Discovery Replacement Project
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60’s
1992 – 2013/4
RVOC 2010

70’s & 80’s
2013 onward
RRS Discovery Replacement

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

Designer: Skipsteknisk AS, Norway

Contract placed 29th March 2010

A new multi-role oceanographic vessel to be delivered Q2/Q3 2013

Science Programme commencement 2014

Before then technical familiarisation and configuration trials.
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
- Drop Keels
- Low URN but not ICES 209
- Propulsion – 2 x Azimuthing Units Aft
  Azimuthing Thruster Fwd, Manoeuvring Thruster Fwd
- Oceanographic Winch Suite – 4 wires and 1 synthetic + portable
  Metal Free CTD Winch
Sampling Platform

External
Plug in Laboratories

Internal
Winch Suite

Communications V-Sat C
Band 512kbps minimum

Overside Handling Systems
Cranes & Gantries

Large Aft & Stbd Decks

Azimuth Thruster Propulsion

52 total
24 Crew
28 Scientists

Drop Keels
Swath Transducers

Retractable Azimuth
Thruster

Jet Thruster

1D for longevity & robustness
LR \times 100 \ A1, Ice 1D \times LMC, UMS, IWS, EP, DP (AM), NAV1, IBS, “Research Vessel”

Greening - EP notation

Exhaust Gases
Particulate Emissions
Ballast Water Treatment
Bilge Water Treatment
Garbage Disposal

Enclosed Lifeboats

Bilge Water Treatment
Garbage Disposal

Ballast Water Treatment

Survey & Slow speed operations
Transit 12 kts
Max Speed 15 kts

Performance

HR

Drop Keels
Swath Transducers

Retractable Azimuth

Jet Thruster

Hull/ Bow
designed to
minimise aeration
and URN

LR \times 100 \ A1, Ice 1D \times LMC, UMS, IWS, EP, DP (AM), NAV1, IBS, “Research Vessel”

30 knots, gusting 40
knots on beam
SS 6/ 7 on beam

LR \times 100 \ A1, Ice 1D \times LMC, UMS, IWS, EP, DP (AM), NAV1, IBS, “Research Vessel”
Timescales as it has happened or still in the future

- PQQ Re-issued August 2009
- ITT Re-issued 29\textsuperscript{th} September 2009
- Tender Clarification / Evaluation Jan/Feb 10
  6 Bids, 3 LOT1 only, 3 with LOT 2
- Gateway 3 “Investment Decision”. February 10
- Preferred Bidder Decision – 25\textsuperscript{th} Feb 10
- Funding Award confirmation from BIS (LFCF) & HMT received 17/3/2010
- 29\textsuperscript{th} March 2010 Contract Award
  - Build Period 2010 – Q1/Q3 2013
  - Commissioning & Trials Q3/Q4 2013
  - Available for Science Programmes 2014
Funding — note no “Stimulus Package” in the United Kingdom

- Total Project - £75m equates to US$115m
  - Ship Build & Design
  - Project Office and Oversight
  - Training & Commissioning Trials
  - Spares
- Funded from HM Treasury £48m
- Remainder of £75m from NERC
NERC CONTRACT RULES

- We are only allowed to issue an output specification i.e. a Statement of Requirements
- The Contractor must take full responsibility for the finished product
- We therefore cannot develop and present a detailed Specification
- Research vessels are ‘one offs’ and are only built on 20 year cycles
- Result is that no shipyard really understands their needs particularly as each nation has their own priorities for science
- Our approach is to prepare Concept General Arrangement, CGA, along with Quality standards and illustrative Schedules for guidance only
- The Statement of Requirements is written in detail set against the CGA which has itself been developed through consultation with the science community
- This was successful with the James Cook (exactly on time & price) and hopefully this will be repeated for the Discovery
Bubble Sweepdown

- Basic vessel is (compared to JC)
  - Longer, Deeper in the water, Slightly Narrower
  - This leads to reduced bow emergence
  - Block Coefficient JC 0.71; D4RP 0.57

- No form of bulb at the bow. Vertical stem instead.
- No large aperture for manoeuvring thruster.
- Will include a blister arrangement outside keel plate line due to rise of floor.
- Designer better informed
- Customer better informed
- Model Test Arrangements to include CFD modelling for flow lines
- Commercial approach via LD clauses
A REMINDER OF THE JAMES COOK HULL FORM
RRS DISCOVERY REPLACEMENT

VIEW ON STBD BOW SHOWING BOW THRUSTER APERTURE

VIEW ON BOW SHOWING LINES DISCOVERY REPLACEMENT
This is not The End
It’s only the beginning!