



RESTORE Council Monitoring and Assessment Program



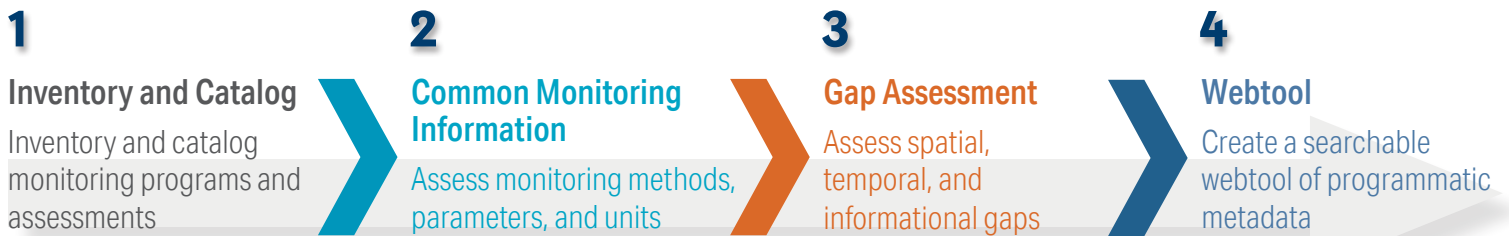
What is CMAP?

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.

Potential CMAP Applications

- Evaluate management and restoration outcomes
- Improve discovery and access to monitoring data
- Support science-based adaptive management decisions

Project Approach



Contributing Organizations

Council Monitoring and Assessment Workgroup (CMAWG)

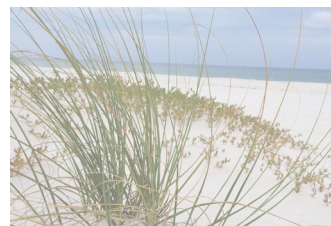
Coordinates CMAP activities, provides feedback, and recommendations

Gulf of Mexico Alliance Monitoring Community of Practice (MCoP)

Facilitates discussion and knowledge sharing among the Gulf of Mexico management and restoration community

Deepwater Horizon Agencies Monitoring Coordination Committee (MCC)

Provides opportunities for collaboration and leveraging of resources among Gulf of Mexico science and restoration programs



Project website | <https://restorethegulf.gov/cmap>

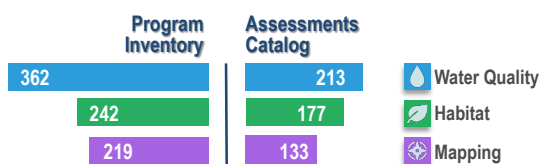


Project Approach Products

1 Inventory and Catalog

A total of **544** monitoring and mapping programs and **274** assessments were inventoried and cataloged by CMAP¹². Programs and assessments had to generally meet the following criteria to be included:

| | Programs | Assessments |
|--------------------------------------|----------|-------------|
| Located in the Gulf of Mexico region | ✓ | ✓ |
| Minimum watershed/estuary scale | ✓ | ✓ |
| Active between 1980 and present | ✓ | ✓ |
| Minimum data record of 5 years | ✓ | ✓ |
| Web accessible | ✓ | ✓ |



3 Gap Assessment

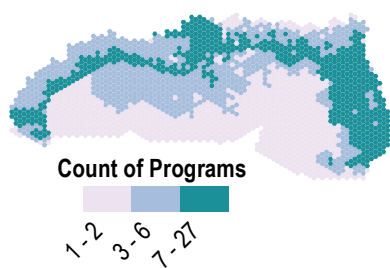
CMAP developed a framework for identifying **spatial**, **temporal**, and **informational** gaps in monitoring and mapping³.

Example: Total nitrogen monitoring programs in the Gulf of Mexico

Spatial gaps:

Where are the programs (n = 139) located?

Spatial unit:
500 km² hexagon grid cell



Temporal gaps:

When were the programs (n = 139) active?



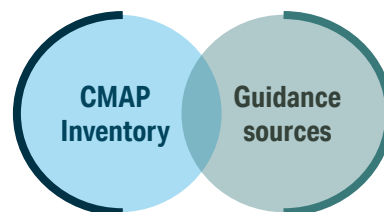
Informational gaps:

Are monitoring program elements (MPEs) accessible?

- | | |
|-------------------------|---------------------------------------|
| ✓ Point of contact | ✓ Analytical procedures |
| ✓ Web accessible data | ✓ Collection procedures |
| ✓ Machine readable data | ✓ Quality assurance protocol |
| ✓ Accessible metadata | ✓ Units (<i>water quality only</i>) |

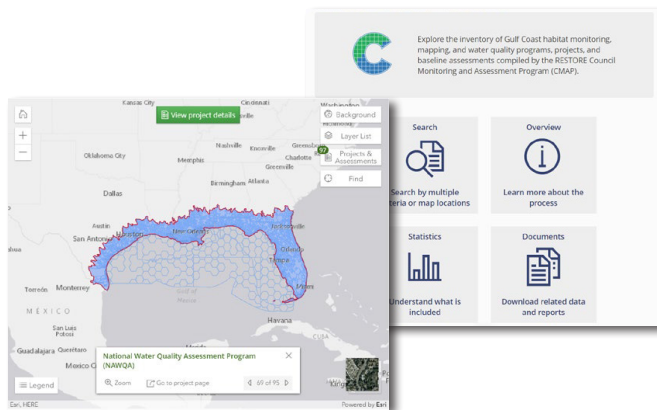
2 Common Monitoring Information

Common **parameters**, **methods**, and **units** were compared between the CMAP Inventory and various guidance documents by habitat type⁴.



4 Webtool

The information collected and analyzed by CMAP has been made available through a series of reports, data releases, and a searchable online database. Find all available results at: <https://restorethegulf.gov/cmap>



Reports: CMAP Publications

- 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 NOS NCCOS Technical Memorandum 262. Silver Spring, MD. 155 pp. doi: 10.25923/gwpx-ff30
- NOAA and USGS. 2019. Council Monitoring and Assessment Program (CMAP): Compilation of Existing habitat and Water Quality, and Mapping Assessments for Gulf of Mexico Programs. National Oceanic and Atmospheric Administration and U.S. Geological Survey. NOAA NOS NCCOS Technical Memorandum 269. Silver Spring, MD. 50 pp. doi: 10.25923/bpj6-z187
- NOAA and USGS. 2020. 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
- NOAA and USGS. 2020. 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