



Habitat Monitoring

Exploring CMAP Products

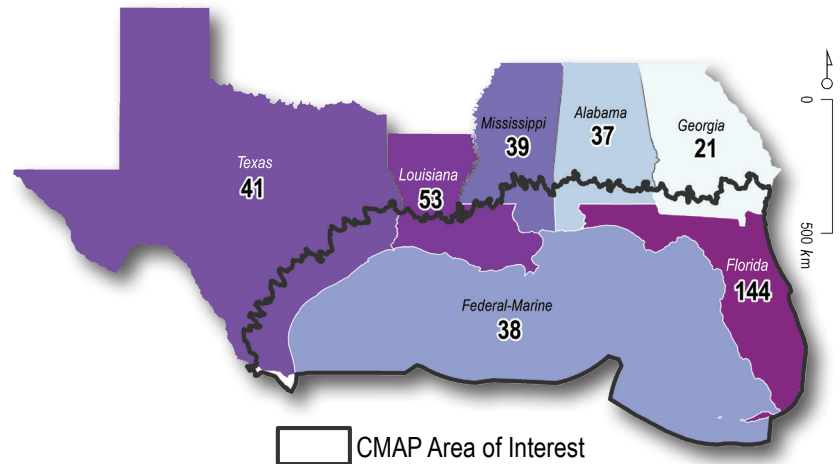
What is CMAP?

The RESTORE Council Monitoring and Assessment Program (CMAP), administered by the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Geological Survey (USGS), spatially and temporally inventoried programs in the Gulf of Mexico focused on water quality and habitat monitoring and mapping.

The Inventory

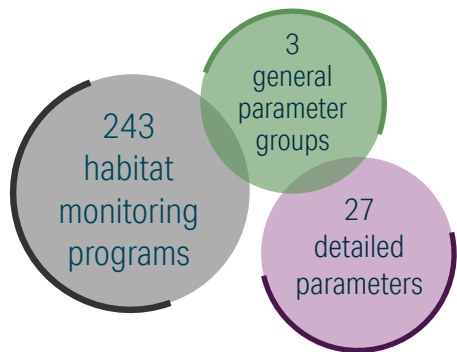
Over **12,500** program and project records were evaluated for inclusion in the Inventory. A total of **544** monitoring and mapping programs met the CMAP criteria (e.g., located in the Gulf of Mexico region, established since 1980, minimum data record of five years) and are cataloged in the Inventory. For more information, please see the Inventory report (NOAA and USGS, 2019).

Occurrence of **habitat monitoring parameters** in the **Inventory** (NOAA and USGS, 2019)

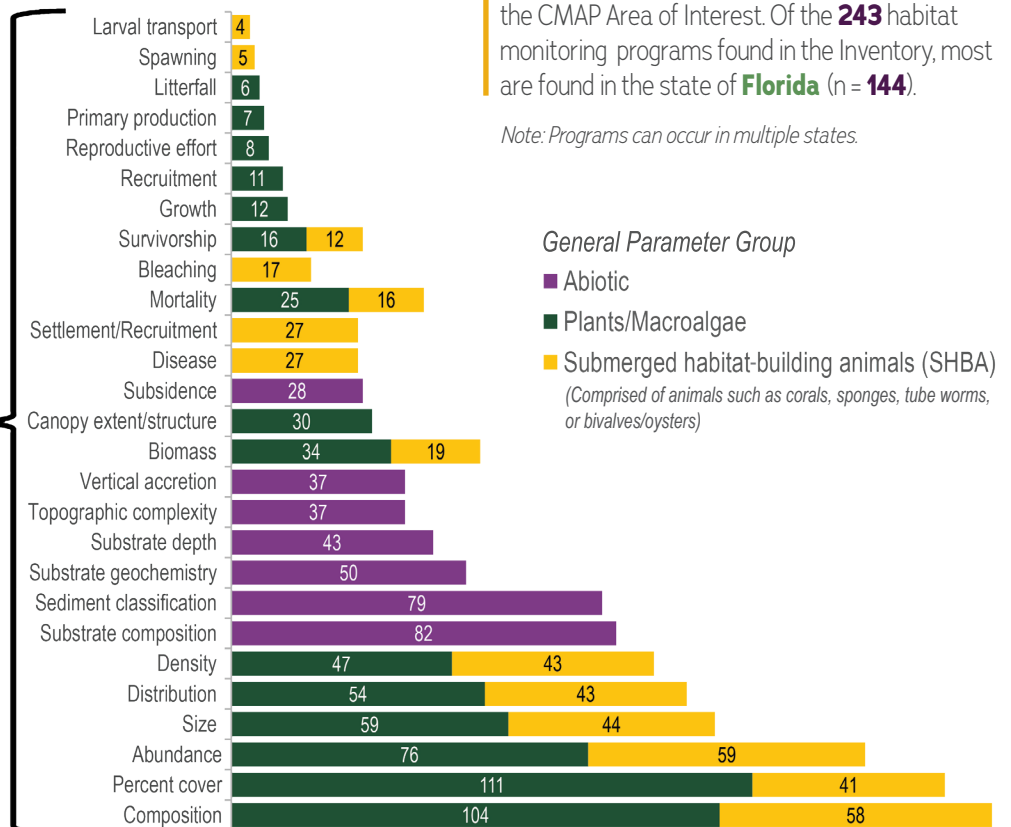


Number of habitat monitoring programs found within the CMAP Area of Interest. Of the **243** habitat monitoring programs found in the Inventory, most are found in the state of **Florida** (n = **144**).

Note: Programs can occur in multiple states.



NOAA and USGS, 2019. Council Monitoring and Assessment Program (CMAP): Inventory of Existing Habitat and Water Quality Monitoring, and Mapping Metadata for Gulf of Mexico Programs. National Oceanic and Atmospheric Administration and U.S. Geological Survey. NOAA Technical Memorandum NOS NCCOS 262. Silver Spring, MD. 155 pp. doi: 10.25923/gwpx-ff30



Common Monitoring Information

Protocol information from the Inventory programs and guidance documents was synthesized and evaluated to determine which parameters, methods, and units were most commonly measured and implemented within each habitat type. For example, **43** programs measured **density** in the **SHBA group**. Within the SHBA group, **19** programs measured density in the **oyster/bivalve bed** habitat type, and **13** of those programs had a single documented collection method (visual observation).

SHBA density methodology and units identified within the Inventory and additional guidance documents for the oyster/bivalve bed habitat type¹.

Method	Units	# programs documenting method
Visual observation	# individuals/m ²	13
	# live individuals/ft ²	
	# live or dead/m ²	
	% live of mean	
	# seed (spat/seed/sack)/acre	
	# seed (spat/seed/sack)/m ²	

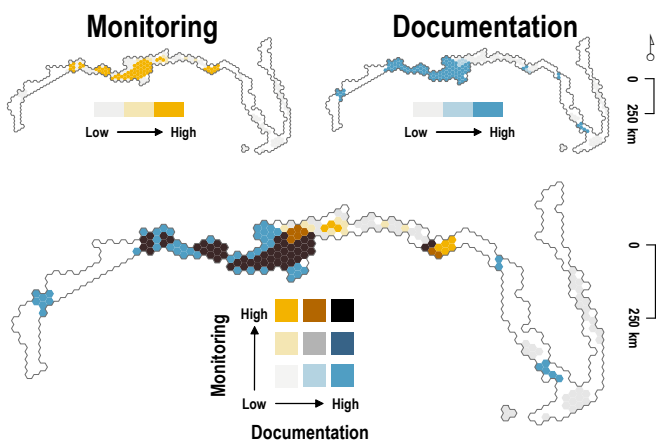
In order to evaluate each of the programs in the Inventory, documentation level for each program was assessed. Programs are considered having **Complete Documentation** if all **7 Monitoring Program Elements (MPEs)** are accessible:

- Point of contact
- Web accessible data
- Machine readable data
- Accessible metadata
- Analytical procedures
- Collection procedures
- Quality assurance protocol

Gap Assessment: A Workflow



Spatial and informational distribution of SHBA density monitoring in oyster/bivalve bed habitats (n = 19)²:



Where do you go for **more information**?
What are **other avenues we can explore** after the initial gap assessment?



Webtool: <https://restorethegulf.gov/cmap>

Searchable online database providing reports, data releases, and information collected and analyzed by CMAP

Temporal monitoring

SHBA density in oyster/bivalve bed habitats in the Gulf of Mexico (n = 19):



Note: Programs can occur in multiple temporal categories

- NOAA and USGS. 2020a. Council Monitoring and Assessment Program (CMAP): Common Monitoring Program Attributes and Methodologies for the Gulf of Mexico Region. National Oceanic and Atmospheric Administration and U.S. Geological Survey. NOAA NOS NCCOS Technical Memorandum 285. Silver Spring, MD. 87 pp. doi: 10.25923/vxay-xz10
- NOAA and USGS. 2020b. Council Monitoring and Assessment Program (CMAP): A Framework for Using the Monitoring Program Inventory to Conduct Gap Assessments for the Gulf of Mexico Region. National Oceanic and Atmospheric Administration and U.S. Geological Survey. NOAA NOS NCCOS Technical Memorandum 284. Silver Spring, MD. 55 pp. doi: 10.25923/mrdd-h727