

Jaywun Marine Research Vessel Specifications

Description:

The Jaywun is a highly specialized marine research vessel designed to support a wide range of scientific research activities in oceanography, marine biology, geology, and more. It offers exceptional capabilities, equipment, and accommodations to facilitate comprehensive research expeditions.

General Specifications and Capacities:

- IMO Number: 9930416
- Length Overall (LOA): 47.10 m
- Length at Perpendiculars (Lpp): 45.00 m
- Breadth (Molded): 12.00 m
- Depth to Main Deck: 5.95 m
- Depth to Upper Deck: 8.55 m
- Scantling Draft: 4.50 m
- Design Draft: 4.00 m
- Freeboard Deck: Main Deck
- Tonnage (GT): Approximately 1200 GT
- Endurance: Minimum 25 days at 11 knots

Tank Capacities:

- Fuel Oil: Approximately 340 m³
- Fresh Water: Approximately 70 m³
- Ballast Water: Approximately 115 m³
- Lubricating/Hydraulic Oil: Approximately 20 m³
- Black/Grey Waters: Approximately 17 m³
- Sludge: Approximately 7 m³
- Oily Water: Approximately 4 m³

Accommodation:

The vessel accommodates 29 persons, including 18 crew members and 11 scientists. The cabin distribution is as follows:

- 3 Single Cabins: Captain, Chief Engineer, Chief Scientist
- 5 Double Cabins for Scientists
- 8 Double Cabins for Crew

Scientific Capabilities:

The Jaywun is equipped for various marine research fields, including:

Marine Biology:

- Collection and research of zooplankton, phytoplankton, ichthyoplankton, etc.
- Collecting plankton samples using electronic nets
- Integrated study of ecosystems and biomass

Marine Geology:

- Study and research of the seabed through acoustic exploration and sample collection

Physical Oceanography:

- Study of water movements (waves, tides, currents)
- Measurements of thermal, acoustic, optical, and radioactive properties of ocean water

Chemical Oceanography:

- Chemical analysis of ocean water and suspended matter, including pollutants

Acoustics:

- Seabed mapping with multibeam echo sounder for shallow waters
- Side Scan Sonar (SSS)

Meteorology:

- Monitoring of radiation and air measurements in different ocean areas

Experimental Fishing:

- Light fishing activities up to 60 meters depth, catches up to 500 kg
- Equipped with two shallow water trawl winches and one net drum
- Conduct acoustic surveys using sonar and echo sounders
- Collection, analysis, and frozen storage of fish samples

Scuba Diving:

- Scuba diving facilities including storage, tank refilling, dive platform or ladder

ROV and Habitat Mapping:

- Use and operation of ROV for photo and video documentation of sea bottom habitats

Laboratory Equipment

Fishing Laboratory:

- Description: A multipurpose workspace for receiving and processing samples, including fish and plankton caches.

Scientific Equipment in Fishing Lab:

- Marine scale
- Max Capacity: 60 kg
- Accuracy: 20g
- Additional details provided
- Marine scale
- Max Capacity: 3 kg
- Accuracy: 1g
- Additional details provided
- Marine scales with fast weight measurement, motion compensation, and computer connectivity.
- cleaner and disinfectant MIELE PG8583.

Chemical Laboratory:

Services in Chemical Lab:

- Services provided include fresh water, pure and ultrapure water, and a continuous system.
- Compressed inert gas and compressed air with Zero Air Generator. Dewar with liquid Nitrogen available.

Scientific Equipment in Chemical Lab:

- Total Organic Carbon Analyzer
- Model: SHIMADZU TOC-L CSH type
- Includes total nitrogen analyzer module and autosampler.

- Magnetic stirrer
 - Model: AGIMATIC-N type
- Spectrophotometer UV-1800
 - Model: SHIMADZU UV 1900
 - Additional details provided
- Spectrophotometer Fluorescence
 - Model: PERKIN ELMER FL6500
 - Capable of measuring chemiluminescence, bioluminescence, and fluorescence.
- UHPLC
 - Model: PERKIN ELMER UHPL-LC300
- Spectrophotometer IR
 - Model: PERKIN ELMER SPECTRUM TWO FT-IR/Sp10
 - Additional details provided
- High-end titrator METROHM Titrand 888
 - Additional details provided
- Milli-Q Water Purification system
 - Model: Milli-Q Direct-3
 - Capable of producing pure and ultrapure water from tap water.
- Fume Hood (Filter Type)
 - Model: CAPTAIR 391 Smart
- Universal Precision Electronic Oven
 - Model: DIGITRONIC TFT
 - Additional details provided
- High Purity Nitrogen Generator
 - Model: PARKER DOMNICK HUNTER 6GE010type
- Zero air Generator
 - Model: PARKER DOMNICK HUNTER UHP35ZAS type

- Stereoscopic microscope
 - Model: NIKON SMZ 18
- Bacteriological Security Cabinet
 - Model: LABCULTURE Class II, A2 type biological safety cabinet
- AQUALOG spectrofluorometer
 - Model: HORIBA SCIENTIFIC AQUALOG standard type
- Ph measurement
 - Model: THERMO SCIENTIFIC ORION VERSA STAR
 - Two (2) modules: VSTAR-PH and VSTAR-PH/LogR

CTD Laboratory:

- All computers necessary for CTD, Thermosalinograph, ACDP, and relevant information for hydroacoustic equipment are provided.

Bio-Physical Laboratory:

Services in Bio-Physical Lab:

- Services provided include fresh water, distilled water, continuous system, and drainage.

Scientific Equipment in Bio-Physical Lab:

- Benchtop Autoclave
 - Model: ASTELL AutoFill Version 43 L Bench-Top
- Desiccator
 - Model: NAHITA 3L
- Drying Oven
 - Model: DRYGLASS
- Additional details provided

- Benchtop Centrifuge
 - Model: BEKMAN COULTER Avanti J-15
- Dry Ice Production Plant
 - Additional details provided
- Nutrients Autoanalyzer
 - Model: SMARTCHEM 170
 - Capable of simultaneous analysis of nitrates, nitrites, phosphates, silicon in seawater.
- Milli-Q Water Purification System (Pure water)
 - Model: Milli-Q Direct-3
- Ultra Low Temperature Freezer (-80°C)
 - Model: THERMOFISHER SERIE 8600 COFRE 86°C

Oceanographic and Hydrographic Equipment

CTD Rosette:

- Depth Capability: Deep water (2000 m)
- Equipment: Sea-bird SBE-19 profiler measuring depth, temperature, salinity, dissolved oxygen, pH, fluorescence, and turbidity.

Acoustic Equipment:

- Simrad EK 80 Echo-sounders operating at 38, 120, and 200 kHz with splitbeam, wide-band transducers.
- Singlebeam Echosounder: KONGSBERG EA640 12KHz and 200KHz.

- Multibeam Echo Sounder:

- Depth Capability: Shallow Waters (200 m)
- Equipment: KONGSBERG EM2040 0.7°x0.7° for water column data collection.

- Multibeam Echo Sounder:

- Depth Capability: Deep Waters (2000 m)
- Equipment: KONGSBERG EM712 1°x2°.

- Side Scan Sonar: Rack Mount Topside Processor, Stainless Steel Towfish with various specifications.

- Edgetech side scan sonar
- For geological and geophysical surveys
- Provides high resolution imagery with motion tolerant configuration, helping us to operate at either faster survey speeds or more adverse weather conditions while still obtaining high quality underwater imagery

Acoustic Doppler Current Profiler (ADCP):

- Model: EKS 150 kHz ADCP

Grabs:

- Van Veen grab, 250 cm²
- Van Veen grab, 2000 cm²

Dredges:

- Biological dredge , triangular 52x52x52cm, length of net 100cm, coarse meshed 2cm, nylon net, length 100cm, overall length 135cm.
- Triangle dredge 80x80x80cm, material Domex 250 steel (15mm), total length 275cm, net bag length 200cm, mesh size 30mm, net bag, inner length 200cm, mesh size 10mm

Box Corer:

- Equipment: BX-700AL Compact Geochemical Box Corer

Multicorer:

- Equipment: Bowers & Connelly Multiple Maxi Corer and Multiple Mini Corer.

Plankton Sampling:

- Equipment: Hydro-Bios Multi Plankton Sampler MultiNet and Hydro-Bios Bongo Net with different mesh sizes (500, 300, 125 microns)

Remote Operated Vehicle (ROV):

- Model: Boxfish ALPHA
- Operational Depth: 500 m
- Features including high-resolution camera, pressure sensor, submersible flurometer

Underwater Camera System:

- Freshwater Lens Camera drop-down system
- Suitable for depths from 0 to 650m

Scuba Diving Facilities:

- Facilities include a diving room and various diving equipment like BCDs, regulators, wetsuits, diving cylinders, and all other necessary diving gear