

NOGS LOG

JULY 2021
Volume 62 No. 1



NOGS JULY 2021 MEETING

MONDAY, JULY 12, 2021 - 11:30 AM ZOOM MEETING



USE OF EXPLORATION 3D SEISMIC FOR BOEM MARINE MINERALS PROGRAM

Thomas W. Bjerstedt Ph.D.

Dr. Bjerstedt has undergraduate and graduate degrees in geology from Kent State University and a Ph.D. in geology from West Virginia University. Over his career he authored dozens of articles, posters, and conference presentations based on topical research or agency mission. He taught for 1 year at St. Lawrence University in New York after which he worked 9 years with the Department of Energy's Yucca Mountain Site Characterization Project in Nevada. In 1997 he joined Texaco, first in New Orleans and then Houston, during Texaco's late-1990s deepwater exploration buildout in the GOM. After the Chevron merger in 2002 he joined the Department of the Interior, Minerals Management Service's GOM Region in New Orleans in 2002. During 19 years with MMS/BOEM he has worked for the Office of Environment and the Office of Resource Evaluation in both technical and supervisory capacities. In 2020 he was promoted to staff geologist supporting the Regional Supervisor liaising between BOEM's environmental compliance programs, geological and geophysical permitting, and federal agencies having independent responsibilities under environmental laws.

ABSTRACT

Part of BOEM's mission is conveyance of OCS sediments for private monetization or for public benefit; the latter being the only use to date of OCS sand. A focus on marine minerals for ecosystem management, coastal restorations, or beach nourishment is only expected to increase. To a point, seismic data in BOEM's inventory can be repurposed to assist the search for OCS marine minerals. All GOM states have cooperative agreements with BOEM to help identify or facilitate access to OCS sediment resources desired by coastal programs. BOEM's Office of Resource Evaluation contributed to these efforts by examining our inshore 3D seismic covering GOM's significant sediment resource areas.

Deep-penetration 3D seismic on the shelf was not collected with any forethought or interest in the shallowest part of the sedimentary section. It is not useful for borrow pit siting or design mainly because the frequency range cannot resolve thin layers. Shelf 3D seismic is typically of older vintage, some of it older than 25 years and now publicly available. Seismic processing conventions of the day may have clipped out the water bottom and shallowest section.

Horizontal time slices were made across 35 inshore 3D surveys to 150 ms, a compromise between slicing as shallow as possible across a large area and deep enough to sample some data from most surveys. Most inshore surveys have no useful data <150 ms (~375 ft bsl) and a small subset have data to <100 ms (~250 ft bsl). The operational depth for cutter dredges is ~100 ft, including water depth.

This reconnaissance was designed to high-grade 3D volumes as potentially suited for more granular evaluations and for validation with other data, for example, maps provided in operator shallow hazard reports that could be georeferenced in ArcMap. Subsequent evaluations may consider using seismic attributes in combination with volumetric tools on interpretive platforms. A goal for BOEM's efforts is to design a methodology for a National Sand Resource Assessment in the near future.

IN THIS ISSUE



On the Cover

The Giant's Causeway is an area of about 40,000 interlocking basalt columns, the result of an ancient volcanic fissure eruption. It is located in County Antrim on the north coast of Northern Ireland, about three miles northeast of the town of

Bushmills. Wikipedia

Address: Bushmills BT57 8SU, United Kingdom

Area: 173 acres

Age: 50 to 60 million years



From the Editors...

As I reflect on the last 2 years as Editor, it has been a fun journey with an excellent team and made some great accomplishments. We moved the LOG all digital and saved the society on the budget and expanded some new content to enhance the LOG for our members. And with the help of Christy Himel, she turns our content into a professional published monthly newsletter to be proud of. I would like to thank our LOG Committee that includes Ed Picou, Fran Wiseman, and Christy Himel. We are in great hands with Emmitt Lockard taking over as Editor who has some exciting new ideas and I will continue to remain on the Committee to help proof-read and deliver a rich-filled contents our members will find value to read.

Charlie



Charles Miller III
NOGS LOG Editor



Emmitt Lockard
2021/2022 NOGS LOG Editor

Welcome!



JOHN R. DRIBUS

A MESSAGE FROM 2020/2021 NOGS PRESIDENT

To members and friends of the New Orleans Geological Society:

I am pleased to announce the new NOGS leadership for 2021-2022:

President: Doug Bradford, President Elect: Hillary Sletten, Vice President: Nancye Dawers, Secretary: Wayne Cook, Director: Charlie Miller, Editor Elect: David Reiter

They join *NOGS LOG* Editor Emmitt Lockard, and Directors Al Melillo and David Culpepper who will continue to serve on the Board.

I am also pleased to see that the Covid pandemic continues to decline in Louisiana. Last month there were 311 Covid patients hospitalized across the state, and 27 on ventilators. Those numbers have dropped to 267 in hospitals with ventilator patients increasing a bit to 34. This reminds us that the pandemic is not over, and we still need to remain diligent. One month ago, Louisiana had 2,829,300 doses of the vaccines administered, and over 1,400,000 state residents had completed the series. Today, 3,148,800 doses have been administered, and over 1,550,000 have completed the series. If you have questions call the Vaccine Hotline at 1-855-453-0774 or visit the Louisiana Department of Health website www.ldh.la.gov/Coronavirus. If you have taken the vaccine and experienced severe reactions that required hospitalization you can report your reactions to the office of Public Health at 1-800-256-2748.

The NOGS leadership has already begun discussions about when and where NOGS should return to the live luncheon format, but for now NOGS plans to continue our popular monthly on-line technical webinar series. In July, our speaker will be Tom Bjerstedt, Staff Geologist at Bureau of Ocean Energy Management speaking to us about the process the government uses to evaluate offshore leases. In August, Dr. Clara Rodriguez with Petronas will speak to us from Mexico about the Salina Basin, offshore Mexico.

Thanks to all of you who have paid your dues and especially to those who have made an additional donation to the NOGS Memorial Foundation. The Foundation Board is currently in the process of evaluating the Scholarship submissions from UNO, LSU and Tulane for this upcoming academic year. Because the pandemic has limited the fundraising activities that we've been able to hold this past year, your dues and donations are very important to enable NOGS to continue our worthwhile local community, university, and education programs.

This is my final letter as President of NOGS, so I want to thank all of you who have actively participated in the programs of NOGS this year by attending our webinars and contributing financially. As my final action as President, I am very pleased to announce that I am awarding Ed Picou with the NOGS Lifetime Achievement Award in recognition of his loyal service as NOGS Historian and many other tireless efforts on his part to serve the organization and its members.

Regards,
John Dribus



DOUG BRADFORD

A MESSAGE FROM 2021/2022 NOGS PRESIDENT

To members and friends of the New Orleans Geological Society:

I am thankful that we have seen an increase in COVID injections and a decrease in COVID cases. Hopefully we will see this trend continue and we will see an end to the global pandemic.

This time last year there was concern for the oil and gas market. Last year petroleum prices were down, but since then have increased: WTI from \$29.65 to \$71.12, Louisiana light from \$37.34 to \$73.00, and natural gas from \$1.74 to \$3.35.

During this last year of virtual/online monthly meetings we have had an excellent series of speakers giving presentations to the virtual audience of NOGS attendees. We continue to have a great line up speakers for the rest of the year. Hopefully, if the COVID case decrease continues we may be able to resume in person meetings in the near future.

Our incoming lineup of officers consists of President Elect: Hillary Sletten (Shell), Vice President: Nancye Dawers (Tulane), Treasurer: Ryan Weber, Secretary: Wayne Cook (Stratigraph), Director: Charlie Miller (OCSBBS), Director: David Culpepper, Director: Al Melillo, Editor: Emmitt Lockhart, and Editor Elect: David Reiter (Retired). I would like to thank all of those who served last year and for the excellent job they did during a difficult virtual year.

As always, a reminder of dues renewal if you haven't already done so, \$35.00 for Regular membership and \$15 for Student membership. Please be reminded that we haven't been able to have a lot of fund raisers this year so I encourage you to pay your dues and to give consideration to adding a special donation to the Memorial Foundation to help us continue our worthwhile local community, university, and education programs.

I am looking forward to this next year as we hopefully return to a more normal time.

Thanks everyone, stay well!

Regards,
Doug Bradford

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PICTURE FROM THE PAST



This month's photo, I believe, was taken in May of 2005 of the folks who played key roles in putting on the very successful South Louisiana Onshore Petroleum Exploration Symposium (SLOPES) held on May 22nd at the Marriott. Twenty-seven papers were given in two concurrent sessions for 332 participants. George Rhoads served as General Chairman and was ably assisted by an experienced committee. From a financial viewpoint, the symposium was a big success.

Row from left to right- Annette Hudson, Duncan Goldwaithe, Al Mellilo, Paul Lawless, Bill Whiting, Ed Picou, Art Johnson, David Reiter, Mike Gallagher, George Rhoads
Front Row - Carol St. Germain, TrezMarie Zotkiewicz, Mike Ledet, Jim Zotkiewicz, Roy Walther, George Severson.

Submitted by
Ed Picou, Chairman - Historical Committee

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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.

The NOGS LOG is now a digital magazine with live links to your site to reach NOGS Members and support your Society. 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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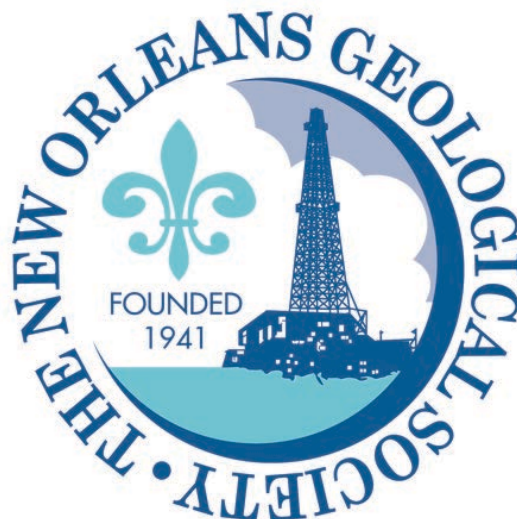
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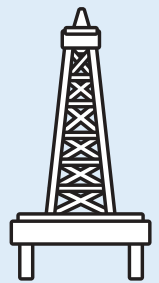
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DRILL BITS

OFFSHORE GULF OF MEXICO SHELF AND
DEEPWATER ACTIVITIES
BY AL BAKER



During May 2021, the U.S. Department of the Interior Bureau of Safety and Environmental Enforcement (BSEE) approved 69 Gulf of Mexico (GoM) drilling permits. Ten of the permits were for shelf wells, and the remaining 59 permits were for deepwater wells. Of the total number of permits, there were 7 new well permits issued, 5 in deepwater and 2 on the shelf.

The two shelf new well permits were for development wells. They were both awarded to Byron Energy for their South Marsh Island 58 #G-3 and #G-4 wells.

The five deepwater new well permits were for exploration wells. Shell Offshore received 2 permits for their Alaminos Canyon 815 #SA-8 and Garden Banks 962 #2 wells. Anadarko Petroleum was issued a permit for their Mississippi Canyon 124 #2 well, Chevron U.S.A. was granted a permit for their Mississippi Canyon 35 #1 well and BOE Exploration and Production obtained a permit for their Green Canyon 35 #2 well.

On May 28th, IHS-Petrodata indicated that the GoM mobile offshore rig supply stood at 56, which is 1 less than last month. The marketed rig supply consisted of 31 rigs, of which 24 were under contract. The marketed rig supply number is 1 less than last month, and the contracted rig supply number is 1 more than last month. The marketed contracted versus total rig supply utilization rate was 53.6%, and the marketed contracted versus marketed supply utilization rate was 77.4%. By comparison, the May 2020 total fleet utilization rate stood at 61.2% with 41 rigs under contract out of the 67 rigs in the fleet.

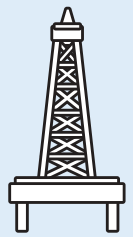
On May 28th, Baker Hughes reported that there are 14 active mobile offshore rigs in the GoM, which is 1 more than last month and 58.3% of the rigs under contract mentioned above. Currently, 3 rigs are drilling on the shelf, and 11 rigs are drilling in deepwater. They include 8 rigs in the Mississippi Canyon Area, 2 rigs in the Green Canyon Area, 2 rigs in the Eugene Island Area and 1 rig each in the Walker Ridge and Main Pass Areas.

On May 28th, the Baker Hughes total U.S. rig count stood at 457 rigs, which is 17 more rigs than reported at the end of April 2021. Of the 457 rigs, 359 (78.6%) are oil rigs and 98 (21.4%) are gas rigs. A year ago, there were 301 rigs working in the U.S. inferring that the current rig figure represents a 51.8% increase in rigs year over year. Presently, Texas continues to have the largest number of rigs with 218, which is 47.47% of the total number of rigs in the U. S. Louisiana currently has a total of 53 rigs, which is 4 more than last month. Nationwide, Louisiana continues to rank third in the rotary rig count. New Mexico ranks second with 71 rigs.

On May 11th, Shell Offshore reported a significant oil discovery at its Leopard Prospect on Alaminos Canyon Block 691. The well is located approximately 245 miles SSE of Houston, Texas within in the Perdido Corridor, where Shell's Great White, Silvertip and Tobago fields are currently producing. The discovery well, which encountered over 600 feet of net oil pay, is situated 33 miles west of the Perdido Spar host. Leopard is operated by Shell (50%) and co-owned by Chevron U.S.A. (50%).

DRILL BITS

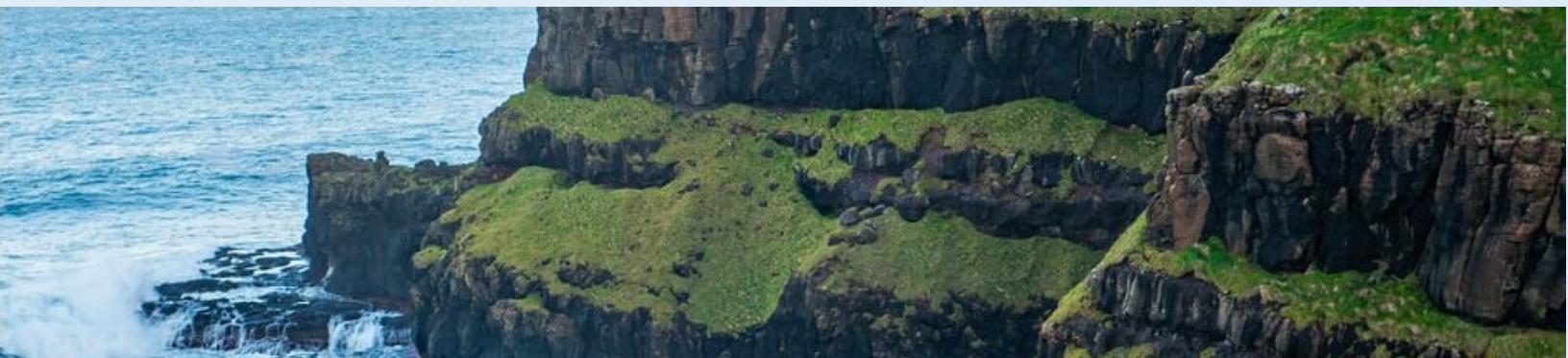
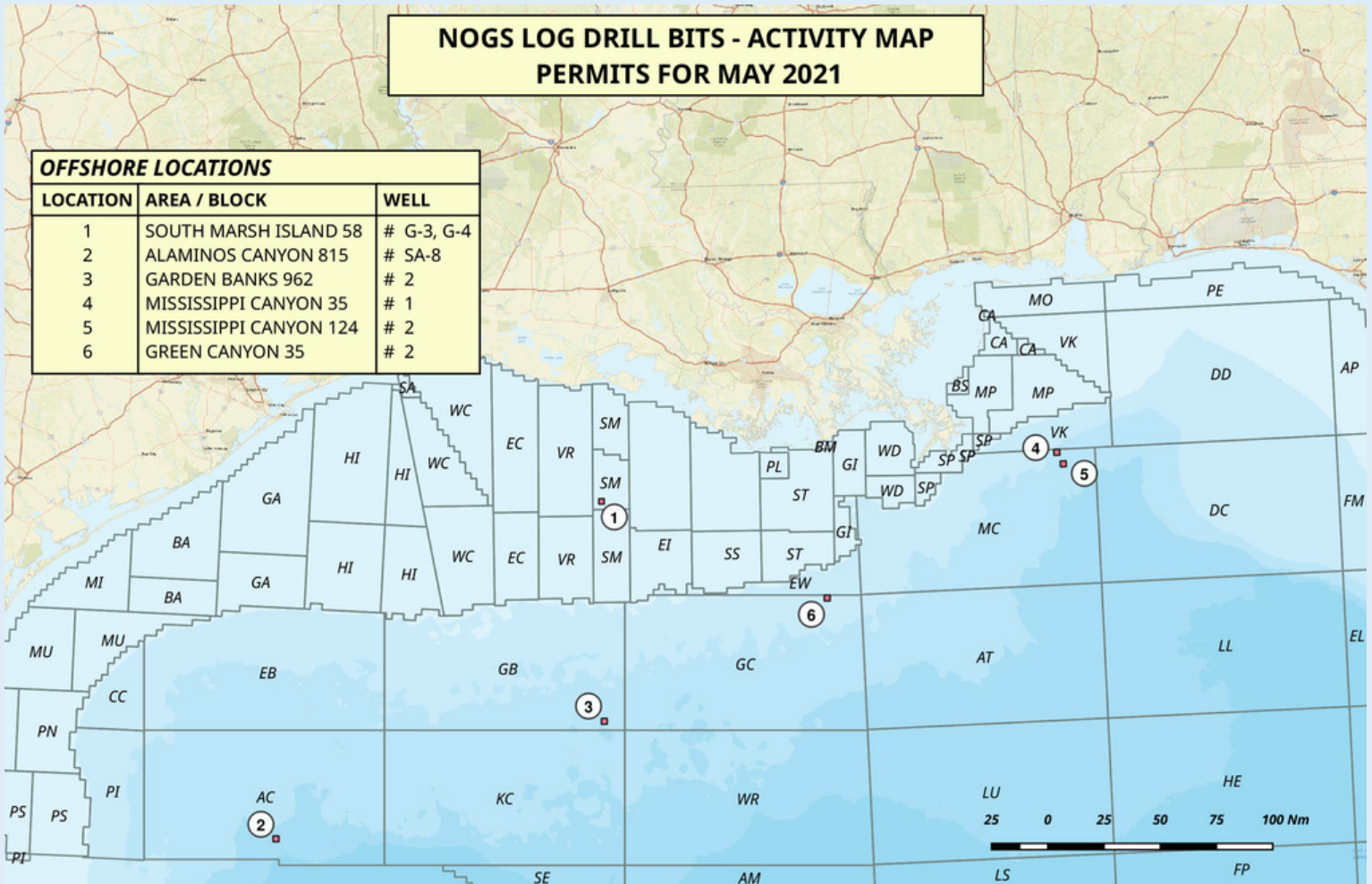
OFFSHORE GULF OF MEXICO SHELF AND
DEEPWATER ACTIVITIES
MAP BY KEVIN TROSCLAIR



NOGS LOG DRILL BITS - ACTIVITY MAP PERMITS FOR MAY 2021

OFFSHORE LOCATIONS

LOCATION	AREA / BLOCK	WELL
1	SOUTH MARSH ISLAND 58	# G-3, G-4
2	ALAMINOS CANYON 815	# SA-8
3	GARDEN BANKS 962	# 2
4	MISSISSIPPI CANYON 35	# 1
5	MISSISSIPPI CANYON 124	# 2
6	GREEN CANYON 35	# 2





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Recent Oil Industry HeadlinesJune 2021

6/21/2021 - Bill would send coastal states revenue from offshore wind energy - A bipartisan group of U.S. senators has introduced a measure that seeks to ensure states get half the revenue generated by wind farms that produce electricity off their coasts. [Read Full Article](#)

6/18/2021 - API: US petroleum demand continued to grow in May - US petroleum demand in May, as measured by total domestic petroleum deliveries, was 19.8 million b/d, according to the American Petroleum Institute's latest Monthly Statistical Report. [Read Full Article](#)

6/16/2021 - Oil Crawls Forward as Tighter Supply Offsets Projected Fed Hike - Brent futures traded in London are approaching the key psychological level of \$75 as leading economies continue to reopen in the midst of widespread Covid-19 vaccination programs. That's boosting the consumption outlook and driving prominent traders like Glencore Plc and Vitol Group to forecast further gains in oil. [Read Full Article](#)

6/16/2021 - Biden's oil lease ban lifted by federal judge - A federal judge lifted the Biden administration's temporary ban on new oil and gas leases on public lands and offshore waters. In a victory for 13 states that filed the legal challenge in Louisiana, U.S. District Judge Terry Doughty granted a preliminary injunction Tuesday blocking President Joe Biden's Jan. 27 executive order while the litigation continues. [Read Full Article](#)

6/9/2021 - Talos Energy Finds Oil at Tornado Well of US Gulf of Mexico - Talos Energy Inc. TALO announced the successful drilling results on its Tornado 3 sidetrack well located in the U.S. Gulf of Mexico. Notably, the Tornado Attic well unearthed oil pay in line with the company's pre-drill expectations in the Green Canyon area of the Gulf of Mexico. The Tornado field is situated nearly three miles south of the Phoenix complex, which the company acquired in 2013. The field produced nearly 34 million barrels of oil equivalent total gross so far since its discovery in 2016, of which 80% represents crude oil. [Read Full Article](#)

6/8/2021 - The Retreat of Exxon and the Oil Majors Won't Stop Fossil Fuel - National oil champions are likely to fill the gap left by private-sector players—meaning emissions won't shrink as fast as the supermajors [Read Full Article](#)

6/7/2021 - Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs - Interior, Energy, Commerce, and Transportation Departments Announce New Leasing, Funding, and Development Goals to Accelerate and Deploy Offshore Wind Energy and Jobs The White House convened leaders from across the Administration to announce a set of bold actions that will catalyze offshore wind energy, strengthen the domestic supply chain, and create good-paying, union jobs. [Read Full Article](#)

6/2/2021 - Rystad: Accelerating energy transition marks end of trillion-dollar oil and gas tax revenues - Before COVID-19, oil and gas taxes usually exceeded the trillion-dollar mark. The accelerating energy transition will cause this source of state income to shrink and never again exceed or meet \$1 trillion, a Rystad Energy report projected. [Read Full Article](#)

TOP 10 REASONS TO JOIN NOGS

1

Proclaim your professionalism

With an 80 year history and over 300 active members, NOGS is the premier professional organization for geologists in New Orleans. Adding your name to the ranks declares your pride in the profession you have chosen.

2

Advance your career

NOGS members enjoy educational opportunities and top speakers designed to increase knowledge and keep up with the newest trends in geoscience, both on the national and local levels.

3

Advertise your integrity

NOGS has a reputation of over 75 years for upholding high standards. Align yourself with like-minded geologists and related fields.

4

Further your cause

NOGS was organized for the purpose of facilitating the development of the profession and science of Geology, at the time with a focus on production of oil and gas. Since Hurricane Katrina our objectives expanded to include the dissemination of the geological facts of flood control, engineering and environmental geoscience.

5

Network with others who do what you do

Making connections, between people and ideas, is an important part of any scientific endeavor. Meet others who can help you make those connections.

6

Advocate for your profession

Serious-minded professionals know that serving the profession means responding to calls for action from those who represent the profession. NOGS monitors trends in geoscience education, regulation, and practice standards and periodically advises members on required action.

7

Serve your profession and community

Opportunities for individuals to serve on NOGS committees that work on a variety of issues from building educational programs to sharing knowledge with others to providing scholarships to young geologists in our area.

8

Don't reinvent the wheel ... use available resources

NOGS members can provide you with the resources you need to do your job well. Long-time members remain active and are happy to share their knowledge and best practices.

9

Play a part in elevating the status of geosciences.

Your membership in NOGS and your dedication to geoscience elevates the entire profession.

10

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Remembering NOGS Members...

With sadness, we report the death of Paul C. Perret, Sr. He passed away on Sunday, June 13, 2021, after several years of declining health. He was 91 years old. Paul had been a member for many decades and frequently attended luncheon meetings and short courses sponsored by NOGS. He was also a member of the Society of Professional Earth Scientist, both national and the New Orleans Chapter.

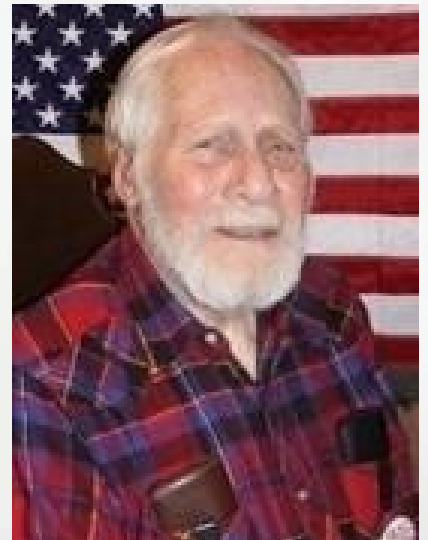


He was a New Orleans native and graduated from St. Aloysius High School. After a short hiatus, he attended Louisiana State University where he obtained a BS degree in geology in 1956. Armed with his recently acquired degree, Paul returned to New Orleans and opened a professional geological consultancy. He was quite successful, being involved with leasing and drilling activities across south Louisiana. Paul remained as an independent operator his entire career.

Paul C. Perret, Sr.

Although he never held an office in the Society, he was a staunch supporter. He and his wife June hosted several NOGS Kick Off events at their lovely Bancroft Drive home on Bayou St. John. On a personal side, Paul enjoyed dancing and attending Mardi Gras activities, including LSU sports events. Most of all, he loved spending time with his large extended family.

We note the passing of Emmett Charles Guderian, Jr. on May 14, 2021, at the grand age of 94. To quote from his published obituary "Emmett was a respected geophysicist as well as a proud WWII Navy veteran." It is testimony that he valued his NOGS membership, as he remained a member until his death. Emmett wasn't an active participant in NOGS activities for some years, however, he always renewed his ad in the NOGS LOG. We note his passing with sadness.



Submitted by

Ed Picou, Chairman - Historical Committee

Emmett Charles Guderian, Jr.

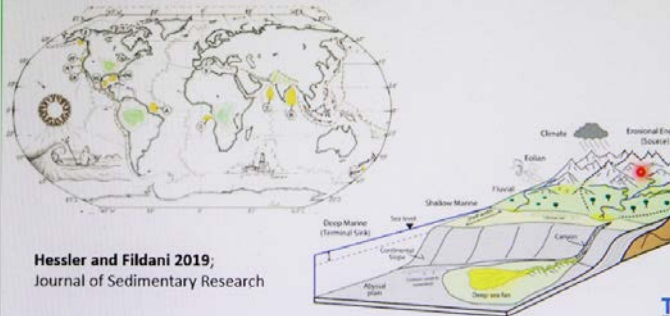
NOGS June Meeting

A dimensionless framework for predicting submarine fan morphology

Abdul Wahab

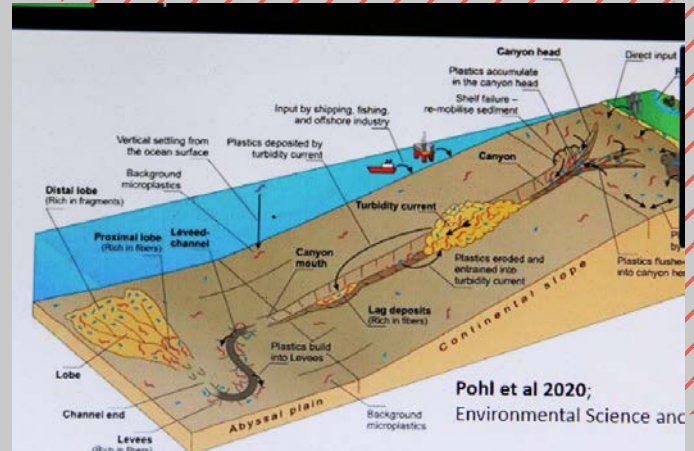
Why Submarine fans?

Fidelity of the climate change record



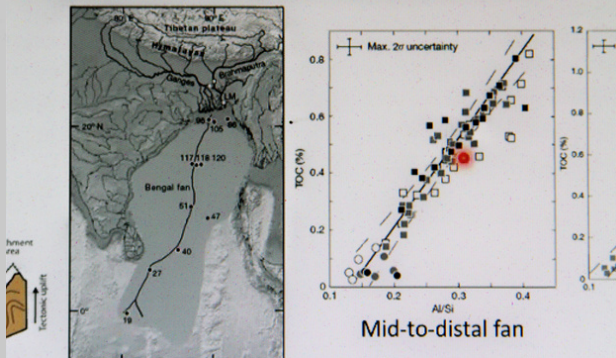
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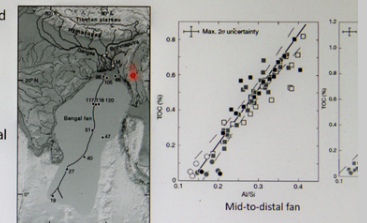
Carbon Sequestration

Subcritical fans are generally characterized by low rugosity values, partly due to low shear stresses at low slope settings.

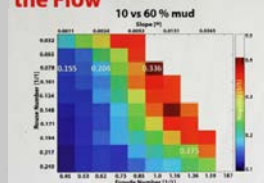
This facilitates sufficient mud depositions on the levees, lobes, and the distal fan.

Mud contains clay minerals whose mineral surface area favors deposition of particulate organic carbon and preservation by inhibiting oxygen interactions.

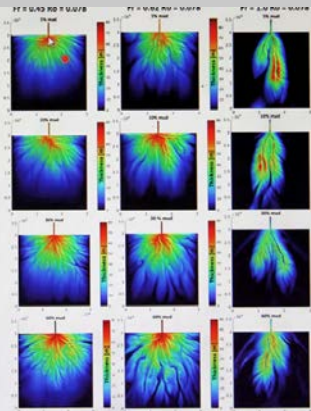
Therefore, subcritical fans on low slope settings have great potential to sink significant amounts of Carbon



Sensitivity to Mud Content the Flow

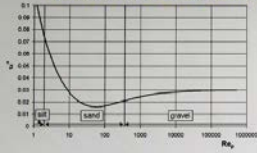


we performed sensitivity analyses to examine the influence of mud content on the planform morphology. Changes in placement of lobes and channels. Bulk trends in rugosity for select cases did not change. A third axis defining mud content is likely less significant for morphology of fans compared to Froude and Rouse numbers

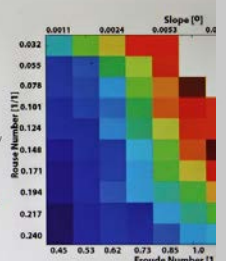
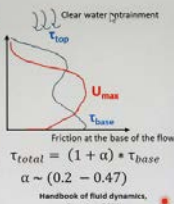


Subsurface Prediction

Invert for Flow Froude Number



$$R_p = \frac{\sqrt{RgP_{90}} + P_{90}}{\nu}$$
$$\tau_{cr} = 0.5 * \left[0.22 * R_p^{-0.6} + 0.06 * 10^{(-17.7 * R_p^{-0.6})} \right]$$
$$\tau_{cr} = \tau_{cr} * RgP_{90}$$
$$u_* = \sqrt{\frac{\tau_{cr} * 1.47}{R}}$$
$$Ro = \frac{WS_{50}(suspension)}{u_* (p_{90})}$$



The Haynesville Oil Field, Claiborne Parish, Louisiana – Centennial of Discovery (1921-2021)

“Well near Haynesville goes high over derrick,” headlined The Shreveport Times (March 30, 1921, p. 1) as the J.R. Smitherman, et al, No. 2 Taylor gushed mud and oil 50 feet over the 112-foot derrick. The Claiborne Parish well was drilled “13 miles due north of the nearest production in the world-famous Homer pool {discovered 1919}, and two and one-half miles northwest of Haynesville.” The well drilled to a depth of 2856 feet and was completed in the “Blossom sand” (Upper Cretaceous, Tokio). The well flowed at estimated rates of 2000-4000 BOPD, stabilizing at approximately 2000 BOPD. Smitherman and his associates had taken over Roxana Petroleum Company leases after Roxana had drilled four dry holes (1919-20), including one well with oil shows just 500 feet north of the Smitherman discovery.

“Haynesville well may create new oil boom,” headlined the April 1, 1921, edition (p. 1) of The Shreveport Journal, and included a subline of “Town is overrun with visitors as news of gusher spreads. Acreage selling at \$100 to \$250 per acre. Oil said to be splendid quality.” The article stated that the town’s population was only 500 and that the town’s businessmen “have agreed to conduct their stores along conservative and fair lines without advancing the prices on any commodities that may be required by those who are attracted to their town by the wonderful oil strike that has been made.” By the end of 1921, over 100 wells had been completed and the total oil production for the field was 3.5 million barrels of oil (MMBO). Oil production peaked the following year at 19.9 MMBO. By the 1930s oil production had declined rapidly, producing 1-2 MMBO/year.

On the 30th anniversary of the field’s discovery, two Haynesville oil field papers were presented. Adkins (1951) reported on a water flood of the Lower Cretaceous Pettit Lime. Oil production in the Pettit was established in 1941 at approximately 5300 feet. At the time of Adkin’s paper, there were 189 oil producing Pettit wells: 155 in Louisiana and 34 in the northern extension of the field in Arkansas. With the extension of the oil field into Arkansas in 1942 and the success of establishing this deeper oil producing zone, the field’s production reached 4.6 MMBO in 1942 and 5.4 MMBO in 1943.

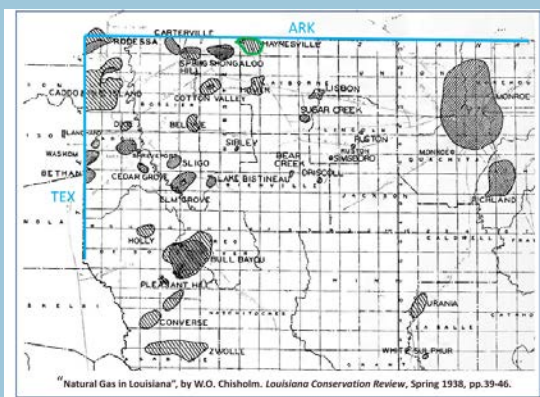
Chapman (1951) presented a paper, “Jurassic development in the Haynesville field, Claiborne Parish, Louisiana,” at the first GCAGS Annual Meeting. Chapman reviewed the Jurassic Cotton Valley Taylor sand (~8800 feet) and Camp sand (~8000 feet), discovered in 1944 and 1945. The Ohio Oil Company drilled a deep Smackover well in 1940 (TD 11,274 feet), but Smackover oil production in the field was not established until 1946. The Haynesville field (Louisiana portion) produced 126 thousand barrels of oil in 2020.

NOTE: The Haynesville Shale came into prominence in 2008 as a major gas producer in East Texas and Northwest Louisiana. The main productive area is southwest of the Haynesville field. The type location for the Haynesville Formation, is a Hunt Oil Company well in the Haynesville oil field.

Adkins, D.W., Jr., 1951, Primary high pressure water flooding in the Pettit Lime Haynesville Field, Petroleum Transactions, AIME, v. 192, p. 239-248.

Chapman, Richard, T., 1951, Jurassic development in the Haynesville field, Claiborne Parish, Louisiana, GCAGS Transactions, v. 1, p. 40.

Franks, Kenny A. and Paul F. Lambert, 1982, Early Louisiana and Arkansas oil, a photographic history, 1901-1946, Texas A&M Press, College Station, TX, 243 pp.



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