**NATIONAL INSTITUTE OF OCEANOGRAPHY, KARACHI**

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| **1.1 NATIONAL INSTITUTE OF OCEANOGRAPHY, KARACHI**  |
| **A** | **List of Major Equipments** | **No.** |
|
|  | Spectrophotometer | **01** |
|  | Atomic Absorption Spectrophotometer (AA) Graphite furnace with Auto-sampler FIMS-Hydride Generation System with Auto-sampler  | **01** |
|  | Gas Chromatograph /Mass Spectrometer (GC/MS)  | **01** |
|  | Gas Chromatograph (GC) with ECD. FID and FPD  | **01** |
|  | High Performance Liquid Chromatography (HPLC) | **01** |
|  | Microwave Digestion system  | **01** |
|  | Water Purification System (MILLIQ WATER) | **01** |
|  | Other Sample Preparation & Pretreatment Facilities  |  |
|  | Field Sampling Facilities  |  |
|  | Microscopes (assorted)Binoculars, Inverted, Compound (Olympus SZ Series, NIKON), with accessories | **08** |
|  | Tide & Wave Data Recording Model TWR-2050 Tide Wave Recorder S. No. 12463 | **1** |
|  | Ultra sonic sieve  | **1** |
|  | Tide & Wave Recorder SBE 26 SeaBird with Pressure Sensor Battery Pack and …. | **1** |
|  | Water quality Instrument (Hydrolab- U 22XD), with cable 30 M monitor data logger & recorder,  | **1** |
|  | ADCP flow quest 600kHz ADCP with 1 GB flash card (Transit case, bottom tracking wave quest, Directional wave spectrum measurement & high speed acoustic Modern aptiant and low quest studio Windows Software  | **4** |
|  | South Automatic Level Machine Model with Tripod stand & staff | **1** |
|  | DST-CT (Temperature conductivity, Logging sensor) DST-CT (Read out & communication box)DST-CT (Down loading X), adapter 1, data cable 1 | **1** |
|  | Mini CTD Profiler Standard Configurations , 3 m Y lea (Probe to PC and Power supply) supplied with stainless steel deployment cage and suspension trap Valport's unique digital, high stability conductivity sensor, a PRT temperature sensor, strain gauge pressure transducer, salinity, density values calculated by software | **1** |
|  | Particle size Analyzer/Sieves Shaker | 1 |
|  | Single Beam Echo Sounder(Bathy 500MF) | 1 |
|  | DeepEye Side Scan Sonar Dual 340/680with the transducer Tow kevlar Cable 20m , computer Dell Latitude E6410, GPS STD USB | 1 |
|  | ERDAS Imaging Professional Software | 1 |
| **B** | **List of Experts** | **Designation** | **Major Fields** |
|  | Dr. Asif Inam | D.G. | Geology/Geophysics |
|  | Dr. Monawwar Saleem | P. S. O | Marine & Environmental Chemistry |
|  | Dr. Naeem Ahmed  | P. S. O | Physical Oceanography, Hydrodynamics, Coastal Engineering |
|  | Mr. M. Danish | P. S. O | Geology |
|  | Dr. Nuzhat Khan  | P. S. O | Marine chemistry and environmental studies/coastal zone management |
|  | Mr. Arshad Ali | P. S. O | Physical Oceanography |
|  | Mr. S. M. Tabrez | S. A | Data Manager, Instrumentation, Bathymetric surveys, GIS |
|  | Mr. A. D. Shah | P. S. O | Marine Aquaculture |
|  | Mr. M. A. Hashmi | P. S. O | Marine Aquaculture |
|  | Mr. A. H. Bhutto  | S. R. O | Geology |
|  | Mr. Mohsin Muzaffer | S. R. O | Geology |
|  | Mr. S. Imran Hasany | S. R. O | Geology |
|  | Dr. Hina Saeed Baig | S. R. O | HAB, Phytoplankton Ecology |
|  | Mr. Naimatullah Sohoo | Senior Coastal Engineer | Environmental Engineering, Civil Engineering |
|  | Dr. Javed Aftab  | S. R. O | Chemical Oceanography |
|  | Ms. Saira Ishaq | S. R. O | Benthic Ecology |
|  | Dr. Samina Kidwai | S. R. O | Biological & Fisheries Oceanography, Marine & Environmental Ecology |
|  | Ms. Sanober Kehkashan | R. O | Analytical Chemistry |
|  | Mr. S. Waseem Haider | R. O | Geophysics |
|  | Mr. S. Abid Ali | CP & DP | Computer Programmer |
|  | Mr. Tariq Mahmood | R. O | Marine Aquaculture, biogeochemistry |
|  | Mr. Waqar Ahmed | R. O | Marine Aquaculture, biogeochemistry |
|  | Mr. Ibrahim Zia | R. O | Physical Oceanography, RS and GIS |
|  | Mr. Noor A. Kalhoro | R.O | Physical Oceanography |
|  | Mr. Khalid Mehmood | R.O | Geophysics |
|  | Ms. Aneela Shaheen | R.O | Microbiologist |
|  | Mr. Ali Jan | R.O | Marine Sciences |
| **C** | **Services being provided by the Organization:** |
|  | **a.** | **Testing/Analytical:**  **i: Aquaculture Services** site selection, environment condition assessment, feed preparation, hatchery and farm management. **ii: Heavy Metals** analysis using following Flame and Flameless Atomic Absorption Spectrophotometer (AA) technique in variety matrixes * Flame with Acetylene and Nitrous Oxide with Auto-sampler
* Graphite furnace with Auto-sampler
* FIMS-Hydride Generation System with Auto-sampler

**iii**: Quantitative and qualitative determination of Persistent Organic Pollutants (POPs), Poly-nuclear Aromatic Hydrocarbon (PAHs) and Total Petroleum Hydrocarbon (TPHC) using following Chromatographic Techniques, * Gas Chromatograph /mass spectrometer (GC/MS)
* High Performance Liquid Chromatography (HPLC)
* Gas Chromatograph (GC) with ECD. FID and FPD

iv. Nutrients and Chlorophyll determination in Seawater using Spectrophotometer and  Calorimetric technique. **v: Radiotracer techniques** for the estimation of ocean productivity**vi: Ecological Assessments**- EIAs, REA, Coastal and ocean surveys, MMO |
|  | **b.** | **Consultancy:** Latest high speed workstations and dedicated software, such as CARIS LOTS, CARIS GIS, SEISVISION, HYPACK, VISTA, ARC VIEW, FLEDRMAUS and QTC5 are in use at NIO. The Institute is equipped to process and interpret bathymetric as well as 2D multi-channel seismic data. NIO is using MIKE-21 Hydro-dynamical model and other sophisticated software in oceanographic and coastal hydrodynamic studies. NIO through the acquisition of oceanographic Data and using dedicated models provide services for the solutions of coastal engineering problems, assistance in designing of ports and jetties, studies for stabilities of intake & outfall channels of power plants, desalination plants designed for coastal areas, prediction of physical environment for near-shore/offshore structures and desk studies of coastal hydrodynamics.NIO has developed capabilities to offer consulting services on the following specialized subjects:* Oceanographic Surveys
* Coastal Hydraulic Surveys and feasibility Studies
* Bathymetric Surveys
* Marine Exploration & Geo-Engineering Surveys
* Marine Pollution and Environmental Surveys
* Shrimp Farming
* Oceanographic Data Services
* Marine Environmental Impact Assessment (EIA’s)
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|  | **c.** | **Training:** NIO offer Internship Programmeand training courses to Universities, Colleges, Pakistan Navy Officers, Federal and Provincial Organizations to disseminate knowledge in the field of various disciplines of Oceanography. |