

## **Hurricane History, COVID-19 Deaths and GDP Trends for the GOM States Texas, Florida, Louisiana, Alabama and Mississippi Data Analytics**

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### **ABSTRACT**

The five states along the Gulf of Mexico (GOM) in the United States is one of most economically active region in the United States and also around the world. The population is 63 million and the land area of the five states is over 12.8% of the United States 3.8 million square miles. The economical activates are both onshore and offshore. The five states along the GOM are very active in agriculture, fishing, tourism and many types of industries. This region is affected by natural disasters such as hurricanes, tornadoes and flooding and human made disasters such as oil spills, fires and power failures. This study was investigating the correlation between the hurricane history, COVID-19 virus and Gross Development Products (GDP). The two largest states (area and population), Texas and Florida with the high GDP ranked as 2 and 4 in the U.S. also have had the largest amount hurricanes and also highest amount of deaths due to the COVI-19 impact for past 18 months. Alabama and Mississippi with lower GDP have had lowest deaths due to COVID-19 virus and also lowest number of hurricanes. Louisiana had lower GDP and lower deaths due to COVID-19 virus but had relatively high number of hurricanes. Total percentage deaths in the GOM based on U.S. deaths due to COVI-19 matched well with the percentage population based on U.S. population. Overall, the GDP ranking correlated well the number of hurricanes in 170 years ranking and COVID-19 deaths.

### **1. INTRODUCTION**

Gulf of Mexico (GOM) is one the busiest region in the United Sates and also around the world with the ongoing activities both onshore and offshore.

### **2. OBJECTIVES**

Overall objective was to investigate the correlation between number of hurricanes, GDP, population and COVID-19 deaths in the five states along GOM. The main objectives are as follows:

1. Quantify the population, area, GDP, number of hurricanes and the COVID-19 deaths in Texas, Florida, Louisiana, Alabama and Mississippi along GOM.
2. From data analyses rank the states based on the population, GDP, area and disasters.

### **3. ANALYSES AND DISCUSSION**

Many factors will influence the COVID-19 deaths in the GOM states. It will be of interest to investigate the correlation between the historical data such as population, number of hurricanes and GDP to the COVID-19 deaths. The collected data are summarized in Table 1. The ranking listed are for the five GOM states. The national ranking for the listed items are discussed under each state.

**Table 1 Summary of the Data Collected on the Five States in the Gulf of Mexico (GOM) (U.S. census 2021; U.S. Bea 2021; and NOAA 2021)**

<b>States</b>	<b>Area (Sq.miles) (Ranking)*</b>	<b>Population (Ranking)*</b>	<b>GDP (\$ trillion) (Ranking)*</b>	<b>Hurricanes/Cat. 3 or greater (Ranking)*</b>	<b>COVID-19 Deaths ** (Ranking)*</b>
<b>Texas</b>	268,596 (1)	28,995,881 (1)	1.88 (1)	52/18 (2)	53,342 (1)
<b>Florida</b>	65,758 (2)	21,477,377 (2)	1.15 (2)	68/22*** (1)	38,840 (2)
<b>Louisiana</b>	52,378 (4)	4,648,794 (4)	0.26 (3)	47/14 (3)	10,948 (4)
<b>Alabama</b>	52,420 (3)	4,903,185 (3)	0.24 (4)	11/4 (4)	11,510 (3)
<b>Mississippi</b>	48,432 (5)	2,976,149 (5)	0.12 (5)	2/1 (5)	7,529 (5)
<b>Remarks</b>	Total area is 487,584 sq. miles and it is 12.8% of the U.S.A. area	Total populations is 63,001,386 and it is 18.4% of the U.S.A. population	Total GDP is \$3.65 trillion and it is 16.6% of the U.S.A. GDP of \$22 trillion	Total hurricanes and cat.3 greater in the GOM were 180 and 60 respectfully. GOM has the highest number of hurricanes in the U.S.A.	Total death was 122,169 in the GOM and it was 19.4% of the U.S.A. deaths.

\*Ranking is for GOM; \*\*Data collected on July 31, 2021; \*\*\*West coast of Florida

As summarized in Table 1, the total population in each state matched with the total area. The GDP ranking of 1, 2 and 5 matched very well with the population ranking and area ranking. Louisiana and Alabama population and GDP were very close, but the ranking did not match as summarized in Table 1.

**Texas**

Texas is ranked No.2 in the U.S. based on the area (U.S. Census 2021). Also, Texas is ranked No.2 based on the population and GDP. Based on the COVID-19 deaths Texas is ranked No. 3 in the U.S. Texas ranked No.1 in the GOM based on area, population, GDP and COVID-19 deaths. Based on the total number of hurricanes and also number of category 3 or more hurricanes it was ranked No.2 in the GOM. So, the hurricane ranking did not match with the COVID-19 deaths.

**Florida**

Florida is ranked No.23 in the U.S. based on the area (U.S. Census 2021). Also, Florida is ranked No.3 based on the population and No. 4 based on GDP. Based on the COVID-19 deaths Florida is ranked No. 4 in the U.S. Florida is ranked No.2 in the GOM based on area, population, GDP and COVID-19 deaths. Based on the total number of hurricanes and also number of category 3 or more hurricanes it was ranked No.1 in the GOM. So, the hurricane ranking did not match with the COVID-19 deaths.

**Louisiana**

Louisiana is ranked No.31 in the U.S. based on the area (U.S. Census 2021). Also, Louisiana is ranked No.25 based on the population and GDP. Based on the COVID-19 deaths Louisiana is ranked No. 19 in the U.S. Louisiana is ranked No.3 in the GOM based GDP. It is ranked No.4 based on the area, population and COVID-19 deaths. Based on the total number of hurricanes and also number of category 3 or more hurricanes it was ranked No.3 in the GOM. So, the population ranking matched with the COVID-19 deaths.

**Alabama**

Alabama is ranked No.30 in the U.S. based on the area (U.S. Census 2021). Also, Alabama is ranked No.24 based on the population and No. 27 based on the GDP. Based on the COVID-19 deaths Alabama is ranked No. 18 in the U.S. Alabama is ranked No.4 in the GOM based GDP. It is ranked No.3 based on the area, population and COVID-19 deaths. Based on the total number of hurricanes and also number of category 3 or more hurricanes it was ranked No.4 in the GOM. So, the population ranking matched with the COVID-19 death ranking.

**Mississippi**

Mississippi is ranked No.32 in the U.S. based on the area (U.S. Census 2021). Also, Mississippi is ranked No.35 based on the population and No. 37 based on the GDP. Based on the COVID-19 deaths Mississippi is ranked No. 25 in the U.S. Mississippi is ranked No.5 in the GOM based GDP, population and COVID-19 deaths. Based on the total number of hurricanes and also number of category 3 or more hurricanes it was ranked No.5 in the GOM. So the population, GDP and hurricane ranking matched with the COVID-19 death ranking.

**4. CONCLUSIONS**

The focus of this study was to investigate the trends in hurricane history, population and GDP with the COVID-19 deaths in the five GOM states. Based on the data analyses following conclusions were advanced:

8. The total GDP for GOM was 16.6% of the U.S. GDP reflecting the activities in the GOM. Also, Texas and Florida were ranked 2 and No.4 in the GDP in the U.S.A.
9. GOM overall population percentage or 18.4% matched with the COVI-19 total death percentage of 19.4%. Also, the GOM population ranking matched with the COVID-19 death ranking.
10. The GDP ranking for Texas, Florida and Mississippi matched well with the COVID-19 death, reflecting the effect of production activity. Louisiana and Alabama population and COVID-19 deaths were very close but did not match with the ranking.
11. Hurricane rankings did not match with the COVID-19 death ranking.

**5. ACKNOWLEDGEMENT**

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