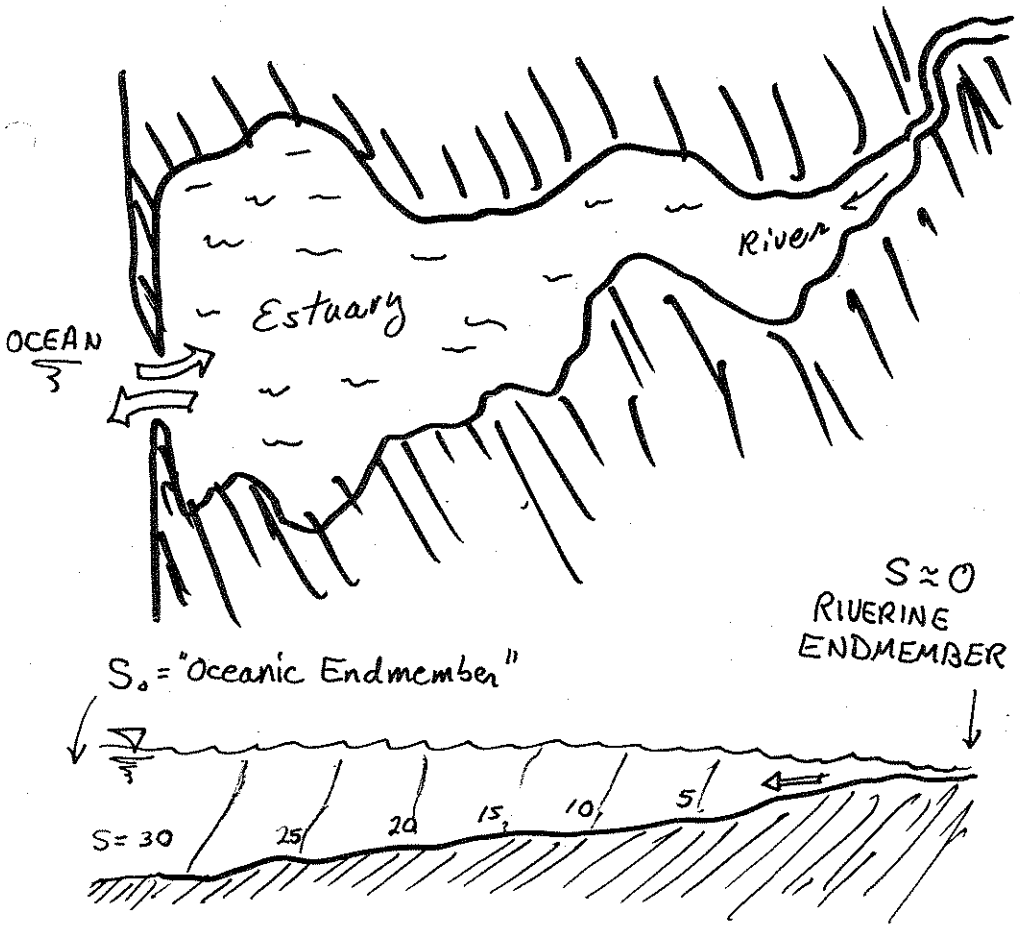


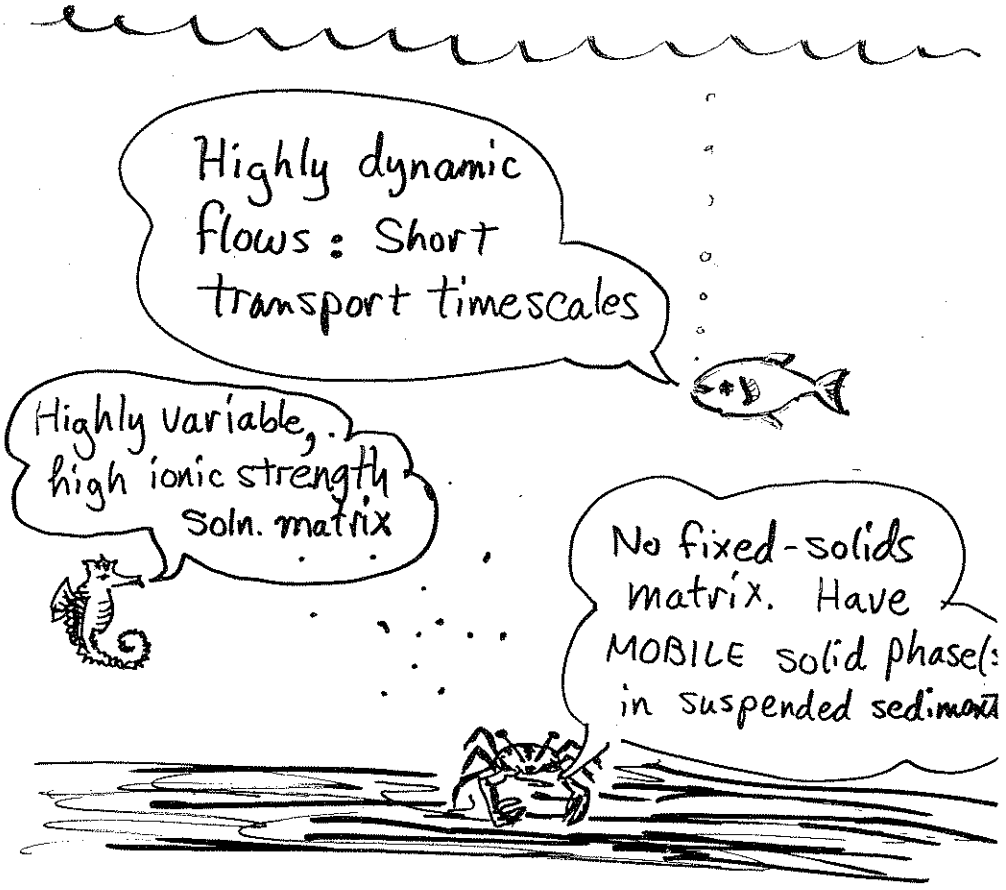
⇌ TIDAL FLUSHING:

TIDES OFTEN DOMINATE FLOWS

FAST ADVECTION

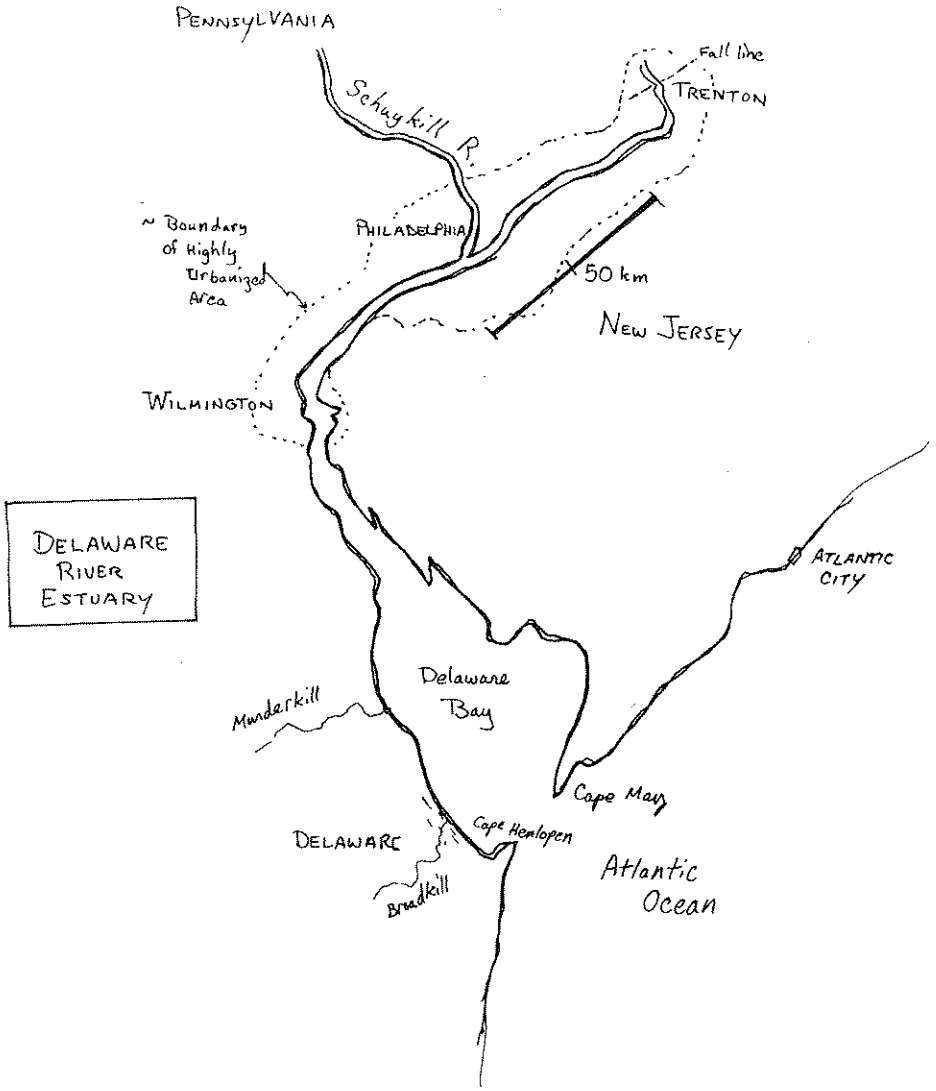
DISPERSION IS GREAT

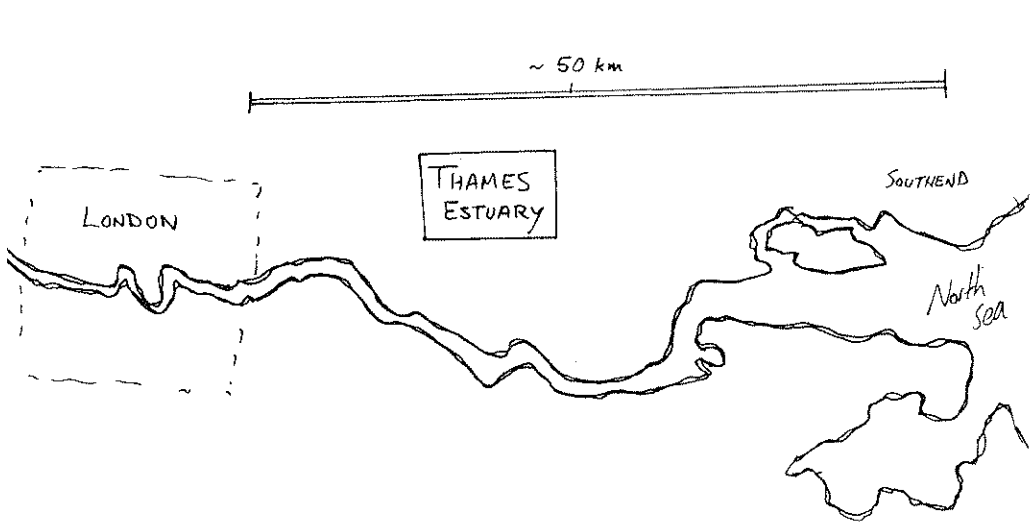
Hence, MAJOR DIFFERENCES BETWIXT LAKES/MANY RIVERS AND ESTUARIES

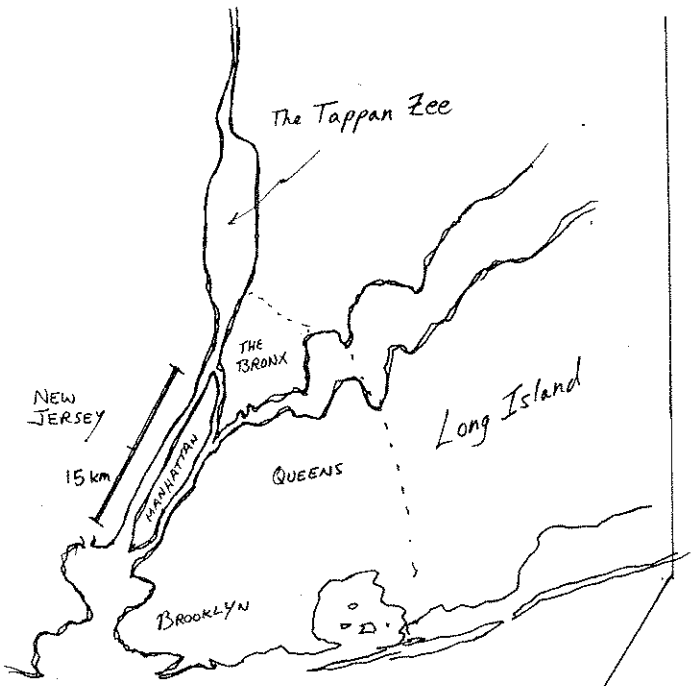


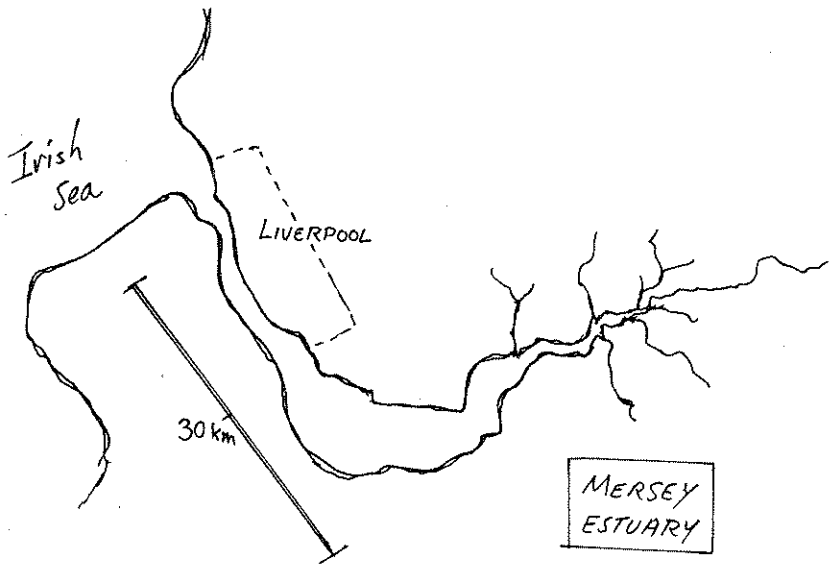
MAJOR URBANIZED ESTUARIES

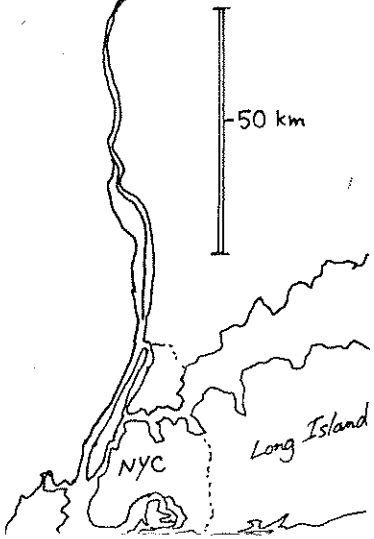
River	Urban Area
Hudson	New York
Delaware	Philadelphia / Trenton
Potomac	Washington, D.C.
Mississippi	New Orleans
St. Johns	Jacksonville, Fla.
Columbia / Willamette	Portland
Rhine	Rotterdam
Thames	London
Elbe	Hamburg
Mersey	Liverpool
Nile	Cairo
Ganges	Calcutta
Rio Plata	Buenos Aires
Sumida / Ara	Tokyo




~ 50 km
LONDON
THAMES ESTUARY
SOUTHEND
North Sea


The Tappan Zee
ALBANY
RENSSELAER
THE BRONX
NEW JERSEY
15 km
MANHATTAN
QUEENS
Long Island
BROOKLYN


Irish Sea
LIVERPOOL
30 km
MERSEY ESTUARY


50 km
NYC
Long Island

SALINITY
MEASUREMENT AND DEFINITIONS

Ave. Conc. of Dissolved Salts

~ 3.5% by weight (w/w)

OR

~ 35 ‰ ← parts per thous.

↑ Now superseded (since 1980's)

UNITLESS RATIO

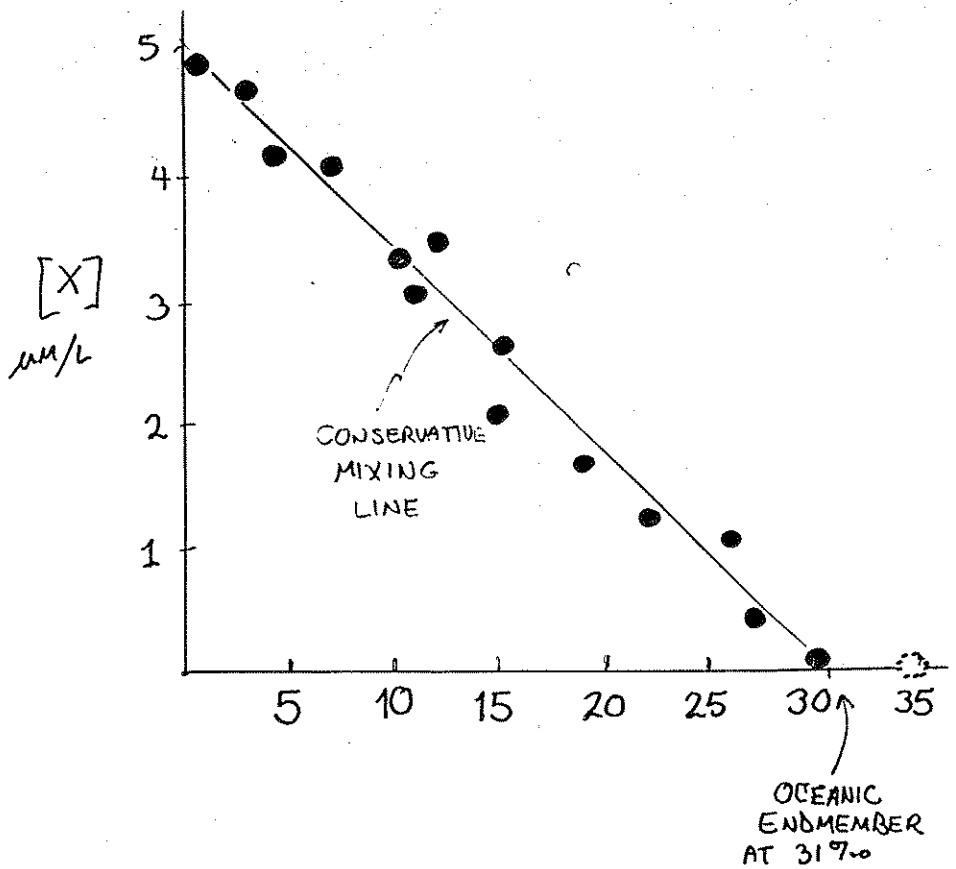
"S"

E.g. S = 35

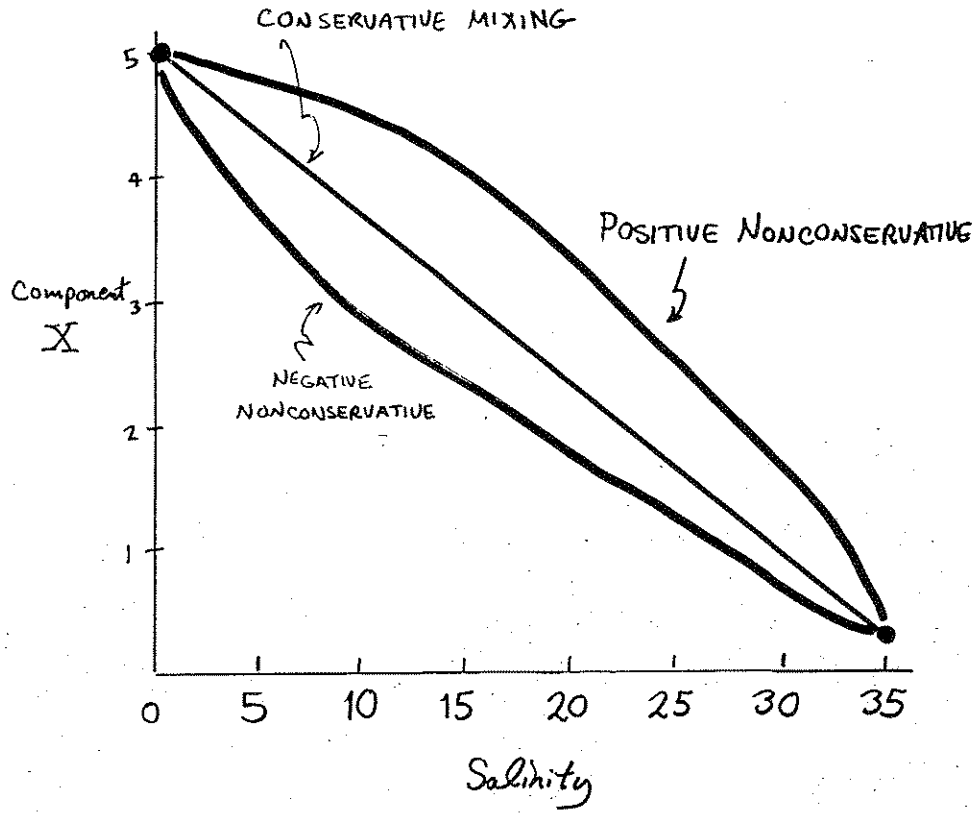
$$K_{15} = \frac{\text{conductivity of seawater}}{\text{cond. of std. KCl soln.}}$$

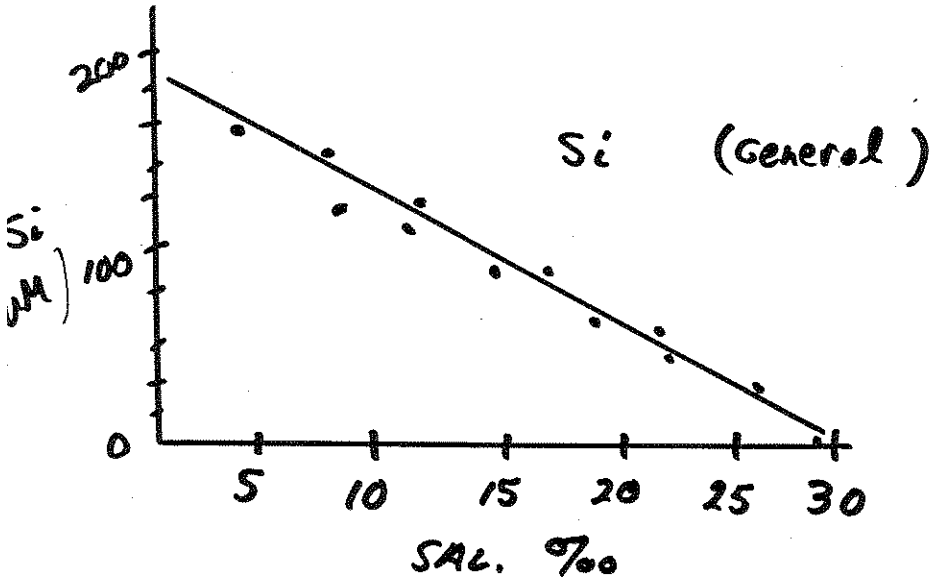
$$S = 0.0080 - 0.1692\,K_{15}^{1/2} + 25.3851\,K_{15} + 14.0941\,K_{15}^{3/2} - 7.0261\,K_{15}^{2} + 2.7081\,K_{15}^{5/2}$$

HYPOTHETICAL
ESTUARING ELEMENT
BEHAVIOR

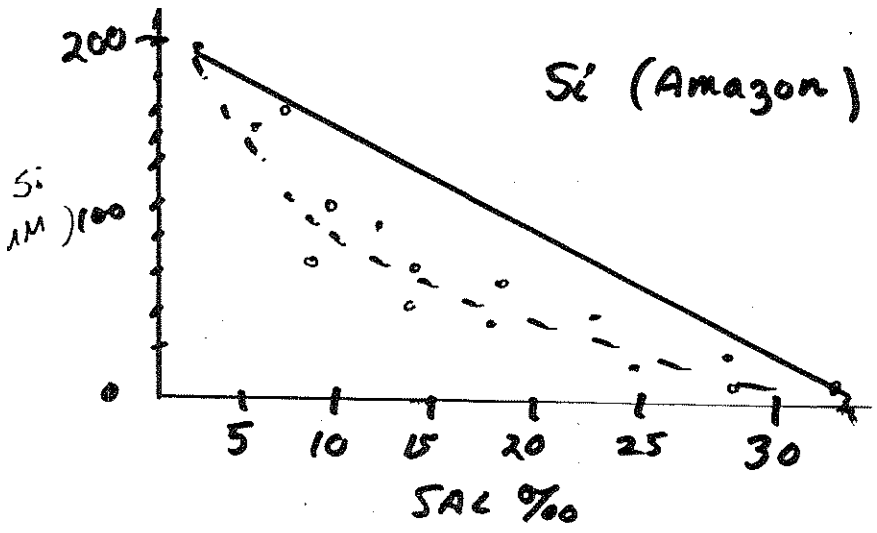


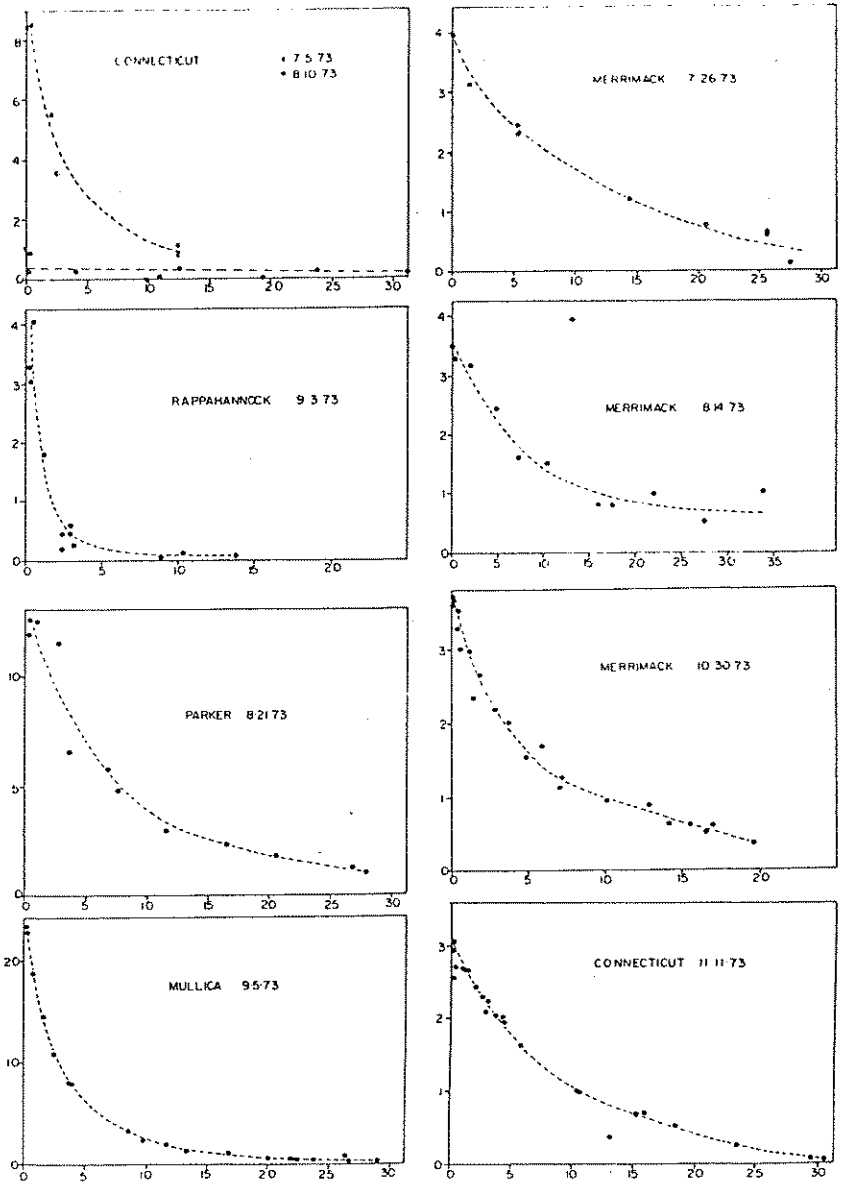
CLASSIC TYPE-CURVES FOR ESTUARINE MIXING





(Boyle et al 1974)





From? →

WAVES, TIDES AND SHALLOW-WATER PROCESSES

PREPARED BY AN OPEN UNIVERSITY COURSE TEAM

Except on ESTUARIES

PERGAMON

In association with
THE OPEN UNIVERSITY
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