

CHESAPEAKE BAY
EARTH SCIENCE ATLAS NO. 3

MAP 3-7

SEDIMENTATION RATES

BY

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DEPARTMENT OF NATURAL RESOURCES
MARYLAND GEOLOGICAL SURVEY
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SEDIMENTATION RATES

Introduction
The Chesapeake Bay, one of the largest estuaries in the world, is a complex system of water bodies. Through the centuries, the bay has been subject to significant changes in its morphology. The sedimentation rates shown on this map are based on data collected from 1897 to 1963. The data were obtained from a variety of sources, including tide gauges, sediment cores, and bathymetric charts. The sedimentation rates are shown in meters per century, and are adjusted for sea level rise and time interval. The correction factor for sea level rise is 1 millimeter per year.

The present approach to the study of sedimentation rates in the Chesapeake Bay is based on the use of sediment cores. The cores are obtained from a variety of locations throughout the bay, and are analyzed for their sediment content. The sedimentation rates are then calculated from the sediment content of the cores. The sedimentation rates are shown on this map in meters per century, and are adjusted for sea level rise and time interval. The correction factor for sea level rise is 1 millimeter per year.

Areas of erosion, deposition, or no change are identified using bathymetric charts. The bathymetric charts are based on data collected from 1897 to 1963. The data were obtained from a variety of sources, including tide gauges, sediment cores, and bathymetric charts. The sedimentation rates are then calculated from the bathymetric data. The sedimentation rates are shown on this map in meters per century, and are adjusted for sea level rise and time interval. The correction factor for sea level rise is 1 millimeter per year.

Surveys pre-dating 1950 were digitized (in feet and centimeters) by converting the original survey data to a common datum. The original survey data were obtained from the U.S. Coast and Geodetic Survey. The digitized data were then used to calculate the sedimentation rates. The sedimentation rates are shown on this map in meters per century, and are adjusted for sea level rise and time interval. The correction factor for sea level rise is 1 millimeter per year.

The Chesapeake Bay has a single, deep, main channel flanked by shallow near-shore regions. In cross-section, the bay is asymmetrical, being deeper on the western side. This produces a very steep near-shore wall and a gentler slope on the eastern side. The sedimentation rates are shown on this map in meters per century, and are adjusted for sea level rise and time interval. The correction factor for sea level rise is 1 millimeter per year.

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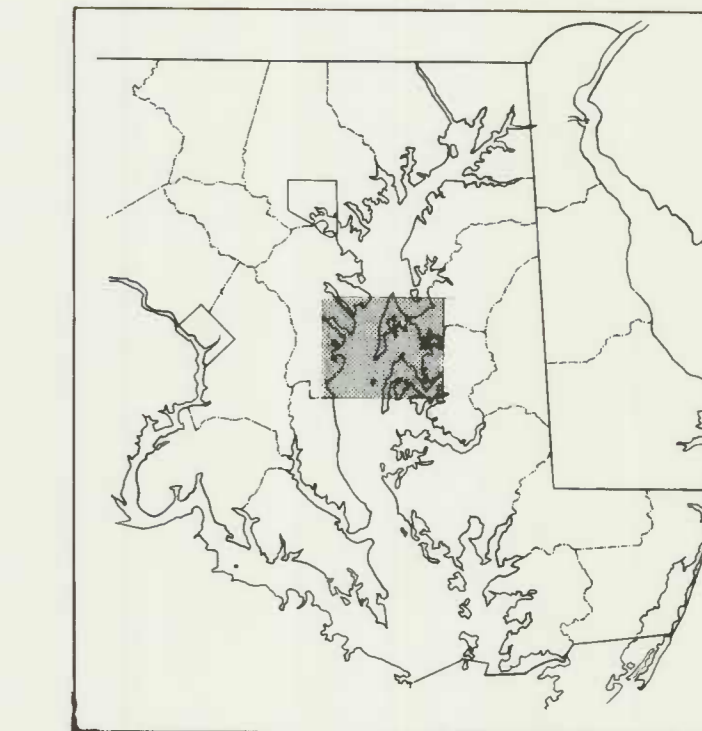
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UNITED STATES - EAST COAST
MARYLAND

CHESAPEAKE BAY
EASTERN BAY AND SOUTH RIVER

Mercator Projection
Scale 1:60,000 at Lat. 38°32'
North American 1927 Datum



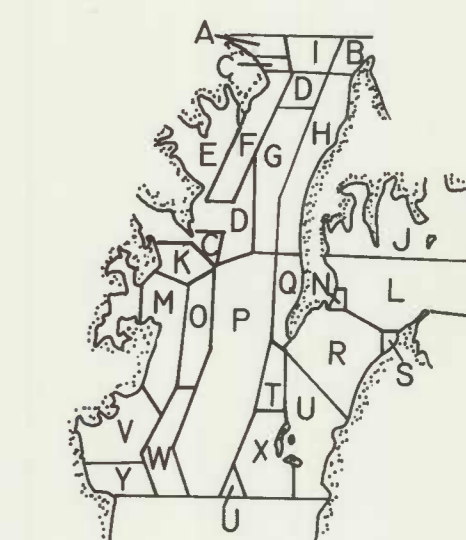
EXPLANATION

SEDIMENTATION RATES
METER/CENTURY
RATES ADJUSTED FOR SEALEVEL RISE AND TIME INTERVAL
CORRECTION FACTOR FOR SEALEVEL RISE 1 millimeter/year

METER/CENTURY

- > +2.2
- +2.2 TO +0.2
- +0.2 TO -0.4
- 0.4 TO -2.4
- > -2.4

HYDROGRAPHIC CHARTS USED
FOR BATHYMETRIC COMPARISON



AREAS	SURVEY CHART NUMBERS	SURVEY DATES
A	2345-5197	1897-1933
B	2345-5237	1897-1932
C	2402-5197	1898-1932
D	167-2402	1844-1898
E	5198-8860	1932-1965
F	2402-8860	1898-1965
G	2402-8522	1898-1960
H	2402-5237	1898-1932
I	INSUFFICIENT DATA	
J	177-6603	1847-1940
K	2667-5197	1903-1933
L	177-6605	1847-1940
M	2667-5432	1903-1933
N	2464-5328	1899-1933
O	2667-5501	1903-1933
P	188-5501	1846-1933
Q	2652-5237	1903-1932
R	188-5328	1846-1933
S	177-5328	1847-1933
T	2652-5327	1903-1933
U	188-5327	1846-1933
V	2629-5374	1903-1933
W	2629-5501	1903-1933
X	2631-5327	1902-1933
Y	188-5374	1846-1933

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TIDEWATER ADMINISTRATION THROUGH THE OFFICE OF
COASTAL ZONE MANAGEMENT, NOAA

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
HYDROGRAPHIC CHART 12270