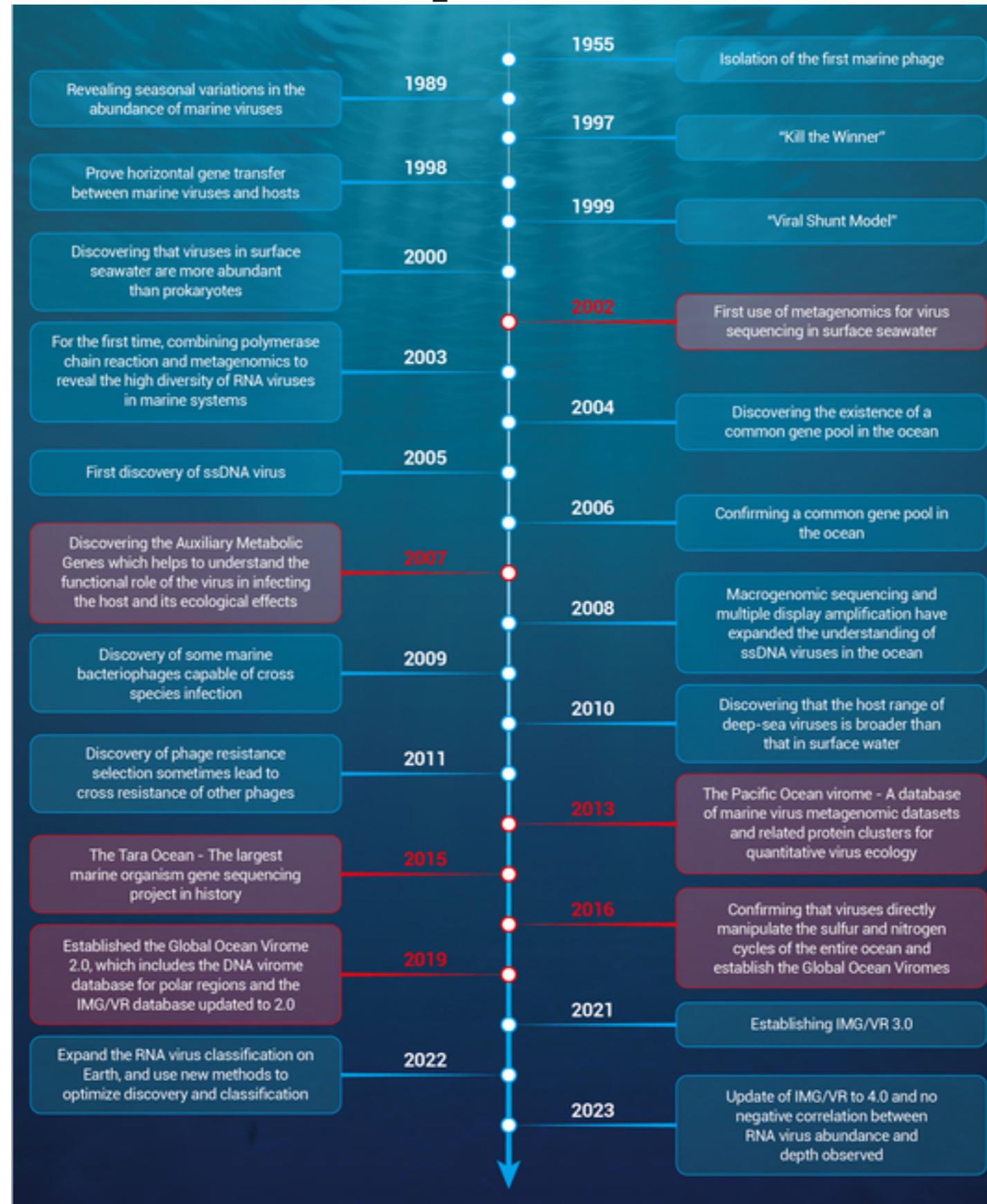
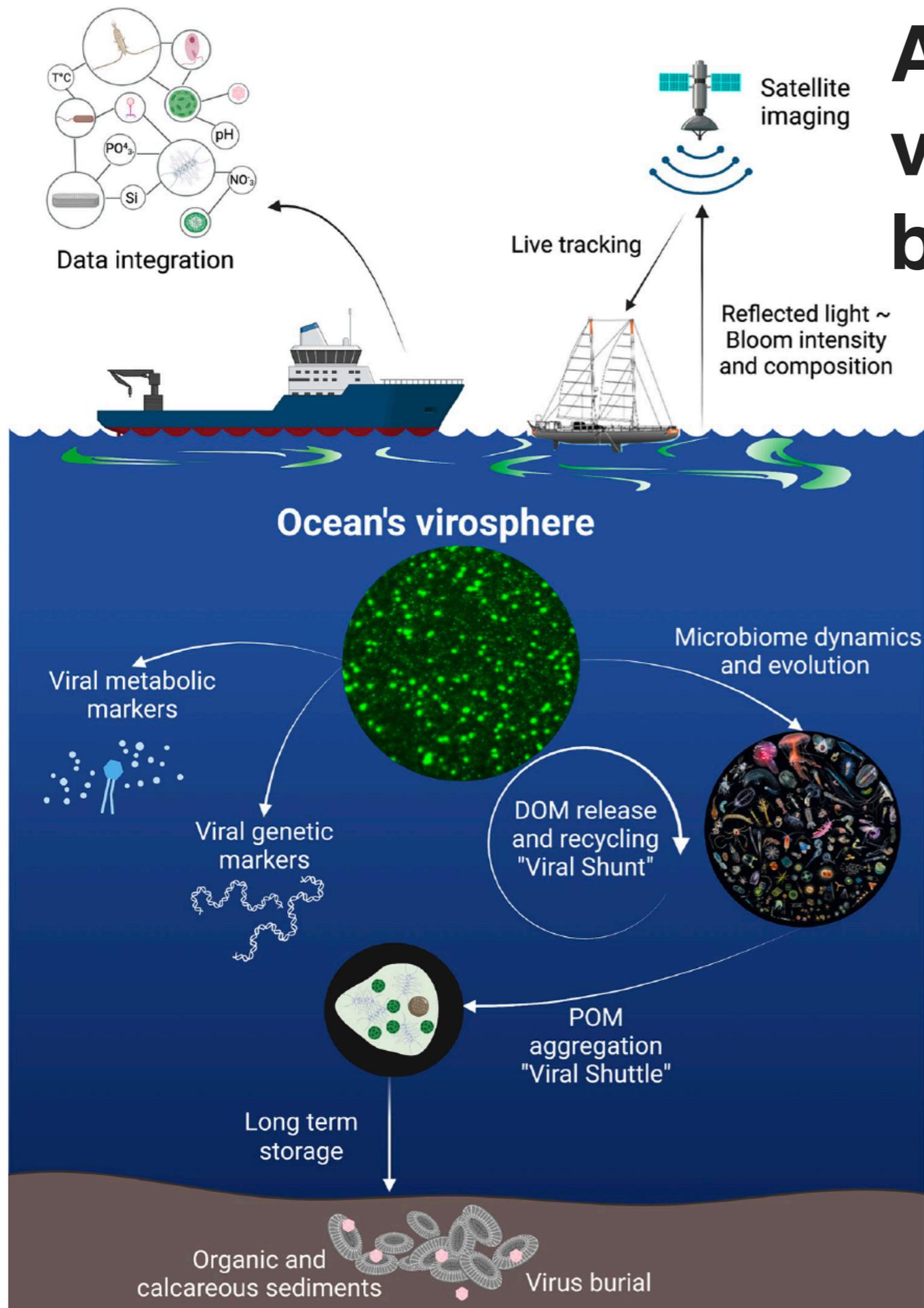


Timeline of virioplankton research



Assessing the impact of viruses within the C biogeochemical cycle



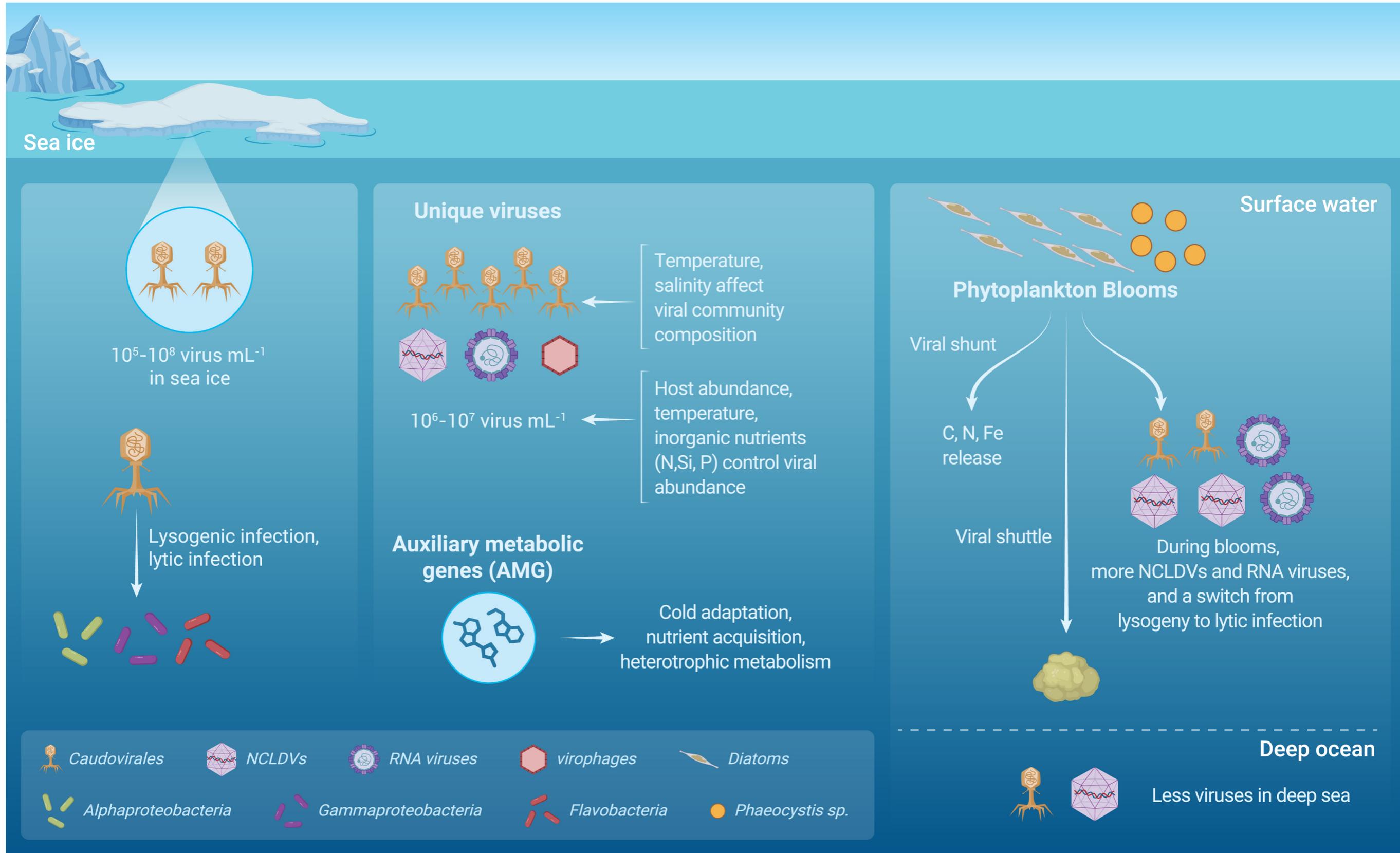
The biomass of photosynthetic microbes in the ocean constitutes roughly half a gigaton of carbon that is diverted towards different ecosystem pathways at different rates and efficacies of elemental transfer

While a large part of this carbon is consumed by organisms at higher trophic levels, **viral infection and the concomitant cell lysis** redirect biomass away from grazers **towards bacteria**, a process known as the “**viral shunt**”

Infected cells can also form aggregates, which enhance biomass sinking to the deep ocean in a process termed the “**viral shuttle**”

Viral lysis releases the intracellular content into the seawater, where it is readily available for bacterial respiration and growth → **system respiration increases**

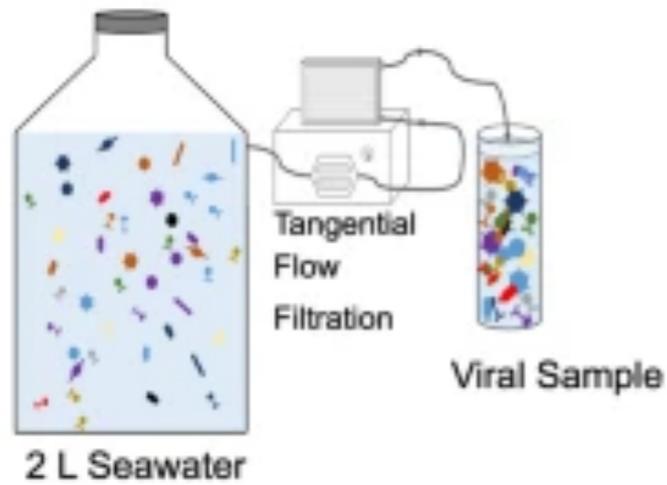
Antarctic Marine Viruses



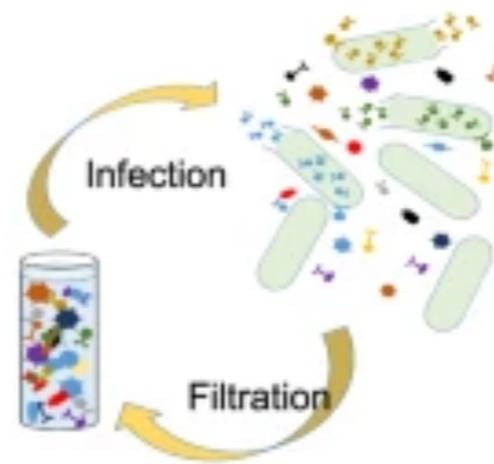
Viral isolation method

A Tangential flow filtration (100 kDa membrane)

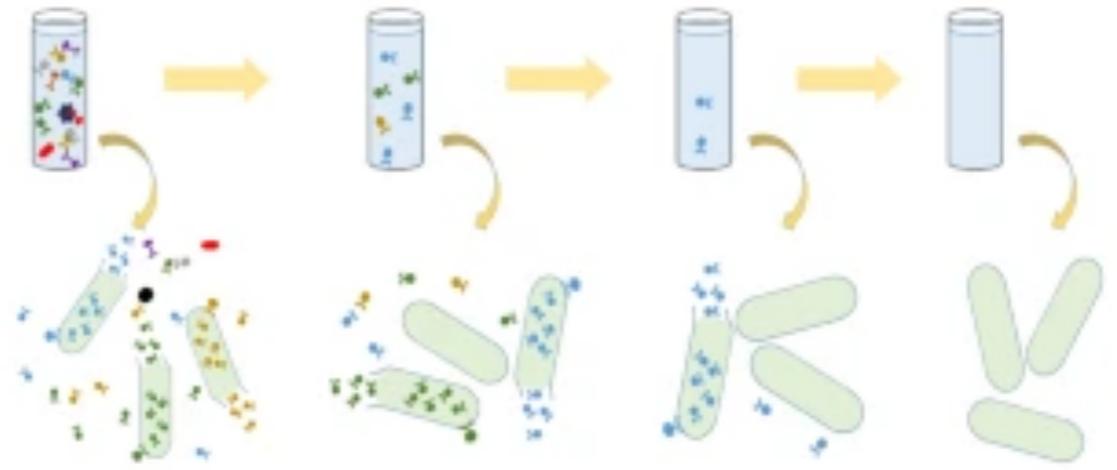
(i) Increasing Viral Concentration



(ii) Enrichment

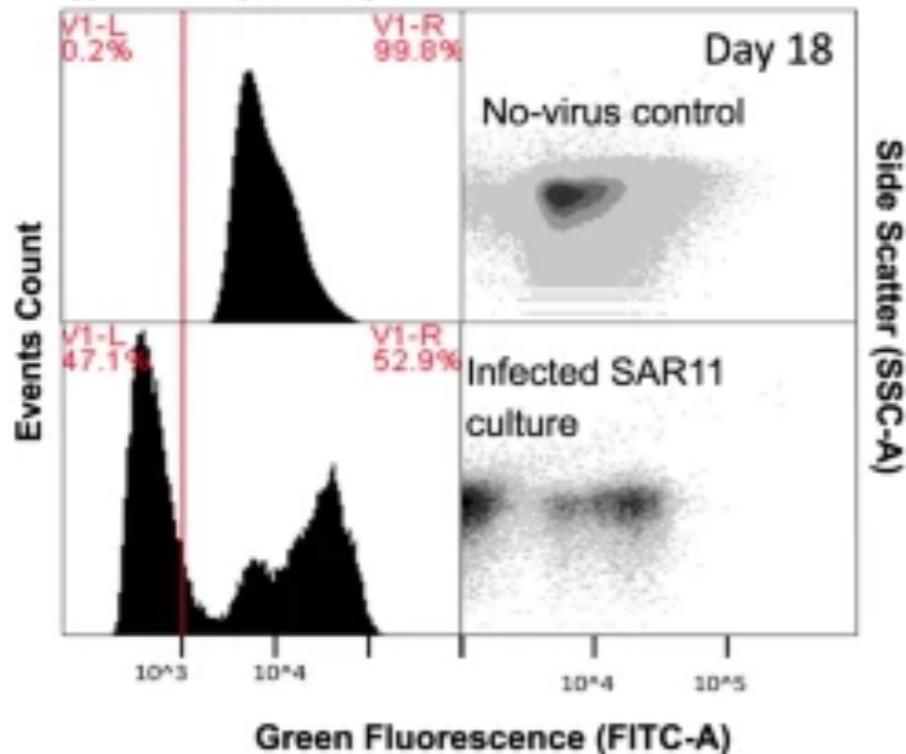


(iii) Purification

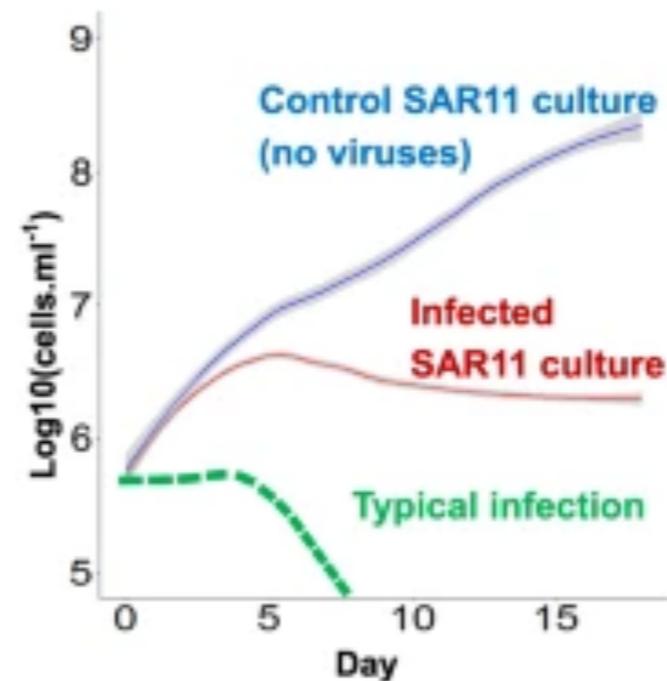


B

(i) Flow Cytometry



(ii) Host Cell Growth Curves



(iii) TE Microscopy

