



Australian Government



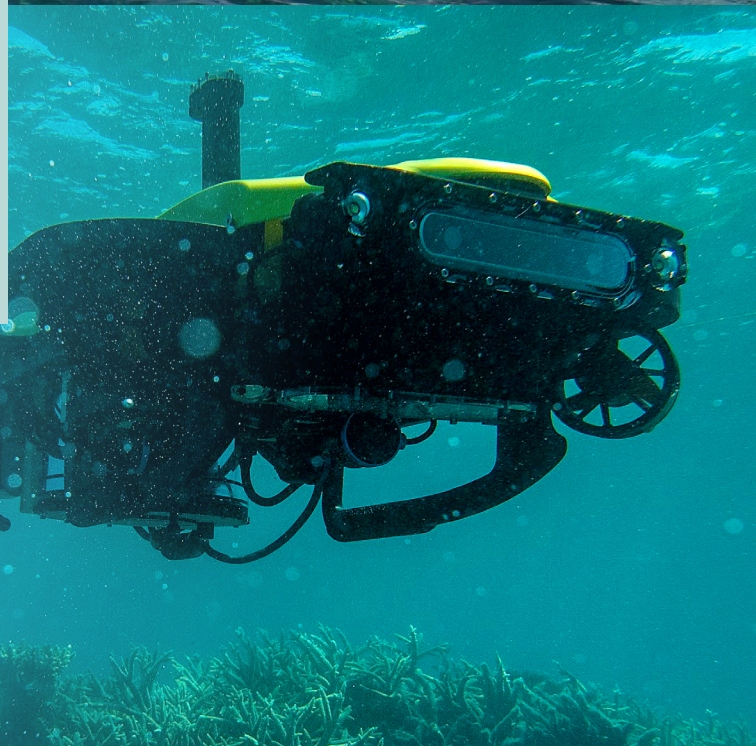
AUSTRALIAN INSTITUTE
OF MARINE SCIENCE



REEFWORKS

AUSTRALIA'S TROPICAL MARINE TECHNOLOGY TEST RANGE

On the doorstep of the Great Barrier Reef, ReefWorks offers a national capability to safely test marine technologies, unmanned systems and new sensors in a tropical marine environment.



Top: AIMS-QUT Reef Survey trials of a WAM-V Autonomous Surface Vessel (ASV).
Photo: Geoff Page, AIMS. Right: Coral Autonomous Underwater Vehicle (AUV)
undergoing trials, Photo: Geoff Page, AIMS.

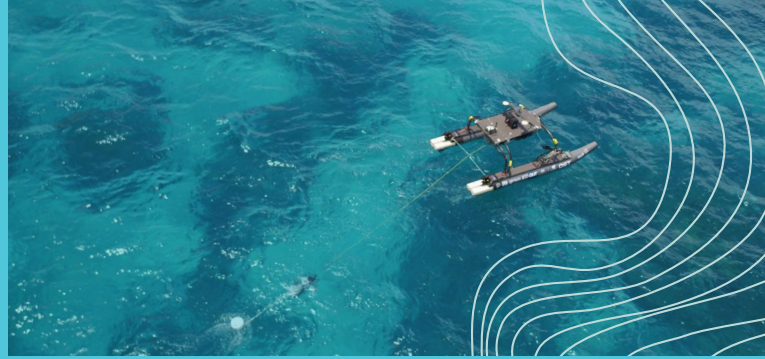
AUSTRALIA'S FIRST TROPICAL MARINE TECHNOLOGY TESTING FACILITY

The Australian Institute of Marine Science

(AIMS) is extending its unique marine technology testing infrastructure and capability to a new national facility available to industry, government and academic innovators.

ReefWorks is designed to test marine technologies and unmanned systems at different levels of technology readiness, as well as to verify technologies as fit-for-purpose, safe to operate and environmentally compliant.

ReefWorks caters for unmanned and autonomous aerial, surface and underwater



WAM-V ASV towing an imaging platform for reef flat surveys. Drone image, AIMS. Photo: Joe Gioffre.

systems and other innovations or sensors that require testing and evaluation in the marine environment.

Available facilities – including laboratories, workshops, wharf facilities, infrastructure at three sea test ranges with differing conditions and autonomous corridors – provide a cost-effective, safe, repeatable test environment at a secure facility, in a remote location.

A UNIQUE PROPOSITION

Autonomous systems have stringent compliance requirements for managing risk, and northern Australia's harsh tropics is a challenging operating environment for marine technologies.

With its remote location, marine infrastructure and expertise, AIMS is in a unique position to respond to the growing demand for more marine technologies by offering a state-of-the-art national facility for testing innovative technologies in the challenging tropical marine environment – from proof-of-concept through to operations.

A consistent standardised marine testing framework streamlines technology testing for industry and will create a common knowledge base for regulators and decision-makers to be confident that systems transitioned to operations are fit for purpose and safe to operate.

Joe Gioffre (r) (AIMS Chief Pilot) and Dr. Jon Kok (l) with the AIMS Hyper-spectral drone system Photo: Scott Bainbridge.



REEFWORKS SERVICES AND FACILITIES

1. TEST RANGE DIGITAL TWIN

We can assist your test and evaluation activities by using measured bathymetric (3D structure), ecological,

meteorological and oceanographic data to create a digital twin of our test ranges. This allows for seamless transition from simulated to real world environments, streamlining system design and performance analysis.



Test range digital twin collaborative trials, from left: AIMS-Boeing /Liquid Robotics. AIMS - DroneDeploy. AIMS-QUT.

2. MARINE PLATFORM AND SENSOR TEST TANK FACILITY

We offer platform and sensor performance testing in a controlled environment – the [National Sea Simulator \(SeaSim\)](#). SeaSim's unique capabilities include:

- ability to precisely set and vary environmental parameters to replicate real-world or experimental scenarios (for example day-night light profiles, shallow and deep-water optics, temperature profiles, differing turbidity and future climate scenarios)
- a dedicated payload test tank for repeatable, controlled testing of underwater imaging and sensing payload systems
- a dedicated, large platform test tank for repeatable, controlled performance and compliance testing such as obstacle avoidance.



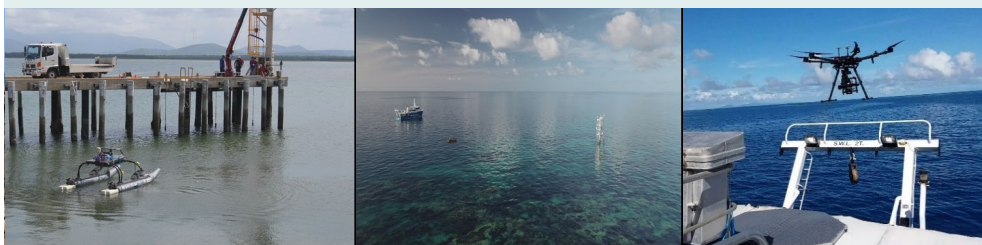
Sensor payload and platform test tanks collaborative trials, from left: AIMS-QUT Photo: Scott Bainbridge. AIMS-ReefHQ Photo: Melanie Olsen. AIMS-DST Group Photo: Jon Kok.

3. TROPICAL MARINE TEST RANGES

We provide an end-to-end marine test range service as a safe place to test unmanned and autonomous systems in the tropical marine environment. Facilities include:

- three marine test ranges that offer different representative environments
- two autonomous corridors to routinely verify the performance of unmanned underwater, surface and aerial platforms
- sentinel support for monitoring platforms during missions
- mission control and operations centre
- boat ramp, dredged channel, wharf and pontoon
- fixed at-sea infrastructure and arranging vessel support for sea trials
- experienced personnel to assist with technical, operations and permit support
- on-site secure accommodation, workshops, staging areas, laboratories and café
- planned extensions to allow access to HMAS Cairns, Townsville Port and deeper waters to cater for specific user water depth and bathymetry coverage needs.

The services support the entire development cycle from simulation validation, bench testing, tank tests through to nearshore and off-shore field testing.



AIMS marine test ranges collaborative trials, from left: AIMS-QUT Photo: Marie Roman. AIMS Photo: Shaun Hahn. AIMS Photo: Scott Bainbridge.

LOCATION

ReefWorks is based at AIMS headquarters, a secure government facility in an isolated shore-based location, 50km south of Townsville, Queensland. AIMS is the nation's tropical marine research agency. In existence for almost half a century, it plays a pivotal role in providing large-scale, long-term, and world-class research that helps governments, industry and the wider community to make informed decisions about the management of Australia's marine estate. It contains on-site accommodation, data centre, facilities, and engineering and operations support to assist collaborators in efficiently conducting their activities.



CONTACT US

AIMS is seeking partners to invest in the development of this unique facility as well as innovators interested in using the facility to test their autonomous systems.

For further information please contact:

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Top: The Cape Cleveland base of Australian Institute of Marine Science, North Queensland. Photo: AIMS / Joe Gioffre.

Below: The National Sea Simulator, Australian Institute of Marine Science, Cape Cleveland, North Queensland. Photo: Roslyn Budd.

