

NOGS LOG

DECEMBER 2019
Volume 60 No. 6

DECEMBER MEETING

**Point-derived, Transverse
Fan Systems in the
Deepwater GoM:
Ideal Settings for 'Best-in-
Class' Turbidite Reservoirs -
Presented by J. R. Booth**

**MONDAY
DECEMBER 2ND**

Merry Christmas



UPCOMING EVENTS

DEC 2

NOGS Luncheon
J. R. Booth
Point-derived, Transverse
Fan Systems in the
Deepwater GoM:
Ideal Settings for 'Best-in-
Class' Turbidite Reservoirs

JAN 6

NOGS Luncheon
Topic TBA
Holiday Inn Downtown
Superdome

JAN 10

NOGS New Year 2020 Dinner
Porter & Luke's
Details Coming Soon!

Click Here to Register!

IN THIS ISSUE



On the Cover

Lake Moraine (Lac Moraine) is a spectacular glacially fed lake in Banff National Park in the Canadian Rockies. The lake owes its vibrant azure blue color to the light reflecting off rock flour suspended in the lake from the glacier melt in the summer. The lake flows through the hanging "Valley of the 10 Peaks," which contains over-thrusted Lower Cambrian quartzites and hardened shales. The steep rock faces fracture easily and the "moraine" which dammed the eastern end of the lake was actually formed by several landslides. Nearby world famous Lake Louise and Peyto Lake reflect enchanting turquoise and emerald blue glacial melt colors.

Photograph by Tom Bergeon



From the Editor...

As we near the end of the year during the Thanksgiving and Christmas holidays, I would like to say thanks for so many helping with the NOGS LOG by providing content and proof-reading. We really have an excellent team working on behalf of NOGS to provide a quality monthly newsletter. This year the NOGS LOG Committee had some exciting news with the adding of the PDF Flip feature to our website and Christy's help to make the LOG profitable to NOGS going forward.

If you have any suggestions for future issues or have an article/photo(s) to contribute, please email me at cmiller@ocsbbs.com. We would certainly love your input and any additional LOG content to be considered that may be of interest to NOGS members.

Merry Christmas,

Charlie



Charles Miller III
NOGS LOG Editor

DECEMBER 2019 NOGS MEETING

Point-derived, Transverse Fan Systems in the Deepwater GoM: Ideal Settings for 'Best-in-Class' Turbidite Reservoirs

As exploration in the North-Central GOM Deepwater has advanced into subsalt plays where seismic imaging is typically inadequate for seismic facies and attribute-based work, reservoir prediction efforts have been focused on identifying long-lived, structurally controlled sediment entry points. Entry points are important because they a) serve as focusing mechanisms for concentrating flow energy from upslope, and b) frequently have very favorable setups for deposition of stacked reservoirs and high-energy depositional facies immediately downslope.

Entry points are frequently associated with relatively constricted openings along salt- or fault-controlled basin margins. While basins on the upper slope tend to have single entry points and relatively unidirectional sediment transport, basins on the middle and lower portions of the slope can have multiple sediment entry points and multi-directional sediment transport patterns. Most basins have a trunk system trending along the basin floor, whose deposits laterally onlap the basin flanks. In well-imaged supra-salt basins, these 'basin axis trending' systems are very frequently apparent from 3D slices or attribute maps. In less well-imaged subsalt basins, most interpreters will identify them trending along the 'thicks' of interval isochores. Seemingly going unnoticed by most interpreters, however, are point-derived, transverse-oriented systems sourced from entry points higher up on basin margins. These are typically steeper-gradient, higher-energy systems, with deposits that are more sand rich and more highly-amalgamated than deposits from the lower gradient, basin-axis trending systems, which tend to be more layered and contain a greater percentage of fines.

Exceptional-quality sands from several top-performing fields in the deep-water GOM, including Auger and Tahiti Fields, as well as high-quality reservoirs encountered in recent Inboard Paleogene discoveries, are recognized as being deposited mainly by transverse, point-derived systems near sediment entry points. The high quality and stacked nature of reservoirs in those fields, backed up by the robust field performance, should provide impetus for to more closely examine basin margins and consider the possibility for additional sediment entry points and related transverse systems.

**MONDAY
DECEMBER 2,
2019**

**HOLIDAY INN
DOWNTOWN
SUPERDOME**



J.R. BOOTH

Jim Booth is a consulting geologist with 30 years of experience in deep-water basins, primarily in the Gulf of Mexico and Asia-Pacific Regions. He earned an M.S. in Geology from Louisiana State University, where he first developed interest in deep-water depositional systems studying modern, fan-delta derived turbidite systems in British Columbia fjords. His professional career began with Shell in New Orleans in 1989, on the heels of major play-opening deep-water discoveries at Auger & Mars Fields. His first role was as a seismic stratigrapher on a team charged in part with improving Shell's ability to predict and characterize deep-water reservoirs and seals from seismic data. The team thoroughly evaluated Shell's major discoveries at the time, characterized the entire deep-water exploration prospect portfolio, and tracked virtually every Shell-operated deep-water well drilled during the 1990s. A subsequent assignment in the prolific Auger Basin furthered his interest in the role of paleo-topography and local basin setting on depositional facies, and paved the way for a postings in Brunei & The Netherlands, exploring frontier basins in the Asia Pacific Region. Since leaving Shell in 2006, Jim has worked for Eni, Hess, Venari Resources, and most recently Petronas, in roles ranging from Regional & International New Ventures to Near-Field Exploration & Appraisal; bringing to each role a passion for deep-water stratigraphy & depositional systems and a penchant for using exploration 3D seismic data and mapping techniques to their fullest capacity to illustrate the nature of ancient turbidite systems.

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FROM THE NOGS PRESIDENT ROBERT ROONEY



It is always a good idea to take a break from the hustle and bustle. As a father of a Boy Scout, I have frequent opportunities to get away to the country for weekend camping trips. As I write my monthly letter I am under the stars on a chilly night near Wiggins, Mississippi, and outside of the range of Wi-Fi. The Gulf South, what a wonderful part of the country we live in, with moderate temperatures, frequent clear days, and abundant resources that fuel a robust economy and provide energy for much of the rest of our nation!

Earlier this month, I attended the GCAGS Board of Director's meeting at the Marriott Westchase in Houston before the GeoGulf (GCAGS) National Convention. At the meeting, presidents from the other Gulf Coast societies presented their annual reports. Some of the common themes were: high costs of printing necessitating the move to digital newsletters, declining membership rolls and the struggle to attract new members, changing work climate that does not encourage professional society participation and convention attendance, updating of constitutions and by-laws, and, cooperative measures with sister societies to reduce cost exposure for events. These are many of the same issues which we face in NOGS. Still, there is an optimistic tendency to continue to hold regional meetings and share knowledge among peers. There has also been a strong hope among the GCAGS leadership that the venue rotation can come back to Louisiana, at least on a triennial schedule. The 2020 convention of GeoGulf (which is the re-branded title for the GCAGS convention) will be held in the Lafayette Cajun Dome, and is being organized by General Chair James Willis, who has asked for assistance from NOGS by sponsoring a technical session. The Louisiana Geological Survey (LGS) and the Baton Rouge Geological Society, (BRGS) are jointly hosting the 2020 convention. It is my hope that NOGS will pull together to help them in their effort. I will ask the Board for support in sponsoring a session for 2020. Additionally, I will suggest forming a committee to investigate the feasibility of NOGS, and one or another regionally located societies, to host the 2022 GeoGulf (GCAGS Convention) in New Orleans.

It is not a big surprise that it has become increasingly challenging to host these conventions that require pre-commitments to the venue operators which can cause conventions to become a serious drain on the organization's resources if attendance numbers and sponsorships fall short. We see this on a local scale in hosting our traditional events such as the Kick Off party and Christmas party.

This year our Christmas party planning team has agreed to defer the party to January. The reason for deferring to January is to allow for a more robust attendance and not compete with Corporate parties for dates and venue spots. As an aside, we still remain within the Christmas season which in some traditions lasts 40 days from Dec 25 to the Feast of The Presentation of The Lord on January 2, also known as Candlemas Day. Toby will keep us informed as to the date of our January Christmas party.

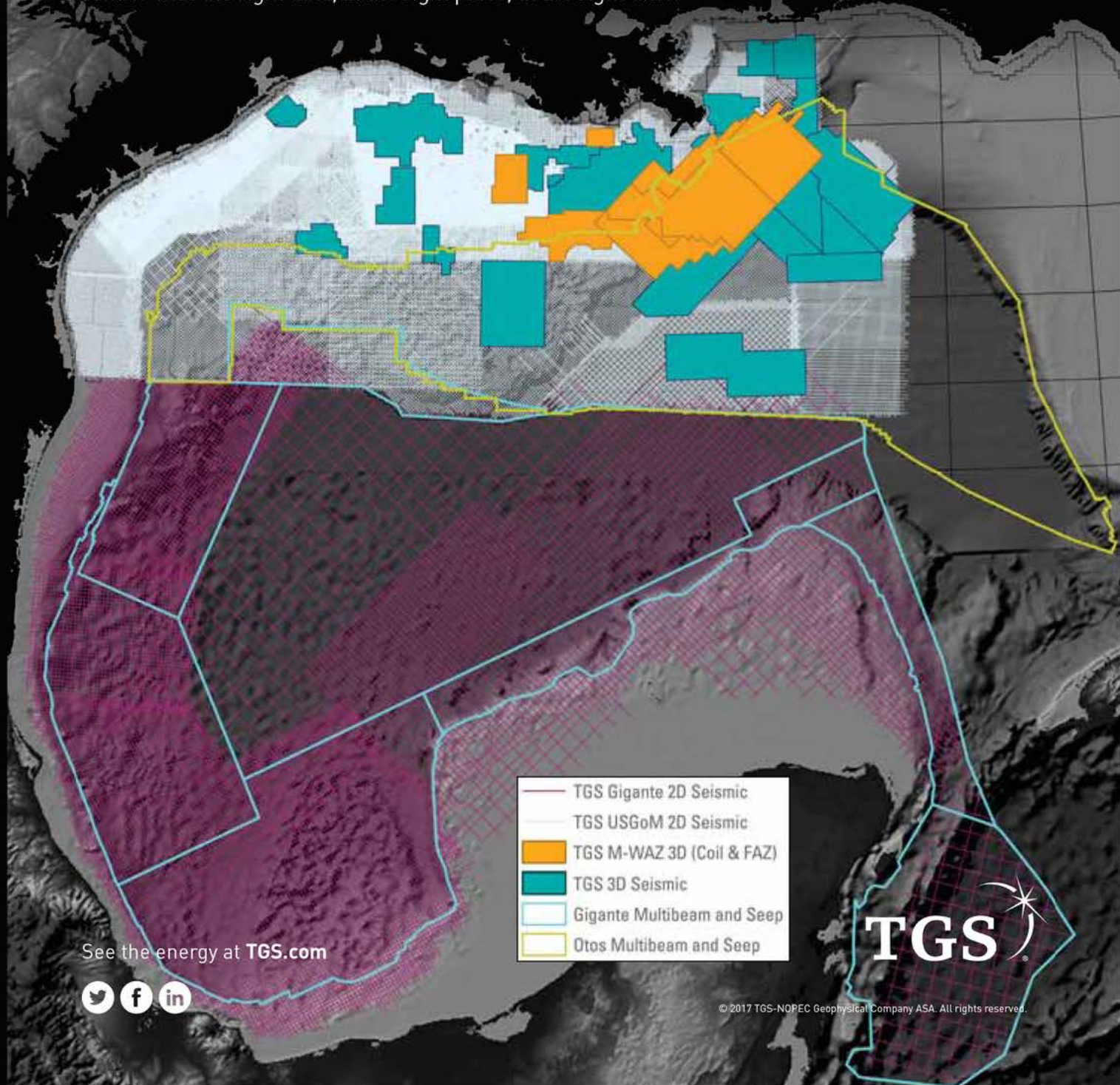
On behalf of the Board of Directors, we look forward to seeing you at December's luncheon where Jim Booth will present Point-derived Transverse Fan Systems in the Deepwater GOM: Ideal Setting. As a personal testimonial from my career as an exploration geologist, I have been fortunate to reference Jim Booth's published work in putting together basin architecture and depositional models in support of exploration ideas. As a profession, we are all fortunate for Jim's generosity in publishing and sharing his talents and his knowledge. Please take advantage to meet a leader in the field of turbidite deposition and basin architecture in the Gulf of Mexico at our December 2nd luncheon.

Until next year, have a wonderful Holiday Season and a Happy New Year!

A handwritten signature in blue ink that reads "Robert Rooney". The signature is written in a cursive, flowing style.

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PICTURE FROM THE PAST



NOGS Christmas Dance at the Jung Hotel, circa 1970
First couple seated at table on left are
Jules and Olga Braunstein,
whose estate was bequeathed to the NOGS Foundation.

Submitted by
Ed Picou, Chairman - Historical Committee

advertising rates

The New Orleans Geological Society was organized on October 3, 1941, as a non-profit organization for the purpose of facilitating the development of the profession and science of Geology, with specific emphasis to exploration and production of petroleum and natural gas. Secondary related objectives include the dissemination of pertinent geological and environmental technological data, and the maintenance of a high standard of professional conduct of its members. The full history of the Society can be found at nogs.org.

Advertising rates have not changed since 2008 but the printing process has allowed printing the LOG entirely in color. Please contact Christy Himel admin@nogs.org for placement availability. Full page NOGS LOG advertisers will have their Company LOGO posted on the NOGS Website front page. All advertisers are included on the Society's monthly powerpoint and listed on the website with a link to their home page. Please check out our website www.nogs.org

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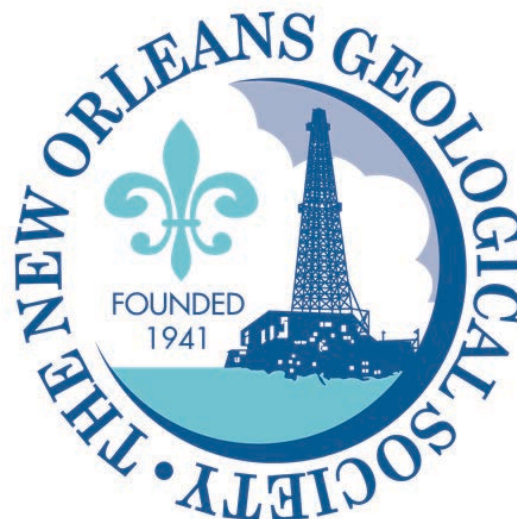
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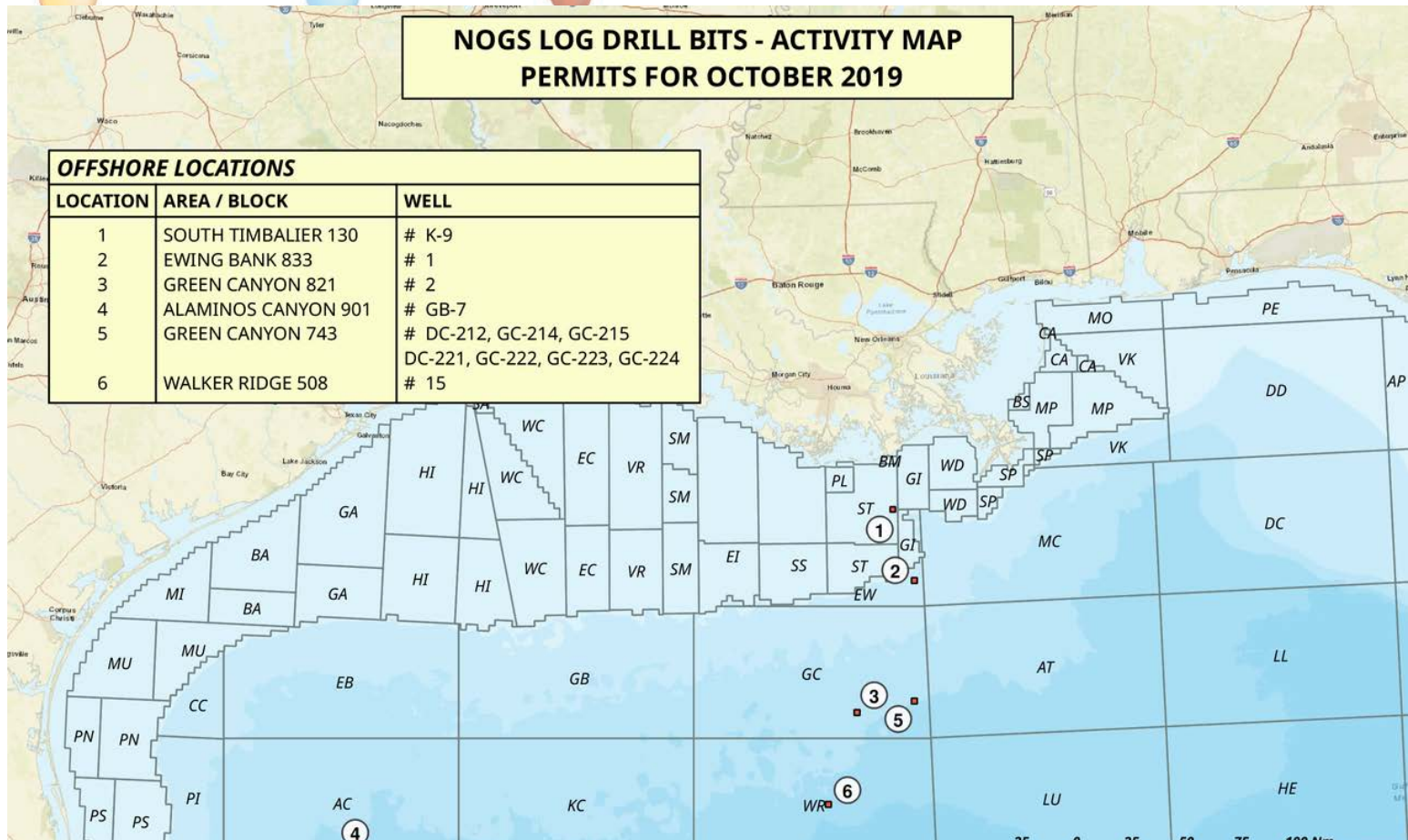
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DRILL BITS

OFFSHORE GULF OF MEXICO SHELF AND
DEEPWATER ACTIVITIES
BY AL BAKER



During October 2019, the U.S. Department of the Interior Bureau of Safety and Environmental Enforcement (BSEE) approved 84 Gulf of Mexico (GoM) drilling permits. Seven of these were for shelf wells, and 77 were for deepwater wells. Of the total number of permits, there were 12 new well permits; one was issued on the shelf and 11 in deepwater.

The single shelf new well permit was for a development well. It was awarded to Arena Offshore for their South Timbalier 130 #K-9 well.

The eleven deepwater new well permits included four exploration wells and seven development wells. Shell Offshore obtained two exploration new well permits for their Alaminos Canyon 901 #GB-7 and Walker Ridge 508 #15 wells. BP Exploration & Production received one exploration new well permit for their Green Canyon 821 #2 well, and Walter Oil & Gas was awarded an exploration new well permit for their Ewing Bank 833 #1 well. The seven development new well permits were given to BP Exploration & Production for their Green Canyon 743 #DC-212, #DC-214, #DC-215, #DC-221, #DC-222, #DC-223 and #DC-224 wells that are associated with their “Atlantis” Field.

DRILL BITS

OFFSHORE GULF OF MEXICO SHELF AND
DEEPWATER ACTIVITIES
BY AL BAKER

On October 25th, IHS-Petrodata indicated that the GoM mobile offshore rig supply stood at 72, which is 1 more than last month. The marketed rig supply consisted of 43 rigs, of which 34 were under contract. The marketed rig supply is 1 greater than last month, whereas the contracted rig supply number is 1 less than last month. The marketed contracted versus total rig supply utilization rate stood at 47.2%, and the marketed contracted versus marketed supply utilization rate stood at 79.1%. By comparison, the October 2018 total fleet utilization rate stood at 44.6% with 33 rigs under contract out of the 74 rigs in the fleet.

As of October 25th, BakerHughes reported that there were 20 active mobile offshore rigs in the GoM, which is 58.8% of the rigs under contract mentioned above. This active rigs number is 2 less than reported last month. At the same time last year, there were 18 mobile offshore rigs operating in the GoM representing an 11.1% increase in active rigs year over year.

As of October 25th, the BakerHughes total U.S. rig count stood at 830 rigs, which are 30 fewer rigs than reported at the end of September 2019. Of the 830 rigs, 696 (83.9%) are oil rigs and 133 (16.1%) are gas rigs. A year ago, there were 1068 rigs working in the U.S. Thus, the current rig figure represents a 22.3% decrease in rigs year over year. Typically, Texas has the largest number of rigs currently with 418, which is slightly over half (50.4%) of the total number of rigs in the U. S. Louisiana has a total of 54 rigs, down 2 rigs from last month. The majority (96.3%) of the Louisiana rigs are located in the Haynesville Field, which has 52 rigs. Nationwide, Louisiana ranks third (tied with Oklahoma) in the rotary rig count; Oklahoma ranks second with 110 rigs.

On October 29th, Hess Corporation announced a deepwater oil discovery in Mississippi Canyon Block 726. Their Esox-1 exploration well was drilled in 4,609 feet of water and encountered 191 net feet of high quality oil bearing Miocene reservoirs. The Esox-1 well is located approximately 6 miles east of the Tubular Bells production facilities. The tie-back of the Esox-1 well to existing infrastructure will enable it to be on production during the first quarter of 2020. Hess, the operator, holds a 57.14% working interest, and their partner, Chevron U.S.A., owns the remaining 42.86% working interest.

On October 31st, U.S. Department of the Interior Bureau of Ocean Energy Management (BOEM) announced its current Phase 2 sale statistics for OCS Sale 253, which was held in New Orleans on August 21, 2019. A total of 114 bids were deemed acceptable out of the 151 high bids submitted during the lease sale. The BOEM has 90 days or until November 19, 2019 to either accept or reject the remaining 37 bids.

On October 7th, the BOEM also announced that next offshore GoM lease sale, OCS Sale 254, will be held on March 18, 2020 in New Orleans.



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DIG INTO NATURE

On October 12th, 2019, NOGS members and geology students from Tulane, LSU and UNO made a big splash at the new museum's Dig Into Nature exhibit gallery. The focus of the event was to feature exhibits including the sediment table, turbidite wave generator, sharing station microscope area, a 500-year-old cypress tree stub and the upstairs 100 foot long Move With The River exhibit. Our enthusiastic volunteers ran the various exhibits and also an impressive dinosaur exhibit greeting people in the museum atrium.

The museum was an ideal place for an effective learning experience. This was the first event where the Louisiana Children's Museum (LCM) dedicated one of their 5 new galleries. For those who haven't been to the museum, it is very impressive. Geology is well represented with several interactive learning areas. Children enjoyed having trained geologists describe sedimentary processes, fossil and mineral properties and all the vital activities in the Mississippi River system.

Thanks go out to our great volunteers Jordan Adams, Melanie Steigler, Hadeel Hammad, Steven Darby, Stephanie Welch, Vann Smith, Doug and Brogan Bradford, Lisa Kennedy, Peyton Madre, Bernie Regel, Paige Schurr, Tom George, Jim McCarty, Dave Reiter, Catalina Rubiano, Madeline Cross, Logan Thiel, Alicia Devalcourt, Naida Kretsch, Aramiss Jasmine, Fran Wiseman, Mike and Opie Anderson, Woody Dahl, and Anna and Lily Strimus. Major thanks to the museum for hosting the event, especially Audrey Isaac the Dig Into Nature Gallery Manager and Amy Kirk the Education Director at LCM. The sign of a great event is that the volunteers had as much fun as the kids did.

We succeeded!

Tom Bergeon







NEW ORLEANS GEOLOGICAL SOCIETY *Auxiliary*



Members of the Auxiliary headed to Filmore in the Oaks, in City Park, for their luncheon on November 13. Being the coldest day of the season didn't stop anyone from attending. Jim Yeldell, Charley Corona and Roy Walther joined their wives, Camille, Trudy and Mary, for the day. Trudy and Pat Williamson chaired the event. After lunch, Pat gave a short talk about the history of the Park. Maps and photos of the park were on the tables. Also, Pat was responsible for the lovely table arrangements that were given away at the end of the luncheon.



It was great to see Elizabeth Furlong, who was happy to report that Bill is doing well, recuperating from his recent stroke. Roy Walther is also doing well, having just been released from physical and speech therapy. We were happy to see Mary Collier, who came with Pat Williamson, and Trez Zotkiewicz. Mary Ellis Hasseltine and Judy Sabaté were seen talking about plans for our next outing in February at Andy's Bistro.



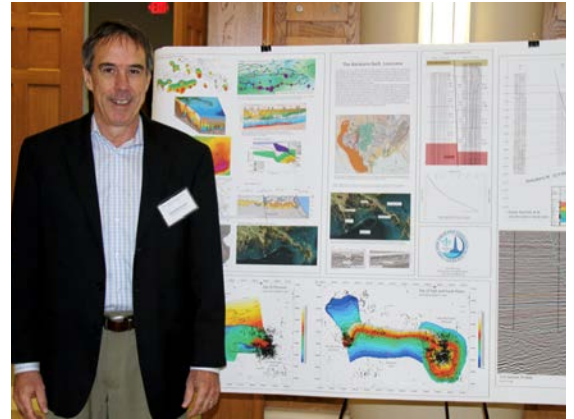
Submitted by Mary Walther

LA GEOLOGICAL SURVEY COASTAL SYMPOSIUM

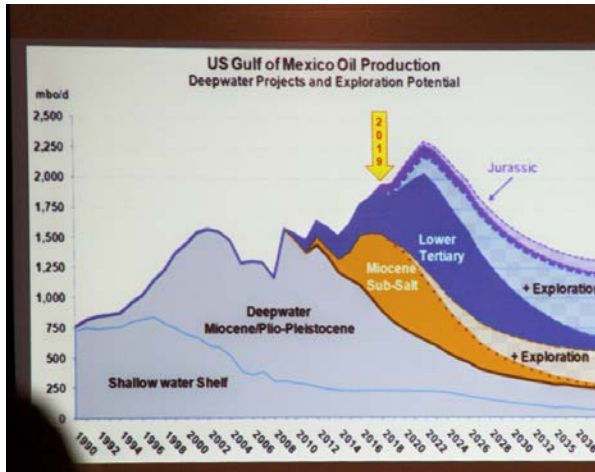
The third annual Louisiana Geological Coastal Symposium was held at the Dalton J. Woods Auditorium on the LSU campus on October 17th and 18th. The event, which was co-sponsored by the Louisiana Geological Survey (LGS) and the New Orleans Geological Society (NOGS), featured speakers from academia, industry, government and non-governmental organizations. Opening remarks were given by John Johnston of LGS, Dr. Jon Snow, the new Chair of the LSU Department of Geology & Geophysics, and Louisiana State Senator Sharon Hewitt. All of these speakers underscored the importance of integrating geology into coastal science research and coastal sustainability planning. Senator Hewitt recognized the need for funding at the state level. Dr. Charles Groat, the Acting Director of LGS, and the former Director of the U.S. Geological Survey, presented a comprehensive overview of the Louisiana Coastal Geohazards Atlas Project, which is being jointly developed by LGS and NOGS. Dr. Groat showed the scope of the ongoing university research that is using oil and gas industry seismic data to map faults and to study their relationship with subsidence and wetlands loss. He also showed the range of utility for a completed atlas including transportation infrastructure assessment, flood protection infrastructure assessment, groundwater resource management, and coastal ecosystem sustainability.

Other speakers included Dr. Eugene Turner of the LSU College of Coast & Environment, Dr. Juan Lorenzo of the LSU Department of Geology & Geophysics, Dr. Frank Tsai of the LSU Department of Civil & Environmental Engineering, Donnie Garrison of Shell Pipeline Company, Diana Di Leonardo of the Water Institute of the Gulf, Dr. Gary Kinsland of the ULL School of Geosciences, NOGS members Liz McDade and Chris McLindon, and Dr. Jun Xu of the LSU School of Renewable Resources.

The symposium provided an excellent format for an exchange of ideas about the science of coastal Louisiana.



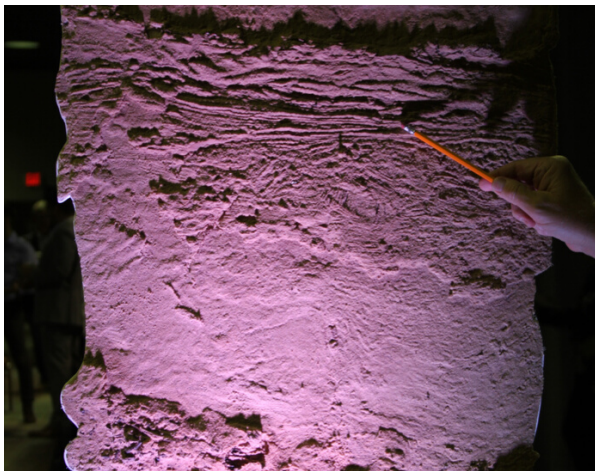
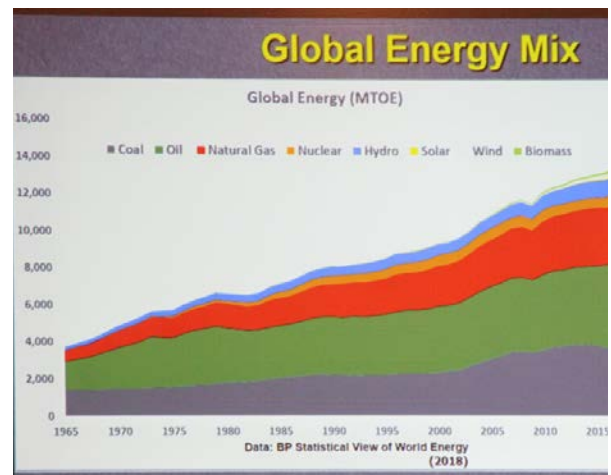
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John Dribus teaching short course



Ernie LeFleur (President ETGS) and Bill Whiting (NOGS representative to GCAGS)



Recent Sand peel from Houston Hurricane Harvey sediments (Asking price ~ \$5,000)



Board of GeoGulf 2018/2020 - From left - Mike Erpenbeck, 2019 General Chairman; Deborah Sacrey, GCAGS President; Ralph Richardson, 2018 GCAGS Past President; Alan Brittain, 2018 General Chairman



NEW ORLEANS GEOLOGICAL SOCIETY MEMORIAL FOUNDATION INC.

Founded March 14, 1978, the mission of the New Orleans Geological Society Memorial Foundation is to promote earth science related or scientific purpose by granting of scholarships to outstanding Geology students at the universities in Southeast Louisiana having a comprehensive curriculum and offering a degree in Geology. The

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