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The geologic map of Nassau County, Florida was developed as a generalized base map to be utilized in predicting radon potential hazards. Funding for this effort was provided by the U. S. Environmental Protection Agency (EPA) and the Florida Department of Community Affairs. The geology of the county was mapped utilizing well cuttings, cores, natural and man-made exposures and topographic maps. Geologic units identified include formal lithostratigraphic units and informal units. Both types of units were included in order to provide a more accurate picture of the geology despite an often sparse data base. As a general rule, if the undifferentiated sediments were less than 20 feet thick, the underlying recognizable formation was mapped.

The oldest unit mapped in Nassau County is the Charlton Member of the Coosawatchie Formation, Hawthorn Group (Thc)(Scott, 1988a). These sediments, which are exposed along the St. Marys River, consist of interbedded carbonate (limestone and dolostone) and clay beds. The carbonates are slightly sandy and clayey, often containing abundant molds and casts of mollusks. The clays are silty and calcareous to dolomitic.

Overlying the Hawthorn Group sediments in the western portion of the county is late Tertiary, Late Pliocene Cypresshead Formation (Tc) (Scott, 1988b). The Cypresshead Formation consists of quartz sands ranging from fine to very coarse, usually moderately to well sorted with common occurrences of quartz gravel. Clay is commonly present in very minor amounts and is generally kaolinite. Mica often occurs in minor percentages, particularly in the finer grained sediments. Colors range from reddish-orange in exposed sections to olive gray in the subsurface. Occasionally, faint, poorly preserved mollusk molds can be seen in exposures. The Cypresshead Formation grades laterally down dip into the Nashua Formation, a variably shelly, clayey sand (Huddleston, 1988). It unconformably overlies the Hawthorn Group and is overlain unconformably by the sands of Trail Ridge in western-most Duval county and thin surficial sands and soils elsewhere. The Cypresshead was deposited in a shallow, nearshore, marine setting.

Undifferentiated Quaternary sediments (Qu) are mapped in much of the central and eastern portions of the county. They are composed of sands, clayey sands and clays occasionally containing limited numbers of fossils. This sediment package may contain reworked Cypresshead Formation and lies unconformably(?) on Nashua Formation or Hawthorn Group sediments. In localized areas, these sediments are very thin and a very detailed geologic map would show the underlying Nashua Formation or the Hawthorn Group. These sediments were deposited under marine conditions although some fluvial reworking has occurred.

Along the present day coast, the associated lagoons, coastal rivers and streams are sediments referred to as undifferentiated Pleistocene and Holocene coastal deposits (Qph). The sediments are composed of sands, silts and clays that sometimes contain varying percentages of organic matter. The sands may contain mica and heavy minerals. The sands are poorly to well sorted depending on the depositional environment. These include beach, marsh and lagoonal sediments which lie unconformably(?) on older, undifferentiated Quaternary sediments or Nashua Formation.

Quaternary sand dunes (Qd) form Amelia Island on the eastern coast of Nassau County. The well sorted quartz sands comprising the dunes may contain shell fragments. The sands often contain 5-10 percent heavy minerals. This unit lies on undifferentiated Pleistocene and Holocene coastal deposits.

REFERENCES

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### GEOLOGIC MAP OF NASSAU COUNTY

FLORIDA

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Preliminary field mapping by  
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