



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 the Commonwealth of the Northern Mariana Islands' (CNMI) 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 CNMI 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 CNMI](#).

Employment Breakdown

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

Answer: The employment breakdown for CNMI 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 17 percent to the Commonwealth of the Northern Mariana Islands' (CNMI) total employment. Of ocean-dependent sectors, the tourism sector generates the most personal income."

Answer: The percentage is calculated as follows: Number of Employees in the Ocean Economy ÷ Total Number of Employees in the Territory. That is $2,191 \div 12,763 = 17$ percent.

The sentence pertaining to the most personal income is derived from the [2021](#) U.S. Census Bureau's County Business Patterns Ocean Economy (Ocean CBP) Tables. Per these data, the tourism and recreation sector generated the most wages in CNMI, or \$31.7 million in wages.

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 Fish and Wildlife](#) within CNMI's Department of Lands and Natural Resources and the [Western Pacific Regional Fishery Management Council](#) for more information about commercial fishing employment in CNMI.

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 ¹	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

¹ 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 ²	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
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

² 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 as well as research and education. 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.

Note: Government data was provided for CNMI for 2019 and 2020, while utilities and research and education were available through 2021.

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 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)³. 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:** To calculate establishments, employment, and wages in the ocean-related utilities sector, the project team took a partial of the Census County Business Patterns estimates of the total Utility sector in CNMI. The project team estimates that 98% of power generation in CNMI is ocean-dependent. This is based on the assumption that all nonrenewable energy production uses ocean water for cooling. According to the U.S. Energy Information Administration, 2% of energy

³ 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.

produced in CNMI is renewable energy, meaning 98% is nonrenewable. The team multiplied CBP's establishments, annual payroll, and employment in the utilities sector (NAICS 221) in CNMI by 0.98 for each data year. To calculate GDP in each year, the project team multiplied wages as estimated above by the value added to compensation ratio from the MESA's "Utilities" industry.

- **Research and Education:** The project team calculated research and education GDP using data from the Northern Marianas College. Northern Marianas College provided a list of its ocean-related grants since 2015, along with the years over which each grant was active. The project team divided each grant amount by the number of years the grant was active to estimate the grant amount each year, assuming equal spending across the award period. The project team added up the annual amount across all grants that were active in 2019, 2020, and 2021 to calculate GDP for those years. To calculate wages, the team calculated the ratio of compensation to value added in the Education industry in MESA and multiplied GDP by this ratio. After calculating wages, the project team calculated the ratio of employment to payroll for the CNMI Educational Services industry (NAICS 61) in Census County Business Patterns and multiplied this ratio by wages to calculate employment.
- **Government:** To calculate employment, the project team calculated the ratio of employment to payroll in the government sector (NAICS 99; Industries not Classified) in CNMI using Census County Business Patterns data. NOAA then multiplied this ratio by wages to calculate employment. The project team did not calculate establishments for the government sector, and 2021 data is unavailable.

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

Answer: The "Typhoon Yutu, COVID-19, and Tourism" graph for CNMI was created using data from the CNMI Department of Commerce: [Annual Visitor Arrival Economic Indicator Table](#).

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](#) as well as 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 CNMI'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.

- Justin Andrew*, Director of Central Statistics Division at the Department of Commerce (CNMI)
- Michael A. Cruz, Director of the Division of Parks and Recreation under the Department of Lands and Natural Resources, provided information on government
- Kelsey Lynn McClellan, Northern Marianas College, provided information on research and education