

ASV Intrepid Barracuda - uncrewed survey boat – Specification



Intrepid Barracuda was converted from a 7m sailing yacht to an ASV (autonomous surface vessel). The yacht hull form with its proven sea-keeping has ideal smooth motion characteristics which provide a stable platform for mounting the bathymetric, communications and positioning systems necessary for conducting hydrographic survey.

The vessel is capable of providing 10-14 days offshore over-the-horizon survey capability with a pre-planned mission plan (which can be dynamically updated).

Collision avoidance is incorporated utilizing RADAR and AIS data gathered on-board to avoid potential collisions with other vessels operating in the area.

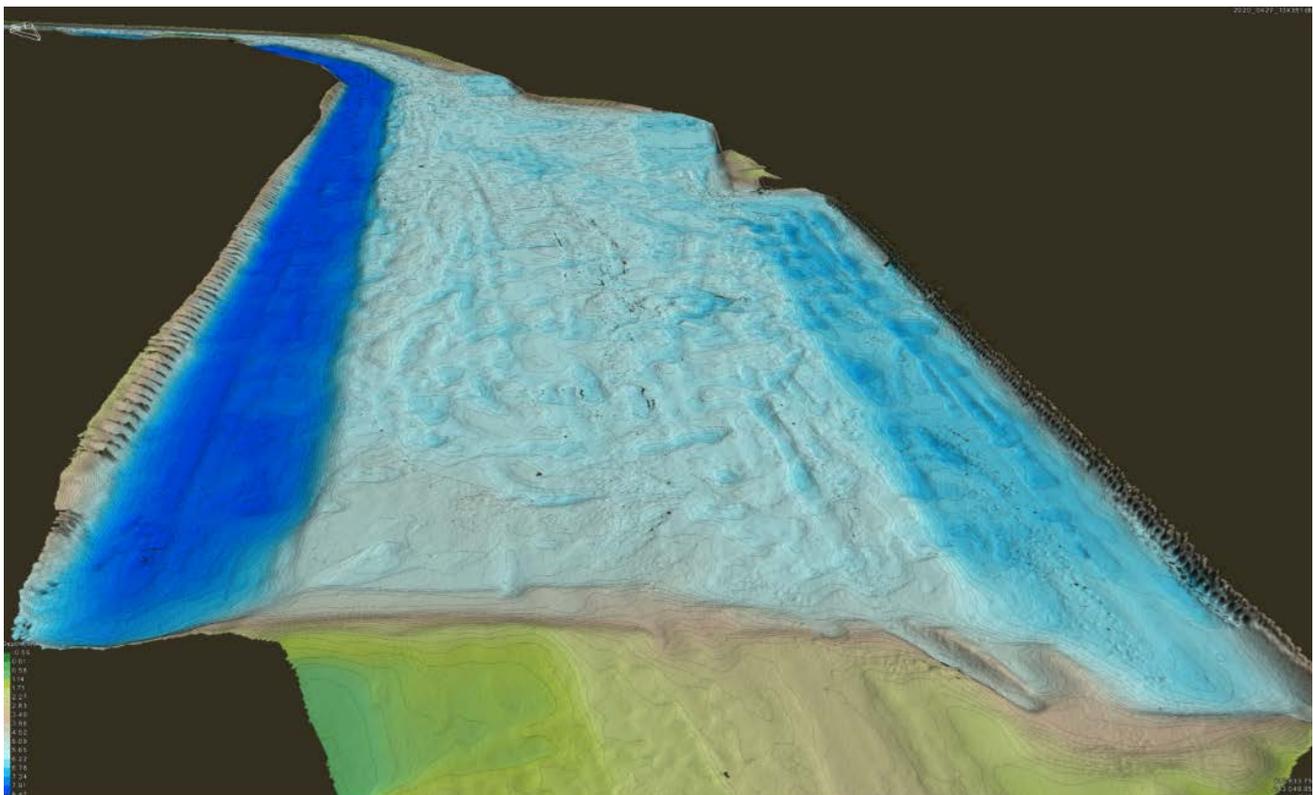
On-shore is a dedicated Mission Control base which monitors the position of the vessel constantly and allows operators to modify the mission plan in the event of deteriorating weather forecasts or changes to operational plans.

ASV Barracuda, key specifications

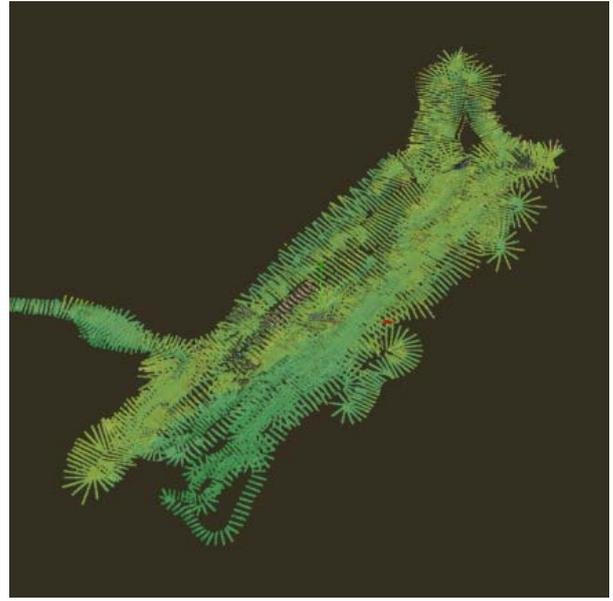
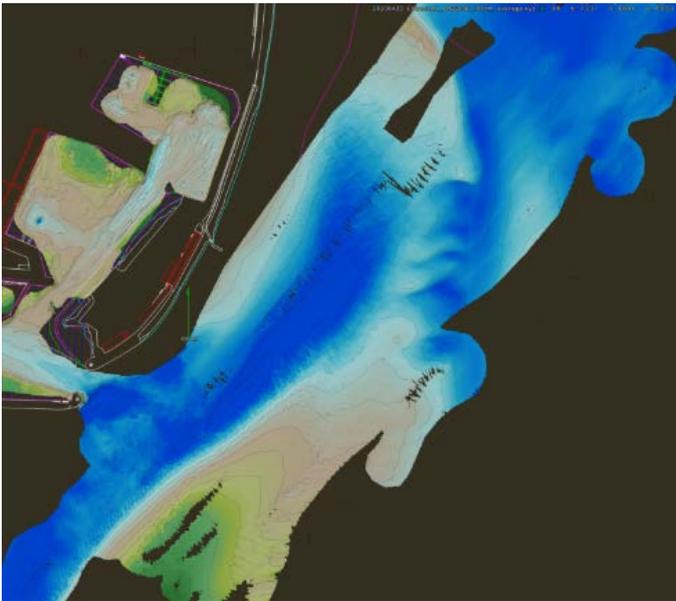
Dimensions	Length overall 7.5m, breadth 2.1m, draft 0.98m, height, 2.5m above waterline.
Hull	Modified Achilles 24 triple keel fibre-glass monohull.
Displacement	1.8 tonnes, estimated, fully fuelled.
Main power	9.6 kVA MASE marine diesel generator.
Endurance	240 hours (10 days) at full power, estimated 10-14 days of economical daylight operations, dependent on current.
Propulsion	2 x 3.8 kW Fischer Panda electric pod motors.
Reserve power	Mastervolt Lithium ion batteries
Speed	Full power 6 knots, normal survey 4 knots.
Equipment Mounts	Through-hull, and over-side pole mount for multibeam and pinger.
SVP Winch	Remote control SVP winch to take Valeport Swift SVP, automatic control.
Comms	Echostar broadband satellite link, Rudics, 4G, WiFi and VHF back-up.
CCTV	Dual CCTV recorders with 360 deg coverage, tracking IR PTZ camera, HD optical zoom for forward detection.
Safety	AIS, RADAR targets, remote floodlights, audible warnings.
Collision Avoidance	Radar, AIS and CCTV object detection and collision avoidance.
Transportable	Trailer for road transportation and ramp or beach launching.

Example data ...

An example of a typical survey in port or estuary approaches ...



QC Images retrieved during survey operations



CCTV recorded image in port showing camera coverage...

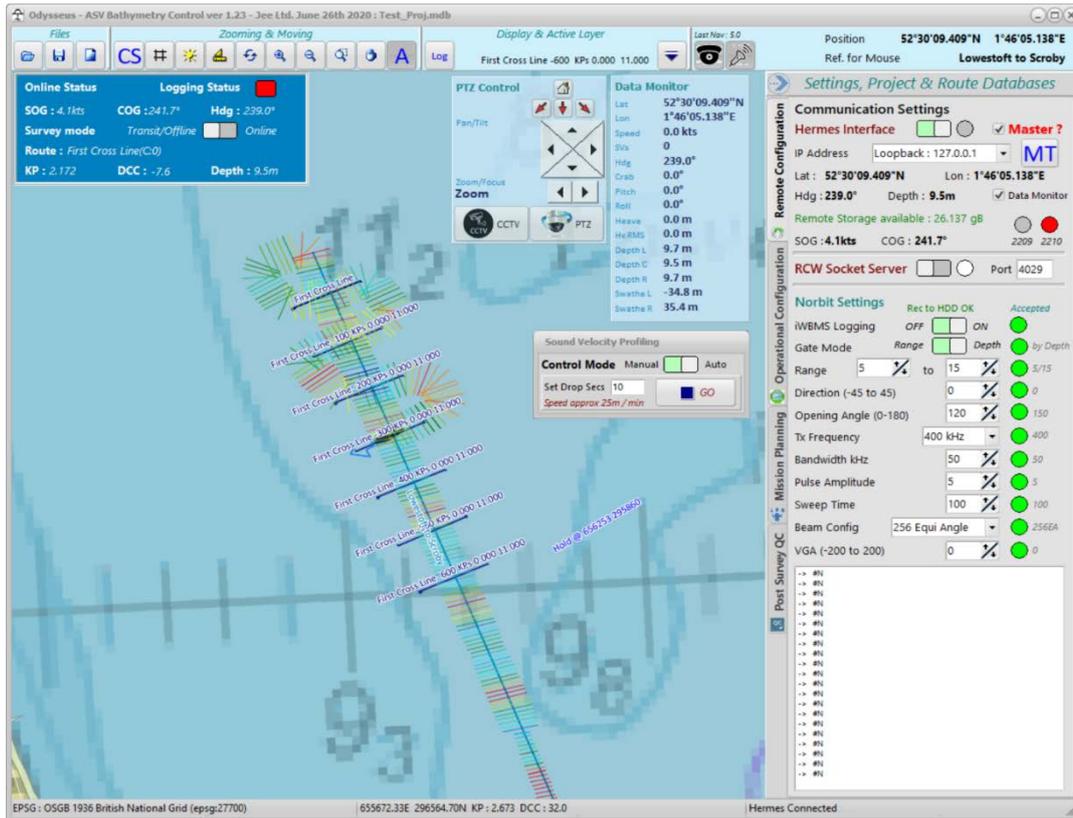


Odysseus, Hermes and RCW Mission Control Applications

We utilise these three software packages to program the missions, monitor the vessel progress and data quality and to manage the vessel electronic and marine systems. Screen shots have been provided below.

Odysseus is the main survey control, taking data from clients such as run-line information and performs coordinate conversions.

The mission planning is performed here and sent to RCW either as a file or directly which then controls the vessel speed and drives it along the pre-programmed lines.

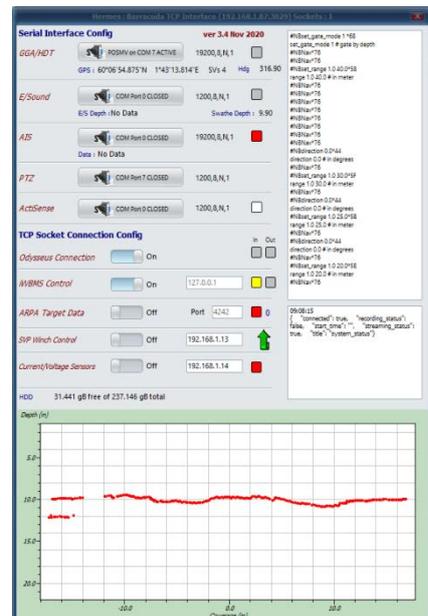


Hermes resides on the ASV and provides an interface with the various survey sensors, ARPA targets and AIS and passes it back through the comms system to Mission Control on-shore.

The package also logs representative swathes every 3-5 seconds to provide a QC summary in a relatively small file that can be downloaded.

This also interfaces with the Pan/Tilt/Zoom camera to direct/zoom onto an AIS target or fixed point.

The SVP winch will also be controlled through this interface.



RCW performs the autopilot function and manages the ASV mechanical and electrical systems on the vessel. All systems will continue to follow the mission plan even if communications with Mission Control is lost. At the end of a pre-programmed mission the vessel can be put into a holding pattern to allow for follow-up missions or during poor weather conditions.

