

The Garden Club of Georgia, Inc.
Mission: Beautification ... Conservation ... Education



Sowing Seeds of Knowledge

(published monthly to inform and to encourage participation in NGC Schools)

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To continue the relevant theme of Plato and Aristotle about their known Universe as Earth, Air, Fire (energy) and Water as topics, this issue and likely the next will focus on Earth as land, including coastal lands, very critically in recent news. The interconnectivity of these four elements is obvious, but let's have an autumnal go at Earth. Let's focus on some of its resources needing our efforts for careful use, protection, conservation, and all too often - restoration. Careful use by each of us as well as by the all of us can make a huge and needed difference, especially when the all of us act wisely and responsibly.

RELEVANT GCG POSITION PAPER:

Position Papers contain the tenets and collective best reasoning of the organization on matters of importance without anyone needing to ask someone else something like, "Well, so what does GCG really think about point source pollution, and what is that, anyway?" Points about earth/land use are scattered throughout the Papers, but much of importance that we hold as principles is found within the GCG Supports Public Lands/Greenspace Paper. It will be placed at the end of this issue as reference. Our Position Papers are our best filter for the masses of information we receive.

BOOK RECOMMENDATION:

Part of each Environmental issue of Sowing Seeds of Knowledge has been a suggested book for continued reading and individual study. Let's also begin with that. Written by Orrin H. Pilkey and J. Andrew G. Cooper, *The Last Beach*, published in 2014 by Duke University Press, takes a look at what is - or is not - being done worldwide (not just here in Georgia) at those magical and seductive spaces where land and water meet and where tides are major characters in many daily life stories. As bona fides, Pilkey is a retired Professor of Geology and author of note from Duke University. For balance, Cooper is Professor of Coastal Studies in the School of Environmental Studies at the University of Ulster. They produced a fascinating read, again a gift book, full of major opportunities for learning and with great photographs, alas all under copyright. The pictures tell the visual story that supports the verbal one. Check it out, buy it, or borrow it and READ IT!

BEYOND GEORGIA:

To expand our horizons, some examples in this issue will be from beyond our borders and maybe even out of our comfort zones. Fascinating things and important things do happen throughout Deep South Region and beyond. We can learn about them and about new places. That's part of the ... Education part of our GCG Mission.

WITHIN GEORGIA:

As an early Halloween treat on 10/30/15, in an email from Georgia Conservancy, there is announcement of the final version of its report on sea level rise available on its website. I have not read RETREAT. ADAPT. DEFEND and know that GCG and the Conservancy while not always walking in total lockstep on all matters, are hiking along together along the same trail. It will be a good and lengthy read for independent study.

OCTOBER 2015, THE MONTH OF RAINS:

Before we all become amphibians in order to survive, major loss of beach and coastal lands is highly pertinent to our now. The second October week although a major hurricane fortunately only skirted the Atlantic coastline, rain from Hurricane Joaquin and also from a huge west to east moving weather system dumped enough rain, especially in our sister state South Carolina, to shut down miles of Interstate I-75. It also washed out earthen dams and some bridges, especially in Columbia where parts of the city received 17" of rain within 24 hours and sustained major river and creek flooding with property and road damage in addition to failed dams for over a hundred miles eastward to the northern border city of Myrtle Beach and to Charleston at its southern border. Just as those floods were ending, another rain front moved eastward and joined stormwaters from Hurricane Patricia in some places.

A buzzword is kingtide for when there's simultaneously the least distance between Earth and the Moon, October high tides, and simultaneously, a full moon. With the combination of hurricane rains, it's overwhelming.

Recent Hurricane Joaquin waves broke against supersize sandbags banked against the ocean side of the crumbling highway itself at Kitty Hawk NC. The beach is virtually nonexistent in some spots. Waves flowed across the highway, eroding away recently added sand berms protecting buildings and depositing sand underneath raised structures. Potential for more water loaded sand filling in those spaces needed to keep buildings safe and dry could be as far into the future as the next full moon high tide or storm. Seeing news video clips of those areas was numbing because in childhood and youth visiting in some of those summer homes and mostly seasonal businesses was part of my life, especially in summers. The ocean side buildings are gone; the road is damaged. The causeway between Savannah and Tybee Island has also been flooded and temporarily closed.

Worldwide, seas rise and beaches retreat inland due to factors including rising temperatures melting ice. In many places, attempts that are rarely long term successful only exacerbate or postpone the problems. Beaches change through time. They do. Sloping shorelines can become abrupt fragile sand cliffs. Moreover, several methods of beach protection have been attempted. Such attempts are usually profitable for developers and those landowners making the

improvements and a remarkable example of human hubris. The question is remarkably simple; beaches or buildings? Rising sea levels compound the problem. Examples of such efforts follow.

Jetties: Imported rocks and boulders to form groins or jetties projecting into the surf at right angles to the shore are for the most unattractive except to those who profit from them and are only temporarily effective. Sometimes, recrete (repurposed hunks of recycled concrete) brought in from many sources including buildings, sidewalks, roads and pathways are generally sized larger than a pro football player are added. They often contain enough lime and noxious chemicals that seeps out into waters and remaining sand to change beach and water ecology with negative effects on the ecosystems. Especially when jetties are built close to inlets and estuaries, they can have negative and opposite results, resulting in sands moving into inlets, reducing their breadth and depth as changing water flow causes problems for navigation when new deltas form.

At low tides, jetties and groins are visible, but as tides change and water levels become generally higher, the far ends become only partly covered, if at all, thereby becoming dangers to swimmers and those on paddle boards and in canoes and kayaks, especially when currents and wave actions are strong. It is usually difficult to see the seaward ends of jetties underwater. Especially during strong storms, hurricanes in the Atlantic (still often called typhoons in the Pacific and Asian waters) change beaches and destroy structures drastically and can move enormous amounts of sand in a few hours.

Generally, barrier islands tend to recede on the northern ends and ocean sides and to build up on the southern and western sides. Once thriving maritime forests are destroyed by resulting increasing levels of resulting salinity. As example, Jekyll Island's bone beach's bones were once trees that could not survive the loss of sand that went out to sea, plus the loss of viable soil in addition to increased salty water changing nutrients from what they could tolerate to destroying them, akin to overwatering house and garden plants causing them to decline and die. Toppled trees now without foliage segued into those picturesque bones on Jekyll.

Storm sands also often reappear on the mainland sides of barrier islands and are water dumped onto the interiors of barrier islands, covering roads and reducing the amount of space between the ground level and lower floors of buildings on pilings, thereby reducing protection from flooding from the next storms and floods. Even bridge foundations like those of the NC Bonner Bridge across Oregon Inlet can contribute to the problem by enabling buildup of sand around the pilings. As the inflow and outflow of waters, salty and not, change, life support systems for marine life change. Consequently, seafood supplies can diminish. As a result, the inlet diminishes.

Seawalls and Bulkheads, plus Sandbags:

Seawalls and bulkheads are built roughly parallel to beaches and vary in construction from pilings and boards or logs to thick stone and concrete walls to prevent loss of sand and land close to buildings causing subsequent loss of buildings. They also prevent the building up of protective vegetated dunes, and unless sand is repeatedly brought in, tide movement causes beaches simply to cease to exist. They are also expensive to construct.

An almost always short term and ineffective form of protection from an ocean's strength is piled sandbags. Again, the sand has to come from somewhere else, thereby depleting the supply from somewhere and often the bags are filled by prisoners. Where these forms of protection end along a beach, wave and tide action will creep over, behind, and then under them. With water approaching from all directions, sandbags will move and then fall apart, becoming totally useless.

Renourishing: The word itself is a convenient euphemism for expensive. Sand is trucked in from who knows where or is dredged up from existing offshore sandbars, not only changing marine habitats, but destroying plant and animal life. The process is commonly dangled before the public and touted as good for business, creates temporary jobs, but is somewhat absurd when sea levels continue to rise and ice melting temperatures also rise. In addition, often the resulting beaches are tilled regularly to make them look pristine but such makes sure helpful bacteria and inhabitants cannot survive. Dunes and natural vegetation also can not survive to provide habitat. Sea turtles prefer to lay their eggs above the high water line for protection, and if there isn't such a place, they will be at a loss.

Finished in 2014, as of today (November first) most if not all the renourishment at the eastern end of the SC Folly Beach is gone. For \$30 million along 5.3 miles of Folly Beach, the 1.5 million cubic yards of sand have washed away. Virtually the project is destroyed, not gone down the drain, but mostly into the Atlantic. Substantial homes built on pilings teeter now at least partly in the ocean. Think of the scene from Conroy's *The Prince of Tides* where the couple dances as a beach house detached from its pilings and floated out to sea.

Pollution: It is not now uncommon for Hazard to Swimmers or Beach Closed warning signs to be posted on some beaches, especially in summer and especially at popular and crowded ones after ocean waters are tested for harmful bacteria. Both Pilkey and Cooper suggest that when such warnings are posted, walking barefoot in shallow water is to be avoided because even the tiniest nick or cut can become infected. They go on to recommend that for the same reason nobody ever pile sand on others or themselves. Furthermore, they also recommend that if one wants to sunbathe, lying on top of two beach towels to be washed after each sunbathing session will help prevent bacterial infections. They do not address what happens in such conditions to sand fiddlers and other familiar beach residents.

Another factor can be septic tanks close to the tide lines leaking, especially when they are uncovered and exposed to wind and tides.

NEGATIVE CHANGES TO SOIL:

Examples are varied, numerous, and widespread but a small town in another of our sister states, North Carolina, serves as an outstanding example of serious harm that can be done to the good earth and to its inhabitants. Navassa NC is in the state's southeastern coastal corridor, not far from Wilmington, close to the South Carolina line, and is part of a rich coastal history dating back to rice plantations. In the mid 20th. century, from 1936 to its closure in 1974, a wood treatment plant presented a legacy of poisoned soil created by creosote waste water from the plant that seeped as deep as 88 feet into the soil and poisoned it according to the Environmental

Protection Agency, creating brownfield areas in the land close to the Brunswick and Cape Fear Rivers.

Creosote is distilled coal and tree tar used as a weather and insect spray to coat and preserve trees - mostly pines with bark removed - primarily used for telephone poles and railroad cross ties. Breathing creosote vapor can irritate lungs according to the EPA Agency for Toxic Substances and Diseases. Additionally, such vapors are listed as a likely carcinogen for humans. Skin can blister and peel from long term exposure to creosote. Animals fed with large amounts of creosote convulsed and died; ones ingesting lower levels only developed liver and kidney problems.

Creosote waste was dumped into unlined ponds and the chemicals settled. In 1980 after the plant had closed, the ponds were drained and the remaining sludge was mixed with soil before planting. Creosote smells terrible which by itself should have been a warning. Residents ate the vegetables they planted as well as ones from another brownfield that was the result of a closed meat processing plant and where the EPA found some soil contamination.

At the time of the wood treatment plant, little was mentioned about potential effects of creosote to the environment. It was touted as a much needed way to create jobs in a rural and underdeveloped area that also happens to be one of the last existing Gullah-Geechee cultural communities based primarily on farming and fishing. Residents were not unsurprisingly not warned of potential health dangers or environmental impacts, only told about jobs. Such is not unknown another situations and locations.

Some numbers to estimate the cost to clean up the damages done, according to the Greensboro Post and Record Associated Press story from 10/11/15 include \$23 million to restore natural resources in the Navassa area that has a current population of just over 1,500 people and another \$92 million to clean up the damaged areas. Damage to local marshlands and waters has not yet been determined. Moreover, there is also another site where a major oil producer continues to monitor groundwater.

Local residents continue to need jobs and are still hopeful that some of those funds resulting from the Anadarko litigation that was reached by the U.S. Justice Department will come to them. Quoted in the News and Record story, Navassa's Ella Willis stated, "Because right now we're concentrating on the fish and the bugs and the birds, and all of that is good, but we are concerned about the humans that have been affected by this contaminant."

Navassa residents have long worked difficult jobs, starting in the rice fields. As the current Mayor said, "Folks were trying to put bread on the table." This situation could have been avoided. It can happen almost anywhere. The dangling of needed jobs without respect for the soil itself or for those who live on it and depend on using it for sustenance is assuredly about Beautification ... Conservation ... Education, but it sometimes still works in some places.

Position Paper 2003: GCG Supports Public Lands/Greenspace

Since its founding in 1928, the Garden Club of Georgia, Inc. has proudly acknowledged its horticultural stewardship, ever mindful of our verdant heritage and considering it a sacred duty to protect those natural resources so generously loaned to each of us.

Georgia's natural resources are rapidly being depleted. GCG strongly believes our public lands and resources should be managed under a mandate of conservation stewardship for future generations.

Legislation must be put into place which protects public lands and their resources, together with responsible management of them. GCC supports legislation authorizing county and municipal governments to establish trust funds for parks and greenspace, river protection, and scenic vistas.

GCG urges partnerships with community groups, landowners and governments to provide adequate funding for protection, reclamation and management of publicly owned land.

GCG supports an increase in lands designated as wilderness, expanded protection of free-flowing stretches of rivers and vigorous preservation of wetlands. GCC encourages creation of urban parks, gardens, and greenspaces.

GCC strongly supports efforts to safeguard biodiversity at all times, with emphasis on sound management of such resources as water, timber, minerals and public lands. Resources on public lands should not be sold, traded, or leased for less than the market value.

Therefore, the Garden Club of Georgia, Inc. supports:

- Protection of wetlands, forests and rivers, critical watersheds and conservation of land for watershed protection.
- Fostering biodiversity.
- Designation and increased protection of wilderness areas.
- Conservation of land for watersheds, scenic beauty, and recreation.
- Creation of community parks, greenspace, and scenic vistas.
- Preservation of historic landmarks, landscapes, and working lands.
- Protection of parks and national preserves from exploitation.
- Use of the Land and Water Conservation Fund with its full funding for its intended purpose—the purchase and restoration of public lands.
- Reclamation of damaged lands.
- Control or eradication of invasive plants on public lands.
- Conservation and preservation of flora and fauna, especially native species.
- Enabling legislation authorizing county and municipal governments to establish Trust Funds for parks and greenspace, river protection and scenic vistas.

Recommended for further study:

1. Visit websites, read their materials and seriously consider joining at least one of the following conservation groups:

- Georgia Conservancy
- Georgia Sierra Club
- Georgia River Network
- Riverkeeper for your watershed
- Georgia Wildlife Federation
- Georgia Water Coalition
- Environment Georgia

2. Find the name and contact information for your Georgia House Representative and State Senator, met them and, according to a former GCG President, get to know them on a first name basis. Stay in email contact during the upcoming General Assembly Session that begins on the second Monday in January.

3. Google or other search for terms you do not know: be cautious and remember that in many cases and to a great extent that the source from which one seeks advice will determine the sort of advice received.

“Conservation is a cause that has no end. There is no point at which we can say, ‘Our work is finished.’ ” Rachel Carson