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Journal of the Louisiana Section **http://www.lasce.org**

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FEATURE:

Lightweight Aggregate & Geotextiles Combine for Coastal Solutions

NEWS:

Louisiana Section Installation & Awards Luncheon Highlights

Matthew D. Redmon, PE

2016-2017 ASCE LA Section President

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NOVEMBER 2016
VOLUME 25 • NO 1

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The Louisiana Section is located in ASCE Region 5 that consists of the Louisiana, Mississippi, Alabama, Georgia, and Florida Sections.

President's Message

By Matthew D. Redmon, PE

Matthew D. Redmon, PE

I am honored to serve as the President of the Louisiana Section of ASCE for the 2016-2017 term. First of all, I want to thank Chris Humphreys and the 2015-2016 Section Board for all of their hard work over this past year. I am eager to continue to serve the engineering profession and lead the amazing members of the Louisiana Section.

I have been involved with ASCE since my days as an undergraduate student at the University of Tennessee. But if it wasn't for Chris Humphreys, PE, I might not be in the President's position today. You see back in 2008, I moved from Nashville, TN to Shreveport, LA to start a new position with PSI. Even before I moved into my new office, Chris had contacted Ali Mustapha, PE about getting his new engineer involved with the Shreveport Branch of ASCE. Not only did Ali get me involved, the board asked me to serve as a branch officer. The monthly branch meetings and position on the branch board gave me the opportunity to meet some new colleagues and make some new friends. My involvement with ASCE helped me as I began a new chapter in my career and in my life.

Well, my service to ASCE didn't stop at the branch level. In 2011, Pat Landry, PE approached me about serving as the Shreveport director on the Louisiana Section Board. I didn't know what I was getting into back then, but through the position, I was able to interact and build relationships with engineers from across the state, especially engineers from Shreveport. A lot of topics come up when you are in a car together for about eight hours. Looking back, I am glad I made the decision to volunteer with ASCE.

The 2016-2017 year is off and running. We have an exciting year ahead of us. On September 23, 2016, the Shreveport Branch hosted the Annual Louisiana Section Awards Banquet and Installation of Officers Program at Silver Star Smokehouse in Bossier City, LA. Approximately 30 people attended the banquet which annually honors some of the outstanding civil engineers across the state. Congratulations to all of our award recipients. ASCE and the engineering profession are thankful to have such outstanding engineers, and we are glad we could honor you. Also, many thanks are extended to Section Awards Committee for selecting and presenting the awards and to the branches for nominating an outstanding slate of candidates. Look for more information about the Section award recipients and installation of officers later in the journal.

The following week, I attended the ASCE 2016 Convention in Portland, OR. The convention was well-organized, and the weather was quite pleasant given the rainy reputation the Pacific Northwest has. The convention kicked off with an opening reception and a sneak peek of the ASCE IMAX film "Dream Big: Engineering Wonders of the World." The movie premieres during E-Week 2017, and we are currently exploring venues to present it in Louisiana. The keynote speaker during the opening session on Thursday was Frans Johansson. He presented on how Diversity Drive Innovation and the main theme was that diverse teams come up with more ideas and better ideas. We as engineers can draw inspiration from different fields and cultures to change our way of thinking and come up with innovative ideas. If you are more interested in this topic, I recommend reading The Medici Effect: What Elephants and Epidemics Can Teach Us About Innovation by Frans Johansson. On Friday, I was able to celebrate with one of our own as Norma Jean Mattei, PhD, PE was installed as the Society President. Congratulations Dr. Mattei and I know you will lead the Society well.

We are currently in the process of updating the Louisiana Report Card. The State's first report card was released in 2012 to provide the public and elected officials with an engineering evaluation of key infrastructure categories in the state of Louisiana. The initial report card effort was well executed, and with the help of the Government Relations Committee, we were able to distribute the information to our local, state and national representatives. With this new update, we will be able to see if we have made any progress to improve our infrastructure. As we speak, committees representing ten infrastructure categories are reviewing publicly available information, performing assessments, and providing grades in categories such as condition, funding, future need and public safety. The plan is to gather data and have a rough draft completed by the end of November. We would like to begin publishing in April. If anyone is interested in assisting with the report card effort please contact your branch or section leadership.

Another area I would like to focus on during my term is growing and retaining our membership. ASCE is a great organization that helps build relationships through monthly meetings and networking events. We also provide a service to help engineers grow professionally through continuing education luncheons and seminars. ASCE provides a variety of opportunities and if you have colleagues who aren't members, I encourage you to invite them to your branch's monthly meetings. I would also like to encourage each branch to communicate and stay up to date with the student chapters. They are the future of the profession and interaction with our members is valuable as they begin their professional career. I encourage you to plan joint events with the branch and student chapter such as tailgates or pizza parties. The Society actually has a pizza party reimbursement program to support involvement with student transition and membership acquisition. I also recommend having engineers from various disciplines of civil engineering present to the student chapters and local schools about topics they may encounter with a career in engineering or to establish an early interest in civil engineering for younger students.

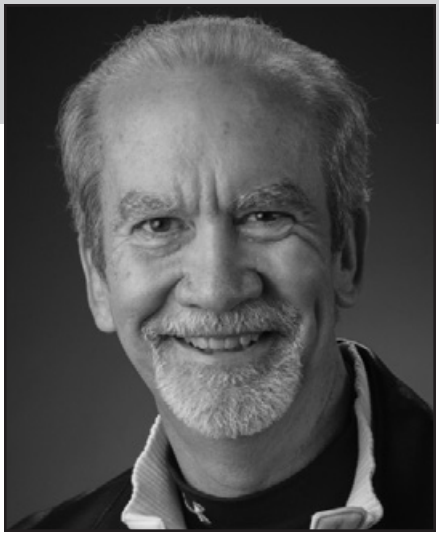
As for our current members, I want to continue serve them by providing affordable continuing education events and conferences. I plan on continuing a recent tradition of having a half day seminar near one of our underserved areas. This program has been well received in the past in Lake Charles and Monroe. I know a lot of members use ASCE to acquire their professional development hours required for licensure, and I want to continue to provide those learning opportunities for our members, even those that may not be near one of the larger cities where monthly branch meetings are held. I want to encourage the branches to consider events like these to help serve your local members throughout the year.

My term will wrap up next September as the national convention visits New Orleans. I am sure the Society will need some assistance from the local branches to help put on a successful event. As I receive information, I will pass it along.

Once again, I am honored and excited to serve this section as President and look forward to the upcoming year.

Lightweight Aggregate and Geotextiles Combine for Coastal Solutions

By Jeffrey F. Speck, PE, M. ASCE, Mark R. Sutherland, PE, LEED AP



Jeffrey F. Speck, PE, M. ASCE

Mark R. Sutherland, PE, LEED AP

ABSTRACT

Many coastal areas have lost thousands of acres of shoreline to erosion. Hurricanes have led to vast areas of land just disappearing. To maintain and restore Gulf Coast shoreline, protective berms are constructed to reduce the effects of wave action and to keep vital flood control walls safe from the destructive effects of collateral damage caused by hurricane-force storm driven threats. In some cases, dredging can leave the adjacent floor deeper than the bottom of the nearby berm. This condition adds to the potential for an unstable berm structure. The use of ordinary, heavy riprap to construct the entire berm can lead to underwater slope failure and loss of the berm itself, a destructive issue designers can avoid by utilizing geotextile bags filled with lightweight aggregate. Material properties of lightweight aggregate and design details of berms constructed with the aggregate-filled bags are presented, with case studies of completed projects.

INTRODUCTION

Many coastal areas have lost thousands of acres of shoreline to erosion. Recent hurricanes have led to vast areas of land just disappearing. Storms, along with the loss of marsh grasses and other vegetation, have taken a toll. As a result, millions of dollars are being spent on a variety of projects intended to maintain the remaining coastal land and restore some of the land that has been lost. One of the strategies within the coastal restoration and protection program is the construction of protective berms to reduce the effects of wave action and to keep vital flood control walls safe from the destructive effects of collateral damage caused by hurricane-force storm driven threats. Often these berms are constructed of common limestone riprap. However, the mass and density of the stone used to construct the riprap berms can present certain disadvantages during and after construction.

Since 2002, lightweight aggregate encapsulated in geotextile bags has been used successfully in numerous projects in Louisiana to overcome the disadvantages of riprap berms. This paper presents the differences in the physical properties of limestone riprap and lightweight aggregate, the geotechnical engineering benefits using bagged lightweight aggregate, and examples of projects that have used bagged lightweight aggregate to construct the cores of berms for coastal protection and restoration instead of 100% riprap berms.

MATERIAL PROPERTIES

Limestone riprap has commonly been used for coastal berm construction for many years. Riprap, also known as rip rap, rip-rap, shot rock, rock armour or rubble, is rock or other material used to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour and water or ice erosion. It can consist of a variety of rock types, commonly granite or limestone, and occasionally concrete rubble from building and paving demolition. Riprap used for erosion control and coastal berm construction in Louisiana is typically limestone. Although the properties of riprap vary depending on the source, a common design value for specific gravity is 2.65. Riprap is typically specified as a well-graded material, with requirements for particle sizes designated as D100, D50 and D10. 100% of the material is expected to be smaller than the D100 size, 50% smaller than the D50 size, and 10% smaller than the D10 size. Riprap is classified by mass, with classifications include Facing, Light, 0.23 Metric Ton, 0.45 Metric Ton, 0.91 Metric Ton and 1.81 Metric Ton; particle sizes increase as the mass designation increases. For example, Facing Riprap particles range in size from 0.12 m to .040 m, while 1.81 Metric Ton Riprap particles are 0.87 m to 1.37 m. (FHWA 1989)

Lightweight aggregate used in coastal berm construction in Louisiana is rotary kiln expanded clay aggregate with a saturated surface dry specific gravity of about 1.45, and particle sizes ranging from 8 mm to 16 mm. Expanded clay lightweight aggregate production begins with a raw material of select clay, which is quarried at or near the producing company's manufacturing facilities. The raw material is processed by heating in rotary kilns at temperatures in excess of 1100° C under carefully controlled conditions. The result is a structural grade ceramic lightweight aggregate that is screened to produce a variety of gradings required for use in applications such as asphalt surface treatments, structural lightweight concrete, concrete masonry, geotechnical fill and other applications. The lightweight aggregate is inert, durable, tough, stable, insulative, and free draining. It is used extensively in concrete bridge decks, high-rise buildings, precast/prestressed concrete elements, backfill for retaining walls and bulkheads, and

other types of projects in which the combination of low density and high strength is required. For geotechnical engineering applications, its low density and high (greater than 40°) angle of internal friction, or Phi angle, are unique properties that can provide solutions to overcome difficult soil conditions. Each aggregate particle contains very small pores throughout ceramic matrix. These pores are generally not interconnected, so they will absorb water, but will not permit water to pass through the particles. An example of an expanded clay lightweight aggregate production facility can be seen in Figure 1, while Figure 2 shows a schematic diagram of the expanded clay production process.

Figure 1: Expanded Clay Lightweight Aggregate Production Facility

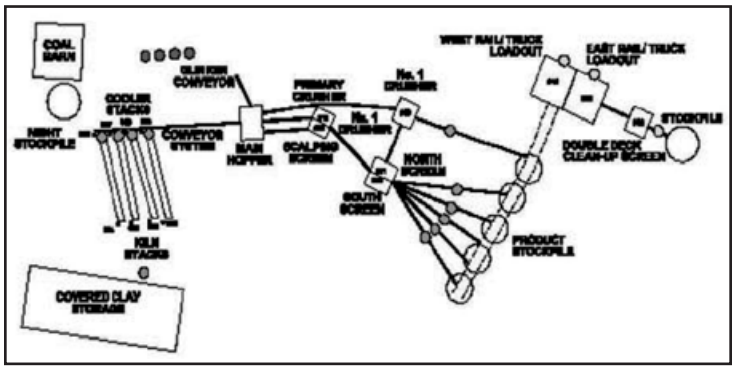


Figure 2: Schematic of Plant Process

BERM CONSTRUCTION

Offshore riprap berms are generally constructed by transporting the riprap by barge to the site and placing it with a clamshell or other excavator. The cross-section of the berm is trapezoidal, with the top of the berm at a specified elevation above the water level. Along the Louisiana Gulf Coast, the soils upon which the berms are constructed are very soft and compressible. The massive stones tend to settle into the mud as they are placed. As subsequent stones are deposited on top of previously placed stones, the additional mass causes further settlement. Consequently, it is not unusual for the actual berm to be much larger than the design cross-section, with the bottom of the berm at a greater depth than the original and surrounding sea floor. As a result, the quantity of stone used to construct a berm can greatly exceed the design quantities, causing cost overruns. There have also been instances in which the top of the berm would not remain above the water level after placement, requiring the addition of more stone, which continued and exacerbated the settlement of the berm into the underlying mud.

The mass of stone berms can also cause instability in the underlying and nearby soils, particularly where previous dredging has created slopes in the sea floor within the zone of influence of the berm loading.

As an alternative to heavy limestone riprap, the mass of the berms can be reduced by as much as 50% by constructing the cores of lightweight aggregate. Due to its comparatively small particle sizes and low density, large bags are produced using geotextile fabric, and the bags are used to encapsulate the lightweight aggregate for placement in the water to construct the cores of offshore berms. Typically, the bags are filled with lightweight aggregate at the aggregate production facility or at the river port where they are loaded on barges for transport to the project site. Alternatively, the lightweight aggregate can be transported in bulk to a location near the installation site, and the bags can be filled at that location. Figure 3 shows filled bags ready for loading onto a barge.

Figure 3: Filled lightweight aggregate bags ready for loading onto barge

As each bag is placed into the water, it fills with water, and the water is absorbed by the aggregate particles. As the bags fill with water, they settle into place on the sea floor. Because of the lower mass, very little settlement occurs once the bags reach the surface of the sea floor, resulting in a berm cross-section that is very close to the design dimensions. The sizes of the bags can be varied and the lifting loops can be color-keyed to facilitate construction of the desired cross section. Upon completion of the core, the bags are armored with limestone riprap to prevent accidental damage. Figure 4 shows an example of a lightweight aggregate berm cross-section.

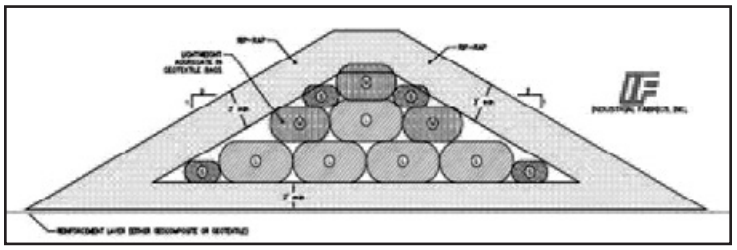


Figure 4: Example Cross-section of Lightweight Aggregate Berm

The cross-section in Figure 4 shows a layer of riprap beneath the lightweight aggregate bags. This is an option selected by some

geotechnical engineers. Note that before the bottom layer of riprap is placed, a geotextile fabric reinforcement mat is installed to reduce the settlement of the riprap. Alternatively, the reinforcement mat and bottom layer of riprap can be omitted and the bags of lightweight aggregate placed directly on the surface.

ENGINEERING BENEFITS OF LIGHTWEIGHT AGGREGATE BAGS

Constructing offshore berms with lightweight aggregate encapsulated in geotextile fabric bags has certain geotechnical and environmental engineering benefits. Because settlement is reduced during and after construction, material quantities and construction costs are easier to estimate with greater accuracy. Material quantities are reduced and construction can be completed in less time. The shape of the cross-section is easier to create and maintain, including consistent top and bottom elevations. The loading imposed on the underlying and adjacent soil is reduced by about half, depending on the design details, greatly reducing the potential for underwater slope failures.

Because the lightweight aggregate is encapsulated in the geotextile bags, there is no wasted material due to aggregate floating away. In the unlikely event of a bag getting torn during construction, the loss is limited to the volume of the torn bag only.

PROJECT EXAMPLES

WBV 90 GIWW West Closure Complex, 404c Floodwall - Harvey Canal, LA (Contractor – Pine Bluff Sand & Gravel)
Contractor: Pine Bluff Sand & Gravel
Length: Approximately 1,200 m

The Gulf Intercoastal Waterway (GIWW) stretches for more than 1,300 miles from the Mexican border at Brownsville, Texas, along the entire coast of the Gulf of Mexico to Apalachicola, Florida. It experiences its heaviest traffic along Louisiana's coast. At the Port of New Orleans the GIWW joins with the Mississippi River system, its major connection with the interior of the country. The Harvey Lock, on the west bank of the Mississippi River in Harvey, across the river from New Orleans, connects the GIWW with the Mississippi River via the 10.5 km long Harvey Canal. (USACE Undated) The post-Katrina hurricane protection construction at the Harvey Canal included a 1,280 m long concrete T-wall along edge of Bayou aux Carpes wetland area to protect the sensitive wetland area from flooding in future hurricane events. (USACE 2010) To protect the T-wall from potential damage from wayward vessels during a hurricane, a berm was constructed in front of the wall. Trinity Lightweight and Industrial Fabrics, Inc. collaborated to help designers develop the lightweight aggregate solution for construction of the T-wall protection berm. Four sizes of lightweight aggregate bags were used to create the design cross-section as efficiently as possible. The lifting loops were color keyed to the construction plan, and the barges were loaded in reverse order so that the bags could be unloaded in the proper sequence for placement.

Figures 5, 6 and 7 show construction of the berm. Figure 8 is an aerial view of the completed berm adjacent to the T-wall.

Figure 5: Lightweight aggregate filled geotextile bag lifted from deck barge

Figure 6: Lightweight aggregate filled geotextile bag placement

Figure 7: Lightweight aggregate filled geotextile bags before (foreground) and after (background) armoring with riprap

Figure 8: T-wall and protection berm at left foreground

Biloxi Marsh Shoreline Protection Project (PO-72), CPRA, St. Bernard Parish, Louisiana
Contractor: Bertucci Construction
Length: 6.4 km

The Biloxi Marsh project is located along a 11.3 km stretch of the southeastern shoreline of Lake Borgne and the Biloxi Wildlife Management Area in St. Bernard Parish, Louisiana (Figure 9). Marshes surrounding Lake Borgne have sustained significant land loss due to wave-induced erosion, with approximately 15,640 acres lost between 1932 and 1990. Biloxi shoreline erosion rates have averaged approximately 8 to 9 feet per year. However, since 2004, largely due to hurricanes Katrina, Rita, and Gustav, erosion rates have exceeded 50 feet per year in some localized areas, greatly endangering the nearly 40,000-acre Biloxi Wildlife Management Area. (CPRA) Berms have been constructed to provide protection for a portion of the marshes in the Biloxi Wildlife Management Area, helping to save an ecosystem that also serves as a protective barrier for the City of New Orleans and surrounding area against surge and waves during tropical storm events. An all-riprap berm was placed along straighter, shallower shoreline reaches. In the more irregular and deeper sections of the shoreline (the majority of the project area), the all-riprap berm was deemed less suitable, primarily due to the extremely soft soils. For these areas, a 6.4 km long berm was constructed with a core of lightweight aggregate bags. Construction of the berm is shown in Figures 10 and 11.

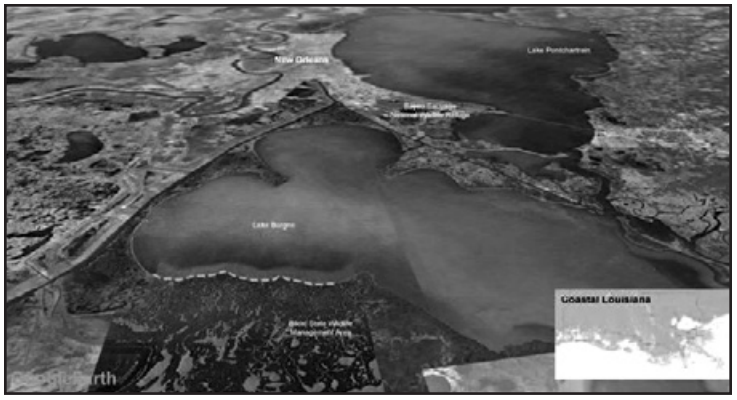


Figure 9: Google Earth view of Biloxi Marsh project location

Figure 10: Biloxi Marsh lightweight aggregate filled bags in place

Figure 11: Biloxi Marsh berm before (foreground) and after (background) armoring with riprap

OTHER PROJECTS

Other projects that have been completed or are under construction include:

- Project: GIWW - Lakeshore Protection Length: 1.5 km
  Contractor: Tarpan Construction
- Project: Lac des Allemands Length: 1.4 km
  Contractor: Pine Bluff Sand & Gravel
- Project: East LaBranche Length: 1.16 km
  Contractor: Bertucci Construction
- Project: Rockefeller Refuge Length: 760 m
  Contractor: Choctaw Transportation
- Project: Barataria Land Bridge Length: Under construction
  Contractor: Pontchartrain Partners

CONCLUSION

Large geotextile fabric bags filled with lightweight aggregate provide an economic alternative for constructing protective berms for protection of coastal lands, especially in areas where the underlying soils are very soft. First used in 2002, these large lightweight aggregate filled bags create berms that are much lighter than those constructed with the material that has been traditionally used: common riprap. As a result, the constructed berms experience almost no settlement, greatly reducing the volume of material needed to construct the berms, improving cost estimating for this type of project, improving control of the final berm dimensions.

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ASCE Region 5 Director's Letter

By Melissa Wheeler, M. ASCE

Melissa Wheeler, M. ASCE

Dear Region 5 Members,

The Region 5 Board of Governors is excited to announce several new programs to recognize outstanding leaders and increase member value within our Region.

- Region 5 Assembly: On January 21st immediately following the MRLC in Newark, we are asking Section and Branch leaders to join the Governors from 3-6pm to discuss best practices and how we can increase member value in Region 5. You can apply for an additional night of per diem from the Region if needed to stay and join us for this opportunity. Please make plans now to attend!

- Region 5 Awards: In 2017, we will recognize the first recipients of the Region 5 Engineer of the Year, Young Engineer of the Year and Wall of Fame (Lifetime Achievement) awards. Applications will be available beginning in December.

- Region 5 Grants: The upcoming year holds many opportunities for ASCE. The Society will be promoting Dream Big, Engineering Wonders of the World. The Region will be offering mini-grants to help you promote Dream Big or offer ASCE stoles to your engineering graduates or help send a representative to the MRLC to gain valuable ASCE knowledge. Your Section, Branch, Younger Members Group, or Student Chapters could apply for a mini grant from Region 5 to help with these activities. Applications will be available shortly!

The Purpose of Region 5 is Advancing the Profession by: Inspiring Members, Creating Excitement, and Promoting Excellence in Civil Engineering. Your Region 5 Board of Governors is always open to hearing about what's important to you. If you have something you want to share, please feel free to contact me at any time. I will be happy to address any issues or concerns at monthly calls. Your Director and Governors are here to help you and make your group successful. Please let us know how we can help!

Melissa Wheeler
Director, Region 5
mswheele@southernco.com

*Remember, the R5BoG is made up of seven Governors who are willing and able to help:

Quincy Alexander (MS): Quincy.G.Alexander@erdc.dren.mil
Jeff Earhart (FL): jeff.earhart@cpwgengineering.com
Steven Goldstein (FL): steven-goldstein@att.net
Katherine Gurd (GA): katherine.gurd@aecom.com
Barbara Lehman (AL): blehman@Geo-Solutions.net
Ali Mustapha (LA): alimm@bellsouth.net
Lawren Pratt (AL): Lawren.Pratt@kbr.com

Eugene Raymond "Ray" DesOrmeaux
August 10, 1939 - August 9, 2016

"The strong survive, but the courageous triumph." His life was a triumph.

A Celebration of Life was held at a Mass of Christian Burial Monday, August 15, at Holy Cross Catholic Church for E. Raymond "Ray" DesOrmeaux, who passed away Tuesday, August 9, at home surrounded by family and friends. Father Patrick Broussard, Associate Pastor of the Cathedral of St. John the Evangelist was the Celebrant.

Born August 10, 1939 in New Orleans, LA, to the late Odelon and Nettie Guillory DesOrmeaux, Ray graduated from Holy Cross High School in New Orleans, where he was involved with Junior Achievement and was honored as Junior Achiever of the Year in 1957. He earned his B.S. in Civil Engineering in 1961 from the University of Southwestern Louisiana, his beloved alma mater. While at USL he received the Outstanding Catholic Student Award.

Ray's very successful career began with Domingue, Szabo & Associates, one of Lafayette's premier engineering firms. He then went on to found E. R. DesOrmeaux, Inc., General Contractor in 1972, and was engineer, developer and contractor on numerous projects, including residential subdivisions, office parks, town home developments, a residential and golf course community, shopping center and other commercial projects.

While continuing to run his own company, Ray was also a highly respected consulting engineer for developers, architects, engineers, attorneys and corporations. He was a special consultant to the City of Lafayette Mayor and Council from 1985 - 1992 and assisted with the opening of the Cajundome in 1985. He conducted forensic investigations related to construction issues, as well as feasibility studies for Lafayette Consolidated Government.

Ray recently added the title of which he was most proud: Teacher. In 2005, he joined the Engineering Department at the University of Louisiana Lafayette as adjunct instructor and in 2014, became an assistant professor in the Department of Civil Engineering and the School of Architecture and Design. He served as chairman of the Dean's Engineering Advisory Council and the Civil Engineering Advisory Board. He was honored to give the commencement address to College of Engineering graduates on several occasions and in 2016 was honored with the 2016 Engineering Faculty Professionalism Award.

His colleague Dr. Ken McManis cited Ray's amazing ability to incorporate real world expertise into the academic experience, a special ability that the department will be "hard-pressed to replace." He called Ray "the translator" between the aesthetic and the functional, the "bridge" between the Engineering and Architecture Departments.

Ray's professional experience was impressive and diverse. He was a Fellow and Life Member of the American Society of Civil Engineers (ASCE) serving in many leadership positions, including secretary/treasurer, vice-president and president of the Louisiana section, and governor of Region 5, which included Louisiana, Mississippi, Alabama, Georgia and Florida. He was also a member of the National Society of Professional Engineers, the Louisiana Engineering Society, American Concrete Institute, Tau Beta Pi Engineering Honor Society and Chi Epsilon, Civil Engineering Honor Society. He was a former national board member of the American Society of Concrete Constructors and member of the American Institute of Constructors. Ray wrote several articles for the Louisiana Civil Engineering Journal and was a contributor to the ASCE Post Disaster Assessment Manual.

He received numerous honors including the Distinguished Alumni Award from UL Lafayette, the Louisiana Engineering Society Young Engineer of the Year, and the ASCE Outstanding Civil Engineer and Wall of Fame honoree.

Ray's civic and community involvement included leadership positions with the UL Lafayette Alumni Association, UL Lafayette Foundation Board of Trustees, Lafayette Economic Development Authority, Greater Lafayette Chamber of Commerce, Boys & Girls Club of Lafayette, Lafayette Toastmasters Club, Acadiana Arts Council, Ducks Unlimited, St. Pius X Church Council and Krewe of Troubadours.

Ray was preceded in death by his parents and by his son David Collin DesOrmeaux. He is survived by his loving, talented and devoted wife of 55 years, Dianne Bourgeois DesOrmeaux; one daughter Caprice DesOrmeaux Hewitt and her husband, Al, and three grandchildren Tanner, Mackenzie and Kendall.

IN MEMORY

Lawrence William Gilbert, Sr.
February 11, 1947 - August 13, 2016

Lawrence William Gilbert, Sr. passed away on August the 13th 2016. Born on February the 11th 1947 in New Orleans, Louisiana to Charles Mader Gilbert and Helen Basilo who predeceased him. He sadly will be missed by childhood sweetheart and wife of 47 years Donna DiLeo, daughter Dr. Erin Gilbert (Elizabeth Piercy), son Lawrence William Gilbert, Jr. (Janine) and granddaughter Ava Louise. Also, he is survived by sisters Barbara Higgins (Patrick), Jan Gilbert (Kevin McCaffrey) and many nieces and nephews. Larry graduated from Jesuit High School in 1965, and from Tulane University in 1969 with a degree in civil engineering. He was employed by the Corps of Engineers (dams, levees and channel slopes) during which time he earned his masters in civil engineering at Massachusetts Institute of Technology and his doctorate from Tulane University. He served as an Adjunct Professor in civil engineering at Tulane in the 1980s. The majority of his career was spent as President of Gore Engineering later merging with Ardaman and Associates as Senior Vice President. He was a member of the American Society of Civil Engineers (ASCE), the Society of American Military Engineers and the Louisiana Engineering Society. Larry was a past president of the Faubourg St. John Neighborhood Association. He was an avid tennis player belonging to City Park Tennis Club.

Dr. Gilbert was Senior Vice-President and Principal of Ardaman & Associates, Inc. Upon graduation from Tulane University in June 1969 he was employed as a Trainee Engineer at the New Orleans District Corps of Engineers (USACE). In June 1970, he was assigned to the Foundations and Materials Branch as a Soils Design Engineer responsible for conducting engineering studies and foundation design of levees and earth embankments, floodwalls, earth fill dams for flood protection projects, and foundations for navigation and flood control structures. Beginning in 1974 he served as Project Engineer of the Mississippi River Unit of the Foundations and Materials Branch. As such, he conducted long term engineering studies and performed soils and foundation design for levees, earth embankments, earth fill dams, borrow materials investigations, navigation and flood control structures, reservoirs, channels, revetments, and other related projects assigned to the District. As Project Engineer, Dr. Gilbert had the responsibility of planning, coordinating, and supervising the activities of three to five professional and sub- professional employees engaged in accomplishing conventional type studies or portions of large studies and projects for the section. He was also responsible for the coordination of field surveys of the project sites, assigning subsurface exploration and laboratory testing, and coordination of projects with other personnel at the New Orleans District and with personnel of local interest groups, state and other federal agencies.

In April 1980, Dr. Gilbert joined Gore Engineering, Inc. as the firm's Vice President. During his tenure at Gore, Dr. Gilbert conducted projects including determining the number and types of borings and soil mechanics laboratory tests and the evaluation of soil conditions and soil boring data with regard to a variety of structure foundations. He was also responsible for the performance of engineering design analyses necessary for the design of shallow and deep structure foundations, retaining walls, riverbank stability, earth embankments, dams, roadway foundations and assessments of permeability and settlement. In 1991, Dr. Gilbert became President and owner of Gore Engineering, Inc. where he continued to provide geotechnical engineering services to architects, engineers and the general construction industry. Gore Engineering, Inc. was acquired by Ardaman & Associates, Inc. in September 2007.

Dr. Gilbert was involved in the design and rehabilitation of bulkhead walls along various river, lake, bayou and Gulf of Mexico facilities throughout his 40+ year career. This includes floodwalls and retaining walls (cantilever, pile-supported and tie-back) while at the Corps of Engineers, New Orleans District. This type work continued into private practice at Gore Engineering, Inc. and continued at Ardaman & Associates, Inc. The scope of the individual projects vary, but most include developing a geotechnical field investigation program, laboratory testing and geotechnical engineering analyses to develop parameters for use in design of new and repair of existing waterfront earth retaining structures.

2016 ASCE Louisiana Section Awards and Officers Installation Luncheon

The 2016 Louisiana Section Awards and Officers Installation Luncheon was held on September 23, 2016, at the Silver Star Smokehouse, Bossier City, Louisiana and was hosted by the Shreveport Branch. Shreveport Branch Past President Chris Myers, called the meeting to order, gave the invocation, and welcomed everyone to the luncheon. Section President Chris Humphreys made the opening remarks and introduced Region 5 Director Melissa Wheeler. Melissa gave a brief presentation on various Region 5 news with the possibility of re-districting the regions in the United States.

Opening remarks and introduced Region 5 Director Melissa Wheeler

Afterwards, Louisiana Section Awards Committee Tonja Koob Marking opened the awards ceremony. The ASCE Louisiana Section Awards were instituted to recognize the outstanding contributions of Louisiana civil engineers for service to their profession and ASCE. She thanked the branches for nominating an outstanding slate of candidates for consideration for each award. The quality of the nominees for the various awards made the awards committee's task to determine this year's award recipients very difficult. Tonja also thanked the awards committee, for their efforts in reviewing the numerous nominations and assisting in selecting this year's recipients.

This year's Section Award recipients were:
Jonathan "Mitch" Guy, PE – Outstanding Young Civil Engineer
Mike Juneau, PE. MBA – Outreach Award
Sherri Lebas Firnberg, PE – Outstanding Civil Engineer (not pictured)
Rhaoul A. Guillaume, Sr., PE – Lifetime Achievement Award (not pictured)
Charles L. Eustis, PE – Wall of Fame (not pictured)

After Tonja presented the Section Awards, Section President Chris Humphreys announced the final award of the ceremony, the President's Medal, to **Malay Ghose-Hajra, PhD, PE.**

Region 5 Director Wheeler installed the incoming Section Officers and Board of Directors for the Louisiana Section for the 2016-2017 administrative year.

The 2016-2017 Section Officers are:
President – Matthew D. Redmon, PE
President-Elect – Malay Ghose Hajra, PhD, PE
Vice-President – Rudolph Simoneaux, PE
Secretary-Treasurer – Beau Tate, PE
Past President – Christopher Humphreys, PE

The Board of Directors are:

Directors-at-Large
Kirk Lowery, PE
Ronald L. Schumann, Jr., PE

Branch Directors
Sasan Daneshvar, PE
Kahli Cohran, EI
Tonja Koob, PhD, PE
Jared Boogaerts, PE

Assigned Branch Directors
Tyler Roy, EI
Patrick K. Furlong, PE
Brant Richard, PE
Deborah D. Keller, PE

The meeting concluded with outgoing President Humphreys and incoming President Redmon exchanging the President's Plaque and Past-President pin, as seen below. Incoming President Redmon closed the luncheon and thanked everyone for attending.

2016-2017 ASCE Louisiana Section Officers

Matthew D. Redmon, PE
President

Malay Ghose Hajra, PhD, PE
President-Elect

Rudolph Simoneaux, PE
Vice-President

Beau Tate, PE
Secretary-Treasurer

Christopher Humphreys, PE
Past President

Left to right: Christopher Humphreys, Matthew Redmon, Malay Ghose Hajra, Rudolph Simoneaux, and Beau Tate

2016-2017 ASCE Louisiana Section Leadership

Left to right: Kirk Lowery, Ronald Schumann, Christopher Humphreys, Matthew Redmon, Tonja Koob, Rudolph Simoneaux, Beau Tate, and Brant Richard

2016-2017 ASCE Louisiana Section Board of Directors

Kirk Lowery, PE
Director-at-Large

Ronald L. Schumann, Jr., PE
Director-at-Large

Sasan Daneshvar, PE
Branch Director

Kahli Cohran, EI
Branch Director

Tonja Koob, PhD, PE
Branch Director

Jared Boogaerts, PE
Branch Director

Tyler Roy, EI
Assigned Branch Director

Patrick K. Furlong, PE
Assigned Branch Director

Brant Richard, PE
Assigned Branch Director

Deborah D. Keller, PE
Assigned Branch Director

2016 Louisiana Section Awards

Jonathan "Mitch" Guy, PE
Outstanding Young Civil Engineer

Mike Juneau, PE. MBA
Outreach Award

Malay Ghose-Hajra, PhD, PE
President's Medal

Wind Engineering Science for Resilient and Sustainable Structures

By Aly Mousaad Aly, Louisiana State University, Baton Rouge, LA 70803

Aly Mousaad Aly

INTRODUCTION

Wind engineering science is important to understand the effects of wind on the natural and the built environment, and to study the possible damage, inconvenience or benefits of the wind. It draws upon a number of sciences and specialist engineering disciplines including aerodynamics, meteorology, fluid dynamics, mechanics, and geographic information systems. Wind is usually classified according to its characteristics, strength and location. Common types of winds that produces significant damage to the built environment are tornadoes, hurricanes and downbursts. Each type has its sole characteristics and its effect on the built environment is unique.

Tornadoes: A tornado extends from the base of a thunderstorm forming a rotating funnel shape column of air with the narrow part near the ground. Tornadoes produce high winds, with recorded speeds exceeding 300 mph. Damage from tornadoes presents a very real threat in many areas in the U.S. Tornado damage scatters the debris in a variety of different directions since the winds of a tornado are rotating violently. This characteristic can be used to distinguish tornadoes from straight-line wind which usually push debris in the same direction the wind is blowing. The laws of similitude essential for a laboratory simulation of a tornado are presented in literature [1].

Straight-line wind: In reality, especially at large scale, straight-line wind does not exist during hurricanes. However, from a localized point of view, a building or a small structure will see a hurricane wind as a straight-line wind. Straight-line wind damage will push debris in the same direction the wind is blowing (hence the term straight-line). Straight-line winds are common with the gust front of a thunderstorm or originate with a downburst from a thunderstorm. A storm that is capable of producing consistent straight-line winds of 58 mph or more and covers an area of more than 240 miles is known as a derecho. Derechoes can form quickly and move at speeds of up to 70 mph, leaving little time for people to prepare or to take shelter. On May 31, 1998, an extremely powerful derecho hit Wisconsin and Michigan with wind gusts of up to 130 mph causing millions of dollars in damage [2]. The straight-line wind typically has an increasing mean wind speed characteristics with height. Although classified as straight-line winds, microbursts have a different mean velocity profiles that are increasing with height to a certain elevation then decreasing. Accordingly, their effects on structures can be different from typical synoptic winds.

The wind profile of large-size wind events (e.g., hurricanes) is logarithmic in nature and it is best approximated using the log law that accounts for surface roughness and atmospheric stability [3]. However, a common mathematical formula that can estimate the change in mean wind speed with height under large size synoptic winds is the power law [4; 5]:

$$U(z) = U_{ref} \times \left(\frac{z}{z_{ref}} \right)^{3 1 \alpha}$$

where $U(z)$ is the along-wind mean velocity component at a height z, Uref is the wind speed at a reference height $z$ref. The exponent (α) is an empirically derived coefficient that varies depending on the terrain category [6]. The variation of the wind speed over time can be expressed by the turbulence intensity and the spectral content. The turbulence intensity, Iu, can be expressed as:

$$I_u(z) = \frac{\sigma_u}{U(z)}$$

in which the standard deviation of the velocity σu is usually obtained from a time history of the velocities that represents 1 h of records at full-scale. The wind flow near the ground surface is highly turbulent [7; 8]. Atmospheric turbulence can strongly influence the aerodynamic loads as well as causing dynamic motions in flexible structures [9]. The mean wind velocity profiles and the turbulence intensity profiles are the most common properties of straight-line winds in the ABL. Typical mean velocity profile and turbulence intensity profiles are shown in Fig. 1.

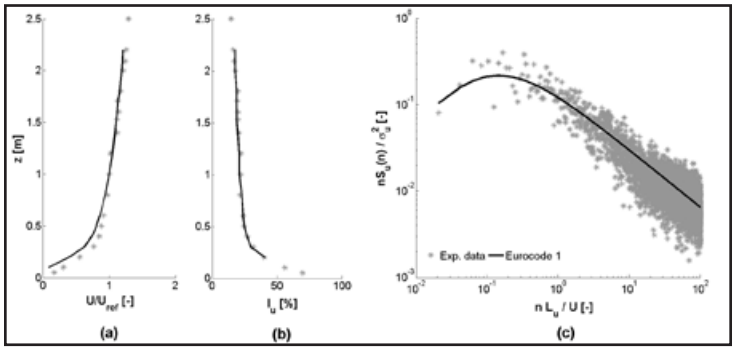

Fig. 1. Mean wind velocity profile (a), turbulence intensity profile (b), and power spectrum (c) of the along wind velocity component

In addition to mean velocity and turbulence intensity profiles, the spectral characteristics of the wind are very important, especially to simulate fluid structure interaction and peak aerodynamic loads. The turbulence structure in a wind flow can be specified by its spectral content. Fig.1(c) shows a typical wind velocity spectrum; in the lower part of the ABL. Low-frequency side of a velocity spectrum designates large-scale turbulence (which corresponds to large air buckets in the flow and hence defines the integral length scale). The high frequency part of the spectrum, however, corresponds to small eddies in the flow (small-scale turbulence).

These high frequency vortices are responsible for energy dissipation and more importantly the flow pattern around a bluff body [10]. Large eddies in a flow contribute significantly to peak aerodynamic loads [11]. In fact, the generation of turbulence in a flow with a certain spectral content presents a challenge for both experimental and numerical simulations of ABL winds.

Accurate modeling of the wind characteristics within the lower part of the ABL is very important as the interaction between the wind and the structures occurs in this part of the atmosphere. The physics involved in the ABL are essential for the understanding of wind impact on the built environment and the response of the infrastructure to extreme wind events. The tools used in wind load characterization on structures include boundary-layer wind tunnels (BLWTs), open-jet facilities and computational fluid dynamics (CFD). In addition to the accurate estimation of wind loads on structures, aerodynamic optimization and structural control studies are important, to build the more resilient, smart and sustainable infrastructure (Fig. 2).

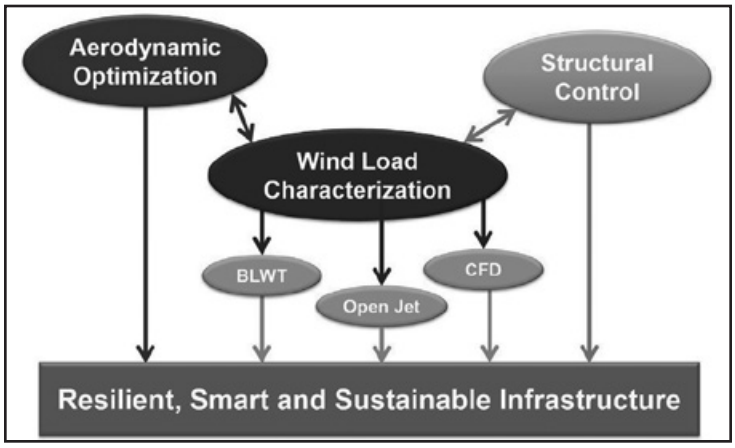

Fig. 2. The goal is to achieve resilient, smart and sustainable infrastructure

BOUNDARY-LAYER WIND TUNNELS

Wind tunnel testing involves blowing air on a test model at various angles relative to the orientation representing the wind directions. Straight-line types of wind have been fairly modeled in boundary-layer wind tunnels (BLWTs). The length of the test section should be sufficient for turbulence to be fully developed. In addition to passively generating turbulence (by using passive vortex generators with roughness elements), the turbulence can be generated actively by driving the fans with a time varying RPM (revolution per minute), and hence changing the flow fluctuations. A wind tunnel can be an open-loop or a closed-loop system. In an open-loop wind tunnel, the inflow and the out flow are not connected, but this is not very economical (Fig. 3).

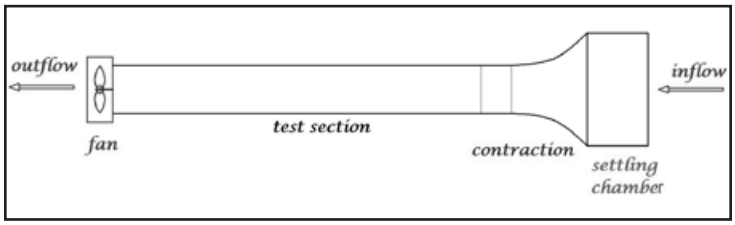

Fig. 3. Open-loop wind tunnel

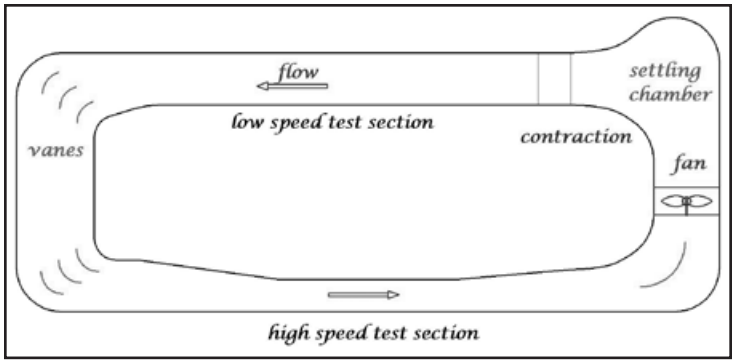

Fig. 4. Closed-loop wind tunnel

Open-loop wind tunnels usually have fan(s) located at the exit of the test section not to generate unwanted turbulence in the flow (this can happen when the fan is placed at the entrance of the test section, which is usually the case at open-jet facilities); the settling room is important to create a smooth flow that can be managed and hence to generate the required turbulence structure; the contraction part serves for gradually increasing the wind speed from the settling room to the test section. On the other hand, closed loop wind tunnels save energy by recirculation the out flow into the inflow (Fig. 4). Closed loop wind tunnels usually have two test sections. The low speed test section is the same as the test section in the open-loop wind tunnels. The high-speed test section is used for aeronautical applications under relatively higher wind speeds and smooth flows (in such case, all roughness and spires should be removed from the low-speed test section to allow for a very smooth flow. Note the location of the fan is at the exit of the smooth flow test section (high-speed test section) and before the settling room to allow for a very smooth flow in the high speed test section and also a relatively less turbulent flow ate the low speed test section (boundary layer test section). Such location of the fan in closed loop wind tunnels is believed to be better than the case of being at the exit of the low-speed test section. Similar to the closed loop wind tunnels, the boundary layer test section should be sufficiently long in order to allow for generating a fully developed atmospheric turbulent flow. Special vanes are used to turn the airflow around the corners of the tunnel while minimizing turbulence and power loss, to reduce running costs.

It is a common practice among designers and engineers that significant savings in cost of the construction of an infrastructure can be achieved by doing a wind tunnel study in the preliminary design stages, especially when a building is higher than 22 stories (10 stories in a hurricane active area) or where the structure has an unusual shape and/or high flexibility [12]. Furthermore, the location of a construction project in an unusual terrain or surrounding structures makes wind tunnel testing an important step to optimize cost efficiencies, generate accurate results to enhance safety, and to allow for maximum design freedom. Wind tunnels are useful for: investigation of wind impact studies on structures (buildings, bridges, towers), wind comfort studies near buildings, effects of wind on the ventilation system in a building, wind climate for wind energy, air pollution dispersion, internal pressure studies, cross wind effects on vehicles, wind effects on sailing yachts, cables aerodynamics, etc.

Over the past decades, wind tunnels have been used to predict wind loads on buildings, especially high-rise buildings and towers, where the integral length scale of turbulence in the wind tunnel is proportional to that in nature at a similar ratio as the geometric scale. The problem however, is related to the testing of low-rise buildings and small size structures, where it is not possible to produce turbulence in the wind tunnel at a reasonably large scale [11; 13]. Another challenge with small-size wind tunnels is the fact that the Reynolds number can be far different from the one in nature.

OPEN-JET TESTING

Fig. 5 shows the main concept of open-jet testing. The test model's height (*h*) and its location from the exit of the blowers (distance *x*) are important parameters that depend dominantly on the height of the open-jet (H). The distance (*x*) should be relatively short to allow for high testing wind speeds. Longer the distance x, lower the wind speed that can be achieved at an open-jet simulator. In addition, the test model's height (*h*), say for a building model, should be within one third of the wind field height (H) to allow for realistic pressures on roofs [14]. Fig. 6 shows a photograph of a small-scale open-jet simulator that is currently in construction at LSU (part of a proposed wind, rain and wave (WRW) simulator). Active control systems are often used to create the required turbulence levels and turbulence spectra. Similar concepts are used at the Hurricane Simulator of the University of Florida [15] which is only intended to test small structures or components within windward walls. The Insurance Institute for Business and Home Safety (IHBS) Research Center is another example of large-scale testing facilities [16; 17]. This is in addition to the Wind Engineering, Energy and Environment (WindEEE) dome at the University of Western Ontario (UWO) [18].

The requirements for the flow field simulation in full-scale testing are the same as for wind tunnels. That is the mean wind velocity profile, the turbulence intensities, scales of turbulence should be closely matched to the ABL in the desired terrain roughness.

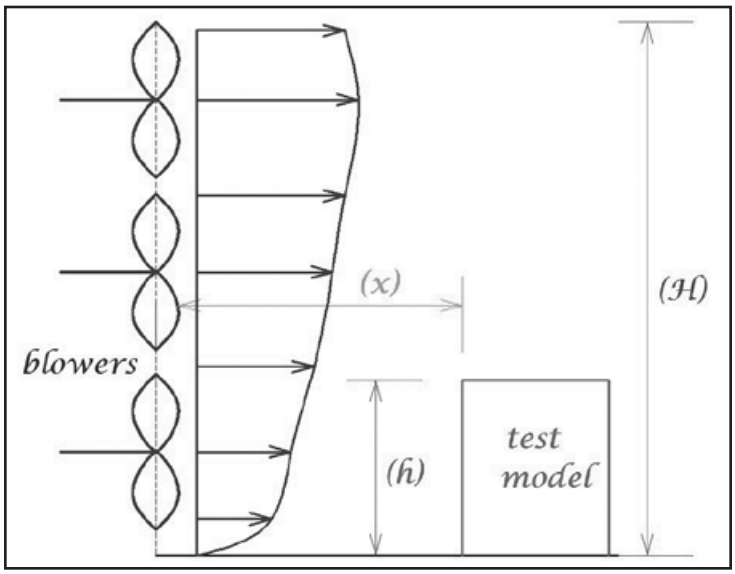

Fig. 5. Concept of open-jet testing: test model's height (h) and its location from the exit of the blowers (x) depend on the height of the jet (H)

Fig. 6. Small-scale open-jet simulator at LSU

CFD SIMULATIONS

In addition to the available approaches for wind engineering problem solving based on experimental and theoretical investigations, due to the advancement in the computational capabilities, computational fluid dynamics appeared as a potential tool for solving problems in fluid dynamics. CFD can provide qualitative and quantitative prediction of fluid flows by means of: mathematical modeling (partial differential equations); numerical methods (discretization and solution techniques); and software tools (solvers, pre- and post-processing utilities). CFD enables scientists and engineers to perform numerical experiments (computer simulations) in a virtual flow laboratory. CFD simulations for wind engineering of civil engineering structures are usually carried out in three steps: (a) grid generation from a cad drawing representing the computational domain around a test object, (b) setting up the appropriate boundary conditions and the turbulent model along with the solution of the flow governing equations,

Fig. 7 (a). Sample CFD study on a ground-mounted solar panel

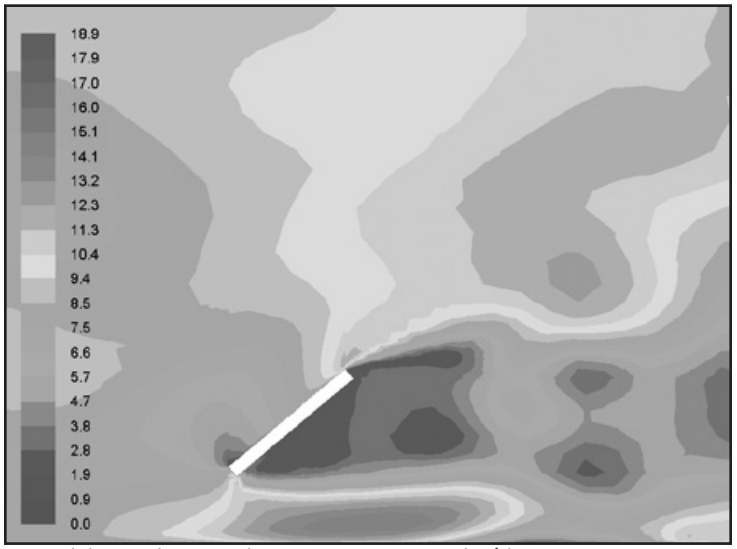

Fig. 7 (b). CFD (with LES) velocity magnitude (m/s)

(c) visualization of the results and decisions on whether to go back to the first step (to refine the grid). A validation of the obtained CFD results is usually necessary and can be executed by making use of available experimental data. Different software packages are available for the CFD user including commercial software like ANSYS Fluent, STAR CCM +, and open source software like OpenFOAM.

In the past three decades, CFD has been enjoying renewed interest as an attractive means for solving wind engineering problems related to civil engineering structures [19]. Recently, the CFD was used with realistic simulation of the ABL on solar panel modules (Fig. 7). The simulation show that it is all about the boundary conditions and the inflow proper simulation. When the boundary conditions are controlled in a more realistic way, by using a virtual BLWT as the computational domain and including all the floor roughness elements incorporated with the test model. This allows for an "apple to apple" comparison between the CFD and the experimental results. In addition, the CFD has the potential of doing studies at full-scale with realistic inflow turbulence [11].

One main shortcoming of a CFD based approach is being computationally costly to predict peak loads on structures under turbulent flows. When relatively accurate turbulence model like Large Eddy Simulations (LES) is incorporated into the numerical modeling at high Reynolds number, the CFD simulation requires a very high performance computing capabilities. This coupled with the costly commercial CFD license for parallel computing is limiting CFD for design wind load evaluation in practice. Experimental wind engineering still remain an economic choice compared to CFD simulations, for wind load applications. However, concurrent CFD studies provide additional opportunities to explain/augment wind tunnel studies.

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ASCE-T&DI Louisiana Chapter News

By Joffrey Easley, PE - Newsletter Editor

NEW OFFICERS

The T&DI Louisiana Section is now entering into its 9th year. Currently, the membership is composed of 14 Executive Committee members and 7 corresponding members. The Executive Committee includes members from across the state, with representatives from the consulting industry, governmental agencies, academia, and the construction industry. It is my pleasure to introduce the 2016-2017 T&DI Executive Committee officers. Louay Mohammad, PhD will assume the role of Chairman, while Bill Temple, PE will continue as Vice Chairman. Jim Simmons, PE will continue to serve as Treasurer, and Joffrey Easley, PE will again serve as Newsletter Editor. I would also like to commend Ronnie Schumann, Jr., PE for the tremendous job he has done as our Chairman this past year.

2015-2016 SCHOLARSHIP PROGRAM

The T&DI Scholarship Committee is currently reviewing scholarship applications for this year. They will soon be awarding two $500 scholarships to Junior or Senior level university students in Louisiana who anticipate pursuing a career in transportation.

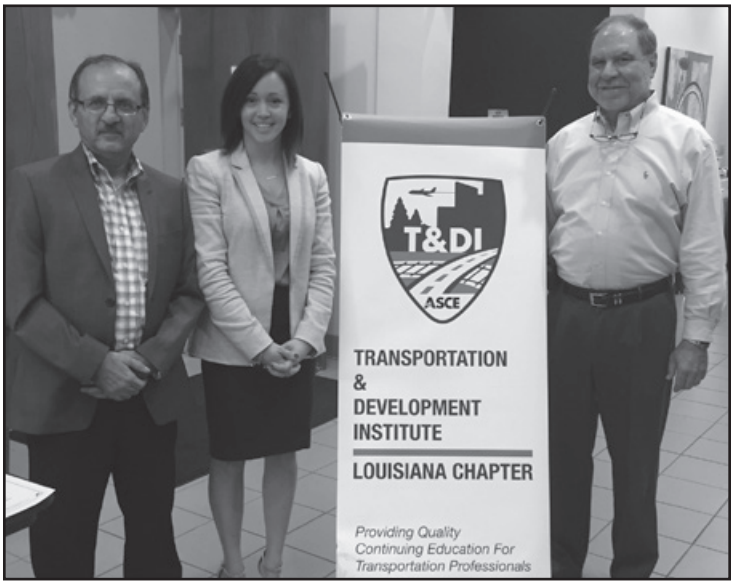
HIGHWAY SAFETY SEMINAR

On October 19th, the T&DI Louisiana Chapter hosted a seminar at the LA Transportation Training Center Auditorium on LSU's campus that discussed recent developments in Louisiana Highway Safety. The seminar presented the Strategic Highway Safety Plan (SHSP) and the concept of network screening, which can optimize highway improvements. The speakers were Dan Magri, PE, who is the Highway Safety Administrator for LADOTD, and April Renard, PE, who oversaw the development and implementation of the SHSP. Mr. Magri also serves on the Governor's Highway Safety Commission and currently chairs the LA Traffic Records Coordinating Committee. Ms. Renard is a member of TRB's Standing Committee on Highway Safety Performance and represents Louisiana on the AASHTO Steering Committee for the second edition of the Highway Safety Manual.

LOOKING AHEAD

The intent of T&DI is to promote transportation and development as a career path, and to provide training and networking opportunities for all professionals involved in transportation projects. If you are interested in co-sponsoring a seminar at your branch, the T&DI Louisiana Chapter has prepared a Seminar Coordinator's Check List to assist you in your preparation. Contact Dr. Louay Mohammad at louaym@lsu.edu for a copy of the checklist. Our seminars are two hours in length and are typically presented from 5:30-7:30 pm in either the New Orleans or Baton Rouge area. We have also presented out-reach seminars with the ASCE Acadiana Branch and Shreveport Branch. We are open to co-hosting seminars in additional Louisiana cities if requested. In keeping with the intent of the Institute to provide training and networking opportunities for all professionals involved in transportation projects, in addition to the upcoming seminars listed above, the Chapter is also planning the following future seminars:

- Alternative Composite Bridge Systems and UHPC Bridge Deck for Movable Bridges
- Sustainable Rating System for Public Works Projects
- Historic Louisiana Bridges
- Pavement Engineering (Part 3 of 3) Application of Earthwork and Embankment Materials



Louay Mohammad, PhD, April Renard, PE, and Dan Magri, PE

ASCE-COPRI Louisiana Chapter News

By Erin Rooney, PE, Director - Communications

COPRI COAST, OCEANS, PORTS AND RIVERS INSTITUTE Louisiana Chapter

The Louisiana Chapter of the American Society of Civil Engineers (ASCE) Coasts, Oceans, Ports, and Rivers Institute (L.COPRI) is continuing to promote membership and visibility throughout the State of Louisiana by conducting joint seminars with local Branches and State Sections of ASCE.

L.COPRI YPG PARTICIPATES IN LPBF BEACH SWEEP

On September 17, 2016 members of the L.COPRI Young Professionals Group (YPG) participated in the Lake Pontchartrain Basin Foundation's (LPBF) 27th annual Beach Sweep. LPBF's Beach Sweep was held in conjunction with the International Coastal Cleanup sponsored by Ocean Conservancy. Volunteers, partners, and sponsors helped care for the areas that drain the Pontchartrain Basin by cleaning curbs, ditches, and storm drains on city streets and rural roadways. As an added activity, storm drain markers were placed on drains in Orleans and Jefferson parishes. During the cleanup, L.COPRI YPG members concentrated on the Lake Pontchartrain shoreline and recreation area in New Orleans between Canal Boulevard and the New Canal Lighthouse. Debris picked up by volunteers was recorded in the Ocean Conservancy's Clean Swell app, which both catalogued and quantified the types and amounts of trash collected. LPBF forwarded this data to the Ocean Conservancy to be included in its International Coastal Cleanup master database of marine debris. In all, 1,512 volunteers from around Louisiana participated in the cleanup and collected 11,728 lbs of trash from around Lake Pontchartrain.

L.COPRI SUMMER SEMINAR

On August 10, 2016 L.COPRI hosted a lunch seminar focusing on the proposed sediment diversion projects. Approximately 80 attendees made it to the UNO Engineering Auditorium for the seminar. Brad Barth, PE, project manager from CPRA presented on the status of CPRA's permitting and design efforts. Glenn Ledet, PE, also of CPRA, presented on the State's analysis of alternative project delivery methods. Attendees earned up to two PDHs at the seminar. L. COPRI would like to thank Dr. Malay Ghose Hajra and Juana R Villavaso for their help in setting up the venue and catering.

UPDATE ON ALTERNATIVE FINANCE OF WATERWAYS INFRASTRUCTURE SUBCOMMITTEE

The Alternative Finance for Waterways Infrastructure Subcommittee is now at 50 members. An Interim Findings Report has been completed. A third workshop was held in St. Paul, Minnesota on September 20, 2016 where the USACE Alternative Finance Demonstration Program was featured. The Fargo-Moorhead Diversion Authority P3/P4 project was discussed along with the Illinois Waterway Locks & Dams P3/P4 Project and the Grand Prairie Irrigation P3/P4 Project. Attendees included members of the engineering and construction industry, finance / concessionaires, waterway operators and users, Congressional staff and port authorities. Bob Beduhn, Member of the Alternative Finance for Waterways Infrastructure Subcommittee, organized the workshop. A fourth workshop is now being planned for the San Francisco Bay Area to be held in the 1st quarter of 2017.

Following the St. Paul workshop, an Infrastructure Roundtable on Alternative Financing was held at USACE Headquarters on October 3, 2016. The Roundtable was organized by the John F. Kennedy School of Government and the Ash Center for Democratic Governance and Innovation (partnered with USACE and other Federal agencies). In attendance were senior members of the House Appropriations Committee, the Office of Budget and Management at the White House, U.S. Department of Interior, U.S. Department of Agriculture, U.S. Environmental Protection Agency. Attendees from the U.S. Army Corps of Engineers included the Chief of Engineers and Commanding General Lieutenant General Todd Semonite, Major General Jackson, Chief of Operations Eddie Belk, Chief of Civil Works James Dalton and others. Dennis Lambert, Chair of the Alternative Finance for Waterways Infrastructure Subcommittee, attended along with Tom Chase, Director of COPRI, Whitford Remer, Senior Manager of ASCE Governmental Relations, Norma Jean Mattei, Vice Chairman of the Alternative Finance for Waterways Infrastructure (also Commissioner of the Mississippi River Commission and President of ASCE), retired Major General Merdith W.B. (Bo) Temple, Member of the Alternative Finance for Waterways Infrastructure Subcommittee (also former Commander and Chief of Engineers of the USACE) and retired Major General John Peabody, Member of the Alternative Finance for Waterways Infrastructure Subcommittee. Other senior leaders and policy experts from the alternative finance / private investment arm of the Federal agencies were all represented. The purpose of the Roundtable was to explore the use of public-private partnerships and other financing and delivery mechanisms identifying innovative financing and delivery approaches to the challenges associated with developing, operating and maintaining the nation's water resource and waterways infrastructure.

PORTS 2016 CONFERENCE

COPRI's Ports & Harbors Committee and the PORTS '16 Committee, chaired by Shannon Kinsella, PE, M.ASCE, held another successful PORTSTM Conference in New Orleans, June 12-15, 2016. The conference was attended by almost 800 people from 21 different countries. There were 45 technical sessions total, including topics such as port engineering, terminal design and development, project development, port planning and operations, and environmental.

Featured special sessions included a panel discussion of ASCE 61-14, Standard for Seismic Design of Piers and Wharves, and the Closing Plenary Session: Resiliency of Coastal Ports and Navigation

Infrastructure. Dr. Robert Ballard (pictured below), the deep ocean explorer who discovered the Titanic (among his many other achievements) gave an exciting keynote address. During the speech he went live to the ocean exploration E/V Nautilus off the Pacific coast.

Several COPRI and ASCE Awards were presented during the Awards Luncheon. COPRI Board Past-President and Ports & Harbors representative Andrew Cairns, PE, D.PE, PMP, M.ASCE was master of ceremonies, and ASCE President-Elect Normal Jean Mattei, PhD, PE, F.SEI, F.ASCE gave welcoming remarks.

COPRI Project Excellence Awards were presented to South Pointe Park Pier (Small Project Winner), accepted by Luke La Bas, PE, M.ASCE, Atkins ; and Fort Pierce City Marina (Large Project Winner); accepted by Richard E. Czlapinski, PE, D.CE, M.ASCE, Tetra Tech, Inc. The Orville T. Magoon Sustainable Coasts Award was presented to Elena Drei-Horgan, Ph.D., A.M.ASCE, CFM, AECOM. The John G. Moffatt - Frank E. Nichol Harbor and Coastal Engineering Award was presented to Stanley M. White, PE, P.Eng., D.CE (retired), D.PE (retired), M.ASCE. Finally, the Kenneth M. Childs, Jr. Practitioner's Award was presented to Dick Wittkop, PE, M.ASCE, Moffatt & Nichol; and Arnie Rusten, PE, S.E., M.ASCE, BergerABAM.

The PORTS Conference also featured a student paper and presentation competition. The four finalists of the paper competition were invited to attend PORTS and present in regular technical sessions. Audience members voted for the best presentation in session and results were announced live at the Awards Ceremony.

- First Place: Danielle Goudreau
- Second Place: Juliane Castro Carneiro and Diego Luiz Fonseca
- Third Place: Andrew Wells
- Fourth Place: Nikole Ward and Jonathan Brumfield

L.COPRI SCHOLARSHIP

L.COPRI initiated an annual scholarship program in 2015 in which a graduate or undergraduate student studying Civil, Coastal or Environmental Engineering in Louisiana is awarded $1,000 for their accomplishments and interest in protecting or improving the nation's coasts, oceans, ports or rivers. This year's scholarship application was distributed to students in October and currently the committee is reviewing submissions to award the 2016 scholarship.

OTHER INFORMATION

For more information on all COPRI conferences, please visit http://www.asce.org/coasts-oceans-ports-and-rivers-engineering/coastal-engineering-conferences-and-events/.

The activities of L.COPRI will include seminars, workshops and other activities to benefit all ASCE and COPRI members. One does not have to be an engineer to join COPRI. These Institutes are formed for the benefit of ASCE and non-ASCE members to participate and interact with other professionals interested in coastal, oceans, ports, and riverine efforts in Louisiana. If you have any questions or to add your name to our mailing list, please contact Erin Rooney, at LCOPRI@yahoo.com.

CAPITOL VIEW: FROM HAYNIE AND ASSOCIATES

ASCE | GOVERNMENT RELATIONS

Since the 2016 legislative sessions wrapped up late June the State Capitol has been extremely busy with what seems like a record number of task forces and study groups preparing for what will be, by all accounts, a very difficult 2017. Task Forces have been commissioned and are working on delivering final reports and recommendations to the legislature on important subjects such as: changes to budget and tax policy, sales tax streamlining and modernization, flood recovery, criminal justice and transportation infrastructure (among others). The Governor's Task Force for Transportation Infrastructure Investment is meeting through the end of 2016 and are tasked with delivering a report by or before January 1, 2017 with recommendations to the legislature. More on that task force can be found here: http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Administration/GTFTII/Pages/default.aspx.

When the legislature returns to Baton Rouge April 10th, 2017 the state will be facing a current year shortfall of roughly $300 Million and will need to navigate the pending 2018 fiscal cliff of over $1 billion dollars when temporary taxes expire (such as the new penny on sales tax). Tax reform is what many are rooting for but just what that will look like is yet to be determined, but we can predict that it will not be easy and we are in for another contentious session in 2017. The magnitude of the pending 2018 fiscal cliff will make raising and indexing the excise tax on fuel for infrastructure more difficult, but there is hope that 2017 is the year where the legislature can muster the votes to raise much needed infrastructure dollars. Now is the time for ASCE members to reach out to their legislators to weigh in on the fuel tax if infrastructure funding is important to you and your firm.

Also – even though most federal elections around the country wrap up with the Presidential election on Nov. 8th, Louisiana still has its General Election date of Saturday March 10th where the US Senate seat, many congressional seats, and local positions are yet to be decided. Mark your calendar and don't forget to vote!

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ACADIANA BRANCH

By Sasan Daneshvar, PE, Branch President

The Acadiana Branch kicked off the second half of 2016 with a joint meeting with the Lafayette Section of LES where Robert Miller, PhD gave a presentation regarding the recent historic flooding. At this meeting, we inducted the following new officers:

Sasan Daneshvar - President
Jared Veazey - President Elect
William Cenac - Secretary/Treasurer
Sarah Richard - Past President

Thanks to these officers for volunteering their time to serve the civil engineering community. It has been a pleasure to work with these individuals, and I am confident that they will continue to do a great job representing the Acadiana Branch in the future.

The Board has a full year planned with a few new ideas to increase membership and participation. The Board has also been busy working with a committee planning the upcoming Spring 2017 State Conference, which will be held in Lafayette. We are putting together sponsorship packages and ask any companies willing to sponsor events or portions of the Conference to contact one of the Board members for more information.

Many branches have reached out to our Branch to offer assistance in cleanup efforts, and we would like to thank everyone for their generosity and kindness in this difficult time in our communities.

There is much more to come this year, so please do your best to get involved and support our new board members.

Sarah Richard

Sasan Daneshvar

Will Cenac

Jared Veazey

BATON ROUGE BRANCH

By Kahli Cohran, PE, Branch President

The summer of 2016 will not be one soon forgotten in Baton Rouge, LA. After a tense summer surrounding challenging social issues in our community, on Aug. 12, the Baton Rouge area was hit with a 1,000-year rainfall event. Approximately 7.1 trillion gallons of water fell in Louisiana. Approximately 507,500 Louisiana residents have been affected by this flood, 13 people were killed and ninety percent of homes and businesses have been damaged or destroyed in Livingston Parish. Spearheaded by heroic efforts and sound leadership of our chapters most recent past presidents, Daniele Welborn, Kirk Lowery, and Joey Coco, our membership provided dire assistance to those affected in our community. Having had the opportunity to be one of few to have served on the national code committee, ASCE 24 - Flood Resistant Design and Construction, Joey Coco was extremely concerned as he began to watch water levels rise and the rain keep falling. Taking to social media early in the event, he published several well-grounded and informative posts to warn as many as possible of the severity of the impending flood waters. Being a 1000-year event, flood elevations far exceeded the 100-year base flood elevation taking many by surprise inundating areas outside of the 100-year flood plain. Immediately, following the rainfall Joey launched his shallow water boat to assist rescue efforts shuttling families stranded in flood waters in their homes to higher ground. Joey was quoted in an ASCE National article (http://news.asce.org/with-floods-ravaging-louisiana-asce-leader-steps-up/#.V7o1nSZNoss.facebook):

"It's a difficult thing. You almost feel guilty," Coco said. "As an engineer, you kind of wrestle with that dilemma of 'What is the best use of my time?'

"My biggest regret of the whole thing was not screaming louder. I realize that made an impact, but I still choke up about whether I did enough."

In the days and weeks following the storm, as waters began to recede, Kirk Lowery was moved to initiate recovery efforts, and urged the current board lead by Danielle Welborn to organize volunteer efforts to help flood victims remove water logged contents and sheetrock from their homes. Kirk spearheading multiple weekend warrior efforts which organized volunteer from both the Baton Rouge and New Orleans Branches to clear 1 apartment building, 10 houses, and 1 compound (3 buildings). Kirk has also taken the lead setting up a fund to assist member affected by the flood to purchase building materials during recovery.

Due to the August Flooding, our August joint luncheon with LES was canceled. Everyone in the region, had found themselves in one of two places, having received flood waters in their home or business or directly assisting friends and family that did. Transitioning through September and October the board installed its 2016-2017 board members and presented the branch's yearly awards to those people who excel in their contribution to the society at the September Luncheon. On September 21st, the LSU & Southern University Student Chapter held a Career Fair and Networking event in the Newly Renovated Patrick F. Taylor Hall. Along with the Baton Rouge Branch, eight local engineering firms sponsored the event and joined students from both civil engineering departments for an afternoon of recruiting and network building. As flood recovery presses forward at the Baton Rouge Branch October Luncheon over 90 members were in attendance to hear Shawn Wilson, PhD, Secretary for the Louisiana Department of Transportation and Development (DOTD). He provided us with important updates from Governor's Task Force on Transportation Infrastructure Investment. The following weekend Kirk Lowery (SU Practitioner Advisor) and Kahli Cohran (BR Branch President) lead the ASCE Sponsored SU College of Engineering 2016 Homecoming Tailgate. The events objective is to facilitate professional development and networking among the current student body and alumni, as well as promote the ASCE student chapter.

LSU & Southern University Career Fair & Networking Event

The Baton Rouge and New Orleans branches of ASCE have been active in helping Louisiana rebuild following last month's flooding

Joey Coco takes Baton Rouge residents from their homes by boat to the nearest safe shelter

New Branch officers for 2016-17: (left to right) Kirk Lowery, Tyler Branch, Rebecca LaPorte, Ben McArdle, Molly Bourgoyne, Jarret Bauer, Blake Roussel, Thomas Montz, Kahli Cohran, Danielle Welborn

Lifetime Achievement: Mr. Rhaoul Guillaume, Outstanding Civil Engineer: Mrs. Sherri LeBas, Outstanding Young Civil Engineer: Mr. Jarret Bauer, Outreach: Mr. Michael Juneau, Jr., Wall of Fame: Mr. Charles Eustis (not pictured)

NEW ORLEANS BRANCH

By Tonja Koob, PE, Branch President

The New Orleans' Branch October luncheon was held on October 11 at Heritage Grill. Our speaker was Joe Becker, Superintendent from the Sewerage and Water Board of New Orleans. He spoke on the Board's capital projects program and upcoming millage vote for drainage infrastructure. He asked for support from the professional community to share the importance of renewing the millage to fund needed drainage infrastructure improvements.

Joe Becker, Superintendent from the Sewerage and Water Board of New Orleans

Our November speaker will be Paul Fossier, PE, F.ASCE from DOTD who will speak on the new bridge design manual. Our December luncheon will address a geotechnical topic with details to follow in November.

President-elect Steve Nelson resigned pending a relocation. We are sad to see him go, but wish him and his family success in Washington. Each board member moved up one position effective immediately. Kyle Galloway is our new director on the board.

President - Tonja Koob, PhD, PE, President-Elect - Karishma Desai, PE, Vice President - Robert Delaune, PE, Past President - Wesley Eustis, PE, Treasurer - Dean Nicoladis, PE, Secretary - Myriam Bou-Mekhayel, Director at Large - Kyle Galloway, Younger Member Committee Chair - Andrew Woodroof, PE

SHREVEPORT BRANCH

By Jared Boogaerts, PE, Branch President

As incoming President of the ASCE Shreveport Branch I am excited about what this year holds for us. We have already begun making plans for several events throughout the next year to benefit out members and the community. The Shreveport Branch has kicked off the 2016-2017 year with a 1-hour PDH session on October 20th with a presentation on Diesel Backup Systems for Lift Stations. At this meeting we presented Chris Myers, PE with a Past Presidents Plaque for his service to ASCE over the last four years.

Additionally we presented the new Branch Officers for the 2016-2017 year at this meeting. They are as follows: President – Jared Boogaerts, PE, President Elect – Tim Wright, EI, Treasurer – Joy Etkins, EI, and Secretary – Marcus Taylor, PE

Chris Myers presents the presidential gavel to Jared Boogaerts

Planned for the year we have our upcoming annual Branch Christmas Party in December, the annual Spring Golf Tournament, as well as multiple Joint Meetings with the Shreveport Chapter of the Louisiana Engineering Society (LES).

We hope everyone is looking forward to time with family and friends this Thanksgiving and we would like to wish you all a Happy Holidays! If anyone would like more information about our Branch please send us an email at ASCE.Shreveport@gmail.com and we will forward you our monthly newsletter that includes the latest events.

From Left to Right: Chris Myers, Joy Etkins, Tim Wright, Marcus Taylor

ASCE-SEI New Orleans Chapter News

By Om Dixit, PE, FASCE, F-SEI

ASCE SEI New Orleans Chapter arranged a few structural presentations for 2016 Louisiana Civil Engineering Conference and Show (2016 LCECS). **2016 Herbert J. Roussel Jr. Lecture** will be given by **Craig E. Barnes, PE** of CSI Consulting, Inc., Boston. The title for the lecture was ***Repairs to Concrete Parking Structures: Past, Present, and Future.*** This lecture is to honor the late Herbert J. Roussel, Jr. who was one of the founding members of ASCE Structural Committee of New Orleans Branch and served on its Executive Committee 1991-2005. Since 2006 each year a distinguished presenter is selected by the Structural Engineering Institute Chapter of New Orleans (SEI NO) to deliver this Lecture.

Mr. Barnes stated reinforced concrete garage construction and the related repairs to those structures have changed minimally in the timeframe of 50 years. Garage repair is still a labor intensive activity and construction materials used 50 years ago are still used today. Mr. Barnes further addressed the repair materials and techniques that have been refined, implemented and where the industry is headed.

Besides the 2016 Herbert J. Roussel Jr. Lecture, SEI NO has provided speakers for 2016 LCECS on structural topics such as **Smart Structures** (Dilip Khatri, Pasadena, CA), **Recent IBC Changes in Structural Design and Inspection** (Anthony Lamanna, Richmond, KY), **ACI Repair Code 562-16** (Michael Tholen, Farmington, MI), and **Concrete Design Essentials of ACI 318-14** (Michael Folse, New Orleans, LA) and **Factor Row- Renovation of New Orleans Landmark** (Nicholas C. Mannix, New Orleans, LA). This year ACI La. Chapter has started Darrell Elliott Lecture in memory of our local concrete professional. This first Lecture was delivered on a structural topic **Meeting ACI 318 - What's in Your Specs?** by William E. Rushing, Jr. (Waldemar S Nelson & Co., New Orleans, LA).

On October 1, SEI NO newly elected new Chairman of its Executive Committee, Mark Castay PE. (TRC Solutions) started his term of 2016-17. Chairman Castay appointed Kabir Mohammed, PE (EDG) as the Vice Chairman. James Danner, PE. (Denson Engineers) continues to serve as Treasurer and Om Dixit, PE continues to serve as Newsletter Editor. Past Chairman L.T. Cooper, PE did great job guiding the Chapter and completed his second one year term on September 30. During the past year the ASCE SEI New Orleans Chapter hosted 4 two hours seminars. Among other activities the chapter sponsored awards at the Regional Science Fair. The Chapter also sponsored New Orleans Regional Math Count Competition hosted by Louisiana Engineering Society every year.

Recently SEI NO added 2 members to their Executive Committee. These are Kabir Mohammed (EDG) and Daniel D. Marsalone (Rahman & Associates). These new members will bring new thoughts and knowledge to our activities. Kabir started contributing right away as he accepted the appointment of Vice Chairman.

The committee is looking for good topics and speakers for future presentations. Members with expertise in the field of structural engineering would be welcome to join the Executive Committee. For any suggestion and information on joining the Executive Committee, contact Chairman Mark Castay, PE at MCastay@trcsolutions.com. For adding your name to our mailing list, e-mail Om P. Dixit, PE at omdixit@cox.net.

On September 28, 2016 – SEI NO Chairman, Mark Castay, PE (on right) presenting outgoing SEI NO Chairman L.T. Cooper, PE the plaque for his services during 2014-2016 as SEI NO Chairman

On September 28, 2016 – SEI NO Chairman, Mark Castay, PE (on right) and Herbert J Roussel, Jr Lecture presenter Craig Barnes at 2016 Louisiana Civil Engineering Conference and Show in Kenner, La

LOUISIANA STATE UNIVERSITY

By Breanna Bell, Student Chapter Secretary

So far ASCE at LSU has held 3 meetings this semester as of September featuring guest speakers from Volkert, and Fluor. Officer elections were held at our September 22nd meeting, and we're glad to welcome our future student leaders. With our elections being held by mid-semester, it allows our current officers the chance to work with our newly elected officers so information and advice can be passed along more easily. Congratulations to those who will be taking over in January. In addition to our traditional positions, ASCE at LSU has added an Event Coordinator position in hopes that we can plan more social activities for our members to get to know each other better.

On September 29th, ASCE at LSU held its first chapter organized career fair aimed towards our and Southern University's civil and environmental engineering majors who are interested in learning more about local engineering companies and seeking internships and potential job offers. Companies in attendance included: Terracon Consulting Engineers & Scientists, Crest Industries, Gresham Smith and Partners, Forte & Tablada, GeoEngineers, Sigma Engineers & Constructors, Inc., Arcadis, CobbFendley, and Volkert. The event was a great success and we'd like to thank all companies and students who participated. Our president, Gabrielle Dubroc, put in a lot of hard to make this event possible and we'd like to thank her and our younger member advisor, Tyler Branch, for their efforts. The ASCE at LSU career fair provided a more personal career fair experience for our attendees compared to those on a larger scale so we were very pleased with the outcome.

As always, we are looking for speakers for future meetings. One of the most valuable experiences our young future engineers have in ASCE at LSU is the opportunity to network and hear from professionals in the fields we will work in. If you are interested in speaking at one of our meetings about licensure, professional development, ethics, current civil or environmental projects, etc., please contact: asce@lsu.edu or visit www.lsuasce.weebly.com. We'd love to hear from you!

UNIVERSITY OF LOUISIANA AT LAFAYETTE

By Sarah Pippen, Student Chapter President

The University of Louisiana at Lafayette Student Chapter of ASCE had a summer full of activities and planning. It has been our intention to increase student involvement and to promote enthusiasm for the exciting opportunities and relationships ASCE and civil engineering has to offer. One approach we have implemented, in which we wish to gain commitment from students, is to get involved with the community.

This summer, several civil engineering students volunteered through the Coalition to Restore Coastal Louisiana (CRCL) to work on various marsh and dune restoration projects. These highly enjoyable projects were ideal for introducing new students to our chapter, as well as further understanding our obligation to the public and environment as civil engineers.

With the success of these events, our chapter has designated two additional volunteering opportunities for this fall semester. On September 17, we will be coordinating volunteers from ULL to attend the Trash Bash and Boogie in Port Barre, hosted by The Teche Project. This event is intended to clean up the historic Bayou Teche. Local music and food will be provided.

In addition, we are currently planning a volunteering event in Cameron Parish. We will be cleaning up Rockefeller Refuge on October 15. That morning, we will clean up all of the weirs and shorelines in the accessible area. Afterwards, we will be providing lunch to our volunteers and students.

Another important event to note is our annual fall barbecue, which will take place at 5:30 pm at the Girard Park Pavilion on September 13. This barbecue is intended to showcase our department to new students, and we strongly encourage local professionals to attend.

Sadly, however, our chapter does not just have good information to report. This summer, our department suffered a heartbreaking loss with the passing of Mr. E. Raymond Desormeaux. Mr. Desormeaux was highly involved with ASCE and Chi Epsilon student activities, in addition to teaching Construction Engineering and Senior Design. It is recognized that our department would not be what it is without the hard work and continued commitment of professionals like Mr. Desormeaux. He is undoubtedly one of the reasons we all are proud to be part of civil engineering here at ULL, and he will be tremendously missed.

Another recent misfortune our chapter has dealt with was the Louisiana Sever Storms and Flooding. Quite a few students were directly affected by this disaster, as well as numerous student family members. As a result, many students volunteered in Lafayette, Vermilion, Ascension and Livingston Parishes with aid and relief efforts. The devastation and tragedy associated with this disaster is beyond words. However, the joie de vivre of Acadiana and the surrounding areas will certainly endure, and overall, our chapter is optimistic, and morale is high for the upcoming year.

For additional information regarding the mentioned events, please contact our chapter at ullafayetteasce@gmail.com. Geaux Cajuns!

NOTICE FOR POTENTIAL CANDIDATES TO APPLY FOR VACANCIES ON THE SOUTHEAST LOUISIANA FLOOD PROTECTION AUTHORITY EAST AND WEST LEVEE BOARDS

Notice for potential candidates to apply for vacancies on the Southeast Louisiana Flood Protection Authority East and West Levee Boards.

The State contact person is Ms. Stephanie Aymond at Stephanie.Aymond@LA.GOV . Applicants need to complete the official application, which can be found at the following link: http://www.coastal.louisiana.gov/wp-content/uploads/2013/09/SLFPAApplication1.pdf. Applicants are needed to fill the following Board vacancies:

SLFPA-EAST BOARD:

1. Jefferson Parish East Resident
2. Non-Resident (a person that does not reside in the Parishes of Jefferson, Orleans, St. Bernard or Tangipahoa).

SLFPA-WEST BOARD:

1. Non-Resident (a person that does not reside in the Parishes of Jefferson or Orleans).

Note the Non-Resident applicant can apply for one or both boards. The Non-Resident means that the person can be a resident of Louisiana; but, cannot reside in the aforementioned SLFPA- E&W Board Parishes, or can be a resident of some other state.

— CALENDAR OF EVENTS —

NOVEMBER 2016	
November 30	Section and Region Annual Reports are due
DECEMBER 2016	
December 15	Section Federal Tax Filing due to ASCE's Accounting Dept.
JANUARY 2017	
January 13-14	Regions 8 & 9 Multi-Region Leadership Conference in Los Angeles, CA
January 20-21	Regions 1, 2, 4, & 5 Multi-Region Leadership Conference in Newark, NJ
FEBRUARY 2017	
February 3-4	Regions 3, 6, & 7 Multi-Region Leadership Conference in Minneapolis, MN
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