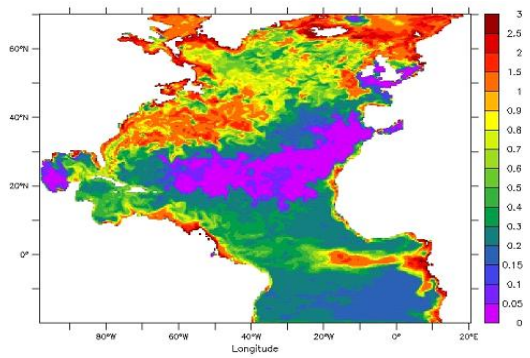
FROM OCEAN PHYSICS TO POPULATION DYNAMICS

Workshop IPEE/CLS - 3-FEB-2010

Modeling strategy



SEAPODYM

Predator's population dynamics model

Prey model

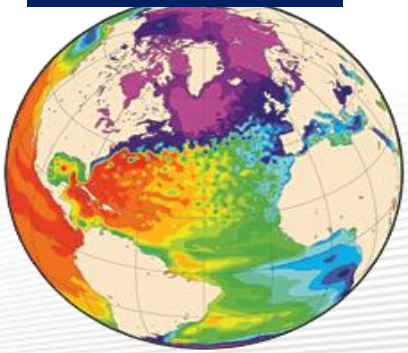
3-D Models

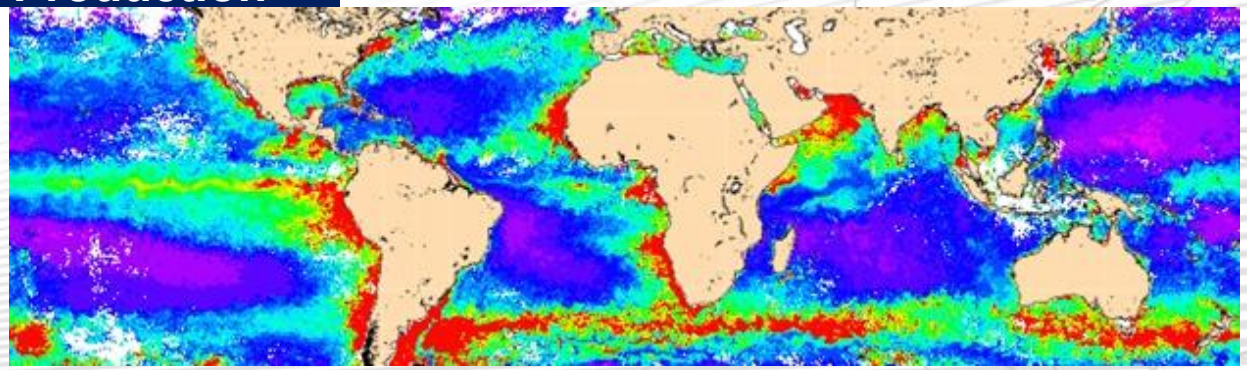
Ocean Biogeo-chemistry

Primary Production

Ocean Physics

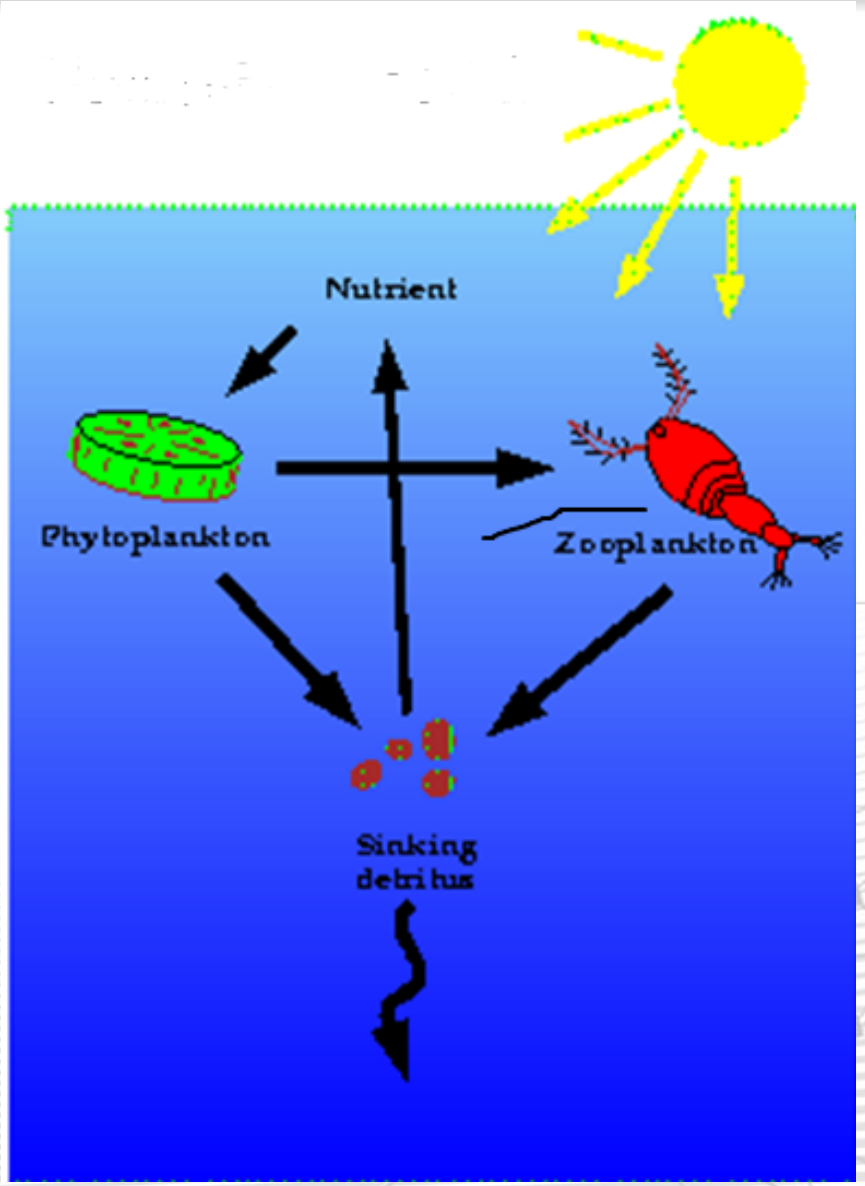
3-D models



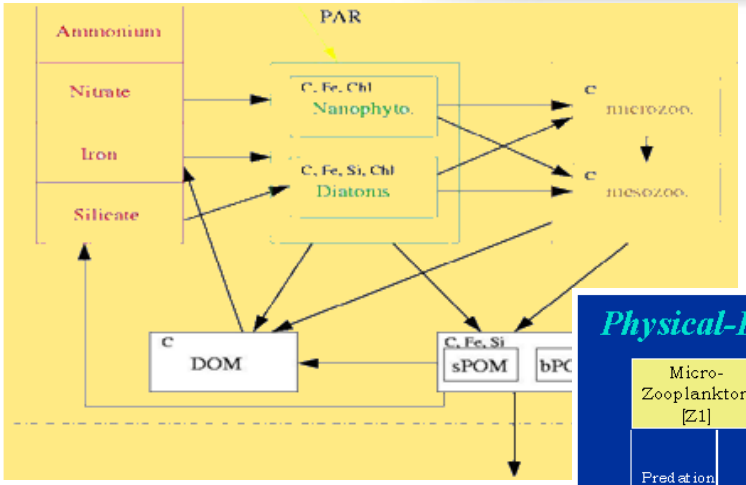


BIOGEOCHEMISTRY

From physics to plankton

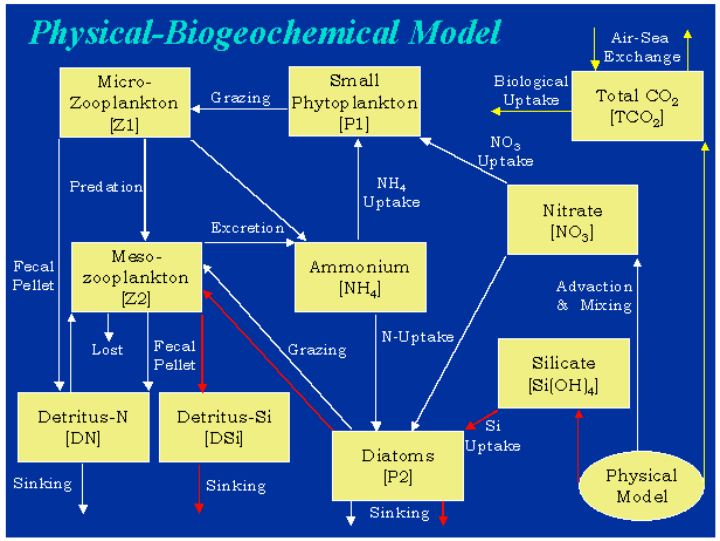


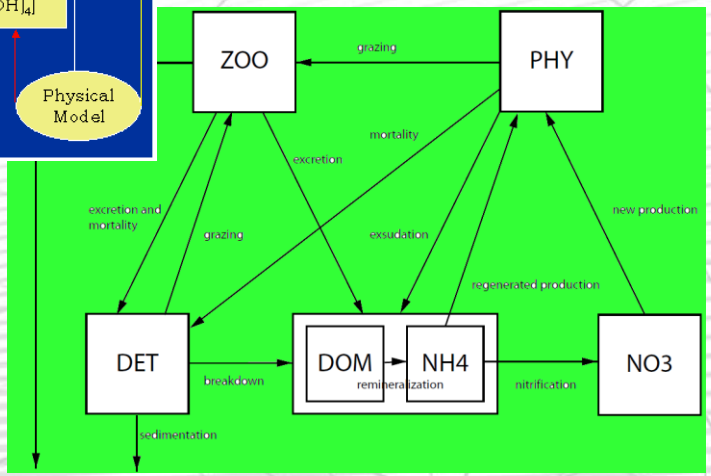
Various available NPZD models



PISCES
(Aumont et al., 2003)

Christian et al., 2002





LOBSTER
(Lévy et al., 1998)

MODELS OR SATELLITE DATA ?

- Biogeochemistry models

  + Work quite well in simple coupled mode with ocean physics model
  + Can be used in forecast mode (e.g. to simulate evolution in the future)
  + Some models (a few) also provide dissolved oxygen concentration
  - Have problems with data assimilation (solution in development)

- NPP estimates from satellite data (Behrenfeld & Falkowski, 1997)

  + Provide real NPP observations at high resolution for the period 1998 to present
  - Without vertical distribution of PP
  - No possibility to extend in the future, no other information (O_2)