

# NCGS LOC

MAY 2021  
Volume 61 No. 11



= *Happy* =

MEMORIAL

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# NOGS MAY 2021 MEETING

MONDAY, MAY 3, 2021

11:30 AM ZOOM MEETING

## THE NORTHERN GULF OF MEXICO OFFSHORE SUPER BASIN: RESERVOIRS, SOURCE ROCKS, SEALS, TRAPS, AND SUCCESSES



*Presented by:*

***John W. Snedden***

John Snedden is a Senior Research Scientist at Institute for Geophysics, The University of Texas at Austin. He is director of the Gulf Basin Depositional Synthesis project, a consortium dedicated to research on the depositional history of the Gulf of Mexico. Prior to taking his current position, he worked in the oil industry for 25 years, exploring basins around the world. He and William Galloway are authors of the recent book, *The Gulf of Mexico Sedimentary Basin: Depositional Evolution and Petroleum Applications* (Cambridge University Press, 2019).

The northern Gulf of Mexico federal offshore area easily qualifies as a super basin based upon estimated petroleum endowment of more than 100 BOE and cumulative production of 60 BOE. Like other super basins, it has multiple petroleum systems and stacked reservoirs. Examination of four key elements of these petroleum systems (reservoirs, source rocks, seals, and traps) yields important insights to the geologic processes that result in such an exceptional habitat for conventional hydrocarbons.

The bulk of hydrocarbon resources in federal offshore waters is in Cenozoic sandstone reservoirs such as the Paleogene Wilcox reservoir of deep-water subsalt areas. Overall, Cenozoic sandstone reservoirs in both suprasalt and subsalt fields yield the highest flow rates and cumulative production volumes. Notable is the recent addition of the deep-water Jurassic Norphlet sandstone play, the newest and second largest by ultimately technically recoverable resources. Overall, Gulf of Mexico reservoirs are diverse, formed in paleoenvironments ranging from aeolian to deep water.

Powering this super basin are three primary marine source rocks centered in the Oxfordian, Tithonian, and Cenomanian–Turonian Stages. These source rock intervals commonly act as top seals, but other Neogene and Mesozoic shales and even carbonate mudstones are also important trap-sealing elements, as proven by analytical work and downhole pressure measurements. The extensive salt distribution and relatively late Cenozoic burial delayed source rock maturation and migration until the culmination of trap formation in many areas.

High rates of Cenozoic deposition on a mobile salt substrate also generated a myriad of salt tectonic structures, ranging from simple diapiric closures and extensional fault traps to complex subsalt configurations such as salt-cored compressional anticlines, salt-cutoff traps, and bucket weld traps. Exploration success in the past 20 yr is a direct result of improved seismic imaging around and below salt, as well as advances in drilling, completing, and producing wells and fields.

**[Click Here to Register](#)**

# IN THIS ISSUE

## On the Cover



I have personally visited this site twice in the past 5 years and it is breathtaking to experience this park in person. (Charlie Miller)

Estes Park is a town in northern Colorado. It's known as a base for the Rocky Mountain National Park, home to wildlife including elk and bears, plus miles of trails. The park's Trail Ridge Road winds past craggy peaks, forests and tundra. Nearby are the wilderness areas of Roosevelt National Forest. The Estes Park Aerial Tramway connects the town to the summit of Prospect Mountain for views over the valley. (Source: Google)

Elevation 7,522'. Population 6,377 (as of 2019)



## *From the Editor...*

Thanks to all those who continue to contribute to the monthly LOG. If you have any suggestions for future issues or have an article/photo(s) to contribute, please email me at [cmiller@ocsbbs.com](mailto: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.

*Charlie*



Charles Miller III  
NOGS LOG Editor





**JOHN R. DRIBUS**



## **A MESSAGE FROM NOGS PRESIDENT**

To members and friends of the New Orleans Geological Society:

Hello all members and friends of NOGS! Louisiana continues to see significant progress in the fight against the coronavirus. Last month there were 450 Covid patients hospitalized across the state, and over 60 on ventilators. Those numbers have dropped to 325 in hospitals and only 49 on ventilators. One month ago, we had about 1,400,000 doses of the vaccines administered across the state, and almost 534,000 Louisiana residents had completed the series. Today 2,255,300 doses have been administered, and 966,365 have completed the series. If you have questions please call the Vaccine Hotline at 1-855-453-0774 or visit the Louisiana Department of Health website at <http://ldh.la.gov/Coronavirus/>.

Last month NOGS continued our technical webinar series with a superb talk from Dr. Sharon Cornelius from the University of Houston sharing her work on geo-pressure in the Gulf of Mexico. This month on May 3 we are looking forward to Dr. John Snedden of the University of Texas at Austin who will talk about his work on the Gulf of Mexico Superbasin. We have other great talks lined up for the rest of the year as well.

There have been a couple of date changes for major geoscience conventions that I want you to be aware of. The GCAGS GeoGulf 2021 convention in Austin, Texas will now be held Oct 27-29 to avoid a conflict with the AAPG ACE scheduled for Denver from Sept 26- October 1. You can also find the dates for other geoscience conferences at <https://waset.org/geology-conferences-in-2021>.

I close my letter this month by introducing to you the new candidates who have been nominated thus far to run for 2021-2022 NOGS leadership positions. For President Elect: Hillary Sletten (Shell), Vice President: Nancye Dawers (Tulane), Secretary: Wayne Cook (Stratigraph), Director: Charlie Miller (OCSBBS), and Editor Elect: David Reiter (Retired). Nominations from the membership are open now, so if you have other individuals who will agree to serve if elected please submit their names to Christy by the end of April. We also will have some trustee vacancies that need to be filled for the NOGS Memorial Foundation Board. Please let her know if you are interested in volunteering for one of those positions.

The final item is that dues renewal will be coming up soon, and I want you to know that we will be increasing our dues to \$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. Thanks everyone, stay well!

Regards,  
John Dribus





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# PICTURE FROM THE PAST



**NOGS Participants in University – Industry Conference –  
November 1998**

**NOGS members who presented testimonies at the November 1998 NOGS – University – Industry conference as to why they chose careers in petroleum geology. Present at the conference were students with professors from Tulane, UNO, LSU and Nicholls State University.**

***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](http://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](mailto: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](http://www.nogs.org)

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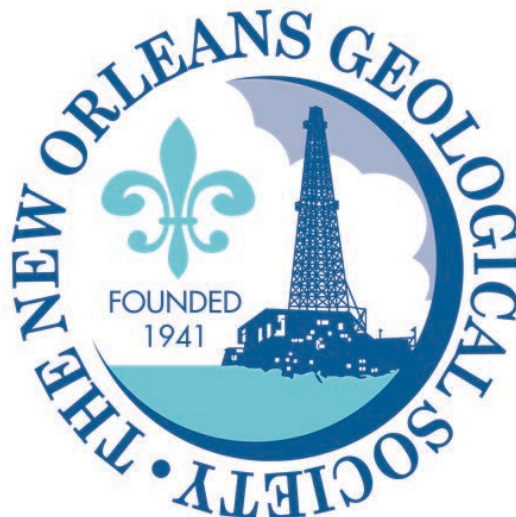
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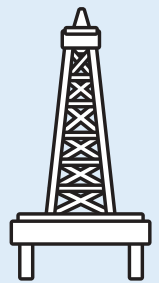
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# DRILL BITS

OFFSHORE GULF OF MEXICO SHELF AND  
DEEPWATER ACTIVITIES  
BY KEVIN TROSCLAIR



During March 2021, the U.S. Department of the Interior Bureau of Safety and Environmental Enforcement (BSEE) approved 63 Gulf of Mexico (GoM) drilling permits. Fourteen of the permits were for shelf wells, and the remaining 49 permits were for deepwater wells. Of the total number of permits, there were 5 new well permits issued in deepwater and none on the shelf.

The five deepwater new well permits were for exploration wells. Murphy Exploration & Production Company was awarded a permit for their Green Canyon 389 #2 well. Anadarko Petroleum was issued a permit for their Mississippi Canyon 81 #1 well. Kosmos Energy Gulf of Mexico Operations was granted a permit for their DeSoto Canyon 266 #1 well. Shell Offshore received a permit for their Garden Banks 962 #1 well, and Union Oil Company of California (Chevron) obtained a permit for their Walker Ridge 678 #PS-6 well.

On March 26th, IHS-Petrodata indicated that the GoM mobile offshore rig supply stood at 58, which is the same as last month. The marketed rig supply consisted of 32 rigs, of which 23 were under contract. The marketed rig supply number is the same as last month, and the contracted rig supply number is 1 more than as last month. The marketed contracted versus total rig supply utilization rate remained at 55.2%, and the marketed contracted versus marketed supply utilization rate stood at 71.9%. By comparison, the March 2020 total fleet utilization rate stood at 59.4% with 41 rigs under contract out of the 69 rigs in the fleet.

On March 26th, Baker Hughes reported that there are 12 active mobile offshore rigs in the GoM, which is 5 less than last month and 71.9% of the rigs under contract mentioned above. Currently, all 12 rigs are drilling in deepwater. They include 5 rigs in the Mississippi Canyon Area, 2 rigs each in the Walker Ridge, Green Canyon and Alaminos Canyon Areas and 1 rig in the Ewing Bank Area.

On March 26th, the Baker Hughes total U.S. rig count stood at 417 rigs, which is 15 more rigs than reported at the end of March 2020. Of the 417 rigs, 324 (77.7%) are oil rigs and 92 (22.1%) are gas rigs. The remaining 1 rig is listed as miscellaneous. A year ago, there were 728 rigs working in the U.S. inferring that the current rig figure represents a 42.7% decline in rigs year over year. At present, Texas continues to have the largest number of rigs with 205, which is 49.2% of the total number of rigs in the U. S. Louisiana currently has a total of 46 rigs, which is 1 less than last month. Nationwide, Louisiana continues to rank third in the rotary rig count. New Mexico ranks second with 67 rigs.



# DRILL BITS

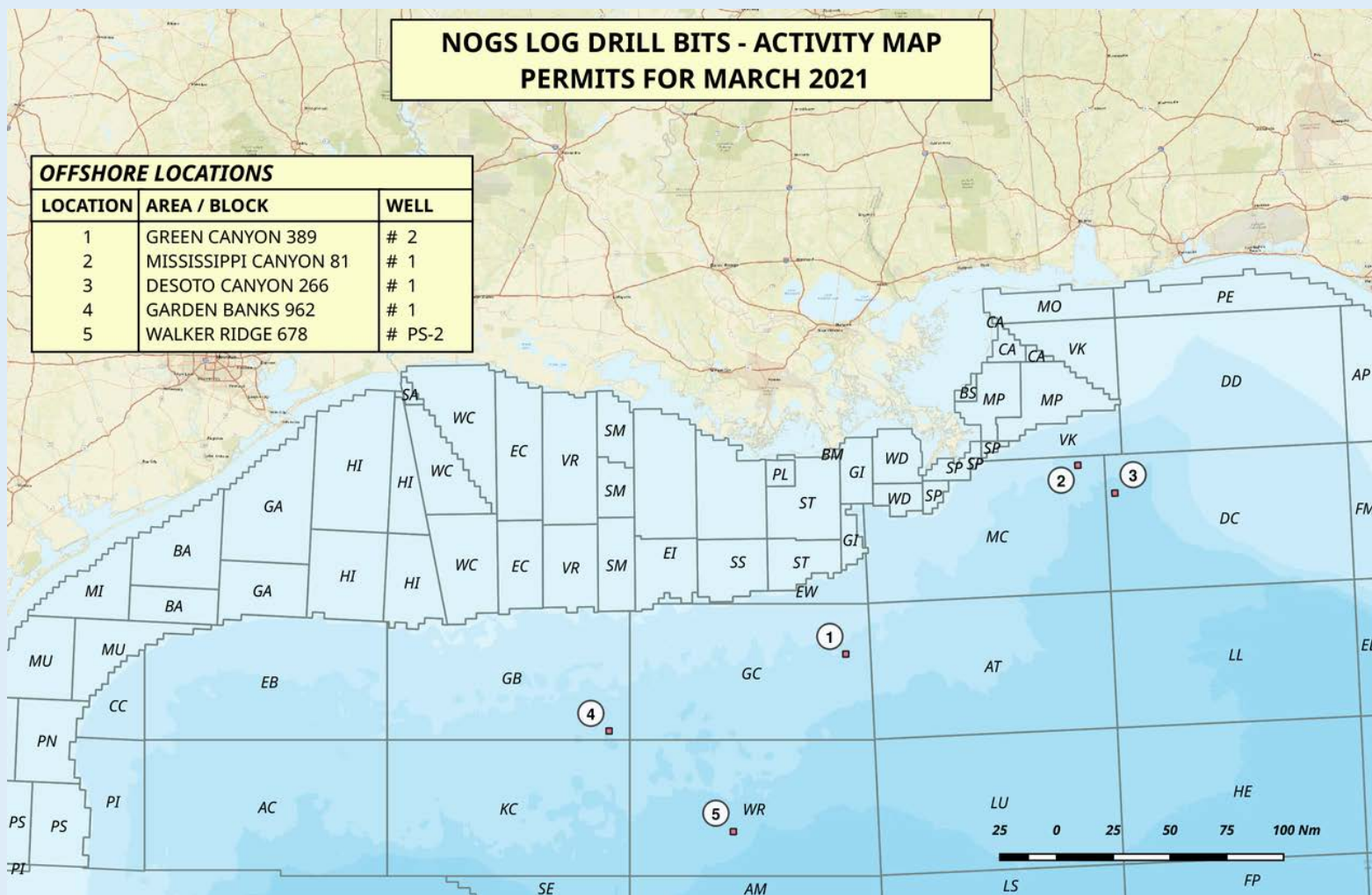
OFFSHORE GULF OF MEXICO SHELF AND  
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BY KEVIN TROSCLAIR

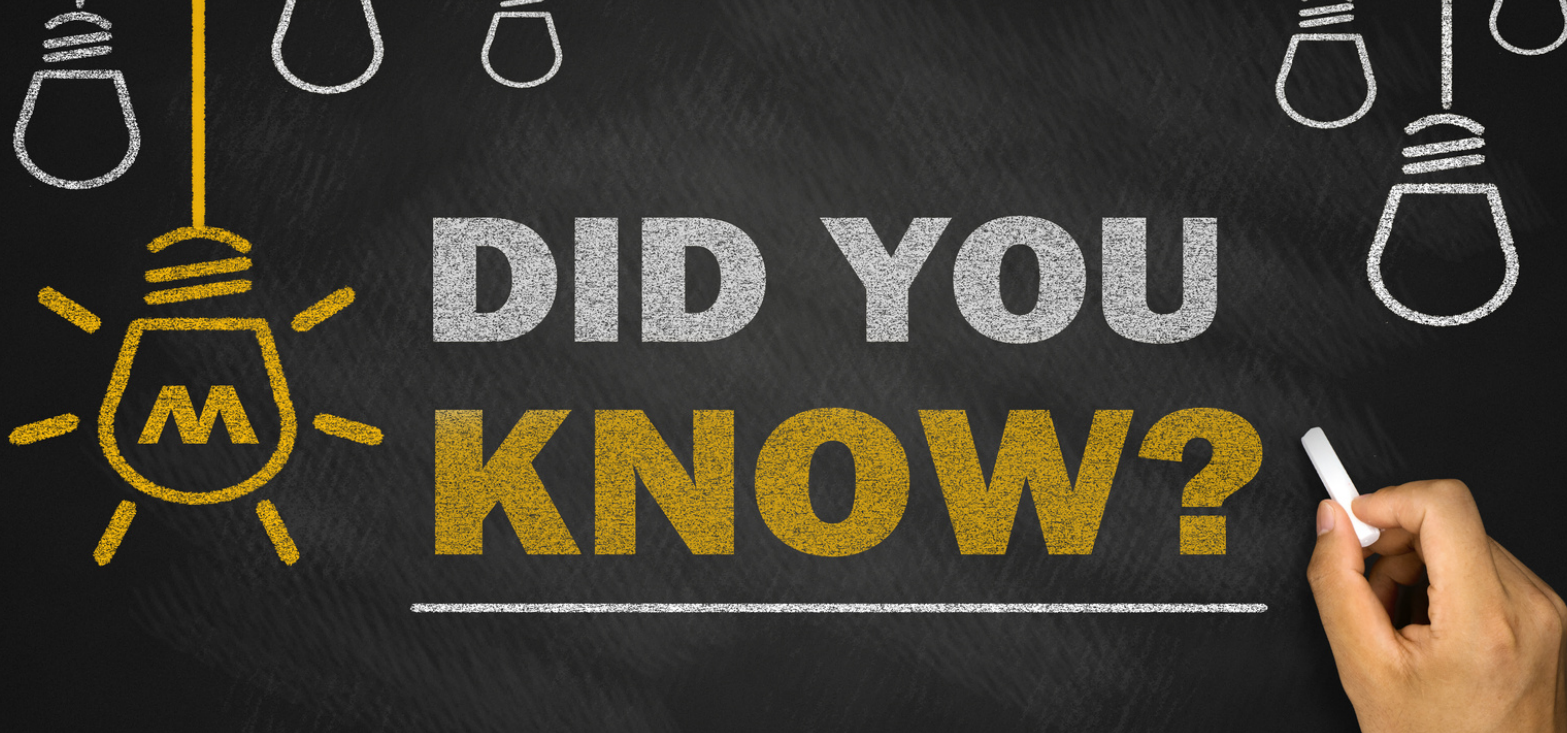


## NOGS LOG DRILL BITS - ACTIVITY MAP PERMITS FOR MARCH 2021

### OFFSHORE LOCATIONS

LOCATION	AREA / BLOCK	WELL
1	GREEN CANYON 389	# 2
2	MISSISSIPPI CANYON 81	# 1
3	DESOTO CANYON 266	# 1
4	GARDEN BANKS 962	# 1
5	WALKER RIDGE 678	# PS-2





- NOGS Website is a wealth of information at your fingertips! Once you log in you can update your profile. Recently moved or changed jobs? Log in and update your information-add your photo too! Looking for contact information for a fellow NOGS Member? Log in and search the member directory.
- NOGS Membership renewal is coming soon for the 2021/2022 year. Renewal notices will be sent soon.

**[www.nogs.org](http://www.nogs.org)**





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Beverly Christina



# Recent Oil Industry Headlines .....May 2021

**4/16/2021 - Oil Demand Is Bouncing Back** - Oil prices are higher this week after the demand outlook improved. While Covid cases are up significantly from a few weeks ago, and travel restrictions have proliferated, demand still looks strong and on the rise. IEA raises oil demand forecast. The IEA raised its oil demand forecast for 2021 by 230,000 bpd, citing improving vaccination efforts and U.S. stimulus.

**4/13/2021 - Offshore Oil Is Much Greener Than You May Think** - If we're talking about emissions, the truth about offshore oil will shock some: they're much lower than other forms of oil production. If you take a look at a global map of the hotspots in oil exploration, you will notice that with the notable exception of U.S. shale, they are all offshore. Shell's VP of Exploration says Gulf of Mexico assets "have arguably the lowest carbon intensity of any of our assets globally," and a senior BHP executive called offshore barrels "advantaged". Basically, offshore oil drilling is very much like electricity consumption by households. Being frugal with both leads to rewards in terms of production costs/utility bills and a lower environmental footprint because you are simply using fewer resources.

**4/12/2021 - BP's new Argos platform arrives in Texas to be prepped for Gulf of Mexico work** - Argos, the centerpiece of BP's \$9 billion Mad Dog 2 project, has arrived in the US after safely completing its 16,000-mile journey from South Korea to the Kiewit Offshore Services fabrication yard in Ingleside, Texas. Argos, semi-submersible, floating production platform, will be the company's 5th operated platform in the GOM – and the first new platform since Thunder Horse began production in 2008. It will provide bp with growth potential and an estimated 25% increase in production capacity in the region.

**4/5/2021 - NOIA urges continued oil, gas leasing in Gulf of Mexico to maintain GOMESA funding** - The U.S. Department of the Interior dispensed nearly \$249 million in Gulf of Mexico Energy Security Act of 2006 (GOMESA) funding to oil and gas producing Gulf states this month, but the National Ocean Industries Association (NOIA) warns this could be imperiled in the future. The funds were split between Alabama, Louisiana, Mississippi, and Texas to support coastal conservation and restoration projects, hurricane protection programs, and the implementation of marine and coastal resilience management plans. This stems from a revenue-sharing model that GOMESA enshrines, which passes on a portion of the revenue generated from oil and gas production offshore in the Gulf. "Thanks to Gulf of Mexico oil and gas production, Gulf of Mexico communities will have close to \$250 million invested back into the region, funding that does not burden individual taxpayers," Erik Milito, NOIA president, said.

**4/5/2021 - 2021: A Year of Offshore Energy Potential** - After what has seemed like the longest year ever, the offshore energy sector is emerging from a position of strength, from the standpoint of both economics and sustainability. Between the lockdowns implemented to reduce COVID-19, which reduced energy demand, to the oil price war between state-backed producers, 2020 was an unprecedented storm that hit the American offshore energy market. Now, there are unmistakable signs of a recovery, and policy makers in Washington, D.C. should embrace the opportunity before us to for sustained economic, environmental and emissions performance.

**4/1/2021 - Louisiana to get \$110 million in oil revenue this year to help restore coast** - Louisiana and its coastal parishes will receive about \$110 million in federal offshore oil revenue this year to restore wetlands and protect communities against hurricanes, officials said. The annual allocation comes through the Gulf of Mexico Energy Security Act, a 2006 law that increased the amount of federal oil money Louisiana and other states receive from drilling off their coasts.

# 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

## **Do it for YOURSELF!**

It's all about YOU! NOGS' educational, networking, and career planning programs will take you where you want to go!





# TUESDAY MAY 4TH



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# Memorial for *Beverly B. Christina*



The Auxiliary lost a beautiful lady on Saturday April 3, 2021 with the passing of Beverly B. Christina. Beverly was 92 years old and was still active in the Auxiliary until everything was shut down due to the pandemic restrictions last year.

Beverly was a very active member of the Auxiliary for over 50 years. During that time she was involved in just about every committee and served the auxiliary twice as President; first in 1972-73 and again in 2001-02. In 2011 Beverly received the Loyalty Award and in 2016 she received the Lifetime Member Award. Both well deserved.

Besides the Auxiliary, Beverly was very involved in the community serving on the committees and boards of many organizations. Some of those included East Jefferson General Auxiliary, Friends of Lafreniere Park, the Jefferson Historical Society (charter member), Women's Guild of the New Orleans Opera Association, Heart Ambassadors, Cancer Crusaders, Ladies Leukemia League and more. She received awards and outstanding recognition in many of these organization.

Beverly was born and raised in New Orleans, attending Eleanor McMain High School and Louisiana State University where she was a member of the Mortar Board and Who's Who Among Students in American University and Colleges.

Beverly leaves behind her husband, Carlo Christina, sons Thomas and Michael, grandchildren and great grandchildren. Her son Robert preceded her in death.

We will miss Beverly's smile as we move forward.





# CALL FOR PAPERS

ABSTRACT DEADLINE: July 31, 2021

## PETROLEUM HISTORY INSTITUTE

### 2021 ANNUAL SYMPOSIUM AND FIELD TRIP

September 29 – October 1, 2021; Pittsburgh, Pennsylvania



Horse teams at work in the McDonald oil field near Pittsburgh, Pennsylvania, c. 1890s.  
[From C. A. Whiteshot, *The Oil-Well Driller...* (1905)]

#### REGISTRATION AND EVENING RECEPTION

Wednesday, September 29, 2021

#### PRESENTATIONS – ORAL AND POSTER – Thursday, September 30, 2021

Proceedings to be published in the *Oil-Industry History*

#### FIELD TRIP – Friday, October 1, 2021



**HEADQUARTERS HOTEL** – DoubleTree by Hilton Pittsburgh International Airport; 8402 Univ. Blvd., Moon Township, PA 15108; 412-329-1400; for Group Rate mention “Petroleum History Institute” prior to Sept. 8.

For Symposium details including registration form, please see [www.petroleumhistory.org](http://www.petroleumhistory.org).

**ABSTRACTS BEING ACCEPTED NOW.** Please send to Dr. William Brice, [wbrice@pitt.edu](mailto:wbrice@pitt.edu). Or Call Marilyn Black; (814) 425-8011; [marilynblack@windstream.net](mailto:marilynblack@windstream.net).



# Nuking Mississippi: Remembering the 1964 Nuclear Test



Nuking Mississippi: Remembering the 1964 Nuclear Test

9.1K views • 6 years ago

Student Printz

Tom Breshears, 68, remembers the underground nuclear blast on October 22, 1964, near his home in Purvis, Mississippi. - Video ...

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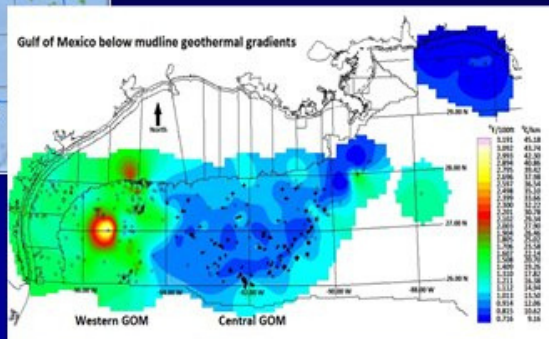
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Active Lease Map

A visual summary...



40



Sharon Cornelius, PhD

### Conclusions for the deepwater CGOM:

1. Data analysis shows the earlier idea of disequilibrium compaction as the main cause for GOM overpressure is only true for sediments <3000-3500 m below mudline.
2. It is possible to have multiple zones of overpressure originating from different overpressure sources, separated by zones of normal pressure. It is also possible for multiple sources of overpressure to be found in the same zone since the pressures are additive.
3. Due to the amount of overpressure found in corresponding geothermal temperature zones, it seems reasonable to assume this pressure was generated *insitu* or proximal.
4. The primary factor in determining which types of overpressure dominate in the region is the geothermal temperature gradient in conjunction with the well depth, the local geology, and the local geothermal history.

37

## OVERPRESSURE SOURCES IN THE WESTERN AND CENTRAL DEEPWATER GULF OF MEXICO

### Conclusions for the deepwater WGOM:

1. The relationship between borehole measured temperature and pressure is statistically linear with  $R^2 = 0.7179$  with far less scatter than the CGOM. The distinct zonation seen in the CGOM is absent in the WGOM.
2. Unlike the CGOM, the WGOM is over-heated and under-pressured, inferring that the pressure present today is likely remnant pressure transferred from earlier fractured formations, or else is geologically recent DC pressure.
3. The possible reasons for this unusual geothermal heat presence are: a) very thin continental crust; b) extensive fault zones on the Texas shelf and upper slope; and c) the presence of diapiric salt in the same area.
4. Reduced pressure in the boreholes is likely the reason wells drilled in the "hot areas" had such a short production lifespan. Important lesson for drilling in other basins

39





Watch your  
email....

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