

Seagrass Monitoring Workgroup Meeting Notes

23 October 2013

Attendees: Nathan Kuhn (TPWD), Andrew Tweel (TPWD), Paul Silva (TPWD), Paul Carangelo (PoCCA), Tome Rowe, Cindy Hobson (TPWD), Beau Hardegree (USFWS), Faye Grubbs (TPWD), Brittany Foster (TPWD), Ed Hegen (TPWD), David Yoskowitz (HRI), Pat Radloff (TPWD), Jace Tunnell (CBBEP), Leo Trevino (CBBEP), Kirk Cammarata (TAMU-CC), Patrick Larkin (TAMU-CC), Jason Zeplin (GLO), Alex Nunez (TPWD), John Wood (HRI)

On the phone: Barbara Keeler (EPA), Jenna Lake (TCEQ), Jeff Paull (TCEQ), Brittany Lee (TCEQ), Pat Bohannon (TCEQ), John Huffman (USFWS), Megan LePeyre (LSU), Chris Mace (TPWD), Emma Clarkson (TPWD), Laura Ryckman (TCEQ)

Updates/New seagrass issues

Faye Grubbs noted that TPWD is continuing their statewide seagrass education and outreach program including information about the new statewide no-uprooting regulation. Signs have been posted at boat access points coastwise, several news releases as well as articles have been circulating; keychains with "Lift, Drift, Pole, Troll" are being handed out along with brochures. Game wardens have been provided with informational packets including seagrass coverage maps. Billboards have also been posted in the South Padre Area. Imagery was acquired for the JFK causeway area as well as South Padre and Mexiquita Flats to assess propeller scarring. There are also plans to acquire imagery of West Galveston Bay and Christmas Bay. A human dimensions survey was conducted during the spring of 2012 of Galveston Bay, JFK causeway, and South Padre boaters.

Jace Tunnell noted that Ken Dunton finished up his 2013 seagrass sampling last month (September) for the ongoing seagrass monitoring study he is leading. As a reminder he noted that the study area extends from San Antonio Bay down through the Lower Laguna Madre. CBBEP is helping to fund this project, and Jace said a draft report on Ken's 2013 data is due in December.

Barbara Keeler noted that the EPA will be meeting with TxDOT regarding a proposed second access bridge for South Padre Island.

Seagrass Conservation Plan Review Workshop Proceedings update (Kuhn)

Nathan gave a short update saying that he had sent out hardcopies of the workshop proceedings with a cover letter to the three state agencies who signed the Seagrass Conservation Plan for Texas back in August. He asked them to respond by October 31, 2013, to the request in the cover letter to consider incorporating the findings in the proceedings into their operations. So far, he has received a response from Texas Parks and Wildlife, which he read at the meeting to

those in attendance. He also noted that the proceedings were available online as a pdf at a webpage he created for the workshop on the TPWD webpage. He was asked to provide a copy of the url for that webpage in the notes, which is here:

http://www.tpwd.state.tx.us/landwater/water/habitats/seagrass/Conserv_Plan_Review.phtml

He was also asked to edit the webpage to note that the proceedings were in review at the three state agencies and to post copies of their response letters when they are received, which he has done.

Genetic variation among seedbanks of the seagrass *Halodule* from the Texas Gulf coast (Michael Barrett and Patrick Larkin)

Halodule wrightii is a seagrass distributed throughout tropical and subtropical regions and commonly found in the Gulf of Mexico and along lower regions of the Texas Coastline. Seagrasses typically exhibit asexual reproduction through rhizome elongation, but sexual reproduction (seeds) can be significant depending upon the population. We utilized DNA microsatellite markers to examine genetic variation in *H. wrightii* seedbanks from the South Texas coast and compared these to values from the standing plant populations at the same sites. Genetic variation estimates were measured using 6 loci in populations from the Lower Laguna Madre, Upper Laguna Madre and Redfish Bay. Analysis of seed samples showed allelic richness (A_R) values ranging from 1.98 to 2.85, observed heterozygosity (H_o) values from 0.38 to 0.65, and expected heterozygosity (H_e) values from 0.42 to 0.64. Inbreeding coefficients (F_{IS}) ranged from -0.015 to 0.114, indicating low to moderate inbreeding. With the exception of A_R , genetic diversity estimates were typically higher, and inbreeding coefficients lower, in seedbanks compared to the standing plant populations. Heterozygosity estimates also appeared to be correlated with seedbank size. The most plausible explanation involves a combination of historical inbreeding and migration. Thus, it appears that while sexual reproduction is a significant driving force behind genetic diversity in the standing plant populations, factors such as gene flow (migration) may be equally, or even more, important.

State Agency Seagrass Monitoring Protocol Development (Pat Radloff)

Pat Radloff of Texas Parks and Wildlife Department (TPWD) gave a presentation summarizing the results of the Phase 1 and Phase 2 Statewide Seagrass Monitoring Protocol Development projects, funded in part by the Texas Commission on Environmental Quality (TCEQ), and undertaken collaboratively by TCEQ and TPWD. The purpose of the projects was to design and conduct coastwide seagrass monitoring, in accord with state quality assurance requirements that could be executed with existing resources. Accomplishments of the project included designing and implementing Tier 2 monitoring at coastwide and bay scales, implementing Tier 3 monitoring in Redfish and San Antonio Bays, demonstrating the ability to detect spatial and temporal differences in coverage and canopy height, exploring seagrass condition indicators using correlations, long-term water chemistry data, and metrics, and providing cost estimates and options for a state seagrass monitoring program.

A link to their study findings can be found here:

http://www.tpwd.state.tx.us/landwater/water/enviroconcerns/water_quality

Seagrass and ecosystem services: What we know and where we need to go (David Yoskowitz)

The identification and valuation of ecosystem services derived from seagrass beds lags far behind other important coastal and marine habitats such as marsh, mangrove, and coral reefs. However, these gaps provide an opportunity for both bio-physical and social scientists to work together in linking the ecological functions with the services in a robust manner. Action at the Federal level ([Principles and Requirements](#)) are now explicitly requiring the inclusion of ecosystem services the decision making process. The project selection process for restoration under the RESTORE umbrella is looking at the inclusion of ecosystem services generated by the project as part of the selection criteria. Ecosystem services provide one more opportunity to communicate the benefits that we receive from our natural environment.

Agenda items for next meeting?

- Discuss topics workgroup might want to work on moving forward (brainstorming)
- Presentation by Kirk Cammarata
- Possible presentation by Hudson DeYoe

The next meeting will be scheduled for April by doodle poll

Copies of presentations are available upon request to Nathan Kuhn (nathan.kuhn@tpwd.texas.gov)