



### Key Datasets

The key datasets referenced throughout this document include:

- U.S. Census Bureau's County Business Patterns Ocean Economy (Ocean CBP) Tables
- Marine Economy Satellite Account (MESA)
- U.S. Census Bureau's County Business Patterns (CBP)

### Total Territory Economic Overview

**Question:** What is the overview section conveying, and how does it relate to the ocean economy data?

**Answer:** This section shows economic data related to Guam's economy. It is not specific to the ocean economy. The purpose of this section is to give the reader an understanding of the total economy of Guam before diving into the ocean economy.

**Question:** Where does the data shown in the overview section come from?

**Answer:** The population estimates are from the 2020 Island Area Census, [Table P1](#). Establishments, employment, and wages are from the U.S. Census Bureau's County Business Patterns (CBP) data, [Table CB2100CBP](#). Gross domestic product (GDP) data are derived from the Bureau of Economic Analysis, [GDP for Guam](#).

### Employment Breakdown

**Question:** Where does the data for this section come from?

**Answer:** The employment breakdown for Guam is from the U.S. Census Bureau's CBP data: [Table CB2100CBP](#).

### Ocean-Dependent Sectors and Featured Quick Facts

**Question:** How did you calculate the percentage in the following statement: "Ocean-dependent sectors contribute 18 percent to Guam's total employment."

**Answer:** The percentage is calculated as follows: Number of Employees in the Ocean Economy ÷ Total Number of Employees in the Territory. That is,  $9,060 \div 49,876 = 18$  percent.

**Question:** Which sectors are included in the "Total Ocean Economy" box?

**Answer:** The following sectors are included: living resources, marine construction, ship and boat building (and repairs), marine transportation, offshore mineral resources, and tourism and recreation. These are considered the six core sectors, as they have always been included in the Economics: National Ocean Watch dataset for the U.S. counties and states.

**Question:** What is included in each sector?

**Answer:** Each sector includes several industries. Table 1 shows the sectors and industries currently included in the ENOW dataset. One limitation of these data is the absence of self-employment data. This leads to an

underestimate of employment. Employment in the living resources, tourism and recreation, and marine construction sectors, in particular, are likely underestimated the most significantly since these sectors historically contain more self-employment than other sectors.

Within the living resources sector, commercial fishing typically contains high numbers of self-employed individuals. Please contact the [Division of Aquatic and Wildlife Resources](#) within Guam’s Department of Agriculture and the [Western Pacific Regional Fishery Management Council](#) for more information about commercial fishing employment in Guam.

Table 1. Crosswalk Table of Economics: National Ocean Watch (ENOW) Sectors and Industries by North American Industry Classification System (NAICS).

Sector	Industry	NAICS Code	NAICS Industry (2012 NAICS)
Living Resources	Fish Hatcheries and Aquaculture	112511	Finfish Farming and Harvesting
		112512	Shellfish Farming
		112519	Other Aquaculture
	Fishing	114111	Finfish Fishing
		114112	Shellfish Finishing
		114119	Other Marine Fishing
	Seafood Processing	311710	Seafood Product Preparation and Packaging
	Seafood Markets	445220	Fish and Seafood Markets
		424460 <sup>1</sup>	Fish and Seafood Merchant Wholesalers
Marine Construction	Marine Related Construction	237990	Other Heavy and Civil Engineering Construction
Marine Transportation	Deep Sea Freight	483111	Deep Sea Freight Transportation
		483113	Coastal and Great Lakes Freight Transportation
	Marine Passenger Transportation	483112	Deep Sea Passenger Transportation
		483114	Coastal and Great Lakes Passenger Transportation

<sup>1</sup> The 4-digit NAICS codes are supplemented for counties where the 6-digit data are not available.

Sector	Industry	NAICS Code	NAICS Industry (2012 NAICS)
Marine Transportation	Marine Transportation Services	488310	Port and Harbor Operations
		488320	Marine Cargo Handling
		488330	Navigational Services to Shipping
		488390	Other Support Activities for Water Transportation
	Search and Navigation Equipment	334511	Search, Detection, Navigation, Guidance, Aeronautical and Nautical System and Instrument Manufacturing
	Warehousing <sup>2</sup>	493110	General Warehousing and Storage
		493120	Refrigerated Warehousing and Storage
		493130	Farm Product Warehousing and Storage
	Offshore Mineral Resources	Limestone, Sand, and Gravel	212321
212322			Industrial Sand Mining
Oil and Gas Exploration and Production		211111	Crude Petroleum and Natural Gas Extraction
		211112	Natural Gas Liquid Extraction
		213111	Drilling Oil and Gas Wells
		213112	Support Activities for Oil and Gas Operations
		541360	Geophysical Exploration and Mapping Services
Ship and Boat Building	Boat Building and Repair	336612	Boat Building and Repair
	Ship Building and Repair	336611	Ship Building and Repair
Tourism and Recreation	Boat Dealers	441222	Boat Dealers
	Eating and Drinking Places	722511	Full Service Restaurants
		722513	Limited Service Eating Places
		722514	Cafeterias
		722515	Snack and Nonalcoholic Beverage Bars

<sup>2</sup> The 4-digit NAICS codes are supplemented for counties where the 6-digit data are not available.

Sector	Industry	NAICS Code	NAICS Industry (2012 NAICS)
Tourism and Recreation	Hotels and Lodgings	721110	Hotels (except Casino Hotels) and Motels
		721191	Bed and Breakfast Inns
	Marinas	713930	Marinas
	Recreational Vehicle Parks and Campers	721211	RV Parks and Recreational Camps
	Scenic Water Tours	487210	Scenic and Sightseeing Transportation, Water
	Sporting Goods	339920	Sporting and Athletic Goods Manufacturing
	Amusement and Recreation Services	487990	Scenic and Sightseeing Transportation, Other
		611620	Sports and Recreation Instruction
		532292	Recreation Goods Rental
		713990	Amusement and Recreation Services Not Elsewhere Classified
	Zoos and Aquaria	712130	Zoo and Botanical Gardens
		712190	Nature Parks and Other Similar Institutions

**Question:** The fact sheet shows additional data on utilities, research and education, and government. Are these data included in the “Total Ocean Economy” box?

**Answer:** The NOAA team attempted to generate additional data for the following sectors in each territory: utilities, research and education, and government. These are considered supplemental sectors and are **not** included in the total ocean economy because they are inconsistently available across the territories and require time-intensive research and outreach, which may be difficult to replicate annually. These sectors will be updated as time and resources permit.

**Question:** Where does the data for this section come from?

**Answer:** Establishment, employment, and payroll data for the U.S. Territories are sourced from the [2019](#), [2020](#), and [2021](#) U.S. Census Bureau’s County Business Patterns Ocean Economy (Ocean CBP) Tables. These estimates are published yearly using unique industries and nonstandard geographies, which were determined in coordination with subject matter experts from NOAA’s Office for Coastal Management. For more information regarding these data, please refer to the [Ocean Economy Reference Files](#) and the [County Business Pattern Methodology](#).

The project team calculated GDP using wage data provided by CBP and the ratio of value added to compensation from the Marine Economy Satellite Account (MESA)<sup>3</sup>. To calculate the compensation to value-added ratio for each sector, the team divided the value added in MESA’s ‘Value Added by Industry’ dataset by compensation in MESA’s ‘Compensation by Industry’ dataset for each sector’s corresponding industry in MESA. The project team then multiplied this ratio by the wage provided by CBP for each sector. The project team followed this methodology with 2019, 2020, and 2021 data. Table 2 presents ENOW sectors and their corresponding MESA industry, as well as the compensation to value-added ratio for each sector in each year.

**Table 2. ENOW and MESA Industry Crosswalk**

ENOW Sector	Comparable MESA Industry	Compensation/Value Added		
		2019	2020	2021
Living Resources	Forestry, fishing, and related activities	4.50	5.09	5.48
Marine Construction	Construction	1.65	1.63	1.57
Offshore Mineral Resources	Oil and gas extraction	6.82	4.87	10.45
Marine Transportation	Water transportation	2.16	1.77	1.98
Ship and Boat Building	Other transportation equipment	1.44	1.37	1.43
Tourism and Recreation	Arts, entertainment, recreation, accommodation, and food services	1.95	1.79	2.13
Government	State and local	1.26	1.23	1.25
Research and Education	Educational service	1.44	1.28	1.33
Energy	Utilities	5.21	4.73	5.58

**Question:** What about the supplemental sectors? Where does their data come from?

**Answer:** Each supplemental sector required coordination with different organizations in each territory. The organizations that were able to provide data on utilities, research and education, and government are listed below:

- **Utilities:** Establishments, employment, and wages in Guam’s ocean-related utility sector were provided by the Guam Power Authority (GPA). To calculate GDP, the project team calculated the value added to compensation ratio from MESA’s “Utilities” industry, and multiplied this ratio to the wage data provided by GPA.

<sup>3</sup> Like the Economics: National Ocean Watch (ENOW) dataset, the MESA also produces data related to the marine economy. There are some methodological differences between MESA and ENOW because MESA is produced by the Bureau of Economic Analysis and is designed to align with the United States System of National Accounts.

- **Research and Education:** The project team calculated ocean-related GDP in the research and education sector by taking the sum of all NOAA funding to the University of Guam’s Office of Research and Sponsored Programs (ORSP). This data is available through ORSP’s annual funding reports for data years 2020 and 2021 only. To calculate wages, the project team calculated the ratio of compensation to value added in the Education industry in MESA and multiplied this ratio by GDP. After calculating wages, the project team calculated employment by first determining the ratio of employment to payroll for the Guam Educational Services industry (NAICS 61) in Census County Business Patterns and multiplying this ratio by wages. The project team did not calculate establishments for the research and education sector.
- **Government:** Guam Bureau of Statistics and Plans provided coastal and marine expenditures across Guam’s government agencies. This included capital, operations, personnel, utilities, and miscellaneous expenditures within various agencies and departments. To calculate the total ocean-related expenditures in the government sector, the project team added all personnel expenditures. The project team calculated GDP as the total of all expenditures. To calculate employment, the project team multiplied the wage data calculated using Bureau of Statistics and Plans’ data by the ratio of employment to payroll in the government sector (NAICS 99; Industries not Classified) in Guam, using Census County Business Patterns data. The project team did not calculate establishments for the government sector.

**Question:** How did you create the graph at the beginning of the second page?

**Answer:** The “COVID-19 and Tourism” graph was created using data from the [Guam Visitors Bureau Monthly Arrivals Reports](#).

## Economic Trends

**Source:** The establishments, employment, and wages are derived from the best available data from the 2019, 2020, and 2021 U.S. Census Bureau’s Ocean CBP Tables. These estimates are published using unique industries and nonstandard geographies, which were determined in coordination with subject matter experts from NOAA’s Office for Coastal Management. For more information regarding these data, please refer to the [Ocean Economy Reference Files](#) and the [County Business Pattern Methodology](#). GDP was calculated by multiplying wages from County Business Patterns by the compensation to value added for the corresponding industry in MESA.

## Key Contacts and Contributors

**Question:** Who were Guam’s key contributors in providing the data?

**Answer:** Please refer to a list of contributors below. An asterisk indicates that an individual is considered a key contact.

- Matthew Santos\*, Deputy Director of Bureau of Statistics and Plans, provided information on government
- John Cruz, Assistant General Manager at Guam Power Authority (GPA), and Lenora Sanz, GPA Power Authority Controller, provided information on utilities
- Gary Hiles, Chief Economist at the Bureau of Labor Statistics’ Department of Labor, Government of Guam
- Roseann Jones, Professor of Economics and Dean at the University of Guam