

U.S. Department of the Interior
National Park Service
Natural Resource Stewardship and Science Directorate
Geologic Resources Division



Fort Frederica National Monument

GRI Ancillary Map Information Document

Produced to accompany the Geologic Resources Inventory (GRI) Digital Geologic Data for Fort Frederica National Monument

fofr_geomorphology.pdf

Version: 10/26/2016

Geologic Resources Inventory Ancillary Map Information Document for Fort Frederica National Monument

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Geologic Resources Inventory Map Document



Fort Frederica National Monument, Georgia

Document to Accompany Digital Geologic-GIS Data

[fofr_geomorphology.pdf](#)

Version: 10/26/2016

This document has been developed to accompany the digital geologic-GIS data developed by the Geologic Resources Inventory (GRI) program for Fort Frederica National Monument, Georgia (fofr).

Attempts have been made to reproduce all aspects of the original source products, including the geologic units and their descriptions, geologic cross sections, the geologic report, references and all other pertinent images and information contained in the original publication.

This document contains the following information:

- 1) **About the NPS Geologic Resources Inventory Program** – A brief summary of the Geologic Resources Inventory (GRI) Program and its products. Included are web links to the GRI GIS data model, and to the GRI products page where digital geologic-GIS datasets, scoping reports and geology reports are available for download. In addition, web links to the NPS Data Store and GRI program home page, as well as contact information for the GRI coordinator, are also present.
- 2) **GRI Digital Maps and Source Citations** – A listing of all GRI digital geologic-GIS maps produced for this project along with sources used in their completion. In addition, a brief explanation of how each source map was used is provided.
- 3) **Map Unit Listing** – A listing of all geologic map units present on maps for this project, generally listed from youngest to oldest.
- 4) **Map Unit Descriptions** – Descriptions for all geologic map units. If a unit is present on multiple source maps the unit is listed with its source geologic unit symbol, unit name and unit age followed by the unit's description for each source map.
- 5) **Ancillary Source Map Information** – Additional source map information present on the source map.
- 6) **GRI Digital Data Credits** – GRI digital geologic-GIS data and ancillary map information document production credits.

For information about using GRI digital geologic-GIS data contact:

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About the NPS Geologic Resources Inventory Program

Background

Recognizing the interrelationships between the physical (geology, air, and water) and biological (plants and animals) components of the earth is vital to understanding, managing, and protecting natural resources. The Geologic Resources Inventory (GRI) helps make this connection by providing information on the role of geology and geologic resource management in parks.

Geologic resources for management consideration include both the processes that act upon the Earth and the features formed as a result of these processes. Geologic processes include: erosion and sedimentation; seismic, volcanic, and geothermal activity; glaciation, rockfalls, landslides, and shoreline change. Geologic features include mountains, canyons, natural arches and bridges, minerals, rocks, fossils, cave and karst systems, beaches, dunes, glaciers, volcanoes, and faults.

The Geologic Resources Inventory aims to raise awareness of geology and the role it plays in the environment, and to provide natural resource managers and staff, park planners, interpreters, researchers, and other NPS personnel with information that can help them make informed management decisions.

The GRI team, working closely with the Colorado State University (CSU) Department of Geosciences and a variety of other partners, provides more than 270 parks with a geologic scoping meeting, digital geologic-GIS map data, and a park-specific geologic report.

Products

Scoping Meetings: These park-specific meetings bring together local geologic experts and park staff to inventory and review available geologic data and discuss geologic resource management issues. A summary document is prepared for each meeting that identifies a plan to provide digital map data for the park.

Digital Geologic Maps: Digital geologic maps reproduce all aspects of traditional paper maps, including notes, legend, and cross sections. Bedrock, surficial, and special purpose maps such as coastal or geologic hazard maps may be used by the GRI to create digital Geographic Information Systems (GIS) data and meet park needs. These digital GIS data allow geologic information to be easily viewed and analyzed in conjunction with a wide range of other resource management information data.

For detailed information regarding GIS parameters such as data attribute field definitions, attribute field codes, value definitions, and rules that govern relationships found in the data, refer to the NPS Geology-GIS Data Model document available at: <http://science.nature.nps.gov/im/inventory/geology/GeologyGISDataModel.cfm>

Geologic Reports: Park-specific geologic reports identify geologic resource management issues as well as features and processes that are important to park ecosystems. In addition, these reports present a brief geologic history of the park and address specific properties of geologic units present in the park.

For a complete listing of Geologic Resource Inventory products and direct links to the download site visit the GRI publications webpage http://www.nature.nps.gov/geology/inventory/gre_publications.cfm

GRI geologic-GIS data is also available online at the NPS Data Store Search Application: <http://irma.nps.gov/App/Reference/Search>. To find GRI data for a specific park or parks select the appropriate park

(s), enter "GRI" as a Search Text term, and then select the Search Button.

For more information about the Geologic Resources Inventory Program visit the GRI webpage: <http://www.nature.nps.gov/geology/inventory>, or contact:

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The Geologic Resources Inventory (GRI) program is funded by the National Park Service (NPS) Inventory and Monitoring (I&M) Division.

GRI Digital Map and Source Map Citation

The GRI digital geologic-GIS map for Fort Frederica National Monument, Georgia (fofr):

Digital Geomorphologic-GIS Map of Fort Frederica National Monument and Vicinity, Georgia (*GRI MapCode FOFR*)

Produced from digital data from the following source,
Jackson, C. W. and Burgin, J., 2016, Unpublished Digital Geologic Map of Fort Frederica National Monument and Vicinity, Georgia: Georgia Southern University, Applied Coastal Research Lab, unpublished digital data, scale 1:12,000. (*GRI Source Map ID 76083*).

Additional information pertaining to the source map is also presented in the GRI Source Map Information (FOFRMAP) table included with the GRI geologic-GIS data.

Map Unit List

The geomorphologic units present in the digital geologic-GIS data produced for Fort Frederica National Monument, Georgia (fofr) are listed below. Units are listed with their assigned unit symbol and unit name (e.g., Qme - Moved earth). Units are listed from youngest to oldest. No description for water is provided. Information about each geologic unit is also presented in the GRI Geomorphologic Unit Information (FOFRUNIT) table included with the GRI geologic-GIS data.

Cenozoic Era

Holocene Epoch

[Qme](#) - Moved earth

[Qhi](#) - Holocene Shoreline Complex, barrier island facies

[Qhm](#) - Holocene Shoreline Complex, marsh and lagoonal facies

Holocene Epoch and/or Pleistocene Epoch?

[Qhs](#) - Sandy hammock or tidal stream shoal deposits

Pleistocene Epoch

[Qpai](#) - Princess Anne Shoreline Complex, barrier island facies

[Qpam](#) - Princess Anne Shoreline Complex, marsh and lagoonal facies

[Qpmi](#) - Pamlico Shoreline Complex, barrier island facies

[Qsbi](#) - Silver Bluff Shoreline Complex, undifferentiated

Map Unit Descriptions

Descriptions of all geologic map units, generally listed from youngest to oldest, are presented below. Unit descriptions were derived from U.S. Geological Survey Open-File Report OF-2005-1323 (see [Source References](#) for this and other relevant citations used by the source map authors).

Qme - Moved earth (Holocene)

Bulk, earthen material moved by humans. Color is highly variable and dependant on source location. Thickness is up to 10 feet.

Qhi - Holocene Shoreline Complex, barrier island facies (Holocene)

Unconsolidated coarse-detrital beach sand.

Qhm - Holocene Shoreline Complex, marsh and lagoonal facies (Holocene)

Unconsolidated fine-detrital deposits.

Qhs - Sandy hammock or tidal stream shoal deposits (Holocene and/or Pleistocene)

No additional unit description provided.

Qpai - Princess Anne Shoreline Complex, barrier island facies (Pleistocene)

Unconsolidated coarse-detrital beach sand.

Qpam - Princess Anne Shoreline Complex, marsh and lagoonal facies (Pleistocene)

Unconsolidated fine-detrital deposits.

Qpmi - Pamlico Shoreline Complex, barrier island facies (Pleistocene)

Unconsolidated coarse-detrital beach sand.

Qsbi - Silver Bluff Shoreline Complex, undifferentiated (Pleistocene)

Unconsolidated coarse-detrital beach sand.

GRI Ancillary Source Map Information

Georgia Southern University unpublished digital data

Jackson, C. W. and Burgin, J., 2016, Unpublished Digital Geologic Map of Fort Frederica National Monument and Vicinity, Georgia: Georgia Southern University, Applied Coastal Research Lab, unpublished digital data, scale 1:12,000. (*GRI Source Map ID 76083*).

References

Dicken, C.L., et. al., 2005, Preliminary integrated geologic map databases for the United States: Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina, U.S. Geological Survey Open-File Report OF-2005-1323, 1:100,000 scale.

Huddleston, P. F., 1988. Revision of the lithostratigraphic units of the coastal plain of Georgia – The Miocene through Holocene. Georgia Geologic Survey Bulletin 104, 1–161.

Lawton, D.E., and others, 1976, Geologic Map of Georgia: Georgia Geological Survey, scale = 1:500,000.

U. S. Fish and Wildlife Service. Publication date (2015). National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>

Additional Data Sources

Some geospatial data for this publication was supported in part by an Institutional Grant (NA10OAR4170098) to the Georgia Sea Grant College Program from the National Sea Grant Office, National Oceanic and Atmospheric Administration, U.S. Department of Commerce from the project “SPATIO-TEMPORAL ASSESSMENT OF TIDAL INLET AND STREAM MOVEMENTS AND THEIR INFLUENCE ON COASTAL VULNERABILITY” conducted by Dr. Chester W. Jackson Jr., Georgia Southern University. 2016. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of OCRM or NOAA.

Some geospatial data for this publication was supported in part by the Georgia Department of Natural Resources under award # NA14NOS4190117 from the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration from the project “MAPPING SHORELINE EROSION AND VULNERABILITY ALONG THE GEORGIA COAST” conducted by Dr. Chester W. Jackson Jr., Georgia Southern University. 2015. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of OCRM or NOAA.

Contact Accuracy

As per communication with the source map author C.J. Jackson mapped contacts have a positional accuracy related to a 1:12,000 map. In some cases though contacts were derived from more accurate 1:2,000 to 1:5,000 scale digital data. Users should therefore assume contacts are at least as accurate as 1:12,000 scale map (10.16 meters or 33.33 feet). Coastal (shoreline) and inland water contacts, however, were produced from highly accurate 1:100 to 1:1,000 scale digital data, and thus are accurate to within a few meters.

Huddleston B-104 Report

For additional information concerning the mapped geology and geology of the area the following report was suggested by the source map author C.J. Jackson.

Huddleston, Paul F., 1988, A Revision of the Lithostratigraphic Units of the Coastal Plain of Georgia, The Miocene through the Holocene: Georgia Geological Survey, Bulletin 104. 162p and 3 plates.

The report is available as an embedded PDF document within this document. Double-click the following link: [Huddleston B-104.pdf](#).

GRI Digital Data Credits

This document was developed and completed by Stephanie O'Meara (Colorado State University) for the NPS Geologic Resources Division (GRD) Geologic Resources Inventory(GRI) Program. Quality control of this document by Stephanie O'Meara.

The information in this document was compiled from GRI source map, and intended to accompany the digital geologic-GIS map(s) and other digital data for Fort Frederica National Monument, Georgia (fofr) developed by Stephanie O'Meara (see the [GRI Digital Map and Source Map Citation](#) section of this document for all sources used by the GRI in the completion of this document and related GRI digital geologic-GIS map.

GRI finalization by Stephanie O'Meara.

GRI program coordination and scoping provided by Bruce Heise (NPS GRD, Lakewood, Colorado).