

AREAS OF EXPERTISE

Ship Design up to 183m, \$55M



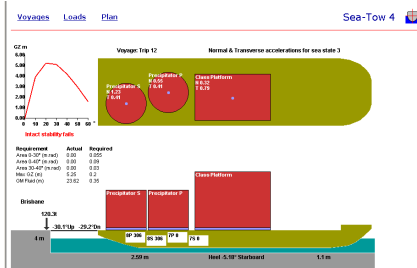
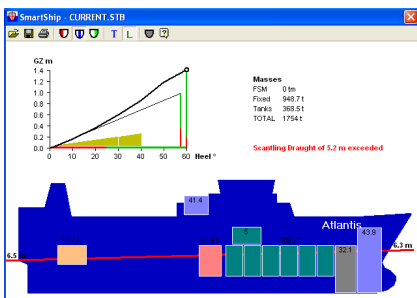
Structural Design- FPSO Structures



Strong Innovation



Software Development



Qualifications

1967 Qualified at the Royal Naval College, Greenwich, as a Professional Naval Architect by the Royal Corps of Naval Constructors

1971 Member, Royal Institution of Naval Architects

1980 Member, Institution of Professional Engineers, NZ

1995 Fellow of the Royal Institution of Naval Architects

1995 Fellow of the Institution of Professional Engineers, NZ

Principle Milestones

1972 Presented paper on GRP Ship Construction, RINA, London

1990 John Harrhy awarded the NEW ZEALAND Gold Award for Outstanding Excellence in Design and Project Management

1992 CC1992 SeaSpark Ltd accredited ISO 9000

1992 Accredited by Maritime Safety Authority, NZ, to approve the design and survey of all NZ registered vessels except SOLAS vessels

2000 Accredited by Maritime Safety Queensland for Design, stability and Survey Compliance,

2004 Managing Director SeaSpark Ltd

2008 Co2008 SeaSpark Ltd accredited by BVQI to ISO 9001:2008

2013 Acfor marine design & stability consultancy and project management

John Harrhy RCNC FRINA FIPENZ

Professional Naval Architect and Structural Engineer

Principle Experience Milestones

1968-1971 Assistant Constructor, Ministry of Defence warship design headquarters.

Responsible for the design development process, structural testing, and design of the structure of HMS Wilton, 54m, world's first GRP vessel and the Brecon Class of Minecountermeasures Vessels. Ten were built.



1971-1974 Constructor Ministry of Defence warship design headquarters

Responsible within Polaris Technical Group for structural nuclear containment, Polaris weapon ship support systems, and safety of operational nuclear submarines.



1974- 1977 Constructor, Naval Staff, Wellington, with the Royal New Zealand Navy

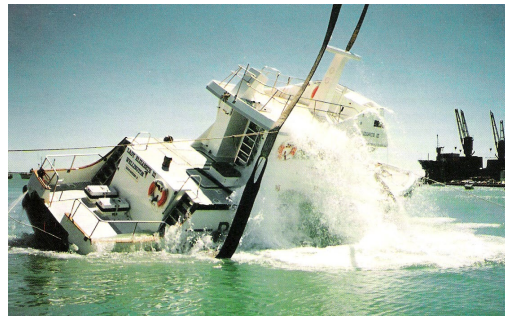
1977- 1980 Senior Tutor, Central Institute of

Technology, Marine and Aeronautical Engineering

1980 -1986 Head School of Engineering, Central Institute of Technology

1984 Formed Advanced Composite Structures Ltd designing and manufacturing FRP structures as OE equipment for Toyota(NZ) and Honda (NZ)

1989 Designed and supervised construction of the self righting FRP Police SAR Launch Lady Elizabeth III for NZ Police, \$2.2M



1992 Company accredited by SANZ to ISO 9000

1992 John Harrhy accredited by Maritime Safety Authority, NZ, to approve the design and survey of all NZ registered vessels except SOLAS vessels.

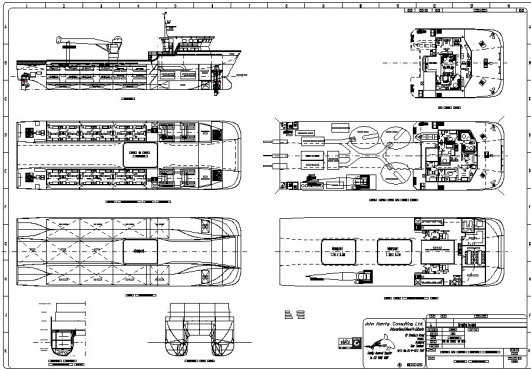
1993 Designed and supervised construction of the Kevlar Assault Boats for the Royal NZ Army, 60 were built.



1994 Designed and supervised construction of the 30m Dynamic Positioning Offshore steel catamaran, Sea Worker for Seaworks Ltd, Wellington \$5.5M



1995 Designed and 50m Dynamic Positioning Offshore steel catamaran for ITT Ltd, Singapore S\$10.5M



1996 Designed and supervised construction of the 85m steel deck cargo vessel Kaipara Carrier IV for Atlas Concrete, Auckland \$3.5M

1996 Became Founding Director of Mooring International Ltd, Christchurch, creating designs for automated ship mooring systems installed at Picton, Wellington, Launceston, Melbourne, & Dover



1997 Designed and supervised construction of a mass produced aluminium launch for Toyota Motor Corporation, Japan, \$10M

1998 Carried out preliminary designed of a 146m steel Cement Carrier for Milburn Cement Ltd, Christchurch, \$42M.

1986- 2007 Designed and supervised construction of a variety of small specialised aluminium fishing industry vessels from 15m to 27m

2000 Formed JHCL Ltd (delivering professional marine consultancy services), DMS Ltd (delivering IT solutions for the marine industry, such as StabMaster a computer aided visual interface to assess a fishing vessel's stability 23 systems delivered), Smartships Ltd (Marine design company), Saba Yachts Ltd (a ship building facility specialising in the construction of small steel and FRP expedition ships, such as the 25m Savannah completed 2007)

2002 Designed the international Expedition Ship, Savannah for construction by Saba Yachts Ltd, Auckland \$6M



2002-2007 Responsible for the stability of the Interisland Line Ltd and Blue Bridge Ltd RORO Cook Strait ferries.

2004 Designed the FPSO gas compressor structures for Flotech Ltd, Auckland for ABBs Chinguetti facility reviewed by DNV, Oslo



2006 Pioneered the solution of the computation and ship operating guidance information for resolving Parametric Roll Resonance for large ferries for Interisland Line, Wellington

2007 Designed the four FPSO gas compressor structures for Flotech Ltd, Auckland, for Fred Olsen facility reviewed by DNV, Oslo \$12M



2008 ENSCO 56 Rig Refurbishment to ABS as Project Manager, \$15M



2009 Compressor Baseframe Review Flotech Ltd

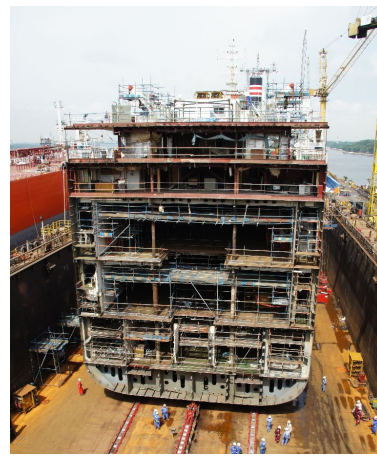
2010 FPU for Terang Sirasun Batur Field - Flotech Ltd

2010 167m Aratere Lightship Survey, Interislander

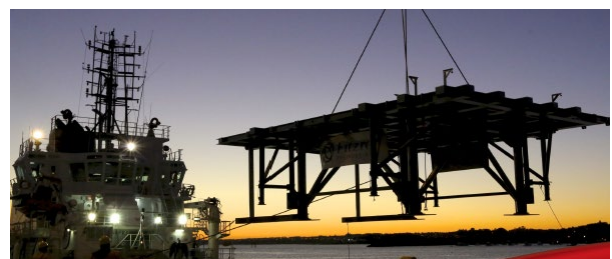
2010 167m Arahura Flexibility Issue, Interislander

2010 Arahura, Aratere Mooring Bitt towing strength Interislander

2009-12 Responsible for the design of the lengthening of the Interisland RORO ferry Aratere from 150m to 183m, by adding a 30m mid section, strengthening the vessel, replacing the bow with an improved bow for sea keeping, adding a new bulbous bow & stern wedge to improve resistance, update her operational standard in terms of strength and stability to SOLAS NZ\$55M

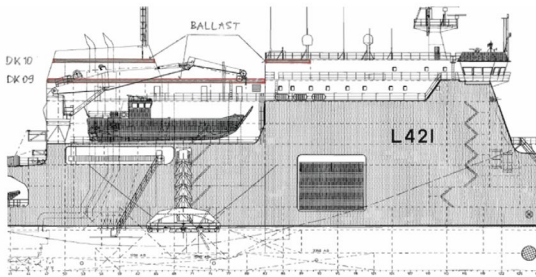


2012 FPSO Umuroa Structure and Dynamics for ITL, New Plymouth



2012 Design of the onshore structural facility for the KUPE field





2014 HMNZS Canterbury Structural Design for additional ballast



2014 Project Manager Refit of ENCO 56 Oil Exploration Rig, Nelson First in NZ



2017 17m Lady Stirling Passenger Ferry Design & Stability Review



2017 35m Capricorn Surfer Transferred from AMSA to MNZ Undertook Design, Stability & Load Line Reviews



2016 SAVANAH- Steel Charter Launch- Designer and Surveyor 2C Cairns.

John Harrhy was the original Designer and undertook the design & survey upgrade for 2C operations in Australia



2017 29m Alloy Cat16-050 Gem of The Sound DGN STB Transfer from AMSA to MNZ

Resources

Professional design team of Naval architects, marine & mechanical engineers, CAD Draftsmen and ship surveyors

Marine design software- Bentley Modeller Advanced, Bentley Stability Enterprise, Bentley Structure Advanced, Bentley Resistance & Bentley Motions

Structural Design software –Multi-Frame Advanced 4D version 10, static, dynamic and transient response.

Draughting Software – Microstation V 8i

Mathematical Software- MathCad v13

Review Bodies worked with

DNV

LRS

ABS

BV

Germanischer Lloyds



John Harrhy

Naval Architect, Director