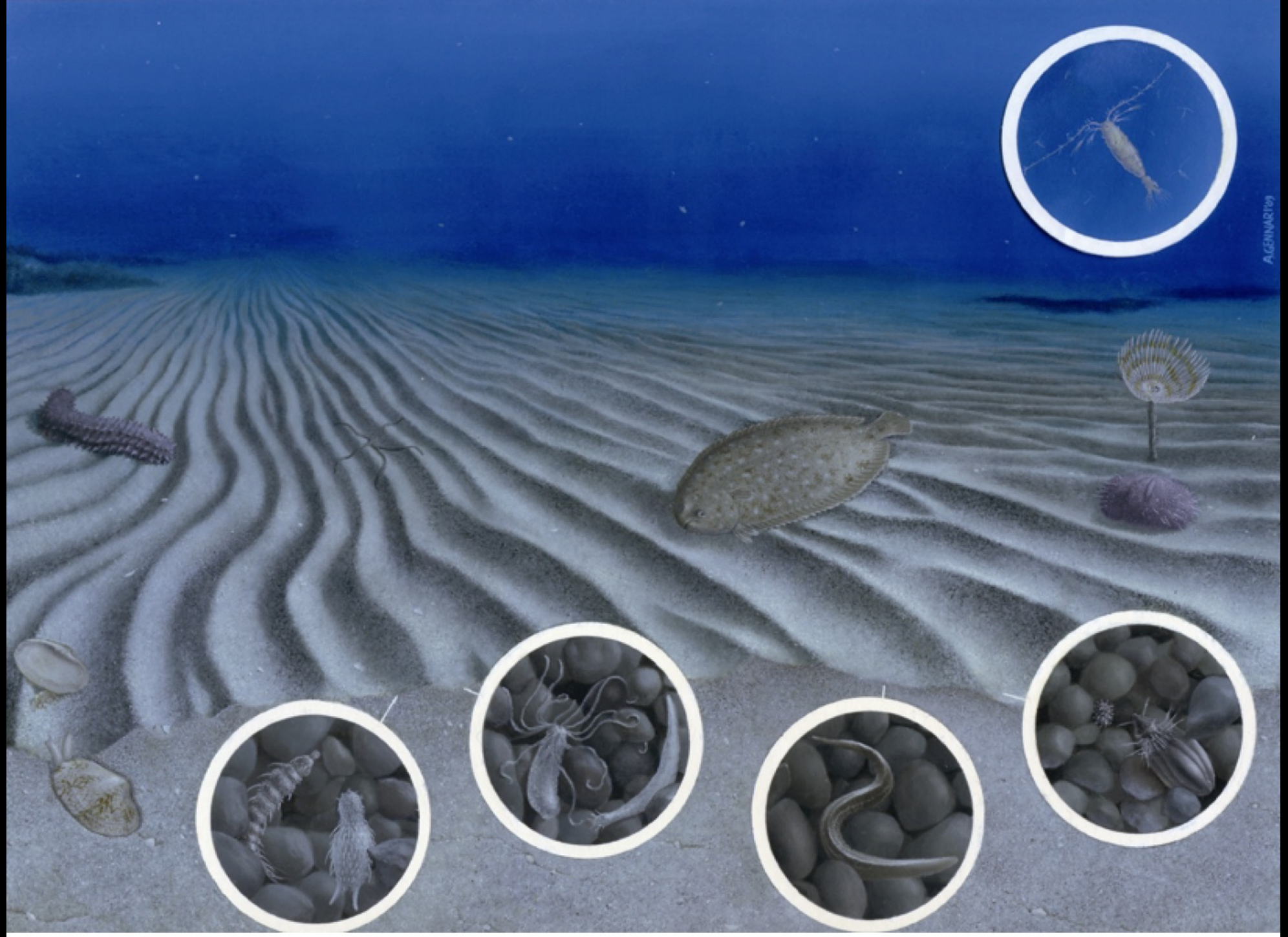
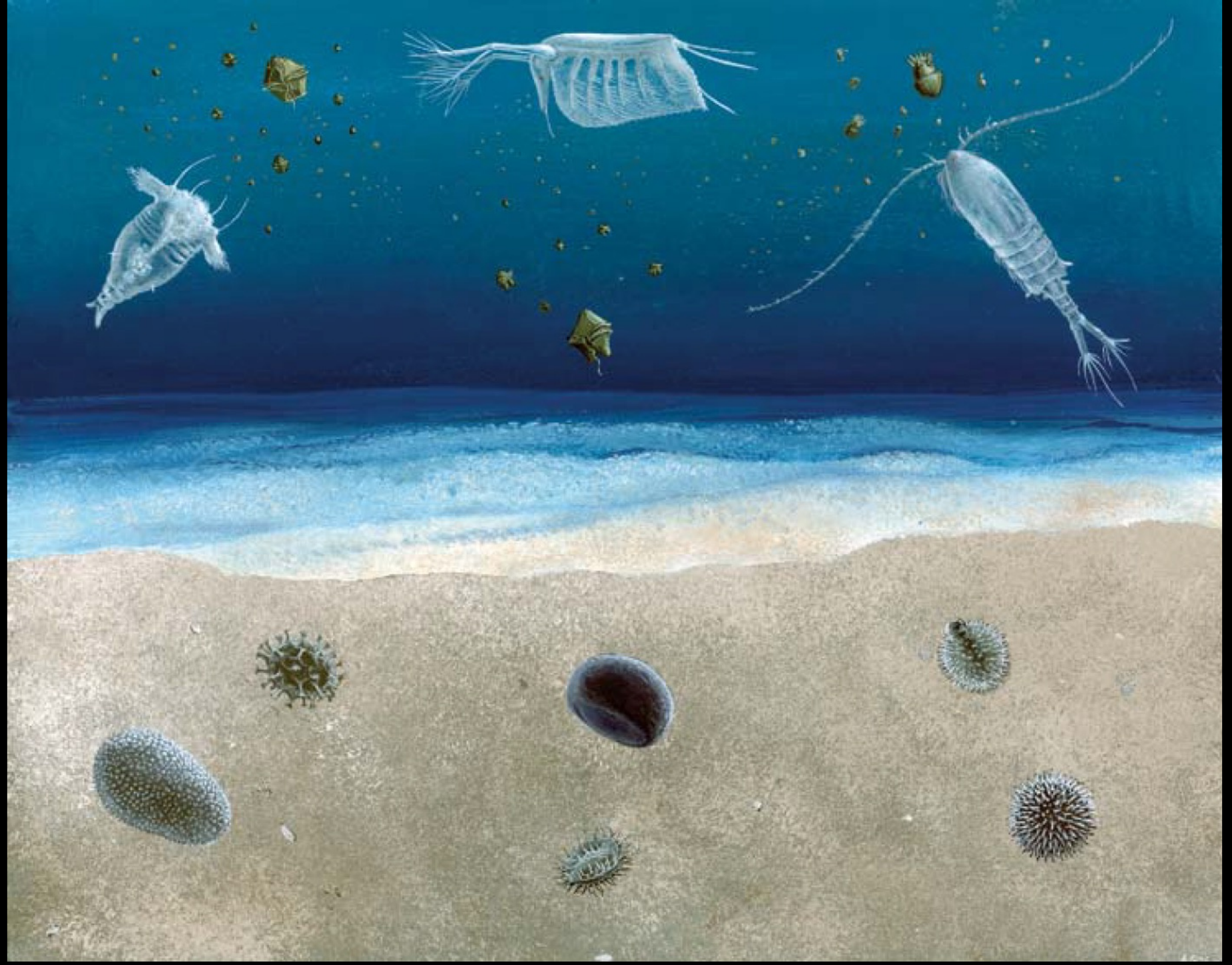
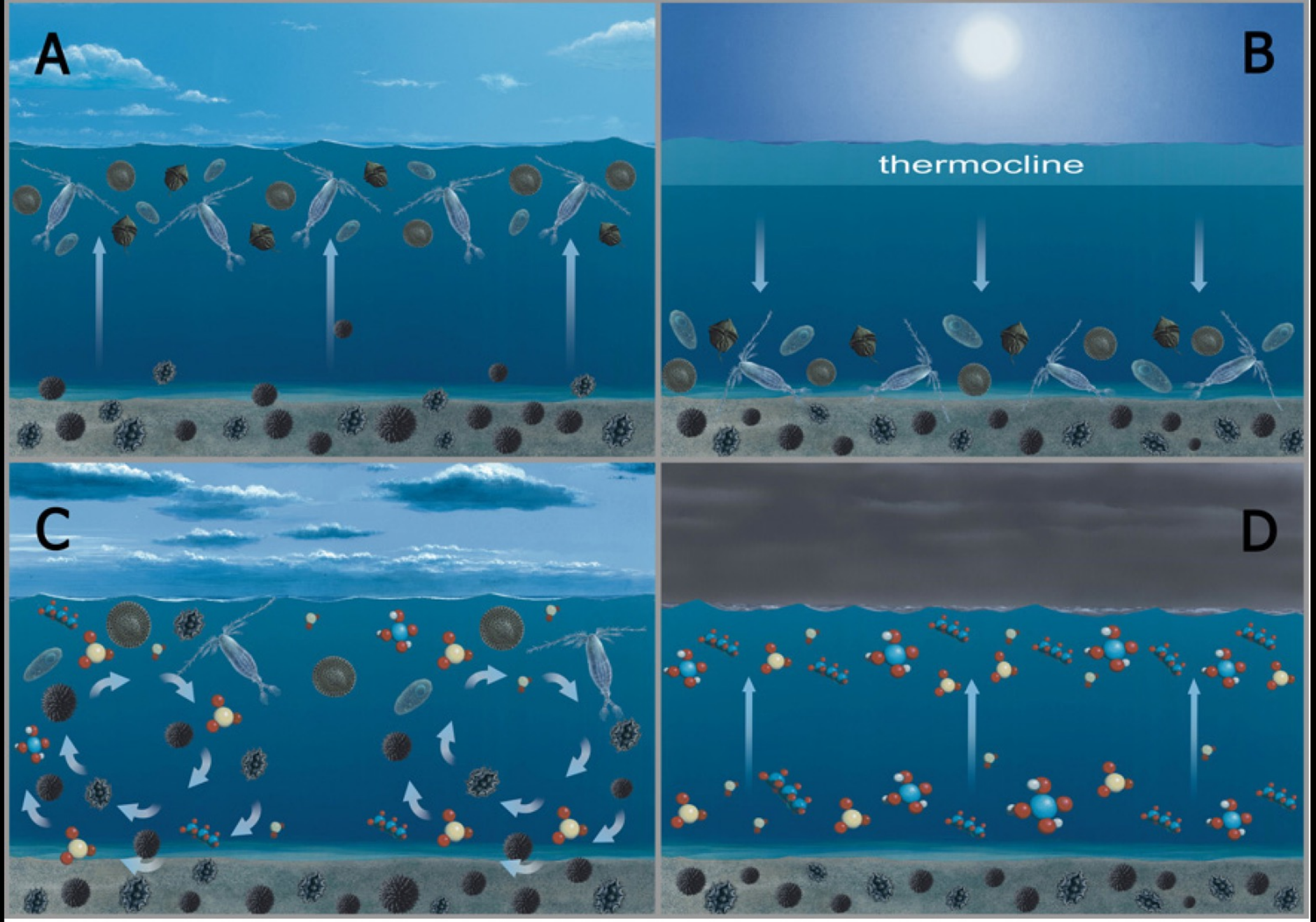
Fisica chimica e biogeochimica non bastano

Il mare ospita una vasta gamma di organismi: la biodiversità.

Oltre alla biodiversità realizzata c’è anche la biodiversità potenziale



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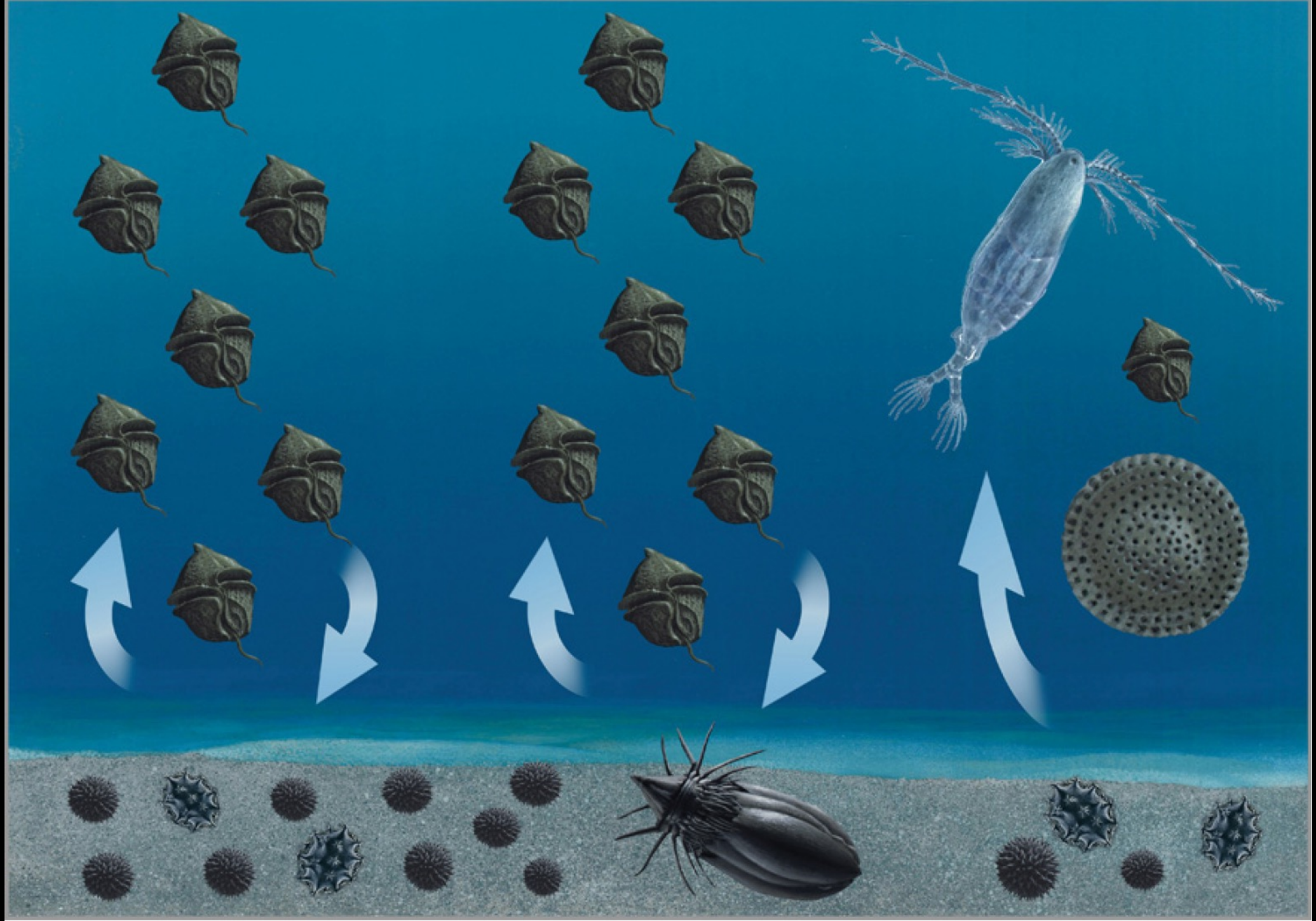
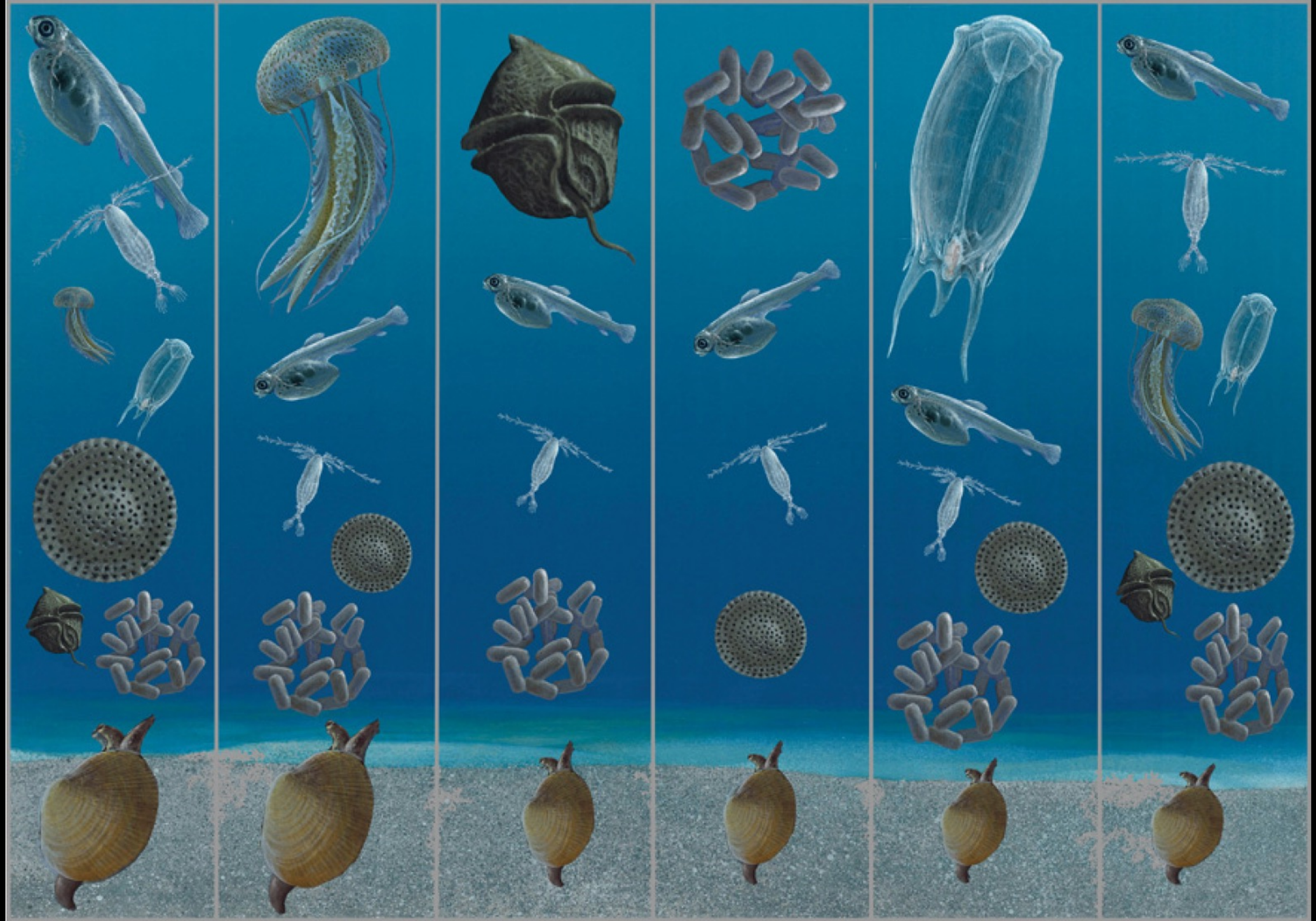




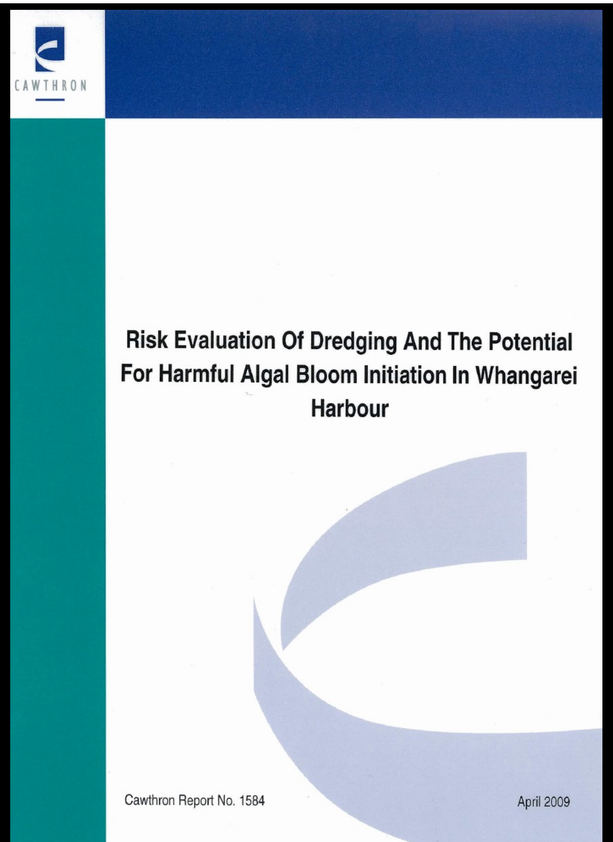
BULLETIN OF MARINE SCIENCE, 54(3): 944–954, 1994

DISTRIBUTION AND ECOLOGY OF CIGUATERA FISH POISONING IN FLORIDA, WITH EMPHASIS ON THE FLORIDA KEYS

Donald P. de Sylva

ABSTRACT

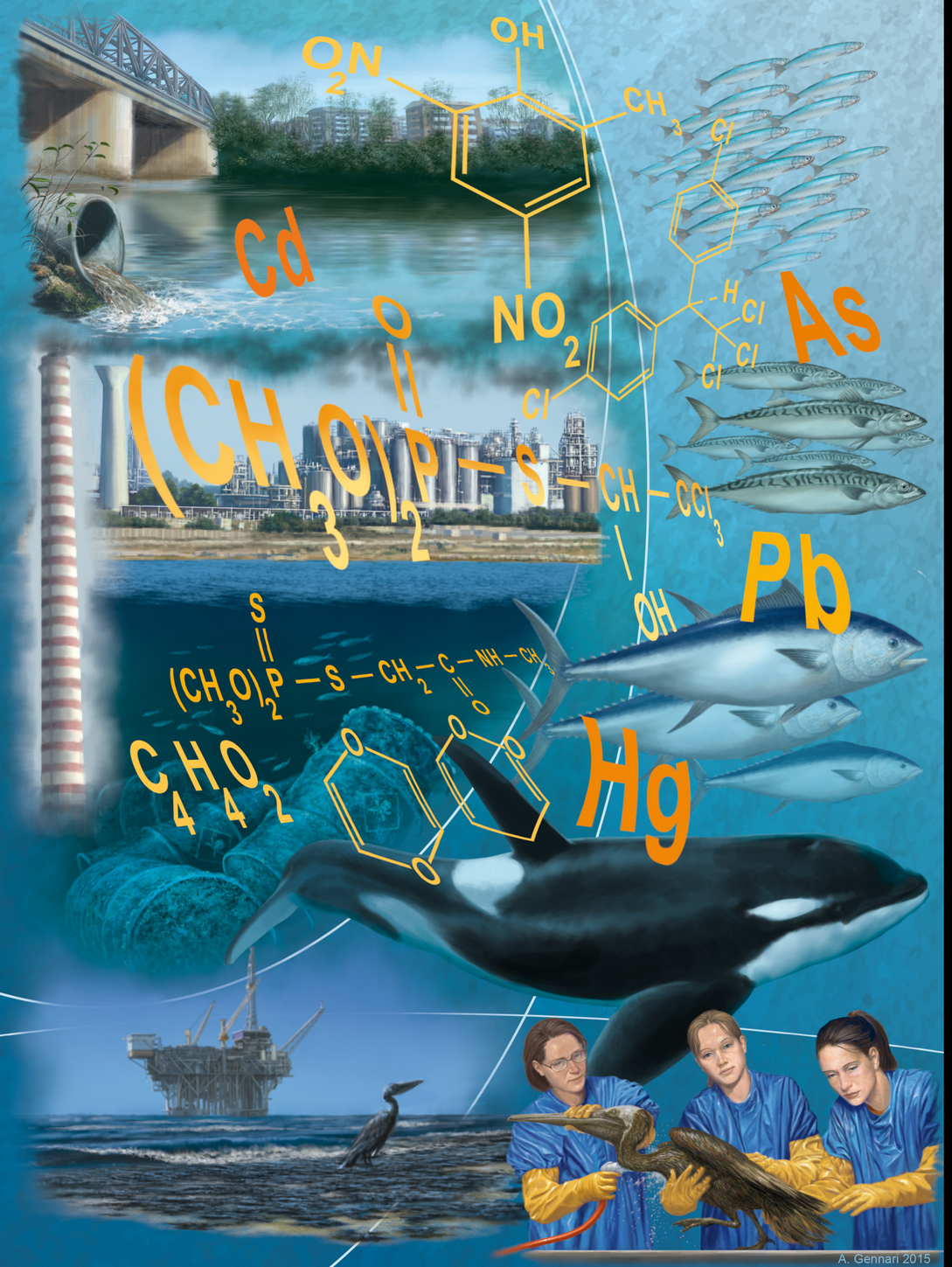
Ciguatera fish poisoning is a disease causing human health problems for persons eating fishes from tropical seas or for extra-tropical residents who have eaten fishes imported from tropical seas. Of the estimated 1,300 cases of ciguatera in south Florida, probably 10% are from fishes caught in south Florida waters; the rest are purchased from restaurants or seafood markets in south Florida who sell fish species which are potentially ciguatoxic. Many fish species are misidentified by restaurateurs or are from non-Florida sources, especially the Bahamas. This paper documents the (a) species, (b) locations, and (c) size of fishes which have caused ciguatera intoxications in the Florida Keys, as well as other locations along the Florida east coast. Evidence is presented from other tropical areas that (1) increases in sea surface temperature from global warming, (2) eutrophication from human activities, and (3) anthropogenic alterations such as dredging, filling, and coral reef destruction may increase the incidence of ciguatera in the future in the Florida Keys and elsewhere.



1. SUMMARY AND RECOMMENDATIONS

The seasonal restriction on dredging in Whangarei Harbour could be relaxed for the following reasons:

- The risk that dredging on the scale planned will increase the likelihood of toxic algal blooms through the re-suspension of resting cysts is small.
- Concern over the possibility of re-initiating an algal bloom like that which led to the neurotoxic shellfish poisoning outbreak in 1992-93 is unfounded. This is because the species that caused this event, has no known benthic resting cyst in its life cycle.
- Other potential effects from dredging, such as encouragement of macro-algae growth by nutrient enrichment or smothering of shellfish beds, are probably more likely undesirable consequences than generation of harmful micro-algae blooms. The magnitude of these effects depends on the scale of the activity. However, high summer is probably the least desirable time due to temperature stresses on shellfish populations and the opportunity for macro-algae (e.g. *Ulva*) to grow to nuisance proportions.
- There is no credible international evidence that dredging is a significant factor in the generation of nuisance micro-algae blooms, although degraded water quality from increased nutrient enrichment does promote their development and persistence.
- Cysts of the toxic dinoflagellate species that are most likely to be of concern (*Alexandrium* spp., *Gymnodinium catenatum*) are present in Whangarei Harbour. However, evidence from observations on blooms of *G. catenatum* elsewhere in New Zealand indicate these are usually initiated by cyst germination during mid winter-early spring.
- High numbers of cysts of a particular species would have to be present within the sediments for re-suspension from dredging to have the potential to initiate a bloom. Establishment of a high density cyst population would be preceded by a bloom that deposited these cysts. From historical phytoplankton monitoring data, there is no indication that toxic dinoflagellate blooms of cyst-forming species have occurred in the harbour in recent times.
- Examination of shellfish-biotoxin monitoring records (NZ Food Safety Authority), show that the incidence of shellfish toxins (excluding domoic acid in scallops) in Whangarei Harbour is very low.
- There is no reason to suppose that there is a higher risk of blooms developing in Whangarei Harbour than in any other similar environment in New Zealand where toxic dinoflagellate cysts are know to exist and dredging is routinely carried out (e.g. Manakau Harbour).
- The current shellfish-biotoxin and toxic phytoplankton monitoring programmes (industry and New Zealand Food Safety Authority (NZFSA) in Whangarei Harbour provide a level of surveillance that ensures toxic algal bloom events will not go undetected.
- A systematic survey would provide more certainty regarding assessment of the risk of toxic blooms arising from cyst beds in the harbour.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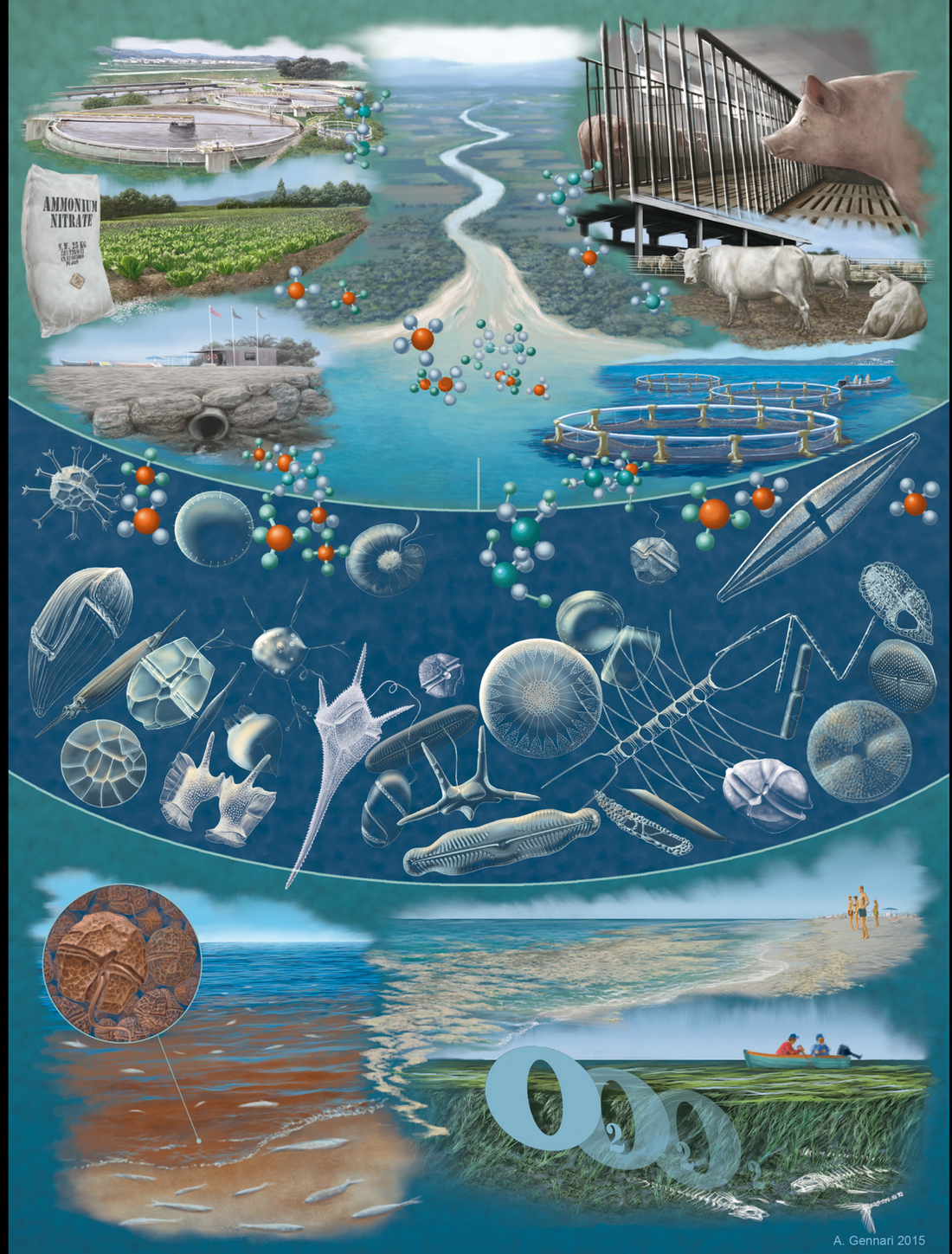
A. Gennari 2015


AMMONIUM NITRATE
A. Gennari 2015

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Taylor & Francis

RESTING CYSTS FROM COASTAL MARINE PLANKTON

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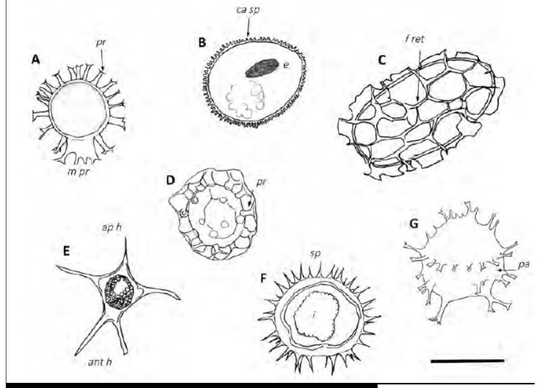

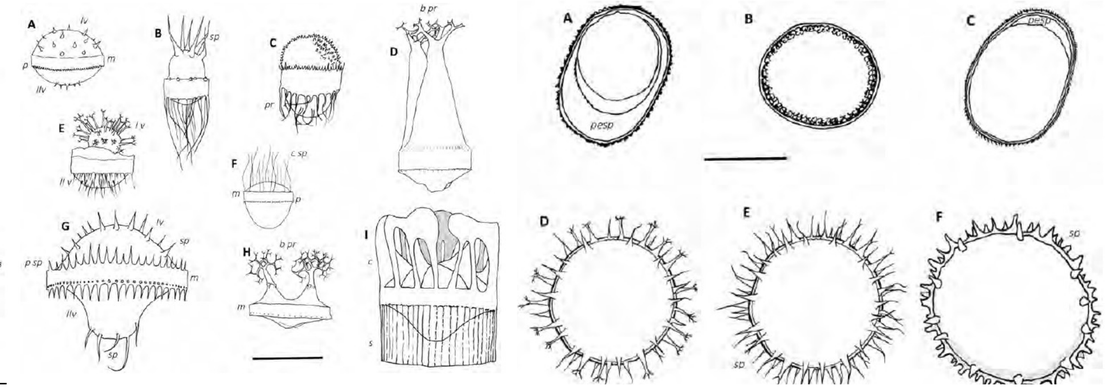

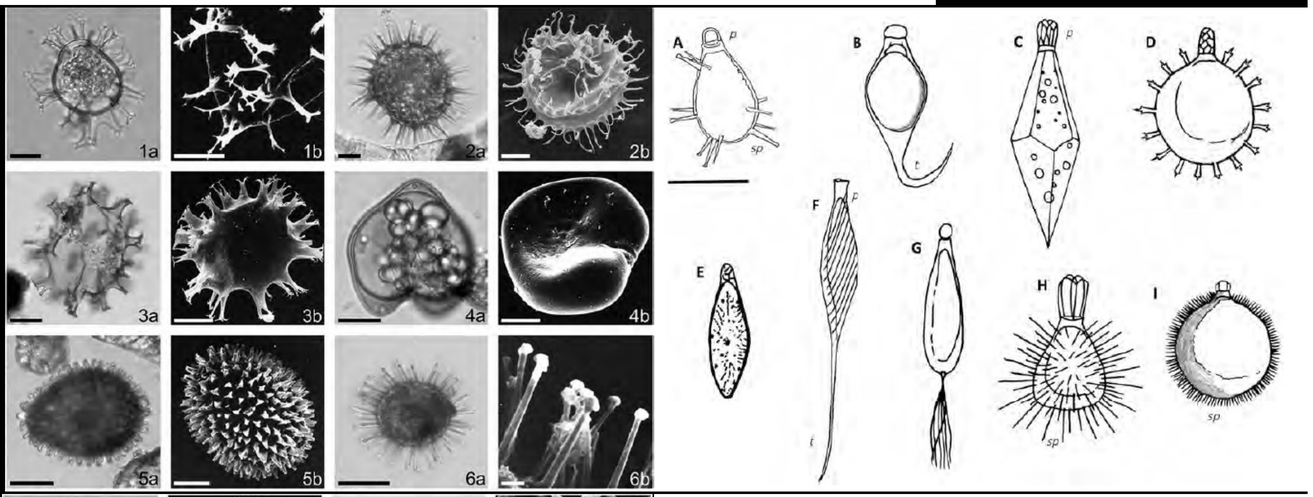

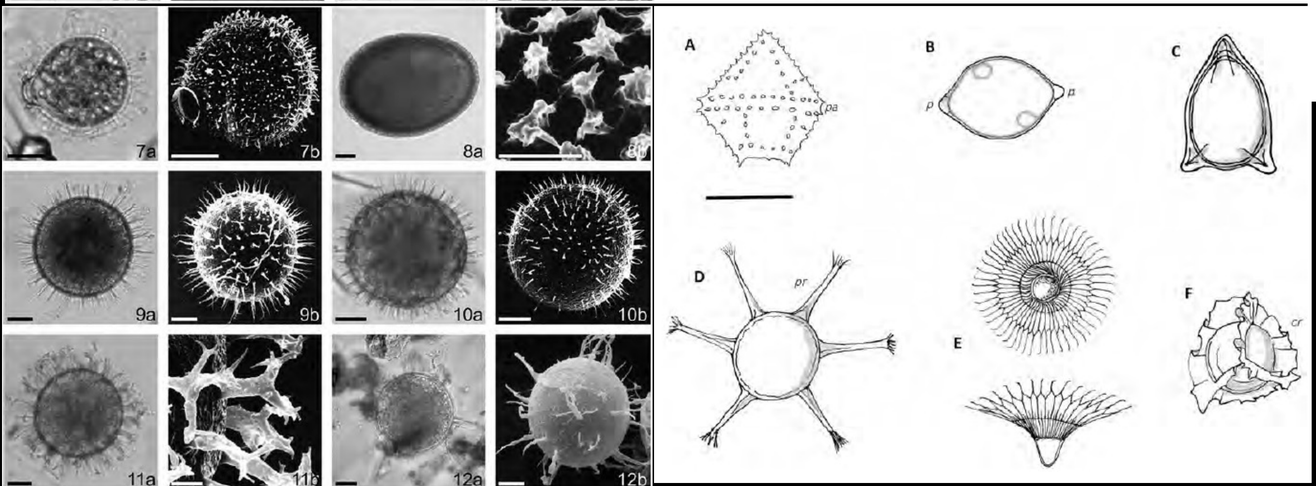

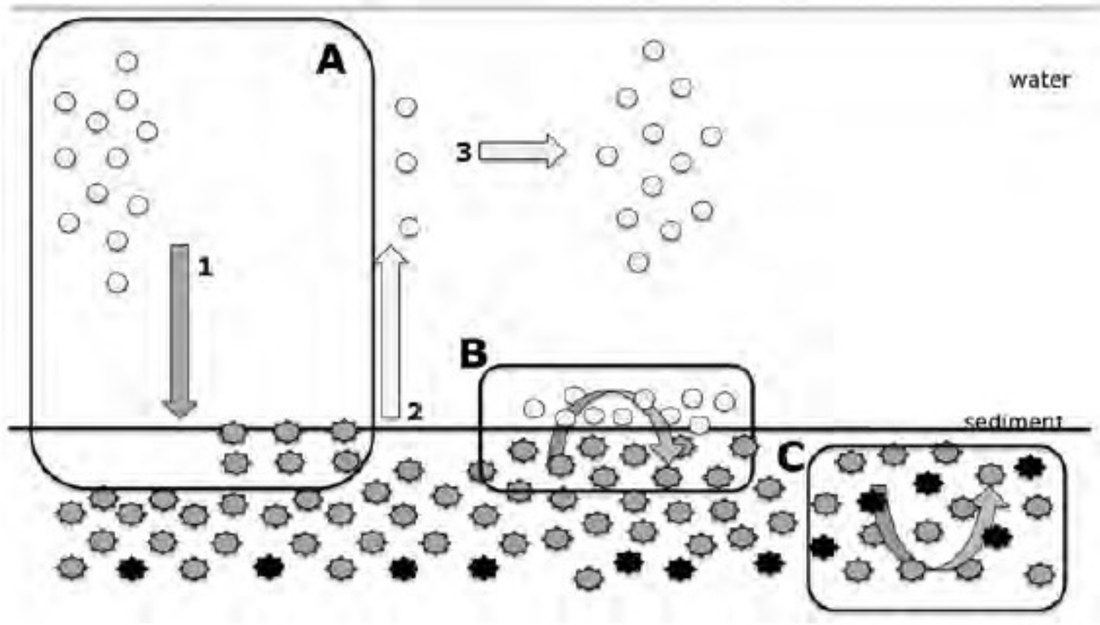

I porti sono hub di concentrazione di stadi di resistenza trasportati dalle navi che si depositano nei sedimenti e che si possono risvegliare con i dragaggi portando a proliferazioni di specie tossiche o comunque invasive che alterano il funzionamento degli ecosistemi e che influenzano le attività umane

Protocollo per la gestione dei sedimenti

- Analizzare le banche di forme di incistamento
- Identificare le specie
- Identificare i periodi di attivazione e le stagioni favorevoli
- Non movimentare i sedimenti in periodi notoriamente favorevoli per i bloom
- Mettere a punto tecniche di bonifica dei sedimenti
- Il dragaggio sospende le cisti con possibilità di bloom locali
- Lo smaltimento dei sedimenti in altre località le disperde con propagazione dei bloom