



CEPD February 2021 Special Board Meeting

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Please follow page numbers on top right corner



Board Meeting Agenda

Date: Friday, February 19th, 2021

Time: 1:00 pm EST

Location: Sanibel Captiva Conservation Foundation
3333 Sanibel Captiva Road, Sanibel, FL 33957

Public attendance via zoom webinar: <https://us02web.zoom.us/j/83314289064>

1. **Call to Order**
2. **Roll Call**
3. **Beach Nourishment Project Updates**
 - A. APTIM
 - i. Beach Renourishment Design Update and Bidding Approach
 - B. SCCF
 - i. Monitoring and Nest Relocation
 - ii. Research Proposal
 - iii. Sea Level Rise Captain Proposal
4. **Public Comments – Limit 3 minutes per person**
5. **Commissioners' Comments**
6. **Adjournment**

In accordance with the Americans with Disability Act and F.S. 286.26; any person with a disability requiring any additional reasonable accommodation to participate in this meeting should call the CEPD office at phone 239.472.2472 or email a written request to mycepd@mycepd.com. One or more elected or appointed local government officials, including but not limited to the Captiva Erosion Prevention District, maybe in attendance at this meeting. Any person who decides to appeal any decision of the Board of Commissioners with respect to any matter considered at this meeting will need a record of the proceedings and for such purposes may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. The law does not require the CEPD to transcribe verbatim minutes; therefore, the applicant must make the necessary arrangements with a private reporter or private reporting firm and bear the resulting expense.

DRAFT FOR REVIEW AND DISCUSSION

Captiva Island Beach Renourishment Project - 2020 Construction Options			
Item	2013-14 Permitted Template	2018 Preliminary Engineering (2017 Conditions)	2018 Template (2020 Conditions)
Design Berm Basis	Maximum	Uniform	Uniform
Construction Timing			
Renourishment Interval	10	10	10
Beach Condition Survey	Sept 2020	Oct 2017	Oct 2020
Erosion Rate (CY/YR)	N/A	N/A	Jan 2021
Dune Estimate (CY)	N/A	16,100	16,100
Start Date	N/A	N/A	Jan 2021
Fill Template Volume (CY)	1,046,851	900,000	937,227
Construction Cost for Traditional Approach	\$31,411,973	\$28,310,480	\$29,096,714
Discount for Flexible Construction	-\$1,500,000	-\$1,500,000	-\$1,500,000
Construction Cost with Flexible Approach	\$29,911,973	\$26,810,480	\$27,596,714

*TBD = To be determined based on bid prices and condition of beach at time of construction.

CAPTIVA ISLAND BEACH RENOURISHMENT PROJECT ENGINEERING & DESIGN REPORT

AUGUST 2018

Table 5. Estimated Construction Costs

Item No.	Item	Unit	Island-wide Major Renourishment			Emergency Interim Sand Placement		
			Quantity	Unit Price	Cost	Quantity	Unit Price	Cost
1	Mob/Demob	LS	1	\$7,500,000	\$7,500,000	1	\$2,500,000	\$2,500,000
2	Captiva Island							
2.01	Beach & Dune Fill	CY	900,000	\$19.20	\$17,280,000	375,000	\$19.20	\$7,200,000
2.02	Beach Tilling	LF	25,600	\$3	\$76,800	8,600	\$3	\$25,800
2.03	Project Layout	LS	1	\$30,000	\$30,000	1	\$10,000	\$10,000
2.04	Pre- and Post-Construction Surveys	LS	1	\$150,000	\$150,000	1	\$50,000.00	\$50,000
2.05	Dune Vegetation	EACH	210,000	\$1	\$210,000	70,000	\$1	\$70,000
2.06	Site Preparation & Remediation	LS	1	\$90,000	\$90,000	1	\$30,000	\$30,000
2.07	Turbidity & Environmental Monitoring	LS	1	\$90,000	\$90,000	1	\$30,000	\$30,000
2.08	Mob/Demob Turtle Trawler	EVENT	1	\$10,000	\$10,000			
2.09	Turtle Trawling & Relocation	DAY	60	\$4,000	\$240,000			
2.10	Dredge Endangered Species Observer	DAY	60	\$1,000	\$60,000			
				SUBTOTAL	\$25,736,800		SUBTOTAL	\$9,915,800
3	Contingency		10%		\$2,573,680			\$991,580
				TOTAL	\$28,310,480		TOTAL	\$10,907,380

DRAFT FOR REVIEW AND DISCUSSION

Captiva Island Beach Renourishment Project - 2020 Construction Options								
Item	2013-14 Permitted Template	2018 Preliminary Engineering (2017 Conditions)	2018 Template (2020 Conditions)	MATRIX 8YR-0.6	MATRIX 8YR-1.0	MATRIX 10YR-1.0	MATRIX 10YR-1.0+SF+Dune1	MATRIX 10YR-1.0+SF+Dune2
Design Berm Basis	Maximum	Uniform	Uniform	Uniform	Uniform	Uniform	Uniform	Uniform
Construction Timing				Spring 2021	Fall 2021	Fall 2021	Fall 2021	Fall 2021
Renourishment Interval	10	10	10	8	8	10	10	10
Beach Condition Survey	Sept 2020	Oct 2017	Oct 2020	Oct 2020	Oct 2020	Oct 2020	Oct 2020	Oct 2020
Erosion Rate (CY/YR)	N/A	N/A	Jan 2021	57,300	57,300	57,300	73,700	73,700
Dune Estimate (CY)	N/A	16,100	16,100	0	0	0	10,000	16,100
Start Date	N/A	N/A	Jan 2021	May 2021	Oct 2021	Oct 2021	Oct 2021	Oct 2021
Fill Template Volume (CY)	1,046,851	900,000	937,227	451,930	464,916	528,397	639,906	649,906
Construction Cost for Traditional Approach	\$31,411,973	\$28,310,480	\$29,096,714	\$18,847,236	\$19,121,515	\$20,462,225	\$22,817,293	\$23,028,493
Discount for Flexible Construction	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000
Construction Cost with Flexible Approach	\$29,911,973	\$26,810,480	\$27,596,714	\$17,347,236	\$17,621,515	\$18,962,225	\$21,317,293	\$21,528,493

*TBD = To be determined based on bid prices and condition of beach at time of construction.

DRAFT FOR REVIEW AND DISCUSSION

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Design Berm Basis	Maximum	Uniform	Uniform	Uniform	Uniform	Uniform	Uniform	Uniform	Uniform	TBD	TBD
Construction Timing				Spring 2021	Fall 2021	Fall 2021	Fall 2021	Fall 2021	Summer 2020	Summer 2020	Summer 2020
Renourishment Interval	10	10	10	8	8	10	10	10	10	TBD	TBD
Beach Condition Survey	Sept 2020	Oct 2017	Oct 2020	Oct 2020	Oct 2020	Oct 2020	Oct 2020	Oct 2020	Oct 2020	Oct 2020	Oct 2020
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Fill Template Volume (CY)	1,046,851	900,000	937,227	451,930	464,916	528,397	639,906	649,906	600,000	750,000	450,000
Construction Cost for Traditional Approach	\$31,411,973	\$28,310,480	\$29,096,714	\$18,847,236	\$19,121,515	\$20,462,225	\$22,817,293	\$23,028,493	\$21,974,480	\$25,142,480	\$18,806,480
Discount for Flexible Construction	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000	-\$1,500,000
Construction Cost with Flexible Approach	\$29,911,973	\$26,810,480	\$27,596,714	\$17,347,236	\$17,621,515	\$18,962,225	\$21,317,293	\$21,528,493	\$20,474,480	\$23,642,480	\$17,306,480

*TBD = To be determined based on bid prices and condition of beach at time of construction.

DRAFT FOR REVIEW AND DISCUSSION

Captiva Island Beach Renourishment Project - 2020 Construction Options											
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Construction Timing				Spring 2021	Fall 2021	Fall 2021	Fall 2021	Fall 2021	Summer 2020	Summer 2020	Summer 2020
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Dune Estimate (CY)	N/A	16,100	16,100	0	0	0	10,000	16,100	TBD	TBD	TBD
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Construction Cost with Flexible Approach	\$29,911,973	\$26,810,480	\$27,596,714	\$17,347,236	\$17,621,515	\$18,962,225	\$21,317,293	\$21,528,493	\$20,474,480	\$23,642,480	\$17,306,480

*TBD = To be determined based on bid prices and condition of beach at time of construction.

DRAFT FOR REVIEW AND DISCUSSION

BID ANNOUNCEMENT CAPTIVA ISLAND RENOURISHMENT PROJECT CAPTIVA EROSION PREVENTION DISTRICT

Sealed bids will be received and publicly opened and read aloud in the Captiva Erosion Prevention District's (District) offices, 11513 Andy Rosse Lane, 3rd Floor, Unit 4, Captiva, Florida 33924, for the renourishment project on [insert date] to be announced at 2:00 p.m. The bid period will be at least [insert number of days] days for bid response. Bids shall be plainly marked "**BID FOR CAPTIVA ISLAND RENOURISHMENT PROJECT.**"

Definite specifications may be obtained at [insert link and/or information for online bidding platform]. Only contractors who utilize this system will obtain the bid package and be sent addendums. Questions about documents and bidding process should be sent to [insert email].

DRAFT FOR REVIEW AND DISCUSSION

Captiva Island Renourishment Project Description

The beach renourishment project is located on the west coast of Florida on Captiva Island within Lee County. The project area is located between Florida DEP reference monuments R-84 and R-109 (Captiva Island). The project consists of the placement of approximately 600,000 cubic yards of beach fill along 4.85 miles of shoreline and rehabilitation of existing dunes. The contract calls for fill along the entire Gulf of Mexico shoreline of Captiva Island between Redfish Pass and Blind Pass and the restoration of some of the dunes. The total base bid volume may be updated within contract allowances post-award.

Fill placement shall be accomplished by hopper dredge(s), dredge/scow methods, or combination of these operations. Multiple pipeline routes are available for pump-out and a sand retention area has been designated for rehandling sediments between the borrow areas and the beach, if desired. Pipeline placement landward of the sand retention area is unrestricted. Multiple simultaneous dredges will be allowed at the Contractor's own discretion and risk. Construction using truck haul methods will not be permitted.

DRAFT FOR REVIEW AND DISCUSSION

There are two borrow areas approved for this project. Borrow Area VI-E is the selected source and contains 3,467,000 cubic yards of sand located approximately 8.3 nautical miles west of Captiva Island within three dredge areas identified on the Plans. Borrow Area III-B is an alternate source and contains 725,000 cubic yards of sand located 8.7 nautical miles southwest of Captiva Island and is included on the Plans to be used only upon approval of the District. The borrow areas contain permit approved beach quality material with average mean grain sizes of 0.40 mm in Borrow Area VI-E and 0.32 mm in Borrow Area III-B.

Time of Completion

The work (i.e., dredging) shall start between May 1, 2021 and May 1, 2022. Once commencement of dredging takes place, the work shall be continuous and completed, accepted, and ready for use within 180 calendar days. Advanced notice of commencement will be required, and black-out days may apply. All work must be completed no later than October 28, 2022.

Construction Plans & Specifications

- Flexible Timeline
 - 12 months to commence + 6 months to complete (18 months total)
 - Advanced Notice for sea turtle monitoring
- Contractor Risk
 - Pay for upper tolerance
 - Hold unit price for +/- 25% of contract volume
 - Sand remediation pricing
- Means and Methods
 - Access and staging areas
 - Order or work (pipeline landings, direction or fill, borrow area usage)
- Other Items
 - Sea turtle nesting requirements and black out dates
 - Dedicated community liaison
 - Legal Counsel review of agreement

CAPTIVA EROSION PREVENTION DISTRICT

RESOLUTION 2021-___

AGREEMENT FOR SEA TURTLE MONITORING AND NEST RELOCATION

A RESOLUTION OF THE CAPTIVA EROSION PREVENTION DISTRICT APPROVING AN AGREEMENT FOR SEA TURTLE MONITORING AND NEST RELOCATION AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the CEPD Board has published on a duly noticed agenda, reviewed, discussed and taken public comment on the attached AGREEMENT FOR SEA TURTLE MONITORING AND NEST RELOCATION;

WHEREAS, the CEPD Board desires to approve or approve with conditions the following attachments and course of action

NOW THEREFORE, BE IT RESOLVED by the CAPTIVA EROSION PREVENTION DISTRICT:

Section 1. The CEPD Board resolves and approves the following AGREEMENT FOR SEA TURTLE MONITORING AND NEST RELOCATION (not to exceed \$176,700) as proposed and set forth in the documents attached to this Resolution, Exhibit A.

Section 2. This Resolution shall take effect immediately upon adoption.

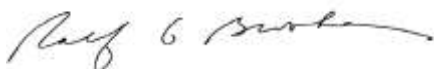
DULY INTRODUCED, PASSED AND ENACTED by the CEPD Board of Commissioners of the CAPTIVA EROSION PREVENTION DISTRICT, on Captiva Island, in Lee County, Florida on _____, 2021.

CEPD Chair

ATTEST:

CEPD Administrator

Approved as to legal sufficiency:



CEPD Attorney, Ralf Brookes Attorney



Cost Estimate for Sea Turtle Nest Monitoring & Relocation

Sanibel-Captiva Conservation Foundation, FWC Permit Holder for Captiva/Sanibel

Training*	\$ 2,000.00	25-hour FWC-required training for technicians
Daily Monitoring	\$ 450.00	per 24-hour period, based on 24-hour project
	\$ 56,700.00	18 weeks (126 days)
Nest	\$ 600.00	per nest during peak season (April 15-July 31)***
Relocation**	\$ 114,000.00	190 peak nests
	\$ 400.00	per nest after peak season (August 1-October 31)***
	\$ 4,000.00	10 off-peak nests
	\$176,700.00	Project Maximum
	\$120,000.00	Project Minimum

*Per FWC guidelines: "Nests must be relocated only by the qualified individual or authorized personnel with appropriate training and experience designated by the qualified individual. Appropriate training includes a minimum twenty-five (25) hours of having successfully relocated marine turtle nests within the past five (5) years. Kelly Sloan is the qualified individual on the MTP for Captiva Island."

Per the 2013 permit: For sand placement projects in Nassau, Duval, St. Johns, Flagler, Volusia, Miami Dade, Monroe, Collier, Lee, Charlotte, Sarasota, Manatee, Hillsborough, Pinellas, Franklin, Gulf, Bay, Walton, Okaloosa, Santa Rosa, and Escambia Counties that occur during the period from May 1 through October 31, daily early morning (before 9 a.m.) surveys and egg relocation shall be conducted. Volunteers can conduct nesting surveys **after peak nesting season (late April-late July) and staff will be on call for any late season nest relocations.

***Includes post-relocation monitoring on Captiva or Sanibel per FWC regulations

Estimates are based on a 18-week project

All prices are inclusive of FWC report submittal

General Parameters for Relocation Costs

Areas subject to nourishment within 65 days subsequent require relocation of nests, including before the commencement of a nourishment project. Nests must be relocated in a temporal fashion, moving northward or southward (depending on engineering) in 65-day increments. Relocated nests cannot be clustered; therefore some, if not many, of the nests will be relocated to stable beaches on Sanibel and Captiva in order to ensure hatch viability and comply with FWC permit conditions.

SCCF pricing will be adjusted to the exact parameters of the final engineering plan; however, due to the additional staffing requirements, should the project occupy at least 45 days of peak sea turtle nesting season, the minimum pricing in order to carry out SCCF's and CEPD's state and federal requirements is \$120,000.

CAPTIVA EROSION PREVENTION DISTRICT

RESOLUTION 2021-___

GRANT FOR TURTLE RESEARCH

A RESOLUTION OF THE CAPTIVA EROSION PREVENTION DISTRICT APPROVING GRANT FOR TURTLE RESEARCH AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the CEPD Board has published on a duly noticed agenda, reviewed, discussed and taken public comment on the attached Grant For Turtle Research;

WHEREAS, the CEPD Board desires to approve or approve with conditions the following attachments and course of action

NOW THEREFORE, BE IT RESOLVED by the CAPTIVA EROSION PREVENTION DISTRICT:

Section 1. The CEPD Board resolves and approves the following Grant for Turtle Research (Not to exceed \$45,000) as proposed and set forth in the documents attached to this Resolution, Exhibit A.

Section 2. This Resolution shall take effect immediately upon adoption.

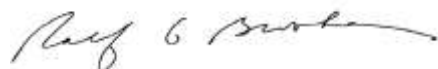
DULY INTRODUCED, PASSED AND ENACTED by the CEPD Board of Commissioners of the CAPTIVA EROSION PREVENTION DISTRICT, on Captiva Island, in Lee County, Florida on _____, 2021.

CEPD Chair

ATTEST:

CEPD Administrator

Approved as to legal sufficiency:



CEPD Attorney, Ralf Brookes Attorney



Proposed Sea Turtle Research during CEPD Beach Nourishment Project 2021

While the addition of sand to an erosional beach can benefit sea turtles by creating nesting habitat, questions have been raised concerning the direct and indirect effects of beach renourishment on nesting turtles. Changes in the physical properties of non-native sand may alter critical characteristics of the nest microclimate, such as sand temperature, moisture, gas exchange, and porosity. These shifts in incubation environments raise real concerns about incubation time, clutch viability, hatchling fitness, and hatchling sex ratios.

The hatch success documented on Captiva has averaged 53% (range 40.2% – 73.5%) over the last ten years (when nests subjected to predation and other losses are removed). Nests laid on non-nourished stretches of Sanibel had an average hatch success of 69% using the same criteria, suggesting Captiva provides less suitable nesting habitat.

We are proposing a project to characterize the changes and effects of sand type resulting from beach renourishment on the incubation environment of sea turtle nests.

The four specific objectives are:

- 1) Characterize the physical properties of sand (color, size, bulk density, and compaction) on renourished and natural stretches of beach on Sanibel and Captiva
- 2) Evaluate how these variables influence groundwater flow, temperature, and moisture inside the nest cavity.
- 3) Characterize the effects of elevation, beach slope, and width on nesting success on Sanibel and Captiva Islands
- 4) Evaluate how these covariates impact embryonic development, nest fate, and hatching/emergence success.

A fine-scale characterization of the biotic and abiotic factors that are affecting reproductive success will enable us to enhance beach quality for nesting sea turtles and increase hatchling output. The applicability of the results is high, particularly in a state that is often referenced as ground zero for sea level rise. Sand placement projects will undoubtedly continue, and having a full understanding of the environmental influences that result will be critical in maintaining a resilient sea turtle population.

The Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*) lays out a detailed outline with objectives and strategies. Actions necessary to achieve recovery goals are included in the following objectives:

- (2.21) *Ensure beach sand placement projects are conducted in a manner that accommodates loggerhead needs and does not degrade or eliminate nesting habitat.*
- (2.215) *Ensure sediment grain size, composition, sorting, and color are compatible with native beaches.*

Renourishment projects will persist in Florida and the information generated by this research will directly fill the data gap outlined in these Recovery Objectives. Understanding how these threats could be affecting an already stressed population is essential in evaluating population recovery and informing decisions concerning beach projects. All results will be published in peer-reviewed sources and made public. CEPD will receive acknowledgment for its efforts and funding in all public use of this data or results.

Equipment and laboratory analysis services will amount to a cost of about \$65,000 for an 18-week renourishment project. SCCF is requesting \$45,000 from CEPD with a cost share of \$20,000 from SCCF in both in-kind and material costs.

CAPTIVA EROSION PREVENTION DISTRICT

RESOLUTION 2021-___

AUTHORIZING ADVERTISING FOR POSITION OF “SEA LEVEL RISE CAPTAIN”

A RESOLUTION OF THE CAPTIVA EROSION PREVENTION DISTRICT AUTHORIZING ADVERTISING FOR POSITION OF “SEA LEVEL RISE CAPTAIN” AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the CEPD Board has published on a duly noticed agenda, reviewed, discussed and taken public comment on the attached proposal for a position of “SEA LEVEL RISE CAPTAIN”; and

WHEREAS, the CEPD Board desires to approve or approve with conditions the following attachments and course of action

NOW THEREFORE, BE IT RESOLVED by the CAPTIVA EROSION PREVENTION DISTRICT:

Section 1. The CEPD Board resolves and approves **ADVERTISING FOR POSITION OF “SEA LEVEL RISE CAPTAIN” (Not to exceed \$150,000 over 2 years)** as proposed and set forth in the documents attached to this Resolution, Exhibit A.

Section 2. This Resolution shall take effect immediately upon adoption.

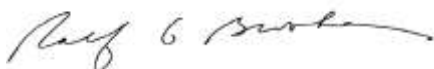
DULY INTRODUCED, PASSED AND ENACTED by the CEPD Board of Commissioners of the CAPTIVA EROSION PREVENTION DISTRICT, on Captiva Island, in Lee County, Florida on _____, 2021.

CEPD Chair

ATTEST:

CEPD Administrator

Approved as to legal sufficiency:



CEPD Attorney, Ralf Brookes Attorney

Proposal for the Creation of a Captiva-Sanibel Sea Level Rise Captain

The islands of Captiva and Sanibel are both highly susceptible to the effects of sea level rise and increased storminess. Yet, there is a lack of a cohesion in the various activities around coastal resilience. Groups like the Captiva Community Panel, CEPD, and the City of Sanibel are all engaged in on-going conversations and projects dealing with coastal resilience with input from outside entities like Florida Gulf Coast University, SCCF, and environmental consultants. The principal issue with this approach is that our islands lack a central voice to help guide the various efforts.

The Sanibel-Captiva Conservation Foundation has a 53-year history of conservation on our islands and in our region. Our only agenda is to protect our communities (natural and human) from environmental degradation, and to ensure the long-term viability of these island communities. I propose that we continue this tradition and expand it to advocacy and research on sea level rise and coastal resiliency specific to our geography.

In order to create an effective model, sea level requires a central department/entity/person(s) that can span both islands, because achieving coastal resilience will require a cohesive plan spanning our shared geography. SCCF seeks to create a robust research and outreach program on sea level rise adaptation for our islands. Because of the various efforts, no one group is necessarily driving common solutions. SCCF has played this central role of convener and engine on a variety of topics but has yet to use this model vis-à-vis sea level rise.

We are proposing a partnership with the Captiva Erosion Prevention District. SCCF seeks to hire a senior position in order to fulfill both CEPD's and SCCF's sea level rise visioning, outreach, and science. This new hire should become a central voice of authority for coastal resilience on our islands. While the new SLR specialist will be an employee of SCCF, s/he will fulfill our common mission of creating a resilient, enduring place for islanders to live for many years to come.

This new position will be filled by a climate professional; s/he must have evidence of academic publication on climate topics; an ability to connect meaningfully with the public; at least a master's degree in a relevant field (climatology, coastal engineering, etc.); and s/he must show considerable evidence of creative, solution-oriented thinking. We are beyond the stage of exploration, it is now time to produce feasible solutions.

SCCF seeks \$75,000 from CEPD to cover a portion of salary, benefits, and startup costs associated with onboarding a new employee. The remainder of the salary and benefits will come from donors and/or SCCF's general fund. We are intentionally not asking for CEPD to fully fund the position as we expect our sea level rise expert to spend some of his/her time on topics relevant to Sanibel; however, we fully expect this position to be a Captiva-centric one. In order to create stability, we ask at least a two-year commitment from CEPD.

Research and Project Proposal

January 11, 2021

The Captiva Erosion Prevention District

Re: Captiva coastal resilience & adaptation: Proposal to culminate in plans for the implementation of pilot projects

Introduction

This proposal capitalizes on many previous efforts, both on Captiva and within the Project Team, and will identify, visualize, and design pilot projects to address Sea Level Rise and coastal resilience on Captiva Island. On Captiva, previous assessments of sea-level rise and work by the Captiva Erosion Prevention District will provide beneficial information for the siting of projects. However, it is understood by the Project Team that this will not be the only input to influence project criteria and locations. Projects occur within a complex environment of community and social factors, economic and business arenas, and a world of politics and legal frameworks. To strike a balance and work toward an actionable strategy, the Team proposes to build a “Community of Practice,” to help guide the work but also to identify overlaps in interests and to identify value-added possibilities that foster both resilience and economic opportunity. Together, the Project Team and stakeholders will create a regional strategy with an action agenda. This will include the identification of long and short-term projects, potential planning, or community-based strategies and applications of governance.

The Team

Work will be led by a distinguished team of academics and professionals, including:

The Florida Center for Community Design and Research (FCCDR), at the University of South Florida: The FCCDR has completed the award-winning Hillsborough County *Community Vulnerability Study*, and is in the final stages of completing a *Mitigation Handbook* and *Comprehensive Planning Policy Report*. They are also now working with the City of Tampa on Coastal Sea-Level Rise Regulations and with the Tampa Bay Regional Planning Council to study affordable, resilient housing. The Florida Center is supported by experts in urban design, landscape architecture, architecture, coastal geomorphology, GIS mapping and modeling, and planning.

The Departments of Urbanism and Landscape Architecture, Delft University of Technology (TU Delft), Netherlands: TU Delft is a world leader in coastal resiliency and has helped to apply adaptive strategies in places such as Indonesia, the Pearl River Delta in China and within the Netherlands. Students within this program are highly ranked within a global context and will provide exploration and visualization for community discussion in the first phases of the project.

Sanibel-Captiva Conservation Foundation (SCCF): The SCCF will partner on the project to provide regional expertise, including details on habitat, wildlife and environmental factors, local history, grant administration, community outreach, and meeting/facilities support.

The “Community of Practice”: In addition to the Project Team described above, the first step would be to establish a local contingency of engaged stakeholders to participate with the project. Labeled the “Community of Practice,” this group would be responsible for engaging the broader public, for finding critical community connections, and for providing the primary critique of projects as they develop. This group is not only assembled for review purposes but will have direct agency in establishing project objectives and strategies for implementation.

Aim and Objectives

The overall aim of this research is to increase the resiliency and adaptive capacity of Captiva Island by setting up a “Community of Practice” where thinking together and the generation and implementation of sustainable solutions at different scale levels is central, and is facilitated by research and design, meaningful stakeholder involvement and visualization/ communication. To achieve this, the project seeks to first understand the relation between coastal environmental dynamics and contextual factors. Next, work will invent site-specific spatial concepts based on project ideas that emerge from a process of co-creation and collaboration, research, business strategies and government input. Research and design will be multi-disciplinary, incorporating aspects of the built environment, understandings of population groups and social capacities, ecology and economy. Visualizations will be a constant, helping the community to see both the issues at hand but also strategies for moving forward.

Although the Project Team will act as the coordinating hub and will provide resources through faculty and students, overall objectives will be established through a series of dialogues based on research and student work. The “Community of Practice” will evaluate both short and long-term options and will proof final concepts for implementation.

Approach

To address these challenges, it is useful to first investigate the history and morphology of the landscape systems. (Kempenaar & van den Brink, 2017) By understanding these deeply engrained environmental factors, it becomes possible to integrate them within the future use and functionality of the area. This has been called the ‘ondergrond’ layer (in Dutch), or the ‘underground’ layer, and is related to deep-time processes that can have a tremendous effect. (Dauvellier planadvies, 2020) This layer is more permanent. We have less control over it as urban managers. In extreme events, it has the most potential environmental presence. (van Schaick & Klaasen, 2010)

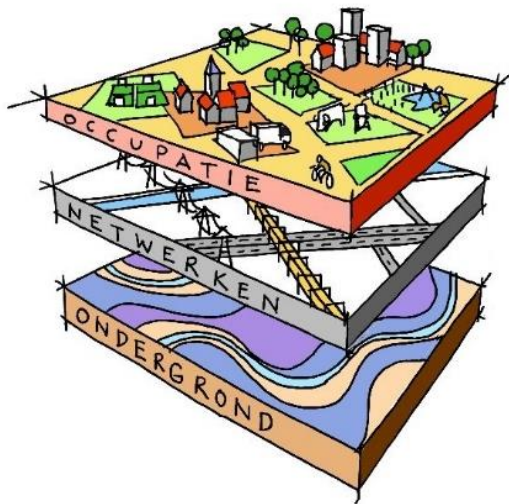


Image: 'Vertically conscious' plan model. Source: Dauvellier planadvies, 2020

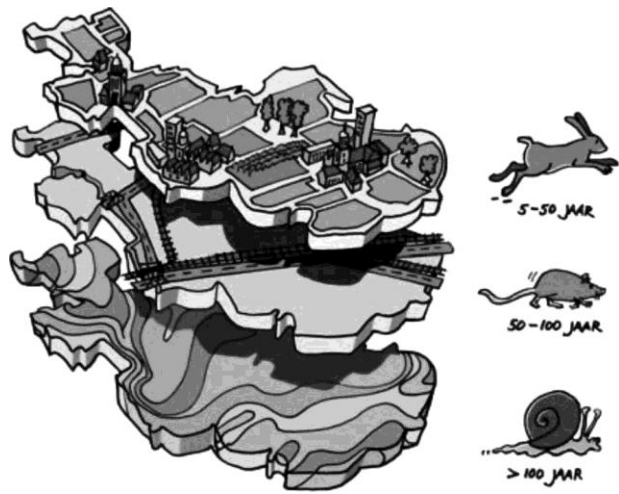


Image: The Dutch 'layers model.' Source: van Schaick and Klaasen, 2011, taken from Provincie Overijssel, 2009)

By first gaining a sense of landscape systems, adjustments can be made to mitigate future risk. If coastal buffering and development are altered to accommodate landscape and hydraulic function, these zones can become useful and valuable space.

Process and Results

The Team proposes a 1-year timeline to go from regional concepts and strategies to site-specific implementation design. An outlined sequence is below:

The first six months

1. Establish the stakeholder group and "Community of Practice."

- a. Work with the community to understand past efforts, histories, and local understandings of place. Identify roles and establish expectations. (Palma-Oliveira et al., 2017)
- b. Integrating the community into *the project process*, rather than simply showing them the final *products*, has proven to be extremely valuable in gathering consensus and avoiding conflict, fear, negative feelings or a lack of coordination.

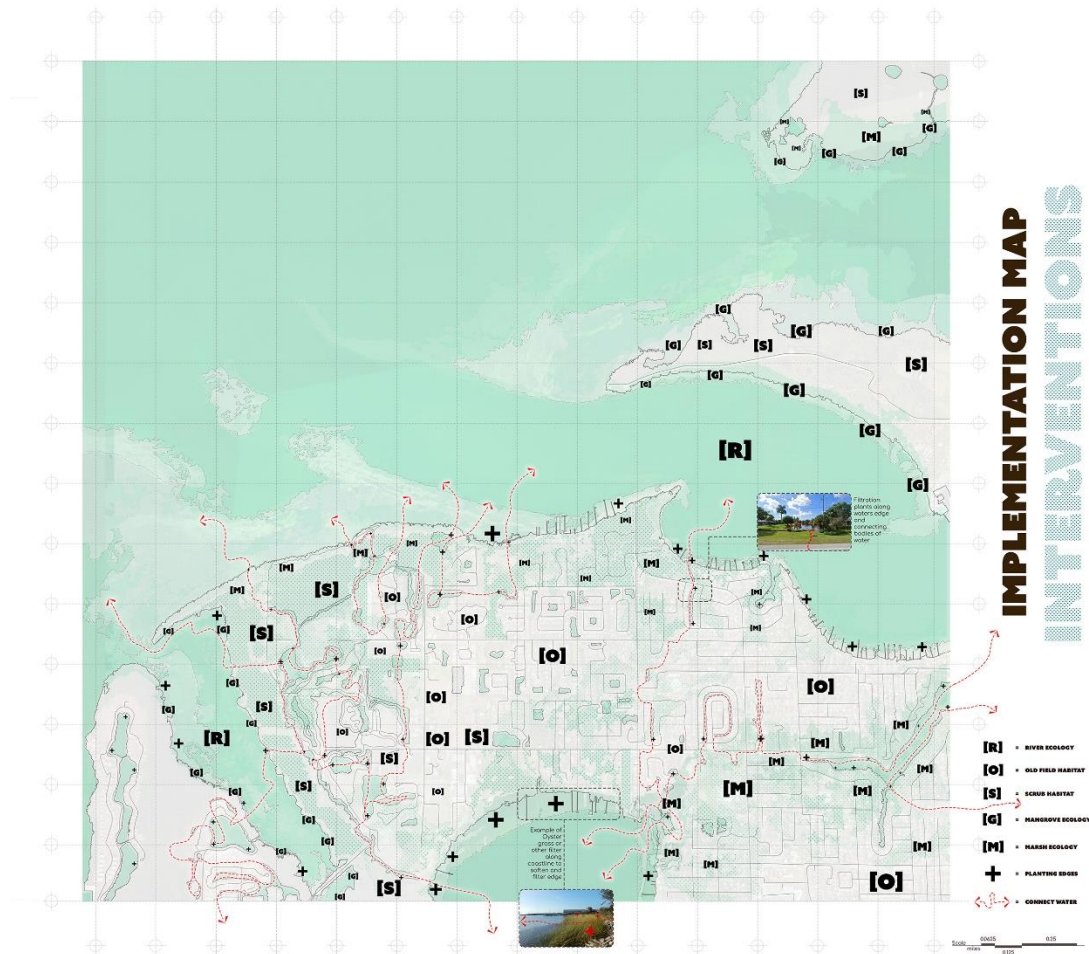
2. Understand the systems at work

- a. This step involves gaining a communal perspective. This is technical as well as social and will include (and is not limited to) a review of previous studies, habitat and biological concerns, geomorphology and coastal sediment science, homeowner and real estate issues, policies or other regulations, insurance concerns, and issues pertaining to tourism.

3. An assessment of vulnerabilities

- a. What is at stake? Establish priorities and project goals. Prioritize.

- b. This will be accomplished visually, on maps, for the community to review together. Everybody's concerns are put into one visual space.
- 4. Design scenarios**
- a. Faculty and students will develop a series of realistic design scenarios, visualized for community discussion. This process is meant to promote dialogue as much as it is a first step toward identifying project strategies.



*Image: Student work by Zachary Correa, fall semester, 2019.
Mapping opportunities to uncover landscape systems and ecological services.*

The second six months

5. Prioritize design ideas and identify sites

- a. Develop an interest in specific sites and projects for construction/planting.
- b. Continue research and understand contextual factors.

6. Conclude with site-scale design strategies and action plan

- a. Projects will be fully designed at a spatial and conceptual level, well-researched, considering permitting, regulations and budgets, and executable.

- b. Long-range projects will be captured in a plan, to act as a guide for future work.
- c. Final implementation will need to be engineered. Funding is widely available for this phase by both State and Federal sources.

Ongoing

7. Monitoring of projects and continual update and evaluation of plans

- a. It is important to communicate whether projects met community and project expectations. This is a process of adaptation, but at this point the community is one (or more) steps ahead of where it was before the projects.



*Image: Student work by Talya ten Brink, thesis work, 2014.
Drawing of coastal environments.*

Draft Budget

TU Delft	\$45,000
USF	\$60,000
<u>SCCF (Invited guests, lectures & community engagement, administration)</u>	<u>\$20,000</u>
	\$125,000

Schedule

Work could begin in 2nd quarter of 2021.

Concluding date is negotiable and should be discussed, however a 1 year timeline is expected.

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