reef resident community; would be more descriptive to call them indicator species.
- Jaime: What about categories of % living (see page 49)? 100% isn't reasonable; suggest changing the categories to 20-50% 50-70% & >70%.
- Eric: part of problem is determining how long oyster has been dead or alive; Loren: some have been using mean size;
- Jaime: Last time we talked about this, many didn't think this was a good success measure; but keep in as 2ndy to be consistent with Sarasota Co – who uses “recently dead” if 2 shells available; Loren: hard to measure; Jim C; have seen it done, but it is kind of intuitive; Erin: need to keep timing in mind, too – can bias data.
- Loren: Density may be difficult to estimate accurately.
- Jim C: Could use mean size class.
- Anne: We can look at density & mean size class together.
- Erin: Need to include sampling size (suggest quarter meter) & require triplicates.
- Erin: Need to set goals per m<sup>2</sup> (see page 49).
- Time constraints limited further discussion. Please provide comments to Jaime.

### Region-wide Success Criteria (pages 46-51)

- Jaime: Should *disease prevalence & intensity* be included in the region-wide success criteria? Disease plays an important role in the ecology of oyster reefs, but is it a measure of success?
- Comment submitted from Mark Berrigan: I do not believe that reducing the prevalence & intensity of disease (Dermo) should be seen as criteria for success; “Dermo disease” & resultant summer mortality are part of the ecology of Gulf oyster reefs. Most oyster populations may be subject to extensive mortality from disease, but they are sufficiently resilient to recover, as long as the substrate is not destroyed or impaired. It is my opinion that high natural mortality from Dermo disease is an essential part of oyster ecology & the shells of freshly dead oysters provide the primary substrate & attachment sites for subsequent generations. Summer mortality is generally followed by a strong spat set (on freshly available clean shell surfaces) in the fall on many productive reefs.
- Comment submitted from Mark Berrigan: Disease prevalence & intensity may also be correlated with oyster density, so the prevalence & intensity may be higher in more productive & sustainable oyster populations; high density populations aren't likely to have lower disease prevalence & intensity. But the highly productive populations (higher reproductive potential) will be able to sustain greater mortality rates & still recover quickly, so lower disease prevalence & intensity do not necessarily reflect increased success.
- Comment submitted from Loren Coen: All the papers & talks never show a high intensity (vs. prevalence) here. We had 100% prevalence for decades but never saw high infections to suggest Dermo killed a lot of oysters.
- Jaime: What levels of *percent living* are representative of an ideal self-sustaining oyster reef? For example should the success levels be changed to Level 1, 20-50%; Level 2, 50-70%; Level 3, greater than 70%?
- Comment submitted from Steve Geiger: In Table 20 you list a successful reef as having 90-100% live oysters, but in fact some level of mortality is normal, so 100% live is actually not attainable.
- Comment submitted from Kathy Meaux: In looking at our bin definitions we are using for the Tidal Creek Condition Index developed by Ernie Estevez, we use 4 categories: 0% =1; 1-50% = 2; 51-74% = 3; & ≥75% = 4. In looking at our past data (5 years) our lowest % for 16 creeks was 28.8% & the highest was 97.3%. In taking a quick look, 3% of the total numbers were between 1 & 50%; 32% of the total numbers were between 51 & 74% & 65 % of the total numbers were over 75%.
- Comment submitted from Kathy Meaux: Eliminating the 0% category for your applications (we never found 0%), your ranges are not that far off. For level 1, I would probably use 25 – 50%; Level 2 would be 51-74% & level 3 would be ≥75%. I probably would not use 0% at all. If you get 0% your project wouldn't be a success, it would be a failure. On the other hand, a value as low as 10% would indicate that recruitment is taking place. You would have to see if the numbers increased or decreased in subsequent monitoring events. Even up to 25% live oysters is an indication that the reef may not be that healthy. – but it can be an indication that it is

sustaining & subsequent monitoring may show an increase in % live. With only 3% of total numbers sampled in SC waters falling below 50% live, I think I would keep level 1 at 25-50%.

**Discussion:**

- Time constraints limited discussion. Please provide comments to Jaime.

**6. Discuss Monitoring (pages 51-52) – Jaime Boswell, Independent Contractor**

- Jaime: We included a sampling tray size of 0.14-0.25m<sup>2</sup>, will change to 0.1 – 0.25.
- We added other sampling methods for transient reef residents, including gill nets, hook & line, large lift nets, encircling nets.

**Discussion:**

- Time constraints limited discussion. Please provide comments to Jaime.

**7. General Discussion/Comments – Judy Ott, CHNEP**

- Note from Jaime to discuss draft Notice General Permit Language.

**Discussion:**

- Time constraints limited discussion. Please provide comments to Jaime.

**8. Next Tasks, Duties & Schedule – Judy Ott, CHNEP**

- Judy requested comments be submitted by September 10 (or ASAP).
- Additional clarifications & requests for details will be coordinated one on one.
- Comments will be incorporated & the final draft plan will be included in the agenda packet for discussion 7 approval at the TAC meeting October 10, 2012.

**9. Adjourn – The meeting was adjourned at 5:30 pm.**