RRS Discovery Replacement

Shipbuilder: Construcciones Navales P. Freire, S.A., Vigo, Spain

Designer: Skipsteknisk AS, Norway

A new multi-role oceanographic vessel to be delivered 2013

Contract placed 29th March 2010

18th November 2011
Subset of original presentation by Ed Cooper
Aim & Funding

The project aim is to provide a multi-role oceanographic research vessel comprising state of the art facilities and capable of operating worldwide (tropics to ice edge) in support of leading edge multi-disciplinary research. The vessel will be primarily for deep ocean research but is also capable of conducting continental margin studies.

The new vessel will complement the RRS James Cook which was brought into service in March 2007. Lessons have been learnt from the James Cook Project which are being taken forward in the development of the Discovery replacement.

Funding for the project is being provided by NERC and a capital allocation of £48M from the Science Budget via the Large Facilities Capital Fund administered by the Department for Business, Innovation & Skills (BIS).
• Estimated total disturbance cost - £75 million
• Funding:
  • £48 million from BIS (Large Capital Facilities Fund)
  • £27 million from NERC
RRS Discovery, 1963 – Hall Russell Aberdeen. Lloyd’s 100 A1 UMS Dtp Class VII. Length 90.25m, Beam 14.02m, Draught 5.3m, 3008 tonnes. Passage 11 knots. Endurance 55 days max. 45 days operational. Scientists 28, Marine 22. Multi-role oceanography of all disciplines.

Owned by NERC operated by National Marine Facilities – Sea Systems based at NOCS
Expected Outcome

- 50 days endurance (L 99.7m, B 18m, D 6.5m)
- Scientific Transit Speed – 12 knots maximum
- 24 Officers & Crew (includes 1 Training Berth)
- 28 Scientists & Technicians
- DP Capable (DP1) SS6/7
- Multidisciplinary
- Seismic capability
- Multibeam(s) & Sub Bottom profiler
- Minimal Ice Class – for hull life (Lloyds 1D)
- Overside/overstern lifting – 20 tonnes (JC 30 tonnes)
- Drop Keels
- Low URN but not ICES209
- Propulsion – 2 x Azimuthing Units Aft Azimuthing Thruster Fwd, Manoeuvring Thruster Fwd
- Oceanographic Winch Suite including Metal Free CTD Winch
RRS James Cook / Discovery Replacement Comparison

James Cook:
L 89.5m; B 18.6m; D 5.5 - 5.7m;
Displacement 5800 T

Discovery:
L 99.7m; B 18.0m; 6.5m;
Displacement 6075 T
Model Tests

During the design phase of the project, a number of model tests & complementary Computational Fluid Dynamics (CFD) simulations have been conducted to inform and confirm design decisions.

Computational Fluid Dynamics
Resistance & Powering Tests
Seakeeping & Manoeuvering Tests
Propeller Cavitation Tests
A REMINDER OF THE JAMES COOK HULL FORM
Drawings received for review

Steel cut [PT97 & PL01 – Aluminium]

Under construction

Complete awaiting transfer to slipway

Units on slipway

Units prepared & painted

First steel cut – 11/11/2010

Keel Laying – 15/2/2011

17/10/2011 – 46 of 50 block drawings reviewed. Approx 1900T prefabricated.
Diesel Main Generator in Shanghai 6/9/2011
Planned Timescales

- March 2010 - Contract Award.
  - Milestone 8 – Deliver winch system – April 2012.

- Commissioning & Trials Q3/4 2013.
- Available for Science Programmes early 2014.

NB. Existing RRS Discovery operational until end 2012.
Future Timescales

- March 2012 Hull Launch
- 2012 Outfitting
- 2013 Equipment Run Up & Sea Trials
- June 2013 Delivery to NERC
- June – Dec 2013 Commissioning, Familiarisation and Deep Water Trials
  Science Equipment
- 2014 Available for Science Programmes