

Paying for the Project

With another renourishment project estimated to start at the end of 2021, who pays the cost? Under Florida's Department of Environmental Protection (DEP) Beach Management Program, financial assistance is available to local governments and agencies. While the DEP will pay for some of Captiva's project costs, the local community must also share the costs. Local funding is provided by Lee County and special assessments of Captiva property owners.

The CEPD's enabling legislation requires special assessments used to help finance a beach project be levied against benefitting properties in proportion to the benefits received by the properties. CEPD retains economists and coastal engineers to conduct an analysis of the project and determine the nature and extent of benefits accruing from the project. They then allocate those benefits to the property owners by categories or zones of comparable benefits. The project will generate a stream of benefits for Captiva property owners which ultimately shows up as an enhancement of property values beyond the level they would have attained without the project. The benefits from the project are



storm protection and recreation.

The storm protection benefit is based on the reduction in property loss due to erosion and storm damage as a result of the added protection from the renourishment. Only gulf front properties receive storm protection benefits. The recreational benefit is based on the value of the recreational use to people living or staying on the island as well as to those commercial properties benefitting from the allure of the beach to visitors.

(Continued on Page 4)

CEPD to Renovate Alison Hagerup Beach Park and Improve Beach Monitoring

At its June 14th meeting, the Lee County Tourist Development Council (TDC) voted to approve a mid-year request by CEPD for additional funding to replace the portable toilets at Alison Hagerup Beach Park with upgraded restroom facilities and to purchase a beach-going vehicle to monitor the beach and dunes on Captiva. Also included was funding for maintenance and



Restroom trailer typical of the one CEPD plans to purchase

needed upkeep within the park area and for a part-time employee to monitor the beach.

Damon Grant, CEPD Administrator, said the previous administrator had already submitted a funding request for fiscal year 2018-19 before he came aboard. Believing the projects were eligible for TDC funding, Grant floated the idea of a mid-cycle request and received approval from the CEPD Commissioners. The TDC accepted the revision. The next step is for the Lee County Board of Commissioners to approve the funding, which usually occurs at their August or September meeting.

"We just have the standard outside portable toilets. There's no running water," Grant said. "Other facilities on Sanibel and Fort Myers Beach have sinks, running water, and more updated amenities." With the approved \$58,000 in TDC funding (not including site preparation), the CEPD will set up a three-station portable restroom trailer that includes one ADA suite, ADA toilet, sink and grab rails. The entire facility is air conditioned, will have running water, and will run primarily on solar power. The CEPD will also install an outside shower to rinse off and new trash receptacles

(Continued on Page 4)

Septic System and Sea Level Rise

The majority of Captiva homeowners has septic systems. A recently reported study in the peer-reviewed online journal *PLoS ONE* said rising sea levels will severely impact septic systems in coastal areas. The diminished capacity of septic systems to filter waste, the lead author of the study, Jennifer Cooper at the University of Rhode Island says, is a consequence that may put a great number of pathogens and nutrients in the water. About a quarter of U.S. households use septic systems to treat wastewater.

The study is a warning signal, Cooper said. Septic systems are contributing to an ecological and public health problem in coastal communities. For example, the US Geological Survey predicts water tables 10 kilometers inland on Cape Cod would rise by two feet if there were a six-foot rise in sea levels. Cooper found that septic system performance diminished with only a one-foot increase in the water table.

In order for septic systems to properly filter wastewater, there must be enough unsaturated soil between the leach field and the groundwater table. As long as the groundwater levels remain relatively constant, systems work. But sea level rise and increased precipitation are raising groundwater tables. As water tables rise, the amount of unsaturated soil for the wastewater to filter through is reduced, making septic systems less effective. Moreover, frequent and intense rain reduces oxygen in the soil. Oxygen is a key component of the chemical processes that break down pathogens in wastewater. Rising temperatures also result in less oxygen available for necessary aerobic treatment processes.

“The sensible thing to do in coastal zones would be to use advanced nitrogen removal treatment systems, which rely less on the soil for treatment, because there will be less soil available to do the work. Shallow pressurized drain fields should be used for final dispersal of effluent to build in as much separation distance as possible between the drain field and the water table for phosphorus and bacteria removal.”

George Loomis, Research Associate, University of Rhode Island, Kingston

Is installing a permanent sewerage system the answer? Maybe not. Rising sea levels could push back into the systems and stop wastewater flowing out, leading to untreated sewage getting into waterways or other locations. Moreover, salt water can corrode pipes, steel reinforcing, and electrical pumping and control equipment.

(Continued in next column)

Are there solutions? Experts suggest:

- Identify the key sewerage infrastructure at risk.
- As sections of the sewerage infrastructure approach the end of their design life, rebuild them at higher elevations or relocate them further from exposed coastal locations.
- Make sure urban planners consider the problems of low-lying coastal developments. These have been constructed with ocean views in mind but without thought about sewerage engineering to get the wastewater away in an efficient and safe manner.

Annual Budget Process Begins

At their June 13th Regular Board Meeting, CEPD Commissioners began the District’s budget process considering and discussing a proposed draft of the CEPD General (Operating) Budget for the 2018-2019 fiscal year. Florida law requires the budget to be balanced. While island properties may have seen an increase in property value over the last 5 years, Captiva property owners have seen a steady decline of the CEPD operating millage rate in each of those years. A millage rate of 0.3124 approved in FY 2013/14 decreased to 0.2720 for the most recent fiscal year of 2017/18.

The final operating budget will be based on Captiva’s taxable property value which the Lee County Property Appraiser certifies to CEPD, a taxing authority, by July 1 of each year. The 2019 taxable value is \$1,452,432,311, which is 3.4% higher than the 2018 value of \$1,404,126,344. The Board set a tentative millage rate of 0.2984 at the June meeting. This rate can be reduced after the two budget hearings but cannot be increased.

Publicly noticed hearings for the new fiscal year beginning October 1 are:

- Tentative Budget Hearing - September 13, 5:01 pm
- Final Budget Hearing - September 27, 5:01 pm preceded by the Regular Board Meeting at 3:00 pm.

Prior to the hearings, taxpayers receive in the mail from Lee County the Notice of Proposed Property Taxes known as the TRIM notice. The millage and budget hearings are open meetings and are the best opportunities for taxpayers to provide input into and ask questions about the coming fiscal year’s budget. The hearings are designed to ensure taxpayers awareness of the proposed millage changes, the proposed budget changes, and the percent of change of the rolled back rate, if the rolled back rate is approved. The rolled back rate is the millage rate which provides the same tax revenue as was levied during the previous year.

Algal Blooms and Red Tide

This year south Florida received record rainfall in May which delivered extra nutrients from the local watershed into Lake Okeechobee, adding to the ingredients that accumulated from the rainfall and runoff during Hurricane Irma. It created perfect conditions for an intense algal bloom. Blue-green



An algae bloom is on the Caloosahatchee River at the W.P. Franklin Lock and Dam on July 12, 2018, in Alva, Florida. (AP Photo/Lynne Sladky)

algae, also known as cyanobacteria, is common in the lake. They have special adaptations that help them dominate blooms, such as the ability to adjust their position vertically in the water column allowing them to find the depth of optimal light or nutrient availability.

The blue-green algae (cyanobacteria) is not red tide. In Florida red tide is an algal bloom named *Karenia brevis* and is given this specific name to distinguish it from other species of algae. Researchers think the cyanobacteria bloom is pushed out to sea and the algal cells rupture and release all of their internally stored nutrients. This in turn makes red tide worse.

The blue-green algae cyanobacterium *Microcystis aeruginosa* was identified as the dominant type in 6 of 8 samples collected along the shore of Lake Okeechobee and 38% of the 66 total samples collected throughout the entire region in June and July, 2018. Some blue-green algae can produce toxins. *Microcystis aeruginosa* has been shown to produce the hepatotoxin (liver toxin) microcystin, which can result in gastro-intestinal problems associated with drinking untreated contaminated water, and in extreme cases, result in liver damage. Impacted water resources used for human consumption are typically treated with chlorine or ozone to destroy the toxin.

In addition to hepatotoxins, some blue-green algae can produce other types of toxins, including neurotoxins

(Continued on Page 4)

Dealing with Fish Kill

Lee County commissioners broadened a state of emergency aimed at the region's water crisis after hearing mayors from five communities ask for action on the algae and red tide infestations threatening the health and economy of the region. The Commissioners declared a state of emergency because of the red tide infestation coupled with the state of emergency declared last week over the blue-green algae crisis. This will help to make federal money available to battle the infestation of algae and bacteria and the economic fallout from the crisis. Lee County, the Town of Fort Myers Beach, and the City of Sanibel have hired debris-removal contractors to supplement efforts by County Parks & Recreation employees to clean county beaches affected by the recent red tide fish kill.

On Captiva, CEPD applied for and was granted an emergency beach clean-up permit from the Florida Department of Environmental Protection. Coordinating with the Sanibel Captiva Conservation Foundation turtle nesting monitors, CEPD hired a contractor who spent three days removing dead fish from Captiva's gulf front beaches. Additional cleaning and removal runs will be scheduled as necessary.



CEPD partnered with Lee County to have the county's contractor clean up the bay side. They collected 5,000 pounds of dead fish on the first day. The District placed a trash dumpster at Hagerup Beach Park for residents to deposit fish they have picked up. Additional dumpsters will be placed along the bay side as needed as clean-up crews work from north to south along the bay. Since wind and tide conditions can push the debris out into the gulf or bay or back on shore, CEPD will continue to monitor the conditions and request clean-up as necessary.

If residents want to take matters into their own hands, the county says residents may also double-bag fish and place in regular household trash receptacles. They advise, however, the hauler will not be able to make additional collections outside of regularly scheduled collection days.

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(Continued from Page 1)

The recreational benefits flow to all properties.

Within each of the benefit categories, properties are grouped by beach location (zone) and land use. Beach zones are determined by erosion conditions in the different beach areas. Land use includes use of the property as a single-family home, multi-family, interval property, or commercial as determined by the Lee County Property Appraiser. Collectively, this process is called "apportionment." Properties are assigned a rate according to the proportion of benefits accruing to each property. Assessments are then calculated using this apportionment and the current value of the property as assigned by the Lee County Property Appraiser.

After the project is completed and the total cost is determined, a preliminary assessment roll is prepared. The roll is advisory and must be approved by the CEPD Board at a scheduled meeting. A notice of that meeting is published in the local papers and any person may appear and file objections. When the final assessments are confirmed, they may be paid without interest within 60 days from the date of the publication of the notice. They may also be paid in equal annual installments with interest through the Lee County Tax Collector.

SAVE THE DATE

9/13/2018	Tentative Budget Hearing	5:01 pm
9/27/2018	Regular Board Meeting	3:00 pm
9/27/2018	Final Budget Hearing	5:01 pm
10/10/2018	Regular Board Meeting	1:00 pm
11/8/2018	Regular Board Meeting	1:00 pm
12/12/2018	Regular Board Meeting	1:00 pm

CEPD to Renovate Alison Hagerup Beach Park

(Continued from Page 1)

to replace the corroded ones. "We're going to renovate the park," Grant said, "and provide better ADA accommodations."

As for the beach monitoring, the TDC approved \$12,000 for a beach-going vehicle. "Part of our purview," Grant said, "is to monitor the beach, identify erosion issues and hot spots, and keep an eye on the dunes, dune vegetation, and the posts and rope that keep people off the dunes." The monitoring will also include collecting trash along the beach and dealing with fish kill. Board Chairman Dave Jensen said he was excited about the upgrades. "We will have a facility that rivals the best beach parks in Lee County."

Algal Blooms and Red Tide

(Continued from Page 3)

(nervous system toxins) that can cause respiratory distress and eye irritation, and dermatotoxins associated with skin irritation. Some people develop a rash when their skin contacts the bloom. To avoid possible adverse symptoms and effects, humans and pets should not come in contact with water that is contaminated.

Red tide can cause respiratory symptoms, especially in sensitive populations like asthmatics, and may cause skin irritation and burning eyes. When both humans and animals consume contaminated shellfish, it can cause Neurotoxic Shellfish Poisoning. In addition to killing fish and contaminating shellfish, *K. brevis* blooms kill marine animals including dolphins and endangered manatees.

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