

Materials List for:

Unraveling the Unseen Players in the Ocean - A Field Guide to Water Chemistry and Marine Microbiology

Andreas Florian Haas¹, Ben Knowles¹, Yan Wei Lim¹, Tracey McDole Somera², Linda Wegley Kelly¹, Mark Hatay¹, Forest Rohwer¹

¹Department of Biology, San Diego State University

²Scripps Institution of Oceanography, University of California San Diego

Correspondence to: Andreas Florian Haas at Andreas.florian.haas@gmail.com, Yan Wei Lim at ywlim.s@gmail.com

URL: <https://www.jove.com/video/52131>

DOI: [doi:10.3791/52131](https://doi.org/10.3791/52131)

Materials

Name	Company	Catalog Number	Comments
Niskin collection and processing units (Hatay Niskins)			Figure 1
Filtration setup			Figure 1
32-36% Hydrochloric acid (HCl)	Fisher Sci	A508-212	
High-density polyethylene (HDPE) container			e.g., 5 Gallon HDPE UN Certified Pail with Snap-On Lid
Combustion oven (550 °C)			
60 ml HDPE vials	Fisher Sci	02-896-2B	
25 mm GF/F filter	Fisher Sci	09-874-64	
Forceps	Fisher Sci	XX62-000-06	
Sterile, non-powdered gloves	Fisher Sci	19-170-010B	
Bilge pump			e.g., Thirsty Mate 124PF
20 L collapsible low-density polyethylene carboy			e.g., Reliance Fold A Carrier II
Tangential flow filter (TFF) ultrafiltration hollow fiber cartridges	Amersham	CFP-2-E-9A	
Platinum-cured silicon tubing for TFF	Cole Parmer	96440-82	
Hose clamps	Cole Parmer	P-68007-23	
Peristaltic pump	Cole Parmer	EW-77410-10	
Sodium hydroxide (NaOH) solution	Electron Microscopy Sciences	21162	
0.2 µm Polycarbonate track-etched membrane filter	Fisher Sci	09-300-61	
8.0 µm Polycarbonate track-etched membrane filter	Fisher Sci	09-300-57	
0.22 µm Polyvinylidene difluoride cylindrical filter	Fisher Sci	SVGP01050	
0.45 µm Polyvinylidene difluoride cylindrical filter	Fisher Sci	SVHV010RS	
Synthetic nylon mesh	Sefar	03-125-37	
20 ml Plastic scintillation bottle	Fisher Sci	03-341-72C	
Clean bucket (10-20 L)			
32% Paraformaldehyde	Electron Microscopy Science	15714	
25% Glutaraldehyde	Electron Microscopy Science	16220	
Liquid nitrogen			

0.02 µm High-purity alumina matrix filter with annular polypropylene support ring	Fisher Sci	6809-6002	
0.2 µm High-purity alumina matrix filter with annular polypropylene support ring	Fisher Sci	6809-6022	
10,000x SYBR Gold nucleic acid stain	Invitrogen	S11494	
DAPI solution 25 µg/ml	Invitrogen	D1306	
Molecular grade water	sigma aldrich	W-4502	
Ascorbic acid	Fisher Sci	BP351-500	
Phosphate Buffered Saline (PBS)	Fisher Sci	BP399-500	
Glycerol	Fisher Sci	G31-500	
Microscope slide	Fisher Sci	12-550-123	
Coverslip	Fisher Sci	12-548-5M	
Delicate task wipe	Fisher Sci	06-666A	
Slide station with vacuum pump			Figure 3
DNA extraction kit	Macherey-Nagel	740952.1	Nucleospin tissue kit
Proteinase K (20 mg/ml)	Lifetechnologies	AM2546	
200-proof Ethanol	Electron Microscopy Sciences	15058	
Red cap: Male Luer with Lock Ring x Female Luer Coupler	Cole Parmer	EW-45503-88	
Cesium chloride (CsCl)	Fisher Sci	bp1595-500	
60 ml Syringe	Fisher Sci	13-6898	
0.02 µm Alumina matrix disposable syringe filter	Fisher Sci	O992613	
Ultra-clear centrifuge tubes	Beckman Coulter	344059	
Ultra-swinging bucket rotor	Beckman Coulter	333790	SW41 Ti Rotor
DNase I (100 units/µl)	Calbiochem	260913	
0.5 M EDTA	Fisher Sci	BP2482-500	
Formamide	Fisher Sci	BP228-100	
Glycogen	sigma aldrich	G-1767	
1x Tris-EDTA (TE) pH 8.0	Fisher Sci	BP2473-500	
Sodium Dodecyl Sulfate (SDS)	Fisher Sci	02674-25	
20 µg/ml Proteinase K	Fisher Sci	BP1700-500	
Chloroform	Fisher Sci	BP1145-1	
Phenol:Chloroform:Isoamyl alcohol 25:24:1	sigma aldrich	p3803	
Isopropanol	Fisher Sci	BP2618-500	
50 ml Oak Ridge tube	Fisher Sci	05-562-16B	