



**UNIVERSITY OF KERALA**  
**DEPARTMENT OF AQUATIC BIOLOGY & FISHERIES**

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**QUOTATION NOTICE 3- Oceanography instruments**

Sealed quotations are invited from the Original Equipment Manufacturers (OEM) or their authorized dealers for supply and installation of the following oceanography equipments for implementing the **European Union- supported Erasmus+ research project titled "ECOMARINE" (Building a Comprehensive Mechanism for Preserving Marine Ecosystems and Life from the negative consequences of Climate Change and the disposal of Plastic Debris)** at the Department of Aquatic Biology and Fisheries, University of Kerala as per the specification mentioned here.

Last date and time of receipt of quotations: **12-01-2024; 03.00 PM**

Quotation may be addressed to: Prof A Biju Kumar, ECOMARINE project leader, Department of Aquatic Biology and Fisheries, University of Kerala, Karyavattom, Thiruvananthapuram 695581

**1. Buchner funnel vacuum filtration system**

500mL Filtering Flask, with outlet to pump and 300mL Graduated Funnel; borosilicate glass Glass Base and Stopper, 47 mm, Glass frit membrane support  
Anodized aluminium spring/glass clamp(s)  
High-quality tubes for funnel;  
¼ HP high quality soundproof pump with inline filters

**2. Borosil 2000 ml Filtration Assembly**

Capacity (ml) : 2000 ml; Size (mm) : 47 mm; The filter size is 47 mm. The effective filtration area is 9.6 cm. Oil-free system.

**3. Sieve Shaker & Sieves**

Electromagnetic Sieve shaker, with three-directional sifting motion, Intermittent and Continuous tapping motion. Very low noise operation.

Digital; 20 x 4 Alphanumeric LCD display.

Stainless steel (SS 316) rigid frames and sieves with ISO normal aperture 25 mm, 20 mm, 15 mm, 10 mm, 5 mm, 1mm, 0.5mm, 0.25mm, 0.15mm, 0.125mm and 0.054mm

**4. GPSMAP - Marine Handheld with BlueChart g3 Coastal Charts and inReach Capabilities**

DIMENSION: 2.65" x 7" x 1.7" (6.75w x 17.8h x 4.4d cm)

DISPLAY SIZE: 1.5"W x 2.5"H (3.8 x 6.3 cm); 3" diag (7.6 cm)  
DISPLAY RESOLUTION 240 x 400 pixels: DISPLAY TYPE: transfective, 65K color TFT  
WATERPROOF IPX7  
BATTERY TYPE: rechargeable, internal lithium-ion, with battery life up to 35 hours at 10-minute tracking; up to 200 hours at 30-minute tracking (power save mode)  
MIL-STD-810: thermal, shock, water): INTERFACE: high speed microUSB and NMEA 0183 compatible  
MEMORY/HISTORY: 16 GB (user space varies based on included mapping)  
Maps & Memory; preloaded maps and BlueChart® g3 included  
MAP SEGMENTS 15000  
SATELLITE IMAGERY yes (direct to device)  
EXTERNAL MEMORY STORAGE, with 32 GB max microSD™ card  
WAYPOINTS/FAVORITES/LOCATIONS 10000  
TRACKS- 250; NAVIGATION TRACK LOG-20,000 points, 250 saved gpx tracks, 300 saved fit activities: NAVIGATION ROUTES- 250, 250 points per route; 50 points auto routing  
Sensors: HIGH-SENSITIVITY RECEIVER, GPS, GALILEO, BAROMETRIC ALTIMETER; COMPASS, GPS COMPASS (WHILE MOVING)  
SMART NOTIFICATIONS ON HANDHELD, VIRB® REMOTE, PAIRS WITH GARMIN CONNECT™ MOBILE, ACTIVE WEATHER  
**Safety and Tracking Features**  
LIVETRACK  
POINT-TO-POINT NAVIGATION, AREA CALCULATION, HUNT/FISH CALENDAR, SUN AND MOON INFORMATION, XERO™ LOCATIONS, GEOCACHING-FRIENDLY, CUSTOM MAPS COMPATIBLE; PICTURE VIEWER; LED BEACON FLASHLIGHT  
**inReach® Features**  
INTERACTIVE SOS, SEND AND RECEIVE TEXT MESSAGES TO SMS AND EMAIL, SEND AND RECEIVE TEXT MESSAGES TO OTHER INREACH DEVICE, EXCHANGE LOCATIONS WITH OTHER INREACH DEVICE, MAPSHARE COMPATIBLE WITH TRACKING, VIRTUAL KEYBOARD FOR CUSTOM MESSAGING, SEND WAYPOINTS TO MAPSHARE DURING TRIP, SEND ROUTE SELECTION TO MAPSHARE DURING TRIP, INREACH REMOTE COMPATIBLE  
Connections  
CONNECTIONS WIRELESS CONNECTIVITY  
**Accessories:** Cables, case, lanyard

## 5. Micro pipettes variable

4-digit display  
Volume- 0.1-2.5 ul, 0.5-10ul, 2-20 ul, 10-100ul, 20-200 ul, 100-1000ul  
Stand for pipettes  
Air displacement pipettes  
Can autoclaved without disassembled  
Tip ejection force of pipettes can be low as 3.6 N

## 6. Handheld Refractometer

Salinity measurements from 0-100% parts/million  
Automatic temperature compensation.  
Hard case, dropper, screwdriver, user manual and cleaning cloth.

## 7. Multi-parameter Water Quality Meters

Measurement Channels: Digital electrode channel

Mode of measurement: Photometric method

Display: 128 x 64 pixel LCD; Absorbance Range: 0.000 to 4.000 Abs; Absorbance

Resolution- 0.001 Abs; Absorbance Accuracy  $\pm 0.003$  Abs (at 1.000 Abs)

Light Source: LED; Bandpass Filter Bandwidth: 8 nm; Bandpass Filter Wavelength

Accuracy  $\pm 1.0$  nm; Light Detector: Silicon photocell

Battery Life 3.7 VDC Li-polymer rechargeable battery / >500 photometric measurements or 50 hours of continuous pH measurement

Humidity: 0 to 95% RH, non-condensing

Output: -A host for flash drive; micro-USB-B for power and computer connectivity

Power Supply: 5 VDC USB 2.0 power adapter with USB-A to micro-USB-B cable

Parameters to be measured with probe (Marine): pH, ORP, dissolved oxygen, conductivity, salinity, seawater specific gravity, TDS, temperature, turbidity (LED), water depth

COD Test tube heater

Reaction Temperature: 105°C – 150°C; Temperature stability: +0.5°C; Temperature Range: -

10°C – 160°C; Accuracy:  $\pm 2$ °C; Block Aluminium: Capacity 25 vials; Power

supply 50 Hz, 250W

Software for analysis

Accessories: Case, cables

## 8. Net for Microplastic Sampling

Length 260 cm; Width 70 cm; Height 40 cm

Weight on air: 12 kg

Material of frame: stainless steel; Material of net bag MOnyl

With floats; Towing speed (for 300 microns standard mesh size) 3 kn

## 9. Microplastic Sediment Separator

Purpose: For Density Separation of Microplastic Particles from Sediment Samples.

Max. sediment volume: 6 litres; Volume of concentrate sample: 95 ml

Complete volume of container: 31 litres

Dimensions: 36 x 46 x 140 cm (w x l x h) including base frame; Empty weight 22 kg

Material container: Stainless steel AISI 316 Ti / L, glass, PTFE, EPDM

Material base frame: Aluminium; Rotational speed range 0 ... 20 rpm

Power supply Mains supply: 85-260 V AC, 500 W

100% recovery rate for large microplastic particles (L-MPP, 1-5mm)

95.5% recovery rate for small microplastic particles (S-MPP, <1mm)

Automatic deadlock release; Edgeless hydrodynamic flange geometry

Duplex gasket for stirrer axle

## 10. Bongo Net 30cm

Oceanographic double-ring net for horizontal or oblique tows

Two stainless steel rings, connected by a coupling with rotatable connection point for the

towing rope; Two long net bags; one with Meshsize first net 300 $\mu$ m; second net 335 $\mu$ m

Length 200 cm; Width 75 cm; Height 30 cm; Net opening 2 x 0.0707 m<sup>2</sup>

Weight on air 14 kg; Material of frame stainless steel; Material of net bag MOnyl

## Terms and Conditions

1. The bidder should submit following documents along with bid:
  - Detailed technical compliance of product quoted with cross reference
  - Brochure and literature of the product quoted establishing its Brand, Make, Model and Technical Specifications
  - List of addresses of Offices/Company's Service Centres
  - Original Equipment Manufacturer (OEM) Certificate/ Undertaking. If the bidder is not an OEM, Certificate of authorized dealership/ distributorship from the OEM.
  - Certificate from the OEM for technical support to the bidder and supply of spares.
  - **Earnest Money Deposit (EMD): EMD calculated @ 1% of the Purchase Assessment Cost (PAC- excluding GST) should be paid by the firm. The EMD should be remitted by way of Demand Draft drawn in favour of 'The Finance Officer, University of Kerala' payable at 'SBI, University Office Campus, Palayam' and to be submitted along with sealed quotations.**
2. Incomplete & conditional quotations received after the due date will be summarily rejected without assigning any reasons thereof
3. The Price/Rate quoted should be inclusive of all Taxes Freight, Packing & Forwarding Charges, Handling, Delivery Charges, installation charges etc.
4. The configuration given is the minimum configuration that is/are required. Vendors may choose to supply higher/better/ enhanced systems, but their financial quotes shall be treated as if they have been offered for the specified configuration only.
5. The bid shall be typed and shall be signed by the bidder or a person duly authorized to bind the bidder to the contract.
6. The bidder is expected to examine all instructions, forms, terms, condition, and technical specifications in the quotation Documents. Failure to furnish all information required by the quotation documents or submission of a bid not substantially responsive may result in the rejection of its bid.
7. The bidders shall give undertaking that all the Components used in the equipments shall be original make as per the technical specifications submitted and the hardware/software shall be supplied with the authorized license certificates, if found contrary the supplier shall replace the component/equipment with original one at their own cost 8.
8. All prices should be in INR
9. Delivery and installation: Proposed delivery schedule should be mentioned clearly. Delivery and installation should be made at the Department in Karyavattom campus without any extra cost. Complete installation, testing of the system and demonstration are to be provided at site.
11. Service facility: Supplier should mention their details of service setup and manpower in Kerala who are responsible for service and supply of AMC, if any.
12. In case of any dispute, the decision of the University authority shall be final and binding on the bidders. The undersigned reserves the right to reject any or all of the tenders received without assigning any reason thereof.

The quotations should be submitted in sealed over with title **“Quotation for the cameras for implementing ECOMARINE project at the Department of Aquatic Biology & Fisheries, University of Kerala”**

Sd/-

Dr A BIJU KUMAR