TRINITY HOUSE

COMMERCIAL

Commercial Services

Buoy Services

Our business is the provision and maintenance of aids to navigation.

Whether your requirement is for a hire buoy to mark an obstruction for a short or long-term period, upkeep of a varied mix of aids to navigation, condition survey and report on assets or redesign of a lighting system, Trinity House is your experienced partner of choice.

After consultation to better understand your needs and with the option of a site survey, our experts will deliver a cost effective solution for your aid to navigation systems. A dedicated account manager will manage your project from conception to commissioning and acceptance through to commencement of our proposed lifecycle maintenance plan. We believe in carrying out the right maintenance at the right time, be it predictive, condition-based or reliability centered to extend the working life of your asset and reduce any downtime. We are happy to maintain your own aids to navigation or provide a total turnkey operation that includes both provision and maintenance, providing safe and reliable operation of your aids to navigation ensuring compliance with statutory obligations for availability.

Trinity House provides on-station cleaning, examination, maintenance and exchange plus shore-based repair, refurbishment and replacement. We take a flexible approach based on your requirements and our proposed life-cycle maintenance plan will deliver excellent value for money.

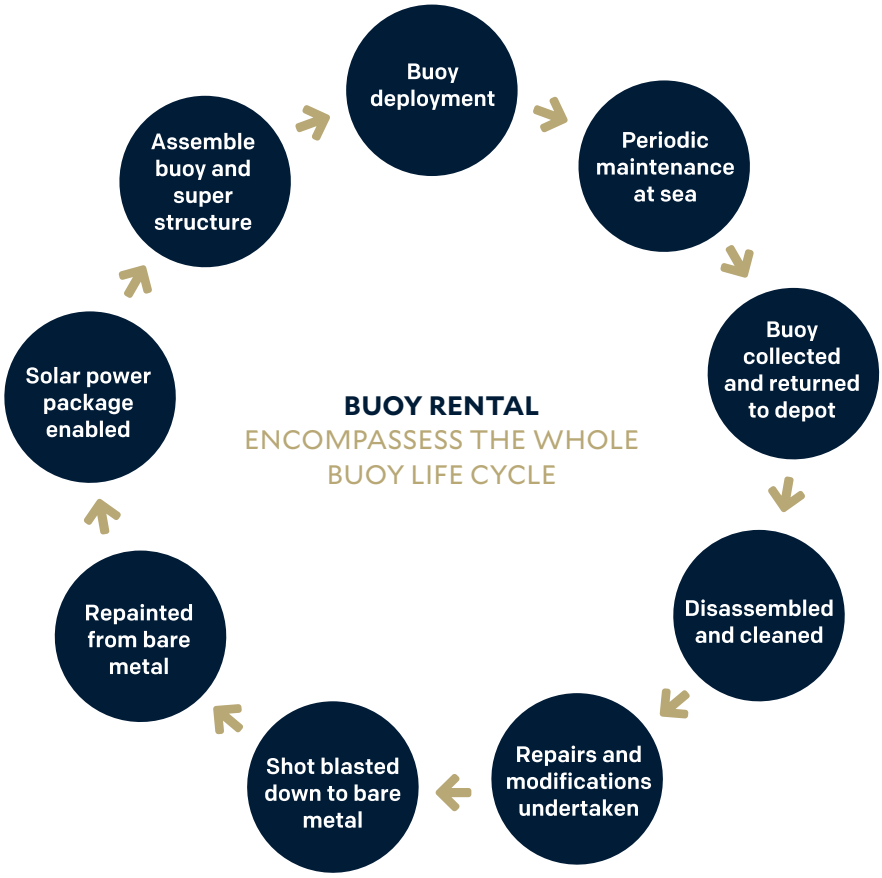
Whether you need one-off support or a service level agreement for examination and maintenance for your buoys, beacons and lights, Trinity House will ensure that your assets continue to function as specified.

Trinity House services include the following options for the maintenance of your navigation assets:

Please contact us to discuss your particular requirements.

Buoy Rental

From short term buoy rental to fully managed supply, service and maintenance of your aids to navigation.



Whether you need a rental buoy to mark an obstruction for a short or long-term period or upkeep of a varied mix of aids to navigation, we have a service to suit.

Rental service

Our fully outsourced service provides peace of mind with on and off-station maintenance of buoys, moorings, sinkers and lights, utilising the complete range of Trinity House mobile craftsmen, workshops, specialist equipment and vessels.

Quality assured

Our expertise ensures that key issues of safety, environmental protection and quality assurance are routine considerations at all times. Our management system is certificated to ISO9001 for Quality, ISO14001 for Environmental Management, ISO45001 for Health and Safety and the ISM code.

The buoy maintenance programme

Trinity house maintain and manage buoys as part of our statutory work as the General Lighthouse Authority. We utilise the same knowledge and expertise to provide services to customers through our buoy life cycle programme. Maintenance at sea and on-site is part of buoy rental service.

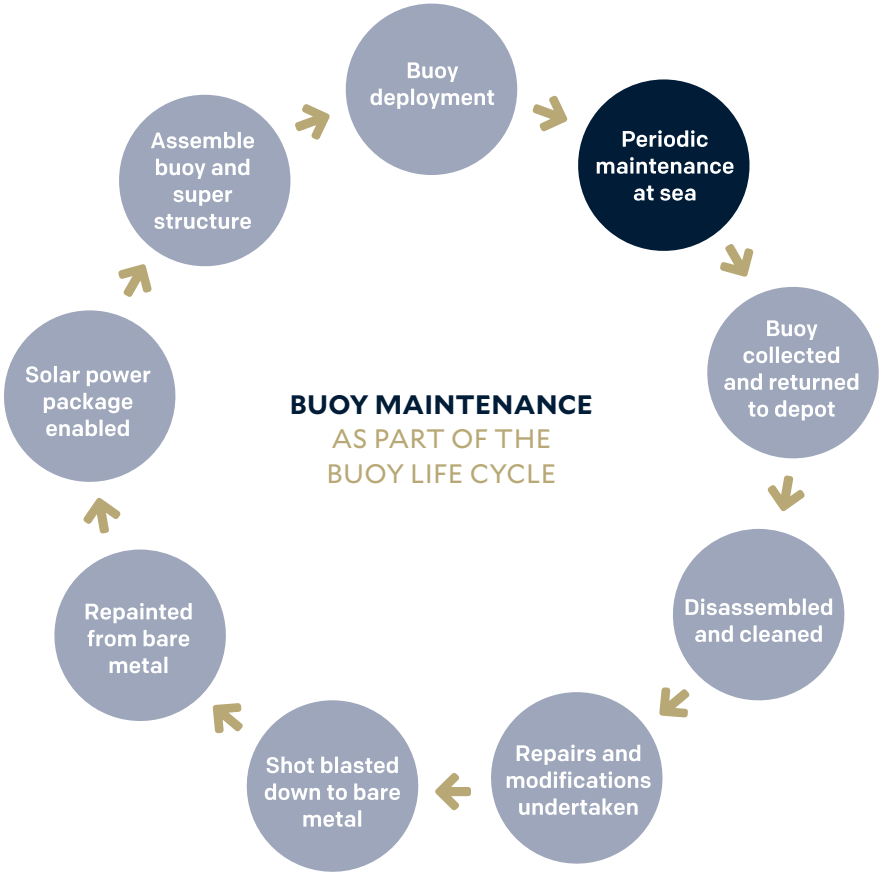
Trinity House buoys are moored to the sea bed using a sinker constructed from cast iron with weights varying between 1 tonne and 8 tonnes.

The sinker is placed on the Assigned Position (AP). The weight of the sinker and the length of chain used to moor the buoy depend on several factors including the type of buoy, depth of water, strength of tide and the exposure of the buoy.

Most Trinity House buoys have two mooring eyes to which shackles are attached to two pieces of chain forming a bridle. The bridle runs down to a swivel which allows the buoy to rotate and prevents the bridle from being twisted and dragging the buoy under the water. From the swivel, a length of chain (known as a riser) runs to a sinker on the sea bed.

Buoy Maintenance

Independent assessment and expert maintenance of your buoys, moorings and lights.



Timely, professional maintenance of aids to navigation is essential for safety at sea. Our service includes periodic cleaning, examination and maintenance using our specialised fleet of vessels.

At each location we carry out an annual inspection and planned, preventative maintenance that includes checking location, moorings and exhibited character, lifting and cleaning, repair or replacement of parts and an annual condition report including advice and recommendations.

The buoy maintenance programme

Trinity House maintain and manage buoys as part of our statutory work as the General Lighthouse Authority. We utilise the same knowledge and expertise to provide services to customers through our buoy life cycle programme. Periodic maintenance on-site is part of that programme.

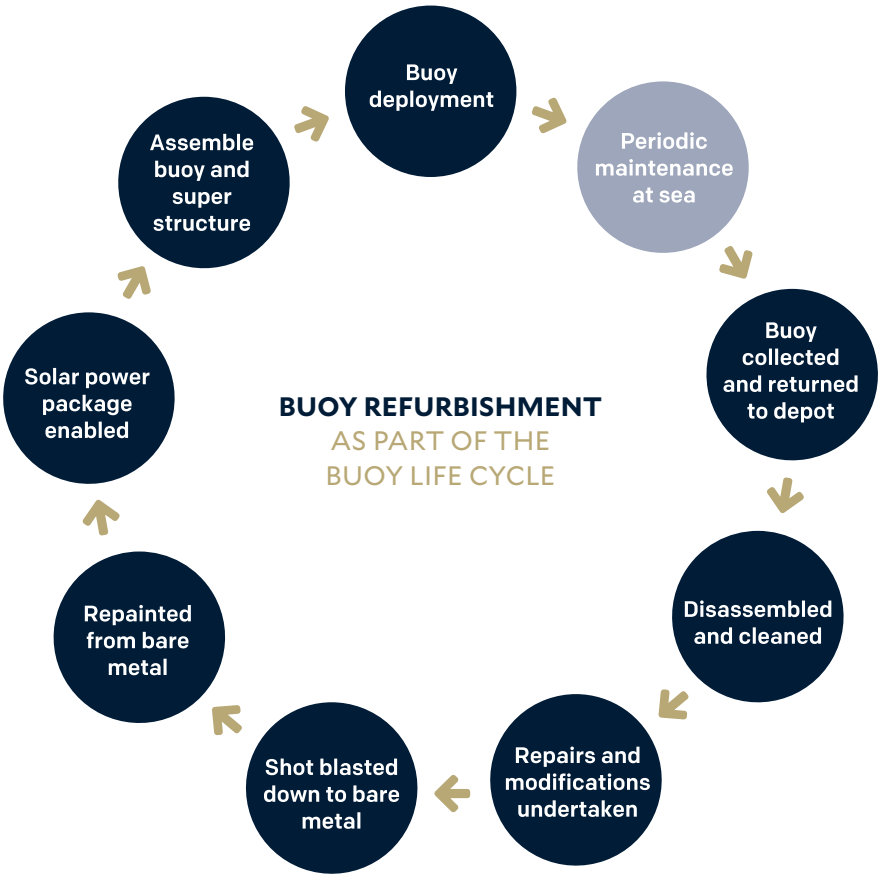
Type 2 buoys ready for deployment at our facility in Harwich.

Trinity House maintains around 500 buoys, as well as performing the important role of inspecting those maintained by port and harbour authorities, utility companies and by oil/gas rig and wind farm operators.

Equipment can be added to buoys to provide additional services such as the transmission of AIS, meteorological and hydrological data.

Buoy Refurbishment

Repair and repainting of buoy bodies and superstructures.



A programme of repair and repainting of buoys, plus refurbishment of navigation lamps, batteries and power systems carried out by certified craftspeople and skilled technicians at Trinity House workshops in Harwich. Our purpose built depot, houses the highest quality preparation facilities including a fully equipped fabrication shop. It has the capability to refurbish any size buoy, regardless of its construction material, using an array of mobile and static specialist lifting equipment.

The service covers cleaning, examination, maintenance and exchange plus shore-based repair, refurbishment and replacement. We take a flexible approach based on your requirements and our proposed life-cycle maintenance plan will deliver excellent value for money.

We maintain approximately 500 stations at sea and our maintenance cycle is based upon years of experience. Seventy-five percent of our buoys are over 50 years old, some are over 100 years old.

Buoys are serviced at sea annually or bi-annually. Our ships inspect buoys throughout the year and determine which ones will need to be brought into a buoy yard and when.

The average time for a buoy to remain at sea is 5.5 years before being brought in to strip and rebuild. Improvements in paint technology mean that we are working towards a 10 year life cycle at sea, reducing maintenance requirements.

Above: **Cleaning a buoy aboard THV *Patricia*.**

Below: **Solar panel maintenance at our yard in Swansea.**

The buoy refurbishment process includes:

- High pressure water jetting to remove marine growth
- Dismantling and identification of any repairs required
- Buoy body internal inspection, safe air and pressure testing
- Fabric repairs and modifications to buoy bodies and super structures
- Lifting lug tests within a calibrated test rig
- Dry grit blasting to SA 2.5 for all ferrous and non-ferrous materials
- State of the art electro-static plural spray paint system
- Fully assembled and tested solar packages
- Full telemetry and fitment of any additional Aid to Navigation
- Condition reporting, estimation and final inspection and commissioning

We are moving all type 1 and type 2 buoys to new aluminium tower superstructures which contain all the equipment. The new superstructure is better to install and to maintain and provides for a higher light position. The higher the superstructure the further the light will travel – we have one buoy which has a ten mile light range.

Above: **Lifting a buoy for routine inspection aboard our vessel, THV *Galatea*.**

Below: **Sandblasting and painting buoys at our purpose built facility in Harwich where processes and waste materials are environmentally managed.**

Right: **Inspecting local aids to navigation.**

Beacon Management

Out sourced management of beacons for utility companies, harbour authorities and local councils.

We manage many beacons marking harbour entrances, safe water ways, wrecks and outflow locations for utility companies.

We visit each beacon under management to conduct planned, preventative maintenance.

Each beacon is checked to ensure the correct location and display of the prescribed character. They are scraped and painted and any lighting and ancillary equipment will be checked and prepared for ongoing operation. If found to be defective, or approaching a state where ongoing effectiveness cannot be reasonably assured then we will propose a course of remedial action.

Above: **Dwr Cymru Welsh Water beacon following maintenance.**

Vessel Services

Trinity House is an acknowledged maritime specialist operating UK registered purpose built vessels equipped to the highest technical standard and manned by professionally qualified merchant marine officers.

Vessel activities are coordinated and monitored around the clock by our Operations and Planning Centre.

Our vessels are available for short term contracts and one off jobs to provide efficient and cost effective marine support for a wide range of services including:

- hydrographic surveys including bathymetry, side scan, sonar and wreck investigations
- aids to navigation provision, deployment, maintenance, repair and examination
- research platforms for deployment and recovery of scientific equipment
- sampling projects
- marine hazard search and marking
- lifting, towing and accurate positioning of marine equipment
- recovery and re-establishment of off-station aids to navigation
- sea trials of electronic and specialty equipment
- helicopter support
- safety boat assignments
- guard duties for cable and pipe laying projects
- annual CMIDs are available on request for all vessels

Trinity House operates a variety of vessels to suit your requirements:

- THV *Alert*
- THV *Galatea*
- THV *Patricia*

THV *Galatea*

THV *Galatea*

Trinity House's Multi Functional Tender (MFT), *Galatea*, has been designed with buoy handling, wreck marking, towing and multibeam and side scan hydrographic surveying capability. At 84.2 metres long, *Galatea* has accommodation for an additional 22 people. With DP2, high specification survey equipment, a 30t lift crane, a through hull instrument tube, a large working deck with container lock facility and 230v or 400v plug-in supply, a helicopter landing pad and a high speed workboat, *Galatea* is available 24/7 for a wide range of projects.

THV *Alert*

THV *Alert*

Trinity House's Rapid Intervention Vessel (RIV), *Alert*, has been designed with buoy handling, wreck marking, towing and multibeam and side scan hydrographic surveying capability. At 39.3 metres long, with high specification survey equipment, DP1 dynamic positioning and a maximum speed of 17 knots, *Alert* is deployed primarily to cover the South East Coast where she can respond rapidly to any maritime incident. In addition, with her large working deck and through hull instrument tube, she is an ideal research platform for deployment of scientific equipment and sampling work. Available 24/7 with accommodation for an additional 4 people, *Alert* can be utilised for a wide range of projects.

THV *Patricia*

THV *Patricia*

Trinity House's Multi Functional Tender (MFT) *Patricia* works around the coast of England, Wales and the Channel Islands undertaking aid to navigation maintenance work, towing, wreck location and marking amongst other projects. At 86m long, *Patricia* has accommodation for an additional 20 people and benefits from a helicopter-landing pad.

The vessel has a 20 tonne main crane capacity and 28 tonne bollard pull and towing winch, she is also survey capable and available 24/7 for a wide range of projects.

THV *Patricia* – Specification

Port of Registry	**London**
Year Built	**1982**
Call Sign	**GBTH**
Length Overall	**86.3m**
Breadth Moulded	**13.8m**
Depth Moulded	**6.9m**
Draft	**4.4m**
Air Draft	**32.0m**
Service Speed	**12kts**
Fuel Consumption at 12kts	**500ltrs/hr**
Bunker Capacity	**04t**
Fresh Water	**283t**
Endurance	**21 days**
Bollard Pull	**28t**

PROPULSION – MACHINERY

Main Engines – 4 x Ruston 6RKcZ 750 kW @750 RPM

Auxiliary Diesel – 2 x Ruston 4AP230Z 240 kW @600 RPM

Propulsion Motors – 2 x 1120 kW @ 250 RPM

Bow Thruster – 360 deg Whitegill – 7 tonnes 690 kW @ 480 RPM

Propellers – 2 x Fixed pitch, outwards turning

WORKBOATS

9m heavy duty workboats

CRANES

Speedcrane 20t SWL (offshore

Stores Crane 1t

CAPSTANS & WINCHES

2 x 14t max pull – chain to 44mm

Towing Winch 30t max pull

DECK FACILITIES

Main Deck Area – 80m^2

Pressure Wash – 350bar/5000psi

Tween Deck – Storage & workshops

Hold – Storage & load handling

ACCOMMODATION

Single Cabins:	34
Double Cabins:	6
Office:	1
Conference Room:	1
Mess Room:	1
Recreation / TV Rooms:	4
Changing Room:	1
Workshop:	1
Gymnasium:	1

FLIGHT DECK

'D' Value 11.9m

Max load 10,000kg

HYDROGRAPHIC SURVEY

Kongsberg EA 400SP 38/200KHz

Geo Acoustics Side Scan Sonar 2094

SIMRAD EA500, Side Scan

COMMUNICATION

GMDSS Area 2

Satcoms – Starlink

Sailor SC4000 Iridium, Nera Sat-B

VHF – 1 x Sailor 6222 VHF DSC
3 x Sailor 6248 VHF

MF/HF SSB – Sailor HC4500

NavtexRx – JRC NCR 333

Internet Access points – all cabins

NAVIGATION EQUIPMENT

ECDIS – Sperry VisionMaster FT

Radars – Decca Marine Bridge Master x 2

Dual-Axis Speed Log – Consilium SAL SD4-2

Navigation SAL SD 1-6

DGNSS – 2 x Saab R5 DGNSS

Loran – Furuno LC 90 mk2

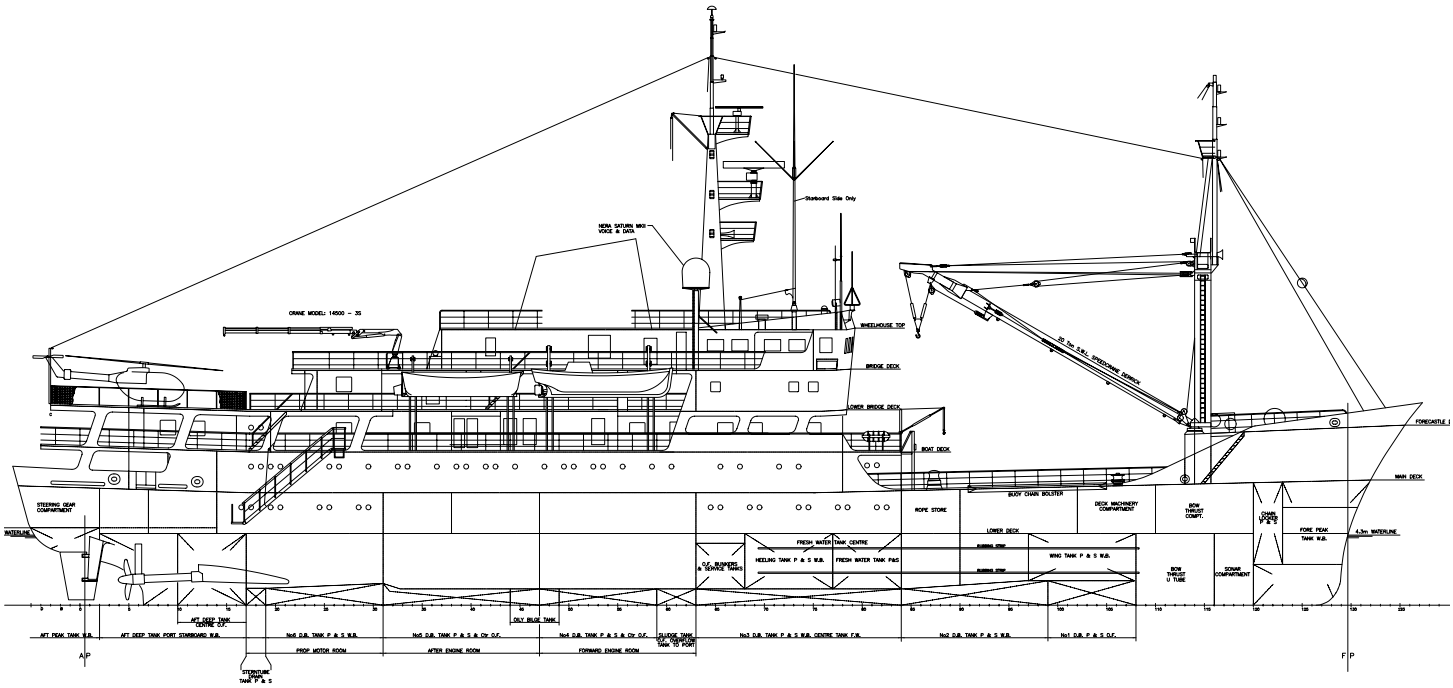
Gyro Compass – Simrad GC80

TMC magnetic Compass– John Lilley and Gillie Type SR2

Auto Pilot – Anschuetz PilotStar NX

Echo Sounder – SIMRAD EA500

AIS System – Sailor TT-6282 AIS



THV *PATRICIA* SPECIFICATION

Trinity House's Multi Functional Tender (MFT) *Patricia* operates around the coast of England, Wales and the Channel Islands undertaking aid to navigation maintenance work, towing, wreck location and marking amongst other projects. At 86m long, *Patricia* has accommodation for an additional 20 people and benefits from a helicopter-landing pad. With a 20 tonne main crane capacity and 28 tonne bollard pull and towing winch, she is also survey capable. Available 24/7, *Patricia* is available for a wide range of projects at a competitive rate.

BUILD STANDARD

Lloyds Register • 100 A1 • Lloyds Machinery Certificate, Unmanned Machinery Space Certificate, Lloyds

Environmental Policy and Lifting Appliance. Complies with requirements for UK MCA Class V111 vessel.

Lloyds Ship Emergency Response Service.

THV *Galatea* – Specification

Port of Registry	London
Year of Build	2007
Call Sign	MRDQ7
Length Overall	84.2m
Breadth Moulded	16.5m
Depth Moulded	7.2m
Draft	4.3m
Air Draft	30.0m
Maximum Speed	17kts
Service Speed	12kts
Fuel Consumption at 12 kts	670ltrs/hr
Bunker Capacity	296t
Potable FW	170t
Technical FW	144t
Jet A1 Fuel Capacity	6,000ltrs
Endurance	35 days
Intering Stabilizer System Anti-Heeling System	
Bollard Pull	33t

PROPULSION – MACHINERY

3 x Wartsila 8L20 @ 1710 kVA

2 x Wartsila 4L20 @ 860 kVA

Stern Azimuths –

2 x Rolls Royce 1500 kW

Bow Thrusters –

2 x Rolls Royce 750 kW

DYNAMIC POSITIONING SYSTEM

Kongsberg K-Pos DP-21
(IMO DP Class II)

WORKBOATS

30 kts Pacific 28 with cabin for 6 pax.
Steel Workboat – 9m heavy duty

CRANES

Liebherr Crane – 30t @ 22m (offshore)

Palfinger Crane knuckle boom –

1.6t @ 18.0m (offshore)

Stores Crane x 2 –

1.45t @ 10.0m (offshore)

CAPSTANS & WINCHES

2 x 15t max pull – chain to 44mm

Towing Winch 40t max pull

Tugger Winches x 2 – 5t max pull

Karm forks x 2

DECK FACILITIES

Main Deck Area – 550m^2

ISO 20' and ISO 10' Container Lock Down matrix

Electrical Power – AC 50Hz 220V; 400V Supplies

Pressure Wash – 350bar/5000psi

Moon Pool – 1.2m^2

Tween Deck – Storage & workshops

Hold – Storage & load handling

ACCOMMODATION

Single Cabins:	22
Twin Cabins:	9
Office:	1
Conference Room:	1
Mess Room:	1
Recreation /TV Rooms:	3
Changing Room:	1
Workshop:	2
Gym:	1

FLIGHT DECK

Helicopter Deck – 'D' Value 13.0m

Refuelling Facility

HYDROGRAPHIC SURVEY

Kongsberg Simrad EM2040C MBES

Hull mounted SmartX SVP

AML SVP usable to 100m depth

POSMV with Trimble RTX

Kongsberg SIS & Caris HIPS + SIPs

Kongsberg EA400 ES

Simrad SL30/50 sonar

COMMUNICATION

GMDSS area 2

Sat-C H2095C high speed data / voice

Iridium Sailor ST4150 voice

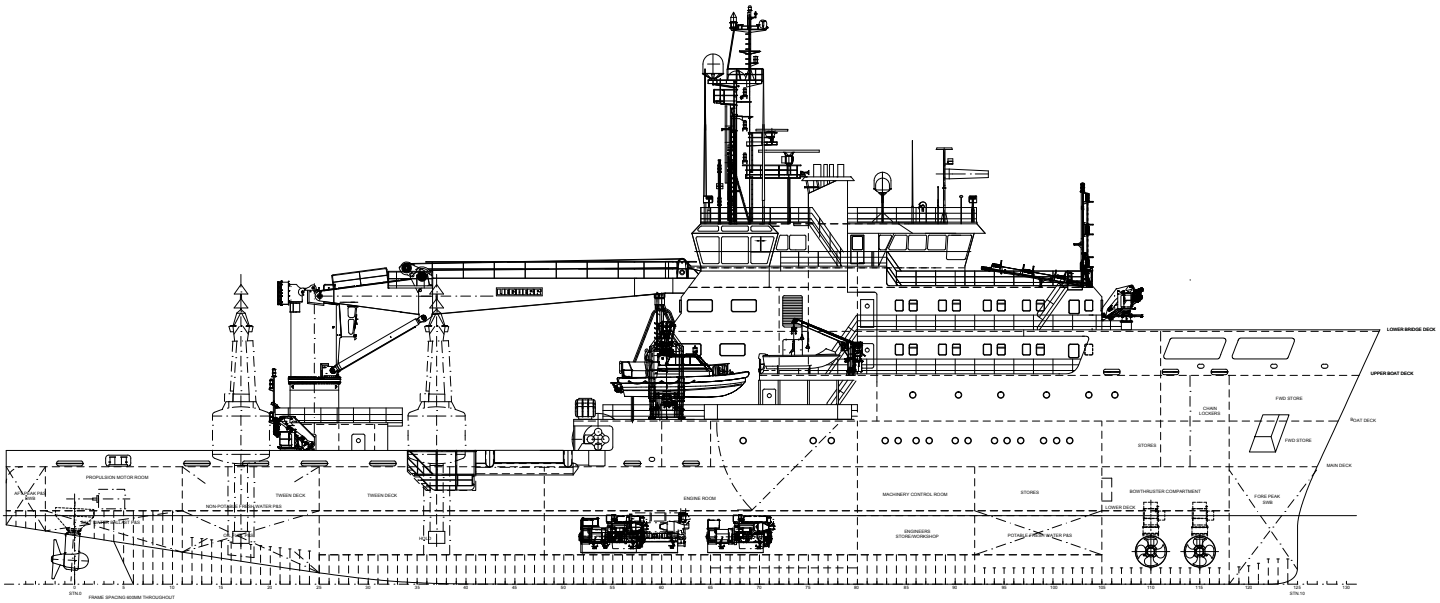
MF/HF SSB – Sailor 6110 R/T DSC

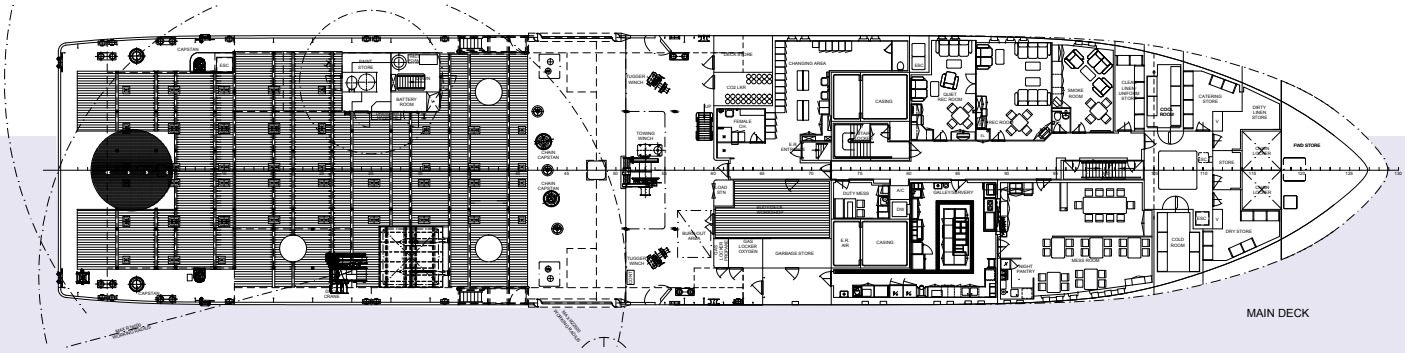
VHF – Sailor 6222 R/T DSC

Weather – FAX 207 Facsimile

Navtex – Furuno NX-700

Internet access – Starlink (all cabins)





NAVIGATION EQUIPMENT

ECDIS – Sperry Vision Master

Radars – Sperry Vision Master X & S band

AIS – SAAB R6-CDU

Speed log: Consilium SP4-2

GNSS: 1 x SAAB R5 Supreme, 1 x Appllanix POS MV, 1 x SeaStar

Gyro: Sperry Navitwin V

Autopilot: NaviPilot 4500

Echo sounder: ELAC LAZ5200

THV *GALATEA* SPECIFICATION

Trinity House's Multifunctional Tender (MFT), *Galatea*, has been designed with buoy handling, wreck marking, towing and multibeam and side scan Hydrographic surveying capability. With DP2, high specification survey equipment, a 30t lift crane, a 1.2m^2 moon pool, a large working deck with the facility to lock containers on deck and 230v or 400v plug-in supply, a helicopter-landing pad and a high speed workboat, *Galatea* is available 24/7 for a wide range of projects at very competitive rates.

BUILD STANDARD

Lloyds Register • 100 A1 • LMC UMS MCM EP LA CAC DPAA IMO CLASS II (Lloyds Machinery Certificate, Unmanned Machinery Space Certificate, Machinery Condition Maintenance, Lloyds Environmental Protection, Lifting Appliance and Crew Accommodation Comfort Standard). Complies with requirements for UK MCA Class VII vessel. GMDSS sea area A2.

THV *Alert* – Specification

Port of Registry	London
Year of Build	2006
Call Sign	MLPH9
Length Overall	39.3m
Breadth Moulded	8.0m
Depth Moulded	4.0m
Draft	2.7m
Air Draft	18.0m
Maximum Speed	17kts
Service Speed	12kts
Fuel Consumption at 12 kts	360ltrs/hr
Bunker Capacity	42t
Fresh Water	12t
Endurance 3,000nm @ 12kts	1,500nm @ 15kts
	5 days working on site
Bollard Pull	28t

PROPULSION – MACHINERY

Main Engines – 2 x Caterpillar Diesel 1492 kW @ 1600 RPM

Auxiliary Generators – 2 Caterpillar C9 Diesel 155 kW @ 1620 RPM

Bow Thruster – HRP 155kW @ 1620 RPM

Propellers – 2 Kamewa variable pitch 50 XF5/4

Running on BIOGEAR XP Environmentally Acceptable Lubricant (EAL)

DYNAMIC POSITIONING SYSTEM

Kongsberg C-Pos LR DP (CM)

CRANES

Scaldon Knuckle Boom –
4t @ 4m
1t @ 11.5m

Winch 3.3t SWL

MR 2t

CHAIN / TOWING WINCH

Chain Capacity 100m x 38mm
Max pull 40t

DECK FACILITIES

Main Deck Area – 88m^2

2 x ISO 10' Container Lock Down Matrix

Electrical Power – 230V and 400V Supplies

Pressure Wash – 350bar/5000psi

Through Hull Instrument Tube – 0.6m diameter

Hold – Storage & workshop

ACCOMMODATION

Single Cabins:	2
Twin Cabins (Bunks):	4
Crew:	6
Spare Berths:	4
Mess Room:	1
Changing Room:	1
Showers:	2
Toilets:	3

HYDROGRAPHIC SURVEY

Multi beam E/S –
Kongsberg Simrad EM 2040C

Echo Sounder –
Kongsberg Simrad EA 400

RTK Pos MV Oceanmaster RM

SVP – Valeport Modus (Fixed Unit)

SVP – OSIL Smart AML

Sonar – Simrad SL 30/35

Side Scan – EA400 Simrad Single Team Heads

COMMUNICATION

GMDSS Area 2

Satcoms – Sat-C

Iridium – Sailor ST4110

MF/HF SSB – R/T DSC Sailor CU5100

Navtex Rx – Furuno NX700

VHF R/T DSC – 2 x Sailor RT6222

VHF – Sailor RT6210

Internet Access – All cabins

NAVIGATION EQUIPMENT

ECDIS/NAV – Sperry Marine

Radars – Vision Master FT

- Sperry Marine Vision – Master FT X-Band
- Sperry Marine Vision – Master FT S-Band

Dual-Axis Speed Log – Consilium SAL SD4-2

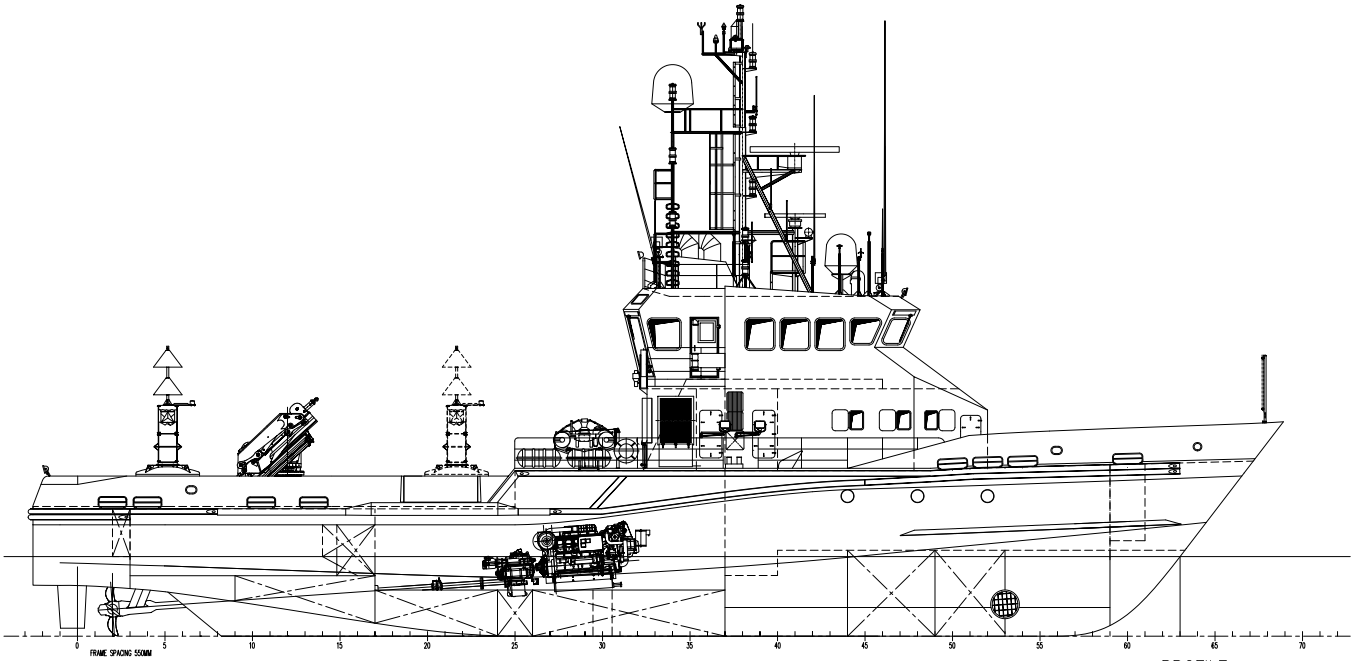
DGPS – 2 x SAAB R5

Gyro Compass – Sperry Navigat Fibre Optic

TMC Magnetic Compass – Sperry Navipol 1

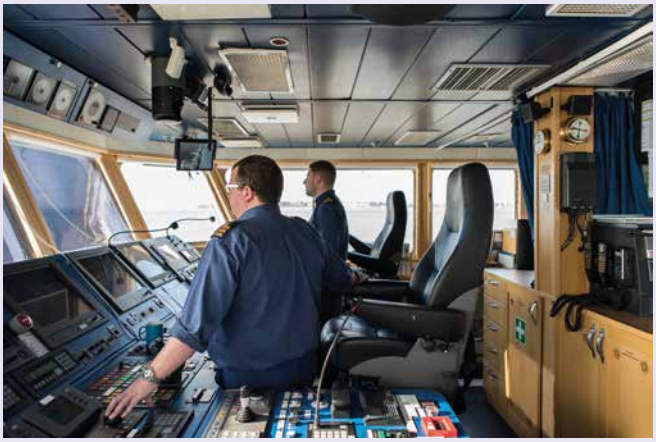
Auto Pilot – Sperry NaviPilot 4500

Echo Sounder – Sperry ES 5200



THV *ALERT* SPECIFICATION

Trinity House's Rapid Intervention Vessel (RIV), *Alert*, has been designed with buoy handling, wreck marking, towing, multibeam and side scan hydrographic surveying capability. With DP, high specification survey equipment and a maximum speed of 17 knots, *Alert* is deployed primarily to cover the South East Coast where she can respond rapidly to any maritime incident.
In addition, with her large working deck and 0.6m diameter through hull instrument tube, she is an ideal research platform for deployment of scientific equipment and sampling work. Available 24/7 with accommodation for an additional 4 people, *Alert* can be utilised for a wide range of projects at very competitive rates.

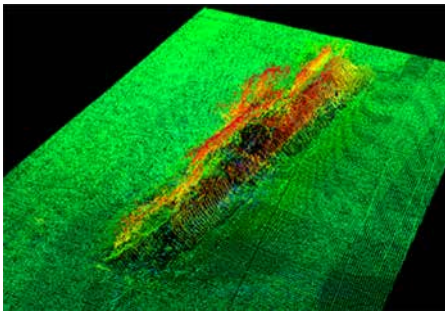


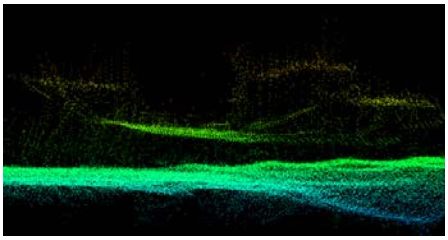
BUILD STANDARD

- 100 A1, SSC Workboat, Mono, LA, EP,
- LMC, UMS, DP (CM)

Descriptive note: Shipright (MPMS, SERS, IHM)

Complies with requirements for UK MCA Class VIII vessel.

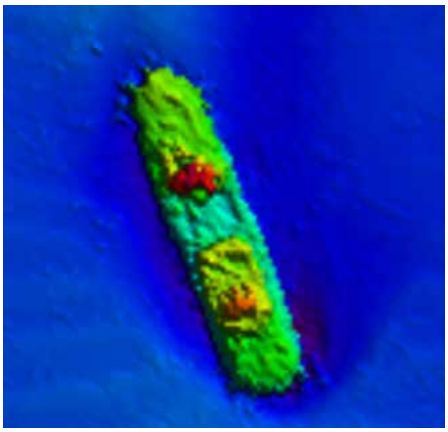




Hydrographic Surveying

An important aspect of safe maritime navigation is having good quality bathymetry information.

All three Trinity House vessels are equipped with marine surveying equipment and we can bring our expertise and services to organisations seeking hydrographic surveying. We can currently provide a survey platform for a customer provided surveyor.



Capabilities are summarised below:

THV *ALERT*

Multi Beam Echo Sounder
Kongsberg Simrad EM 2040C

Single Beam Echo Sounder
Kongsberg Simrad EA 400

Wreck-Finding Sonar
Simrad SL 30/35

Side Scan Sonar
EA400 Simrad Single Team Head

THV *GALATEA*

Multi Beam Echo Sounder
Kongsberg Simrad EM2040C

Wreck-Finding Sonar
Simrad SL 30/35

Survey-Capable Work-Boats
Simrad SL 30/35

Side Scan Sonar
Simrad GeoAcoustics

Survey Software
Kongsberg SIS & CARIS HIPS/SIPS

THV *PATRICIA*

Portable hydrographic single-beam echo sounder with side scan facility.

Monitoring Services

Subject to the capabilities and configuration of the monitoring system fitted to the Aid to Navigation by the customer, Trinity House offers the following surveillance services using condition-monitoring systems:

- A high quality remote monitoring service, based in Harwich, of Aids to Navigation using the Trinity House Central Monitoring and Control System, available on a 24 hour, 365 day coverage basis.
- Continuous check that all systems are operational including:
  a) Lights on / off
  b) Light failure
  c) Audible Warning-Emitter failures
  d) Trending of battery voltages
  e) Data will be logged for audit purposes within the Central Monitoring and Control System (CMCS)
  f) Other analogue or digital parameters as required
- Failures will be promptly reported to the client's nominated contact.
- In addition to Aids to Navigation, monitoring of any equipment e.g. fuel tanks, water tanks, battery systems, is possible.
- Capability to provide reports on Aids to Navigation availability for compliance purposes and the performance of the customer's equipment according to their requirements.
- Interrogation of any anomalies to ensure proactive interventions can be actioned, if appropriate.
- An on-call TH Duty Engineer is available to support the Operations Officer in the event that clarification is required.
- The CMCS is a robust, resilient system with a multiple server architecture over two geographically separated locations with multiple backups to ensure the retention of data.
- High resilience – the TH Monitoring Centre can relocate to London if issues are experienced at the primary monitoring location, by use of proven Disaster Recovery Procedures resulting in minimal monitoring downtime.
- The system currently supports four communication types:
  1) PSTN for shore based stations with access to the telephone network
  2) PAKNET radio for off-shore, island or shore based stations without access to PSTN
  3) GSM for stations with cellular coverage
  4) Satellite, using the Iridium network for remote stations, which allows global coverage
- Please note that although the monitoring system is always operational, monitoring systems may be interrupted due to circumstances beyond the control of Trinity House.

  These may include but are not limited to:
  a) Failure of satellite to receive/ forward transmissions due to Space Weather.
  b) Loss of MCA AIS coverage
- A failure of monitoring will be assessed by the Operations Officer with Engineering and IT Support available 24 hours in the event of technical disruptions to the monitoring service.
- If our monitoring system detects a potential failure of an Aid to Navigation, (beyond an agreed period to meet customer requirements), the Operations Officer will request a visual report from passing or adjacent assets, e.g. passing vessels. If confirmed, the client will be advised and a Navigation Warning will be promulgated to advise all vessels operating in the area.
- Renewal of licences – Trinity House will maintain and renew the appropriate licences for any monitoring systems as required to meet customer requirements.
- Trinity House can manage any legislative reporting such as Notice to Mariners.

Trinity House Buoy Services at UK Offshore WindFarm sites

Buoy Hire

Buoy deployment and maintenance

Inverness
Dundee
Glasgow
EDINBURGH
Blythe
Tynemouth
BLYTH OFFSHORE DEMONSTRATOR PHASE 1
DOGGER BANK A, B, C
Middlesborough
ORMONDE
WALNEY PHASE 1 & 2
WEST DUDDON SANDS
Heysham
WESTERMOST ROUGH
HORNSEA ONE AND TWO PROJECTS
Hull
Grimsby
HUMBER GATEWAY
GWYNT Y MOR
RHYL FLATS
Manchester
Liverpool
Mostyn
RACE BANK
INNER DOWSING
DUDGEON
SHERINGHAM SHOAL
LYNN WIND FARM
Great Yarmouth
EAST ANGLIA ONE & THREE
Ipswich
GREATER GABBARD
LONDON ARRAY
Swansea
CARDIFF
Bristol
LONDON
Tilbury
THANET
Dover
Medina Wharf
RAMPION

TRINITY HOUSE

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