



MISSISSIPPI DEFENSE DIVERSIFICATION INITIATIVE



Mississippi's Defense-Related Blue Economy:

Main Activities, External Drivers, Market Share, and Industry Outlook



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Main Activities, External Drivers, Market Share, and Industry Outlook



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EXECUTIVE SUMMARY

This report examines the defense-related Blue Economy in Mississippi, specifically its main activities, external drivers, market share concentration, and the industry outlook. Using both traditional databases and primary data directly from companies, five sectors were selected as comprising the majority of the defense-related Blue Economy in Mississippi: Ship/Boatbuilding, U.S. Navy Support, Ports and Harbors, U.S. Army Support, and Tourism/Recreation (in order of importance by spending and numbers of jobs).

While traditional databases predict overall industry decline, primary sources of data in these sectors indicate that activities are increasing, with many companies indicating they expect growth in upcoming years, and that the defense-related Blue Economy in Mississippi is positioned to modestly grow.

The report finds that the major external driver in Mississippi for the defense-related Blue Economy is U.S. government spending, and specifically, most dependent on Navy spending. Depending on sector, other identified drivers were total trade value and consumer spending.

DEFINING THE DEFENSE-RELATED BLUE ECONOMY

The traditional “Ocean Economy” consists of six sectors – transportation, fishing/living resources, recreation and tourism, construction, minerals, and ship/boatbuilding. The State of Mississippi enjoys healthy economic benefit from each of these sectors. Of these sectors, the one most relevant to Mississippi’s defense industry is ship/boatbuilding with such corporations as Huntington Ingalls and VT Halter Marine. This aspect of the industry claims the largest number of jobs within the State.

Beyond shipbuilding, other aspects of the traditional Ocean Economy sectors important to Mississippi are transportation (although this is growing with the advent of the Defense Logistics Agency’s use of the port of Gulfport), and marine construction (mostly related to Mississippi ports and the waterways associated with Stennis Space Center and other parts of the State).

However, other sectors are emerging that also add to the State’s maritime-related economy and include such sectors as exploration/observation, technology development, marine-based research, nowcast/forecast/decision support, coastal resiliency and urban concerns. Together, the traditional Ocean Economy with these additional sectors are being considered the “Blue Economy” for the purposes of this report.

Those organizations and companies that support the sectors of the Blue Economy as defined above AND have their primary customer base as the U.S. Department of Defense are the subject of this report.

METHODOLOGY/LIMITATIONS

Initially, background data for this report was expected to be available from traditional databases.¹ However, upon reviewing the information within those databases, much of the relevant data (defense industry) is not included, or searches came back with insufficient data for the State of Mississippi. Other databases with potential information were provided and checked, with similar results. This is not unusual when collecting data on the Blue Economy, as most traditional reporting mechanisms are either based on the established Ocean Economy and/or are too general to address the Blue Economy specifically.

Because the Blue Economy has yet to be explicitly defined in terms of the types of industries included, eleven NAICS codes to comprise the defense-related Blue Economy were chosen for use in this report. These industries were included based on findings in the 2017 Governor's Ocean Task Force report,² as well as identifiable business activity in the State and within the Blue Economy. They include:

- 324110 - Petroleum Refineries
- 334511 - Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing
- 336611 - Ship Building and Repairing
- 336612 - Boat Building
- 488320 - Marine Cargo Handling
- 488330 - Navigational Services to Shipping
- 541330 - Engineering Services
- 541370 - Surveying and Mapping (Except Geophysical) Services
- 541511 - Custom Computer Programming Services
- 541712 - Research and Development in The Physical, Engineering, and Life Sciences (Except Biotechnology)
- 713990 - Tourism and Recreation

However, NAICS codes do not specify Blue Economy companies within industries and provide only limited information. For example, data from NAICS code 541330—engineering services—includes companies from the Blue Economy, but also includes all other engineering services. Because of the wide-range of services included in that code, data from NAICS codes is not accurate enough for the best understanding of the Blue Economy in any circumstance, including the State.

In many instances, available data did not include the defense-related or Mississippi-specific information that is the subject of this report. When data from these databases are provided, they are included in this report and referenced. When they are not, various attempts (noted when applicable) were made to independently collect similar data. For this report, the best available data from the databases were used to provide statistics, along with information directly from companies.

¹Specifically, EMSI, access to which was provided for the project through USM.

²Governor Bryant's Ocean Task Force: Charting the Future of Mississippi's Ocean Technology Economy, 2017.

DEFENSE-RELATED BLUE ECONOMY IN MISSISSIPPI

Although there are other defense agencies that contribute to the defense-related Blue Economy in Mississippi, the largest contributor by far is the Department of the Navy. Overall defense spending in the U.S. and individual states can be obtained from the www.usaspending.gov website. The website provides details concerning defense spending by state; however, it does not provide direct information on Navy spending by state. Using the breakdown of defense spending

by department, one can determine the percent total of defense spending was by the Navy. If this percentage can in turn be assumed to carry across to the individual states, applying the percent to the total Navy spending can provide a more refined, albeit derived, value. Using this philosophy, details for the State of Mississippi are as follows for the past three fiscal years:

YEAR	DEFENSE SPENDING	NAVY SPENDING	PERCENT NAVY OF DEFENSE TOTAL	DEFENSE SPENDING IN MS	DERIVED NAVY SPENDING IN MS
2015	\$279B	\$84B	30%	\$2.4B	\$720M
2016	\$304B	\$93B	30%	\$3.7B	\$1.1B
2017	\$324B	\$110B	34%	\$5B	\$1.7B

It follows that defense-related Blue Economy spending in Mississippi has increased for the past few years. These statistics, however, do not necessarily provide enough information to determine the types of companies supported by this spending and in fact, include many construction, support services, and non-technical procurements. To obtain more detailed data on the sectors associated with the defense-related Blue Economy as defined in this document, we obtained additional information from organizations within specific sectors relevant to the State of Mississippi. Specific sectors selected were:

- Ship/Boatbuilding
- U.S. Navy Support
- Mississippi Ports
- U.S. Army Support
- Tourism/Recreation



Industry Growth & Decline

The following table shows the percentage of job growth or decline for the defense-related Blue Economy in both the United States and in Mississippi over the past five years and predicted for the next five years.

YEARS	MS BLUE ECONOMY JOB CHANGE %	U.S. BLUE ECONOMY JOB CHANGE %
2012-2017	-2.8%	8.2%
2017-2022	-2.3%	7.9%

In Mississippi, the highest job growth has been in the industries of Research and Development, and Ship and Boat Building,³ which have grown by 101% and 73%, respectively, over the last five years. The industries with the largest job declines over this same period are Navigational Services, and Survey and Mapping.⁴ Navigational Services has declined by 32%, and Survey and Mapping by 27%.⁵

Job growth or decline does not always equal overall industry growth or decline; however, past trends have indicated that as an industry increases or decreases, so does the demand for jobs. It is also important to remember that these

numbers represent all jobs in those industries—not just the defense-related Blue Economy jobs. Based on conversations with companies and agencies with known work in the defense-related Blue Economy, the above predicted industry decline does not accurately reflect the defense-related Blue Economy in Mississippi, and that the industry is actually poised to modestly grow. This prediction is based on the following four industries: U.S. Navy Support, Ship/Boat Building, Research and Development, and Ports and Harbors.

SHIP/BOAT BUILDING

Main Activities

By far, the largest industry sector in the State that is also easily assessed is ship/boatbuilding, with 12,776 direct jobs⁶ (determined using NAICS Codes 336611 and 336612). Major companies in this sector are Huntington Ingalls, VT Halter Marine, US Marine, and Trinity Yachts. Mississippi shipyards provide for the construction of boats and vessels; their repair, conversion, and alteration; and the production of boat/ship components by companies like Seemann Composites, as well as other customized services.

Reviewing data available within the EMSI database, the number of jobs in shipbuilding has declined slightly each year since 2014, with percentages between 1.3 and 3.9 annually. However, the State has also seen a lack of an available and trained workforce, with open positions at any given time. To address this, local community colleges and even companies themselves (e.g., Huntington Ingalls), have developed programs to fill these gaps, but have yet to completely fill the need. Most notably, this industry is in need of more welders.⁷

In 2016, operating revenue for Huntington Ingalls' Mississippi location was \$2.4B. Projections for the yet-to-be-released 2017 will show a modest increase (at the time of this writing 1.1% was expected). In fact, modest growth (9% from 2015 to 2016 and 4% from 2014 to 2015) has been the trend, which is in direct contrast to data from the EMSI database.

According to Huntington Ingalls,⁸ the largest shipbuilding employer in Mississippi with more than 10,000 employees, 82% of their revenues are from defense-related programs, with the remaining 18% from programs support Homeland Security (Coast Guard). Given this, it follows that the top external driver to shipbuilding in Mississippi is federal spending, and more specifically, federal spending for defense, as the larger shipbuilders rely on purchases from the Navy for their main revenues. Additional local drivers include industrial, private, and consumer spending.



⁶ EMSI database.

⁷ Direct communication with Huntington Ingalls.

⁸ Direct communication with Huntington Ingalls.

Market Share

The shipbuilding industry in the State of Mississippi boasts a GDP of \$2.1B within an overall U.S. market of \$35B.⁹ Only five states have a higher GDP in this sector.

Key Success Factors

Obvious success factors for the success of ship/boatbuilding in Mississippi are the quick access to deep water and the maintenance of deep-water ports. The U.S. military makes every attempt to have a shipbuilding facility on each coast of the mainland and continues to award contracts to Huntington Ingalls and VT Halter Marine. Also key is the shared coastline that exists in the State—with identified areas for industry, ports and harbors, as well as tourism/recreation.

Another key factor to success for this sector is workforce readiness, which is also relevant for some of the other sectors discussed in this report. State agencies and educational institutions responsible for workforce training work regularly with industry to identify emerging job skills and often create new programs as needs arise. For example, a few years ago, the shipyards identified a shortage of qualified welders. Huntington Ingalls initiated their own institute and now trains their own employees. In addition, local community colleges began programs to certify those entering the workforce prior to their employment. Mississippi's recent activities in joining the ACT WorkReady Communities¹⁰ program will allow Mississippi to market positive aspects of the State's workforce readiness more effectively.

Basis of Competition

The most important benefit provided to customers of ship/boatbuilding in Mississippi is cost-effectiveness. Most ship/boatbuilding takes place along the coast; therefore, alternatives are the U.S. east and west coasts, both known for their higher costs of doing business.

Barriers to Entry

It is unlikely that additional shipyards will be created within the U.S. These facilities utilize large areas of the coastline. However, with the advent of unmanned ships and boats, extensive infrastructure may not be as necessary. To combat this, re-tooling of existing blueprints and ship/boatbuilding facilities may offer new opportunities as these products become smaller and more automated.

Industry Outlook

The largest defense-related Blue Economy industries in Mississippi are Ship and Boat Building and Repair, both of which are predicted to grow another 25% in jobs over the next five years. According to Huntington Ingalls,¹¹ the largest shipbuilding employer in Mississippi with more than 10,000 employees, nearly 100% of their revenues are from defense-related programs. In 2015, Governor Bryant named Ingalls the "Shipyard of the Future" and kicked off a \$20M modernization initiative to position the company for continued and expansion projects.

⁹ https://shipbuilders.org/sites/default/files/!Brochure_Final.pdf

¹⁰ www.act.org/content/act/en.html

¹¹ Direct communication with Huntington Ingalls.

U.S. NAVY SUPPORT

Main Activities

Often overlooked because very little information is readily available are the jobs associated with the defense agencies within the State. However, the number of jobs associated with Navy efforts in Mississippi is quite substantial. The Navy entities located at Stennis Space Center include:

- Commander, Naval Meteorology and Oceanography Command. COMNAVMETOCCOM or CNMOC serves as the operational arm of the Naval Oceanography Program. CNMOC is an Echelon III command reporting to United States Fleet Forces Command (USFLTFORCOM). CNMOC's claimancy is globally distributed, with assets located on larger ships (aircraft carriers, amphibious ships, and command and control ships), shore facilities at fleet concentration areas, and larger production centers in the U.S.
- Naval Information Forces. NAVIFOR is an Echelon III command under Commander, US Fleet Forces Command (COMUSFLTFORCOM). It is the Type Commander (TYCOM) for meteorology and oceanography, cryptology/SIGINT, cyber, electronic warfare, information operations, intelligence, networks, and space disciplines. Like other TYCOMs, this is the manpower, training, modernization, and maintenance component for these disciplines.
- Naval Oceanographic Office. NAVOCEANO is the largest subordinate command within CMNOC and is responsible for providing oceanographic products and services to all elements of the Department of Defense.
- Naval Research Laboratory - Stennis Detachment. NRL-SSC is the major center for in-house Navy research and development in oceanography, marine geology, geophysics, geoacoustics, and geotechnology. It is also the Navy's lead activity for mapping, charting, and geodesy research and development.
- Special Boat Team 22. SBT-22 operates combatant craft and deploys its resources regularly to Central America and South America and the Middle East. Because SBT-22 is now the only NSW Riverine unit it can be deployed to any riverine environment in the world.
- Naval Special Warfare Group 4. The Group is responsible for the development and testing of Combatant craft and associated ordinance and equipment. It is also responsible for the development and evaluating operational doctrine, tactics and procedures. NSWG-4 monitors and certifies the Combat Readiness of assigned craft and crewmen.
- Naval Small Craft Instruction and Technical Training School. NAVSCIATTS is one of the three original Panama Canal Area Military Schools. The school presently offers formal courses of instruction in both Spanish and English at various times throughout the year.
- Navy Office of Civilian Human Resources. Human resources department.

The National Aeronautics and Space Administration (NASA) at Stennis collects economic impact information from tenant agencies, including the individual Navy groups. Publicly released information¹² is available for all Navy groups as a comprehensive total. Recent (2016) data indicate the Navy spent \$246M, which is an increase of approximately 5% over the previous year. Drastic fluctuations in expenditures have been seen in the past and are most often related to the addition of new hardware assets (ships, instrumentation) to their budget. In a U.S. Appropriations request for 2018, additional survey ships have been requested.

The number of Navy-related jobs at Stennis has remained stable, with a new high of 2,020 employees (Navy and onsite contractors) in 2016, up from 1,936 employees in 2015. Approximately 17 percent of these are currently military personnel. However, if an increase in survey is approved, additional staff ships (support employees for which are deployed from Stennis) will be required in out-years.

Additionally, there are a myriad of companies that support the activities of these Navy groups. The total number of jobs within this sector is easily more than 5,000; however, these jobs are accounted for over a variety of NAICS codes. The primary NAICS Codes¹³ of companies supporting Navy efforts in Mississippi are:

- 541330 - Engineering Services
- 541712 - Research & Development in the Physical, Engineering and Life Sciences
- 334511 - Search, Detection, Navigation, Aeronautical, and Nautical System and Instrument Manufacturing
- 541370 - Surveying and Mapping
- 541511 - Custom Computer Programming Services

External Drivers

The sole driver for Navy activities in Mississippi is federal spending for defense. There are two other elements that affect Navy and contractor jobs in Mississippi. The first is the Base Realignment and Closure (BRAC) process. In the broadest sense, the BRAC process can cause sweeping changes across all DoD installations, and Mississippi is no exception. Historically, military consolidation efforts have targeted several agencies at Stennis, including the Commander, Naval Meteorology and

Oceanography Command, the Naval Research Laboratory, and the Navy Office of Civilian Human Resources. In each case, consolidation would have resulted in re-location of these offices to other states; however, these never materialized. In two cases (NRL and the Navy Office of Civilian Human Resources), Partners for Stennis collected enough relevant data to show the re-locations to be costlier, rather than cost-saving (the ultimate purpose of a BRAC action).

Stennis is not the only Mississippi-based military operation that is subject to BRAC activity—any military base or agency may be the subject of a BRAC review. In Mississippi, this could include:

- Camp Shelby
- Columbus Air Force Base
- Gulfport Naval Construction Battalion Center
- Gulfport Combat Readiness Training Center
- Keesler Air Force Base
- Mississippi Ordnance Plant
- Naval Station Pascagoula

It is uncertain as to when the next BRAC review will take place—some expected a BRAC review in 2017 that did not materialize; however, considerations for a review in 2018 or 2019 are scattered throughout the news.

The second (non-BRAC) concern that would reduce the Navy presence in Mississippi is associated with the Navy’s organizational structure, which is subject to fairly regular

reorganizations. The realignment of Navy Commands can relocate lower numbers of jobs (i.e., billets) than seen during a BRAC action. With these reductions, other indirect jobs are affected as well. For example, with the recent formation of the Naval Information Forces Command and the decision for its headquarters to be in Virginia, the number of jobs in Mississippi has decreased by possibly more than 100.

An even more severe case of a non-BRAC realignment with the potential to eliminate local Navy-related jobs is the periodic reduction of top-ranking Navy personnel; specifically, planned reductions in the number of Admirals. If Mississippi/Stennis loses the Admiral, then it is likely that the Naval Meteorology and Oceanography Command would follow, as well as other associated lower Echelon commands such as the Naval Oceanographic Office.

The Navy at Stennis reports their economic impact to NASA as part of the annual study on the Federal City. Over the past few years, the Navy’s economic impact has been:¹⁴

CALENDAR YEAR	ECONOMIC IMPACT	NUMBER OF JOBS
2014	\$359M	1,920
2015	\$233M	1,936
2016	\$246M	2,020

Statistics above include all Navy personnel and contractors working onsite at Stennis. This does not include, however, any information from the contractors and subcontractors not working in Navy spaces at Stennis, yet still in Mississippi. Note the anomaly of a higher direct dollars spent in 2014 without an increase in personnel—this is associated with the significant purchase of survey equipment.

Key Success Factors

The key factor to success of U.S. Navy support efforts in the State is the presence of the Navy at Stennis Space Center. Since 1977, the presence of the Navy at Stennis has grown and comprises the second largest number of federal jobs at the Center with 1,950. This presence gives rise to a contractor and subcontractor workforce that is estimated at least as large as this number.

Basis of Competition

The most significant benefit to this sector is the cost-effectiveness of doing business in the State. Two aspects of this are specifically noteworthy. First is the cost-effectiveness of the workforce, of which approximately one third have advanced degrees.¹⁵ In other locations, the cost of such a workforce is significantly higher given the cost of living in other areas with a strong Navy presence. The second is the cost-effectiveness of the facilities in which most of the Navy operates at Stennis—the Center provides needed security and shared services that support all Stennis tenants.

Barriers to Entry

The only competition within this sector would come from the Navy deciding to leave Stennis, either whole or in part. The competition resides within other states looking to increase their Navy footprint. Although it is unlikely the Navy will leave Stennis

completely, alternate proposed locations are often attractive (locations have included Tampa and coastal Virginia).¹⁶

Another aspect of this sector concerns the industry contractors and subcontractors that support local Navy Commands. In general, the jobs supporting the Navy remain within the State; however, the large corporations may or may not elect to open an office in the State once they are awarded a contract or subcontract. Since federal contracts cannot be restricted by location of the contractor's office unless there is a work-related reason, it is each corporation's decision whether to open an office in Mississippi to utilize the local workforce. Mechanisms to encourage large contract awardees to commit to an office location in the State could help increase the number of Mississippi-based companies in this sector.

Industry Outlook

Due to the lack of defense-specific information from NAICS codes as previously explained, the exact contribution from these support companies is unknown. Because federal defense spending is the sole driver for Navy activities in Mississippi, growth of the defense-related Blue Economy is dependent on Navy spending. While the overall Navy budget is not proportionally reflected in the Navy budget in Mississippi, it can provide an idea of outlook trends. The investigation of market share concentration of the defense-related Blue Economy in Mississippi found that since 2015, both Navy spending and Navy jobs in Mississippi have increased annually. These numbers include all Navy spending and jobs in the State, not just those in the defense-related Blue Economy. However, if the trend continues as expected, both spending and jobs will increase in 2018.

¹⁵ Hancock County Port and Harbor Roundtable Discussion, 2017.

¹⁶ Direct communication with Navy representatives at Stennis.

There are several factors indicating an increase of Navy spending in Mississippi. First, while the Navy has not yet released its 2018 budget, there is a line item in the US House of Representatives appropriations budget requesting more survey ships. If approved, these ships would most likely be built in Mississippi, and would bring both spending and jobs. Additionally, the staff associated with these new survey ships would be based out of Stennis Space Center; an estimate of 100 new jobs are created with each ship.

Second is the Governor's Ocean Task Force (GOTF). In June of 2017, Governor Phil Bryant created the GOTF to support the Navy's Task Force Ocean (TFO) and its requirement for a competitive advantage in ocean science and technology development. The GOTF is working to leverage the TFO plan to continue growing the Blue Economy in Mississippi by capitalizing Mississippi's role in Naval warfare, specifically in shipbuilding, Naval Oceanography and Meteorology, and Special Operations. The GOTF created a Master Plan that identified nine main recommendations that would position the State for even more Naval opportunities. Recommendations included:

- Brand and market a Maritime Technology Corridor
- Establish a program to foster communications among Blue Economy stakeholders
- Establish an Unmanned Maritime Systems (UMS) operational range
- Establish an UMS warehouse and depot
- Establish an Innovation and Commercialization Center for UMS
- Establish a federally-supported regional engineering and development center

- Provide high-performance cloud computing capabilities
- Enhance education and training opportunities
- Establish a new center for UMS policy and law¹⁷

If implemented, this plan would drastically increase defense-related Blue Economy growth and position the State for continued future growth as well.

The Special Operations Command at Stennis also has plans for a new, live ammo training facility. Although this is designed to better support those positions already at Stennis, the additional capability may be a draw for new jobs in the future.



MISSISSIPPI PORTS

Main Activities

Over the 82 miles of Mississippi shoreline, there are three ports with defense-related activities, two deep-water and one shallow, along with one coastal port supporting fishing and 12 inland ports. Although the EMSI database does not provide sufficient data to determine the numbers of jobs associated with the State's port and harbor operations, the database indicates 432 jobs under NAICS Codes 488310, 488320 and 488330, which severely underrepresents the numbers of jobs in Mississippi. However, Mississippi's ports have long been recognized as a major economic engine for our coastal State. A report commissioned in 2014 by the Mississippi Department of Transportation¹⁸ indicates nearly 1,725 jobs directly associated with Mississippi ports, with a total of more than 125,000 supported by port activities.

Contacting the three coastal ports (Bienville, Gulfport, and Pascagoula) for updates, the following information¹⁹ was obtained:

PORT	# DIRECT EMPLOYEES	2017 OPERATING REVENUE	TENANT JOBS
Bienville	30	\$1.6M	700
Gulfport	33	\$7.8M	1,260
Pascagoula	40	\$4.6M	18,000+
Totals	103	\$14M	19,960+

As can be seen from this table, \$14M is associated with port operations along the coast alone, with 103 total jobs. Additionally, tenants at these ports reflect nearly 20,000 additional jobs at various companies located within these ports; each company with some relevant reason to be located near the water. Note that the Port of Pascagoula is the location for Huntington-Ingalls shipbuilding, which as noted previously, is highly dependent on defense spending.

External Drivers

Major drivers for port and harbor activities are typically total trade value and consumer spending; however, given the high number of jobs associated with Huntington-Ingalls and DLA growth, these are secondary to federal spending.

¹⁸ Economic Role of Marine Transportation in Mississippi, November 2014

¹⁹ Information obtained directly from Hancock Port & Harbor Commission, the Port of Gulfport, and the Jackson County Economic Development Foundation.

Market Share

In 2014, Mississippi's Department of Transportation commissioned a study²⁰ on the economic aspects of the State's port. According to their results, the ports employed 1,725 people in Mississippi and paid out almost \$100 million in payroll spending. In addition, the ports spent more than \$150 million on goods and services from Mississippi based businesses. Estimates of economic impact of all ports and port-related activities were reported at more than 125,000 jobs and a Gross State Product of \$16.8B. This report indicates that 16% of the State's economy, and 1 out of 10 jobs in the State, are supported by port activities.

Key Success Factors

The main key to success for this sector is the access to deep water in a relatively short distance from the coastline. Mississippi enjoys two deep-water ports and one shallow-water port along the coast, each expanding based on the demand for additional operations. Cost-effectiveness of the workforce is also a factor.²¹

Mississippi coastal ports, and specifically the Port of Gulfport, have a central position along the U.S. Gulf Coast. This will provide the least distance to land from a floating port proposed for the Gulf of Mexico. Expansions to the Port of Gulfport will provide additional capacity for cargo and quick access to land transport mechanisms may need additional consideration.

With the designation of the Port of Gulfport as a "Strategic Port" by DoD, additional opportunities will arise, especially with the Defense Logistics Agency's pilot program to allow federal contractors to use their warehouses.

Basis of Competition

The main benefit within this sector for operations in Mississippi is the cost-effective workforce.

Barriers to Entry

It is unlikely that additional areas of the coastline will be dedicated to additional ports and harbors; however, business from nearby ports (such as the Port of New Orleans) occasionally offer customized opportunities to existing customers. As floating ports begin to emerge, Mississippi ports will be competing with others along the Gulf of Mexico coast for increased transport of goods.

Industry Outlook

A report commissioned in 2014 by the Mississippi Department of Transportation²² indicates nearly 1,725 jobs are directly associated with Mississippi ports, with a total of more than 125,000 supported by port activities. Mississippi has three coastal ports that support the defense-related Blue Economy—Bienville, Gulfport, and Pascagoula. Port Bienville had a 2017 operating revenue of \$1.6M, Gulfport \$7.8, and Pascagoula \$4.6M.²³

Recently, the Port of Gulfport was designated by the Department of Defense (DoD) as a Strategic Port and began working with the Defense Logistics Agency to expand use of the port for DoD transport. Currently, the DLA has 27 employees and plans to grow by 25-30 additional employees as their volume supply is expected to increase 5- or 6-fold over the next year or so. Not including the cost of goods, DLA's operating revenue in 2017 was \$1.8M and is projected to be \$4.2M as soon as 2018.²⁴ This expected increase in both jobs and revenue is a good indicator of defense-related Blue Economy growth overall.

²⁰ Economic Role of Marine Transportation in Mississippi, November 2014

²¹ Economic Role of Marine Transportation in Mississippi, November 2014

²² Economic Role of Marine Transportation in Mississippi, November 2014

²³ Information obtained directly from Hancock Port & Harbor Commission, the Port of Gulfport, and the Jackson County Economic Development Foundation.

²⁴ Information obtained directly from DLA Gulfport.

U.S. ARMY SUPPORT

Main Activities

Vicksburg, MS is home to the U.S. Army Engineer Research and Development Center (ERDC). There are five mission areas for the Center: Military Engineering, Environmental Quality and Installations, Water Resources, Geospatial Research and Engineering, and Engineered Resilient Systems. Some of these mission areas are closely tied to the defense-related Blue Economy, with 2,100 federal jobs. It is unclear how many additional jobs can be assigned to contractors and subcontractors in Mississippi supporting their efforts.

Other efforts at Stennis and other areas of coastal Mississippi include those associated with the U.S. Army Corps of Engineers. Offices of the Army Corps from New Orleans and the Mobile offices have conducted work along the coast. Additionally, the U.S. Army Corps of Engineers is responsible for the maintenance of waterways in the State, including intracoastal waterways.

External Drivers

The external driver for Army support is federal funding for defense.

Market Share

As with U.S. Navy Support, it is difficult to assess the market share for the U.S. Army in Mississippi. The Army at Vicksburg spends \$1B annually.²⁵ Of this, \$108M is local payroll and \$160M is attributed to Mississippi contracts.

Key Success Factors

The key factor to the success of U.S. Army support is the presence of the Army at Vicksburg.

Basis of Competition

The main benefits within this sector for operations in Mississippi are the cost-effective workforce and the desire/need for the Army to remain in its location.

Barriers to Entry

As with the Navy at Stennis, the Army in Vicksburg is not likely to leave or be displaced by others. However, the same issue with contractors/subcontractors not establishing offices in the region is of similar concern.



TOURISM/RECREATION

Main Activities

Aspects of Mississippi's tourism and recreational economy can be related to the defense-related Blue Economy. The INFINITY Science Center in Pearlington offers exhibits that reflect DoD's efforts in the State and to a lesser extent, the Maritime & Seafood Museum in Biloxi has some references to Mississippi's history associated with defense-related spending. For the INFINITY Science Center, net income has increased over the past year from \$1.8M to \$3.6M²⁶ due mostly to grant funding for new exhibits and an increase in the number of visitors over the year (currently more than 75,000).

External Drivers

The major driver for this aspect of the industry is consumer spending.

Market Share

The market share for defense-related blue economy in tourism/recreation is also difficult to extract from the much larger metrics for the overall tourism/recreation sector in Mississippi. The overall economic impact is likely not significant and is tied to specific locations such as the INFINITY Science Center. As mentioned, net income for the INFINITY Science Center has increased over the past year from \$1.8M

to \$3.6M²⁷ due mostly to grant funding for new exhibits and an increase in the number of visitors over the year. As the Center adds more and diverse exhibits, this is expected to continue. Although the Center is labeled a NASA Visitor's Center, a number of maritime-related, and in fact defense-related maritime exhibits are planned.²⁸

Key Success Factors

The primary factor for success in this sector is the presence of the Navy (and possibly the Army and other aspects of the Department of Defense (DoD)) and their desire to provide outreach/educational opportunities to local communities.

Basis of Competition

The main benefits within this sector are the presence of the INFINITY Science Center and the State's willingness to spend RESTORE Act and other State funds to support outreach and educational experiences.

Barriers to Entry

Although other opportunities for public outreach and education may arise, it is expected that the focus will remain on the INFINITY Science Center and other similar, existing establishments.

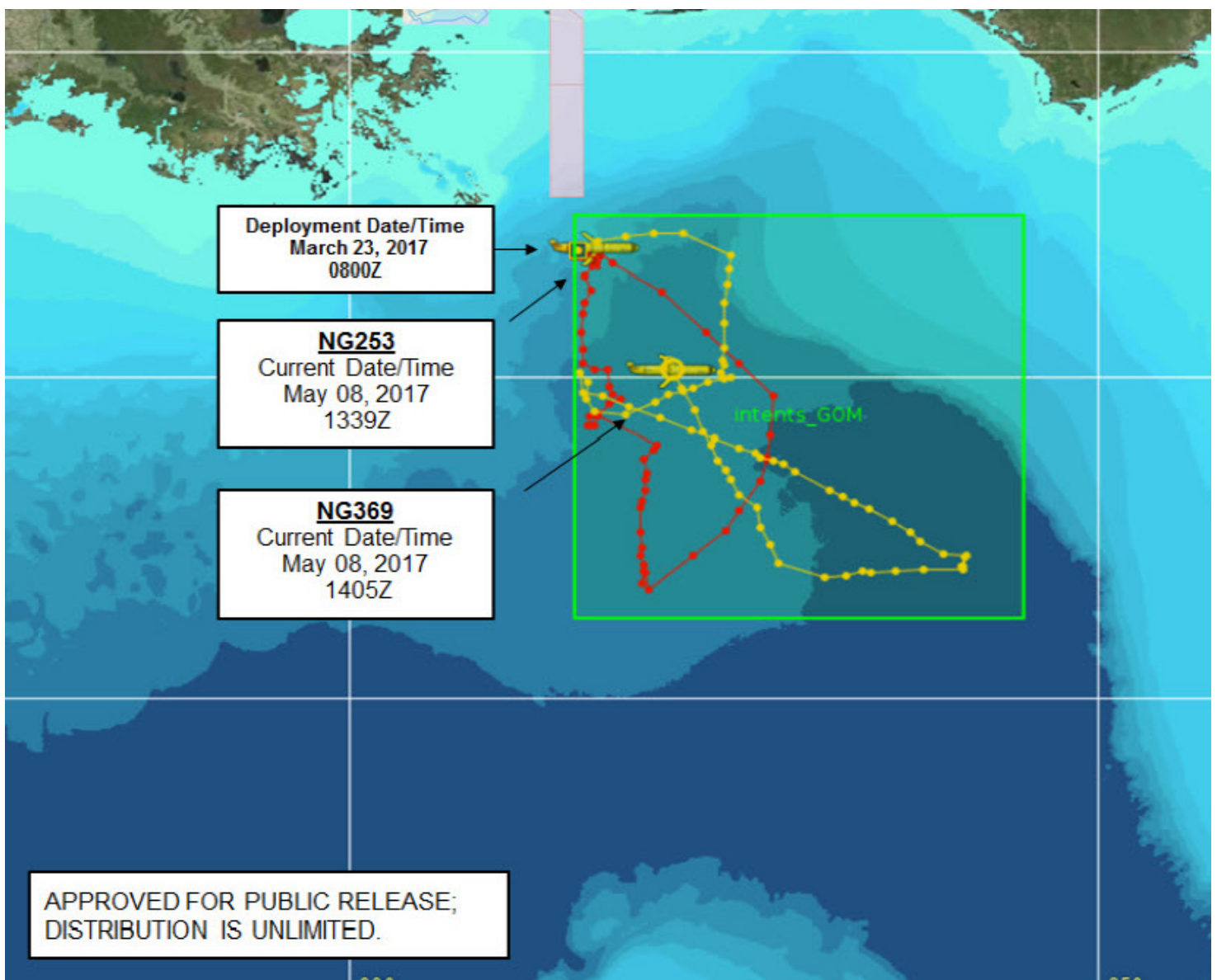
²⁶ INFINITY Science Center annual comparison report, January 2018.

²⁷ INFINITY Science Center annual comparison report, January 2018.

²⁸ Direct communication with INFINITY Science Center.

SUMMARY

The defense-related Blue Economy in Mississippi is poised to modestly grow in coming years. Its main activities include Ship/Boatbuilding, U.S. Navy Support, Ports and Harbors, U.S. Army Support, and Tourism/Recreation, and its largest external driver is federal spending, specifically from the Department of the Navy. Based on the expected Navy Budget and plans for the Governor's Ocean Task Force, federal spending in Mississippi should continue to increase, which in turn will grow defense-related Blue Economy industries in the State. This trend will continue to provide extensive diversification as companies with new technologies support federal agencies in Mississippi, work together strategically to address emerging needs, and develop technologies for the commercial market.



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