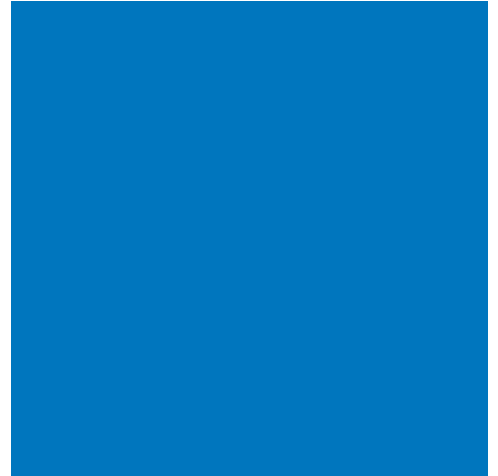
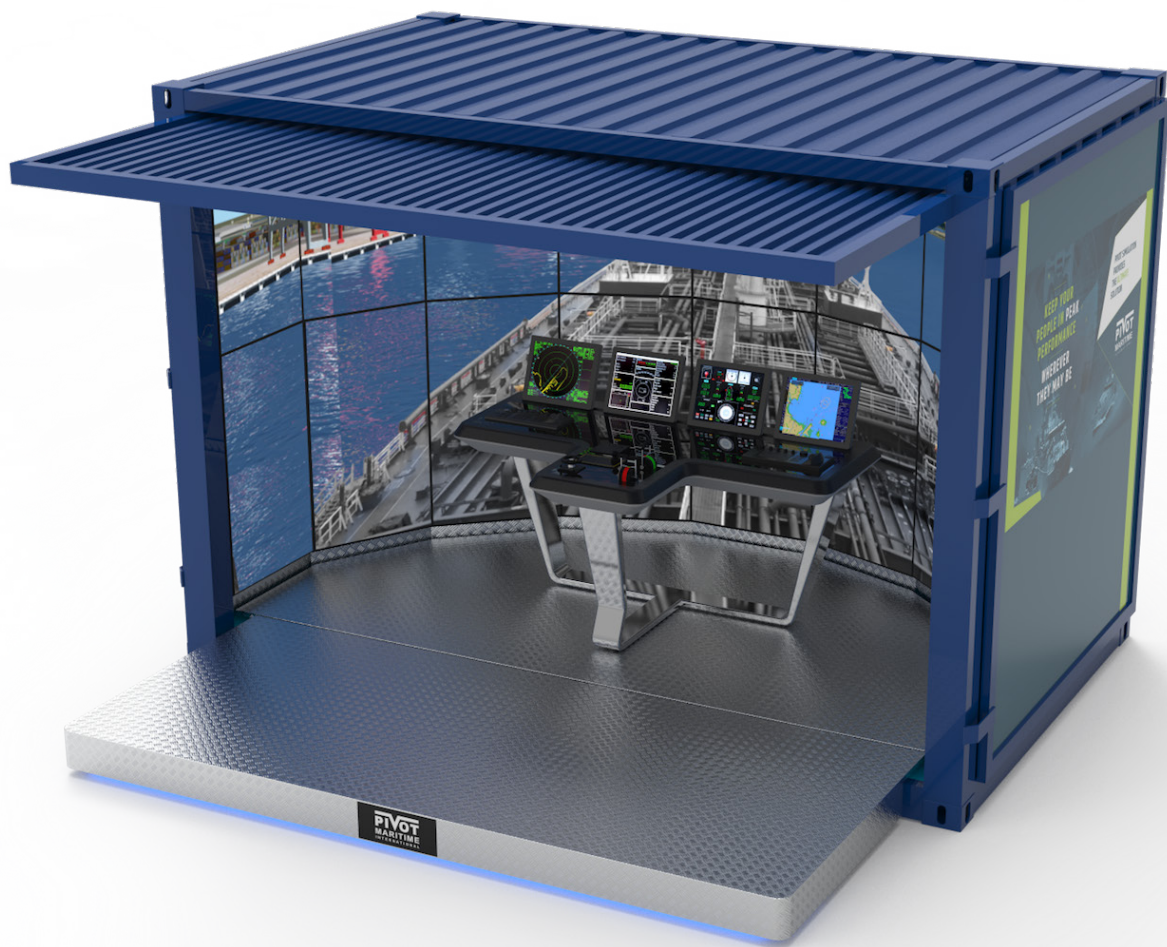


Tasmanian Maritime Prospectus





PIVOT MARITIME INTERNATIONAL CONTAINERISED SIMULATOR

Image courtesy of Pivot Maritime International

COVER

TOP: INCAT AUSTRALIA BUILT FERRY 'SAINT JOHN PAUL II'

Image courtesy of Incat Australia

MIDDLE: RICHARDSON DEVINE MARINE BUILT VESSEL 'OUTER LIMIT' OWNED AND OPERATED BY TASMANIAN COMPANY OFFSHORE UNLIMITED

Image courtesy of Offshore Unlimited

BOTTOM: PFG'S 'SENTINEL 1250' NEXT GENERATION TACTICAL WATERCRAFT, DESIGNED AND BUILT SPECIFICALLY FOR DEFENCE FORCES

Image courtesy of PFG

Premier's foreword



As the only island state of Australia, Tasmania has an impressive array of capabilities across the maritime domain.

The state is a recognised provider of advanced products, services and systems across the breadth of this critical sector.

Tasmanian companies and research institutions are trusted providers of innovative and niche products, services, training and research to governments, defence forces, maritime security agencies, shipping companies, port authorities and major companies locally and internationally.

Our capabilities include the construction of specialised watercraft and large-scale vessels, the manufacture of advanced design products, systems and services such as ship componentry and internal fit-outs.

Our companies and institutions undertake port design and testing and we have unique and world class maritime education, training and research expertise and facilities.

Our maritime products and services are widely sought after and provided around the world to places such as New Zealand, across Pacific Island nations, parts of South-East Asia, India, Bangladesh, Hong Kong, China, Japan, South Korea, Tanzania, Turkey, the United Kingdom, Germany, France, Italy, Spain, Belgium, Denmark, Norway, the United States, Canada, South America and the Caribbean.

Tasmania is determined to make a significant and ongoing contribution to the design, manufacture and supply of capabilities to meet the broad and often demanding maritime needs of navies, operators, researchers, trainers and educators.

I take great pride in giving you this brief introduction to Tasmania's high-quality and globally recognised maritime capabilities.

I trust this prospectus will promote an understanding of why Tasmania is the first place to look for solutions to your maritime challenges and requirements.

A handwritten signature in black ink, reading 'The Hon Jeremy Rockliff MP'.

The Hon Jeremy Rockliff MP

Premier

Minister for Trade

From the Minister



Tasmanian innovation and high-quality systems and services are already enhancing the capabilities of maritime operators in commercial, national security and military fields.

The concentration of many of Australia's

maritime science and research institutions in Tasmania is recognition of our competitive advantage in maritime research excellence.

Tasmania is home to the national Australian Maritime College (AMC), the Institute of Marine and Antarctic Studies and Australia's Commonwealth Scientific and Industrial Research Organisation's (CSIRO) Marine National Facility.

These are just some examples of why Tasmania is recognised as a hub for world-leading maritime research.

With such an extensive industry and research base, Tasmania can reliably deliver maritime operators the world-class solutions they need to solve their challenges

The Hon Madeleine Ogilvie MP

Minister for Advanced Manufacturing and Defence Industries

Minister for Science and Technology

From the Strategic Maritime Advisor



Bounded by the sea, our marine focussed industry, research, education and training capabilities come naturally to Tasmanians.

Tasmanians have developed world-leading maritime knowledge, products

and services. In particular, we offer advanced simulation capabilities with the Australian Maritime College's Simulation Centre providing training in bridgemanhip, navigation and ship handling. Tasmanian manufacturers also deliver leading bridge simulation systems.

Tasmanian shipbuilders and specialised vessel manufacturers are renowned for designing and building high-speed and lightweight catamarans

and other specialised vessels that are sought after the world over.

As a professional mariner, I believe the concentration of highly specialised and advanced maritime industries in Tasmania is quite unique. Tasmanian industry is ready to partner with you to deliver on your maritime requirements.

Rear Admiral (Rtd) Steve Gilmore AM, CSC

Strategic Adviser - Maritime and Tasmanian Defence Advocate

Tasmania's maritime story

The Southern Ocean is a place of risk and adventure, a dangerous place of cold wind, rain, and giant seas. Good enough, in turbulent Tasmanian waters, is never good enough. If we fail in the Southern Ocean or Bass Strait, it isn't a setback. It's deadly.

For thousands of years, the first Tasmanians were isolated by Bass Strait, so they focused on invention and trade. Tasmanian Aboriginals were the early boat builders, the early researchers, the early problem solvers.

In the 19th century, more ships were being built in Tasmania than in the other Australian colonies combined, with many of the ships large enough to be used on the Australia-England route.

In the 20th century, Tasmania joined the national war effort, constructing patrol vessels, cargo vessels and hospital launches for the armed forces during the Second World War.

These ships were different to others being built at the time. Tasmanians used native timbers like Huon and King Billy pine, and Celery-top, to make something uniquely of this place, a craft and tradition that continues today.

Out of this tradition, in the second half of the 20th century, a new generation of Tasmanians grew up sailing together. They competed. They cooperated. They developed an obsessive passion for the sea.

These unstoppable maritime entrepreneurs changed everything.

They started small, working together, connecting with experts, and pushing one another to be better. They didn't build the most ships, but they worked hard to create the strongest ships, the safest ships and the fastest ships, the toughest equipment, and the safest, most sophisticated systems.

Adopting the finest materials and technologies, they developed the confidence to test themselves – to take Tasmanian ingenuity across every ocean, to ports around the world.

We also attracted ingenuity. Today, Tasmania has the highest concentration of maritime and marine researchers and scientists in the southern hemisphere. They come from everywhere, inspired by our craft and our traditions, enhancing and enriching our maritime culture.

It's tougher in Tasmania. We can't import solutions because they often won't work here. We can't be complacent. Because of where we live, everything we do and make has to be better, more durable, more reliable, more advanced.

In Tasmania, we design, we research, we educate, we cooperate, and we build with quiet mastery. It's who we are.

HARBOUR DEFENCE MOTOR LAUNCH BUILT BY PURDON AND FEATHERSTONE, HOBART IN 1943

Image courtesy of Royal Australian Navy



Tasmania's advantages

- *Capability* – as Australia's only island state, we have capabilities across the whole maritime sector. These include shipbuilding and watercraft construction; port development; manufactured products and services; and education, training and research.
- *Collaboration* – our shipbuilders and maritime companies work together and are represented by the Tasmania Maritime Network, which provides strategic direction and support to the maritime industry.
- *Innovation* – our maritime industry inherently partners with research and scientific institutions to solve problems and innovate. As a result, we are a centre for excellence in product development and advanced design.
- *Research excellence* – we lead key maritime and marine research and scientific initiatives through a number of world renowned institutions, organisations and clusters.
- *Infrastructure* – we have extensive and modern maritime infrastructure, including major shipyards, slipways, maritime precincts, and deep water ports.
- *Global supply* – many of our major maritime manufacturers supply to global markets and are connected to international supply chains. Local supply chains are well established and provide fabrication and manufactured products and services for the maritime industrial base.
- *Education and training* – we have best practice vocational education and training and university facilities in maritime operations, maritime engineering, ship operations, port operations, and fabrication, welding and maintenance.
- *Workforce* – we have a reliable and skilled maritime workforce complemented by a broader advanced manufacturing sector with extensive experience in heavy industry maintenance and operations.
- *Energy sources* – our natural and established advantages place us in the enviable position of having over 90 per cent of our energy produced from renewable sources.





**TAYLOR BROS MARINE INTERIOR FITOUT OF
HOBART CLASS AIR WARFARE DESTROYERS**

Image courtesy of Taylor Bros Marine

Tasmania's capabilities

Shipbuilding and watercraft construction

The design, manufacture and fit-out of a range of vessels – from small specialised watercraft through to high-speed ferries over 120 m long – takes place at a number of shipyards across the state. Four shipyards are located at a maritime defence industry precinct 20 minutes north of Hobart and one shipyard is located just south of the city.

In total, our shipyards have over 79 500 m² of undercover production hall space.

We have extensive experience constructing vessels in aluminium, steel, high-density polyethylene and composites for a wide range of markets and industries, including:

- ferries and tourism
- aquaculture
- maritime security
- defence
- oil and gas
- Antarctic and Southern Ocean operators
- special service providers
- private vessels.

We are renowned for building high-speed and lightweight catamarans. Our smaller catamarans are sought after by operators the world over, while our larger wave piercing catamarans are some of the world's fastest, efficient and most environmentally clean ships.

We build tailored boats and specialised watercraft to meet the specific needs of customers and markets. We produce small harbour patrol boats, fast response vessels and transport craft, coastal landing craft, harbour maintenance craft, rigid hull inflatable boats, and other small vessels for use in inshore areas.

Port development

Tasmanian companies have been involved in the design and development of some of the world's largest and most complex port development projects, ranging from highly accurate real-time maritime simulations, scientific and environment data collection and analysis, through to port construction.

Product manufacturing, engineering and services

We produce a range of highly specialised, advanced design and often world leading maritime and marine products and services that contribute to vessel design, manufacture, operations and safety – for both commercial and military markets.

These include:

- anchoring and chain management systems
- antenna systems
- biosecurity management services
- bulkhead and shaft seals
- deck and engine stores
- deck hatches and fire doors
- electronics and communication systems
- engineering and casting services
- hazardous materials storage solutions
- helicopter retrieval systems
- hydraulic systems design and manufacturing
- hydrographic surveying
- in-water biofouling and invasive marine species management services
- lease of high speed and offshore support vessels and marine crew
- lightning protection products
- marine evacuation systems and high capacity life rafts
- marine outfitting and modular accommodation services
- metal fabrication
- meteorological and oceanographic data, analysis and services
- mooring equipment
- offshore collision avoidance radar systems
- out of water vessel repair
- personal floatation devices (clothing-style)
- personnel tracking systems
- remote weather monitoring systems
- ship certification and quality assurance
- ship information management systems
- simulation systems
- thermal insulation and passive fire protection systems
- underwater retrieval, sensing and marking systems
- vessel resupply.



CBG SYSTEMS RAPID ACCESS COMPOSITE (RAC) STRUCTURAL FIRE PROTECTION FORMING THE DECKHEAD AND BULKHEAD OF A HIGH SPEED FERRY

Image courtesy of CBG Systems



CRISP BROS AND HAYWARDS BUILT VESSEL ‘ARTREUS’ IN FOREGROUND WITH CRISP BROS AND HAYWARDS MARGATE SHIPYARD IN BACKGROUND

Image courtesy of Crisp Bros and Haywards



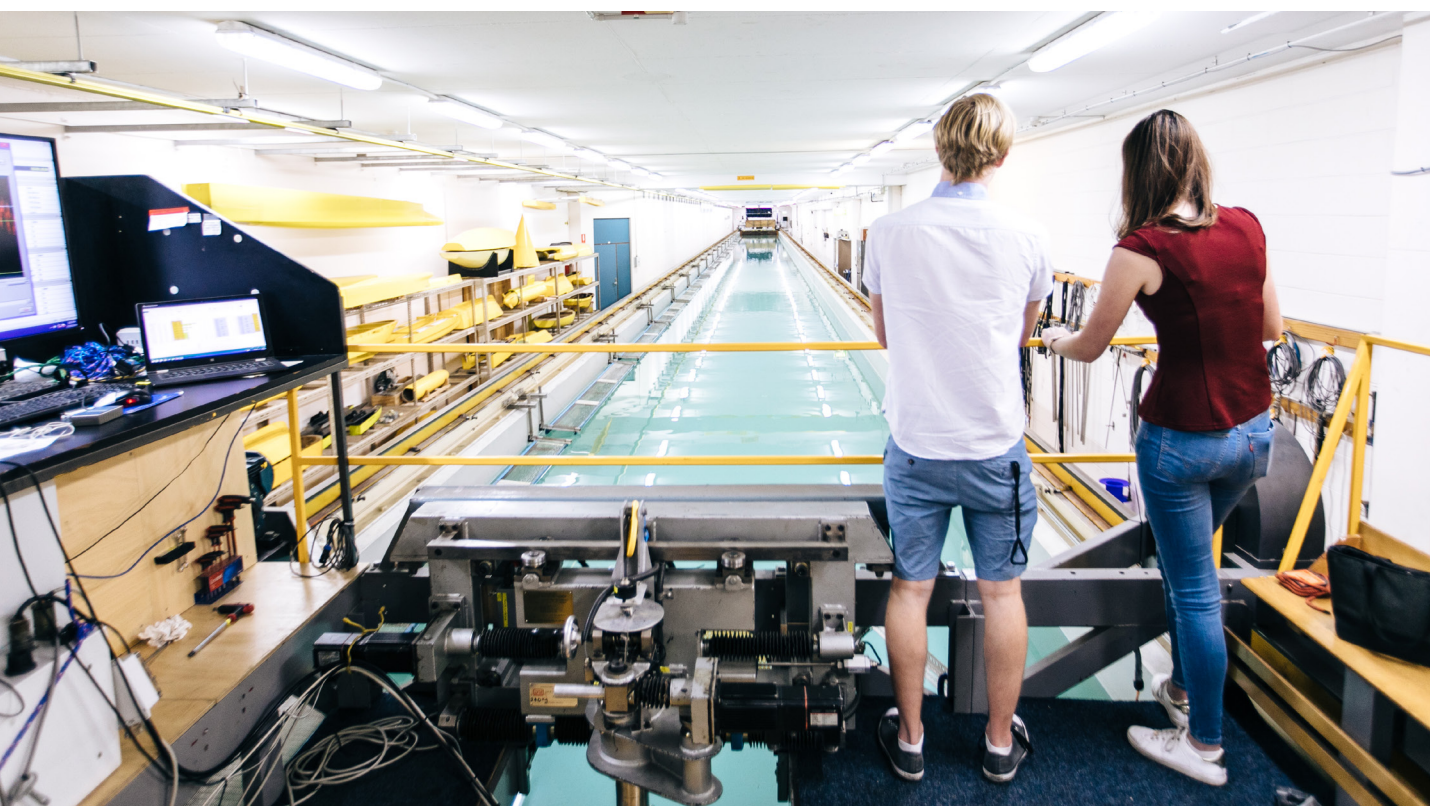
LIFERAFT SYSTEMS AUSTRALIA MARINE EVACUATION SYSTEMS FITTED TO THE ROYAL NAVY’S (UK) AIRCRAFT CARRIER AND FLEET FLAGSHIP, HMS QUEEN ELIZABETH

Image courtesy of Liferaft Systems Australia



AUSTRALIAN MARITIME COLLEGE

Image courtesy of Australian Maritime College



AUSTRALIAN MARITIME COLLEGE TOWING TANK

Image courtesy of Australian Maritime College

Education, training and research

Tasmania is home to a number of world leading maritime and marine research and scientific institutions and organisations, each with unique capabilities, expertise and facilities.

The *Australian Maritime College* (AMC) is part of the University of Tasmania and is one of the seven founding members of the International Association of Maritime Universities, which represents five continents.

AMC's specialist research and training facilities include the Maritime Simulation Centre, the Model Test Basin and Towing Tank, the Cavitation Research Laboratory, the Underwater Collision Research Facility, the Autonomous Underwater Vehicle (AUV) Facility, and the Emergency Response Centre.

AMC's research capabilities include:

- maritime renewable energy
- naval architecture
- fluid dynamics and fluid structure interactions of ship and submarine structures
- cavitation physics and hydro-acoustics

- ship, submarine and underwater vehicle manoeuvring and motion prediction
- offshore engineering
- human centred design
- port development
- sustainable ports
- underwater robotics
- maritime safety
- logistics and supply chains.

The AMC also hosts a commercial division, AMC Search, delivering training and consultancy services.

The University of Tasmania's newly established *Defence and Maritime Innovation and Design Precinct* focuses on the provision of testing and evaluation for maritime engineering and remote sensing, as well as autonomous vehicles and human performance and resilience systems.

The Precinct also builds on the AMC's position as the home of the Australian Research Council's Research Training Centre for Naval Design and Manufacturing, which aims to transform Australia's naval manufacturing industry.



'RV INVESTIGATOR' AT THE CSIRO MARINE LABORATORIES IN HOBART

Image courtesy of CSIRO

The University of Tasmania's *Institute for Marine and Antarctic Studies* (IMAS) is a centre of excellence for marine and Antarctic research. IMAS has three core research programs - Fisheries and Aquaculture, Ecology and Biodiversity, and Oceans and Cryosphere. These programs are linked by the cross disciplinary themes of climate change, ocean-earth systems, and oceans and Antarctic governance. Based on IMAS's activities, in the 2017 Centre for World University Rankings by Subject, the University of Tasmania was ranked fourth in the world for Marine and Freshwater Biology, and seventh in the world for both Fisheries and Oceanography. IMAS is the only institute in the world in the top 10 for all three of these research focus areas.

Australia's *Integrated Marine Observing System* (IMOS), hosted by the University of Tasmania, is a national research infrastructure capability which operates a wide range of observing equipment throughout Australia's coastal and open oceans.

The *Blue Economy Cooperative Research Centre* (Blue Economy CRC) undertakes world class, collaborative, industry focused research to support the growth of Australia's Blue Economy. Headquartered in Tasmania, the Blue Economy CRC has 40 participants from around the world, representing industry, universities and governments, with international expertise in sustainable offshore aquaculture, offshore renewable energy and engineering, and offshore policy development. The Blue Economy CRC's education and training program is developing a skilled workforce designed to support Australia's blue economy.

The *Marine National Facility* is Australia's blue water research capability, funded by the Australian Government and owned and operated by the Commonwealth Scientific and Industrial Research Organisation (CSIRO). The facility operates RV *Investigator*, a 94 m state of the art marine research vessel based in Hobart, which supports Australia's atmospheric, oceanographic, biological and geosciences research. CSIRO's Oceans and Atmosphere Business Unit is also headquartered in Hobart.

The *Australian Antarctic Division* (AAD) is part of the Australian Government's Department of Agriculture, Water and the Environment and is based in Kingston, just south of Hobart. The AAD is responsible for Australia's presence and activities in the Australian Antarctic Territory and the Southern Ocean. Australia's new icebreaker, RSV *Nuyina*, will be based in Hobart from 2021 and will be the main lifeline to Australia's Antarctic and sub-Antarctic research stations and the central platform of Australia's Antarctic and Southern Ocean scientific research.

The *Centre for Antarctic Remote and Maritime Medicine* (CARMM) delivers operational medical services, training and research for polar, maritime, space and other remote and extreme environments. CARMM is based at the AAD and is a collaborative partnership between the Australian Government, the Tasmanian Government and the University of Tasmania. The Tasmanian Health Service's Department of Hyperbaric and Space Medicine is part of CARMM and houses the southern hemisphere's only hyperbaric/hypobaric recompression chamber facility and speciality expertise.

TasTAFE provides vocational education and training to support the training requirements of our major shipbuilders and the broader maritime industry. TasTAFE's facilities include the Metal Engineering Training Facility, located in the maritime defence industry precinct at Prince of Wales Bay.

The *Tasmanian Minerals, Manufacturing and Energy Council* (TMEC) *Manufacturing Centre of Excellence* provides facilities, training spaces and equipment to develop skills in advanced manufacturing. TMEC facilities that are utilised by the shipbuilding industry include a Simulated Work Environment that provides lean manufacturing and continuous improvement training, as well as an Advanced Training Welding Centre with portable virtual reality simulators that are compatible with live welding equipment.



**THREE VESSELS BUILT BY RICHARDSON DEVINE MARINE (RDM) IN FOREGROUND
WITH RDM'S SHIPYARD IN BACKGROUND**

Image courtesy of Richardson Devine Marine



MUIR ENGINEERING ANCHORING SYSTEM COMPRISING VRC 20 000 WINDLASS, RETURN ROLLER ASSEMBLY AND CHAIN COMPRESSOR FITTED TO 65 METRE SUPERYACHT BY FEADSHIP ROYAL VAN LENT

Image courtesy of Muir Engineering

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