

NOTIFICATION OF PROPOSED RESEARCH CRUISE

Part A: GENERAL INFORMATION

1. Name of research ship: RV Anna Weber–van Bosse

2. Cruise number: 64AWVB103

3. Cruise dates: 1/5/2026-30/5/2026

4. Operating authority: NIOZ Royal Netherlands Institute for Sea Research
Telephone (reception): (+31) (0)222-369300

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5. Owner: NWO-i
Institutes Organisation of the Dutch Research Council

6. Particulars of the ship:

Name: Anna Weber–van Bosse
Flag state: The Netherlands
Overall length: 79,98 meters
Max. draught: 5,5 meters
Gross tonnage: 3480 T
IMO nr: 9992919
Call sign: PCNG

7. Crew:

Name of master: L. Bliemer / H. Oenema
Number of crew: 16

8. Chief scientist:

Name: Prof Dr CPD Brussaard
Affiliation: NIOZ Royal Netherlands Institute for Sea Research
Address: Landsdiep 4, 't Horntje, Texel, NL
Telephone: +31222369513
Email: corina.brussaard@nioz.nl

9. Contact information of the focal point:

Name: Zeynep Erdem
Affiliation: National Marine Facilities (NMF)
NIOZ Royal Netherlands Institute for Sea Research
Address: Landsdiep 4, 1797 SZ Den Hoorn, the Netherlands
Telephone: +31 (0)222 369 421
Email: zeynep.erdem@nioz.nl
CoordinatorNMF@nioz.nl

10. Geographical area in which the ship will operate:
(with reference to latitude and longitude)

North Atlantic Ocean, sampling transect from Mindelo, Cape Verde, to Reykjavik, Iceland

11. Brief description of the purpose of the cruise:

We will focus on unicellular algae (phytoplankton) production, diversity and losses. Sample only the water column. Additionally, we will pick up a mooring for one of the NIOZ colleagues.

12. Dates of first entry and final departure from the state territorial waters:

We cannot foresee the precise dates but the first entry is estimated around 27-28 May, and departure 28-29 May

13. Names and dates of intended ports of call:

Starting port: Mindelo (São Vicente) - Cape Verde
End port: Reykjavik - Iceland

14. Any special logistic requirements at ports of call:

No

Part B: DETAILS

1. Name of research ship: RV Anne Weber–van Bosse

2. Cruise details:

Expected Entry & Exit Points (within EEZ or territorial waters):

Entry: Lat 60.2 Lon -23.1 around 27-28 May 2026

Exit: Reykjavik Lat 64.15 Lon -21.89, around 10-12 May

Cruise Duration: 1/5/2026-30/5/2026

Port Name(s) and ETA/ETD:

Starting port: Mindelo (São Vicente) - Cape Verde, 2 May 2026

End port: Reykjavik – Iceland, 29 May

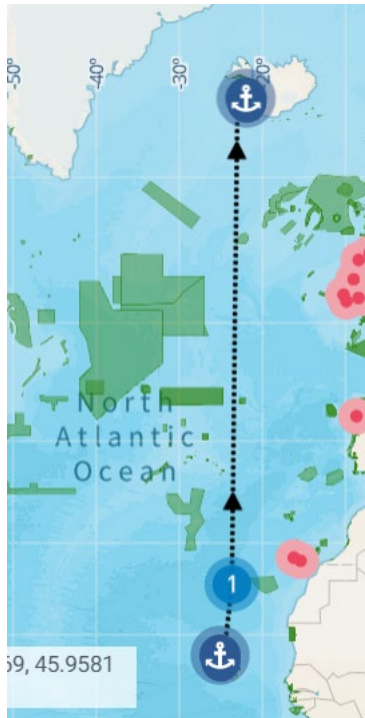
3. Purpose of research and general operational methods:

The climate is changing at an unprecedented rate, affecting life on Earth, including in our global oceans. Despite their minute size, marine unicellular algae (i.e., phytoplankton) are responsible for >50% of the global photosynthesis (and oxygen production) and sequester vast amounts of anthropogenic carbon dioxide. They are vital for marine ecosystem productivity and play a key role in global carbon and nutrient cycling. However, like all life on Earth, phytoplankton are susceptible to viral infections. Viral-induced mortality (lysis) of phytoplankton cells redirects the flow of energy and matter with far-reaching consequences for ocean ecosystem structure and functioning. Yet, phytoplankton viral lysis rates are still poorly constrained, the effects of viral infection on phytoplankton functional characteristics (i.e., traits) are largely understudied, and virus-host dynamics in global ecosystem and biogeochemistry models are generally missing, only implicitly included or assumed to be equal for all phytoplankton groups. Here, a synergistic consortium seeks to resolve host-virus interactions and identify relationships with traits of key marine phytoplankton groups, bridging different biological scales (from genes to biosphere). The research spans from controlled experimental research under global environmental change scenarios and extensive oceanic field work to theoretical ecosystem models.

The field research will focus on the North Atlantic Ocean, a region of global importance for climate and ocean circulation. A latitudinal gradient cruise track from Cape Verde to Iceland allows studying a wide range of natural phytoplankton across different oceanic provinces. During two oceanic expeditions (spring 2026 and summer 2027), we plan, per cruise, 8-10 main stations of 1.5-2 days duration (starting early morning). Physical and chemical characterization of the water column will be performed on the CTD downcast, and the accompanying trace metal-clean samplers allow discrete water sampling at different depths on the cast up to the ocean surface. For the biological variables, we will sample down to 250m, and for trace metal concentrations, the full water depth will be sampled at the main stations. Variables to sample at regular intervals: microbial abundances, photosynthetic capacity, dissolved inorganic nutrients (including trace metals). Based on the CTD depth profiles (temperature, salinity, chlorophyll autofluorescence, and oxygen), we will sample the mid-mixed layer (ML) and the deep chlorophyll maximum (DCM), if present, for community composition, stoichiometry, and primary production. Loss rate assays (viral lysis & grazing and sinking) will be performed at the DCM, unless not present (then ML). Flow cytometric sorting of phytoplankton will be performed for omics studies. Additionally, larger-sized phytoplankton that are generally in lower abundances (reducing effective use of the viral lysis rate assay) will be sorted by microscope or concentration by size-selective sieving for targeted transcriptomics, focusing on the expression of viral genes (active infection) within the infected host. Whole community virus and phytoplankton metagenomics analysis, phytoplankton transcriptomics, and lipidomics from the depths mentioned above will be sampled across the environmental gradient. Moreover, onboard bioassays will be performed to determine the response of the community to warming and nutrient addition.

4. Attach a chart showing (on an appropriate scale) the geographical area of the intended work, positions of intended stations/hydrographic sections:

North Atlantic Ocean, latitudinal transect from Mindelo to Reykjavik, with a small detour to location 1 to pick up a mooring for a NIOZ colleague. Along the transect at regular intervals 8-10 main stations and in between some short stations (shallow sampling, max 250m using CTD only). The number depends on the available time. Sampling at main stations needs to start early morning.



5. Type of samples required:

- ☒ Water Sampling
- ☐ Sediment Sampling
- ☐ Seafloor Mapping
- ☒ Instrument Recovery
- ☐ Biological Sampling
- ☐ Subsurface Profiling
- ☒ Underway data acquisition (pCO₂, Temperature, Salinity)
- ☐ Other:

6. Methods by which samples will be obtained (including dredge/core/drill techniques):

Clean CTD

7. Details of equipment deployments (installations, moorings, landers, and vehicles):

(including dates of laying, servicing, method, and anticipated timeframe for recovery)

We will pick up a mooring (appr. 25.655N, 23.6308W) for a NIOZ colleague, within the first week of May 2026.

8. Indicate the nature and quantity of substances to be released into the marine environment:

Non-sampled seawater and seawater remaining from onboard incubations (4 days) will be released back into the sea.

9. Indicate whether explosives will be used.

(If yes, please specify type and trade name, Chemical content, depth of trade class and stowage, size, depth of detonation, frequency of Detonation, and position in latitude and longitude)

no

10. Entity(ies)/Participant(s) from the coastal state involved in the planning of the project:

Name: -

Affiliation:

Address:

Telephone:

Email:

11. If designated as part of a larger-scale project, then provide the name of the project and the Organisation responsible for coordinating the project:

PHYVIR - Resolving marine phytoplankton – virus interactions from local to global scales.

Prof CPD Brussaard at NIOZ is the coordinator of the project

12. If there are any relevant previous/future cruises, please give more information:

A second cruise within the PHYVIR project will take place summer of 2027, same transect

13. Any previously published research data relating to the proposed cruise: (Attach a separate sheet if necessary)

No

14. Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable:

Yes

15. Whether it will be acceptable to carry on board an observer from the coastal state for any part of the cruise, and dates and ports of embarkation/-disembarkation:

In principle, yes, but practically NO because the maximum number of participants is reached, due to the collaborative nature of the PHYVIR projects with several institutions participating

16. When research data from the intended cruise is likely to be made available to the coastal state, and if so, by what means:

Partly by cruise report (shortly after ending the cruise) and later on through scientific publication in peer-reviewed journals.

Coastal State: Iceland

Complete the following table (indicate "Yes" or "No" if applicable)
- Include a separate page for each coastal state in case research plans include more than one.

SCIENTIFIC EQUIPMENT

Marine scientific equipment used	Water depth (m)	Fisheries research	Distance of research to the coast in nautical miles			
			<3	3-12,	12-50,	50-200
CTD (ultraclean)	250m/full depth	no	no	no	perhaps	likely

List of intended sampling stations during the cruise:
(Lat/Long and water depth (m))

Precise locations are not yet decided