

PLYMOUTH - THE CENTRE FOR MARINE AUTONOMY

Market Potential

Industry predicts a global marine autonomy market of £103bn by 2030, with the UK adopting a 10 per cent UK market share (Foresight Future of the Sea, 2018).

Further investment in the existing hub for the testing and development of marine autonomy in Plymouth will enable UK PLC to develop sovereign capability and secure market share in this growing market for autonomy in defence, renewables and oil and gas.

The Best Place

The city of Plymouth and surrounding area have a rich ecosystem of marine autonomous research, private sector businesses and world-renowned research capabilities.

The location of the city is unique with quick access to deep water, the uncongested waters around Plymouth deliver trial areas ranging from sheltered locations to hostile 'real world' environments.

Plymouth is the best connected city south of Bristol and is home to both the largest Naval Base in Western Europe and one of the largest commercial ports in the South West. Sheltered by the natural harbour of Plymouth Sound and two breakwaters, the city is home to the most comprehensive shore side marine offering in the South West.

- **Turnchapel Wharf:** A centre of excellence for autonomy, and a hub of maritime development and technology in Plymouth. A former MOD, 14-acre waterfront business park with waterfront offices, workshops and warehouses, and deep-water access - home to Thales without the Maritime Autonomy Centre, Marine AI and Fugro's Remote Operated Vehicle training site.

- **Barbican Landing Stage:** Operated by the Cattewater Harbour Commissioners.
- **Cattedown Wharves:** Located at the eastern end of the city's waterfront, with berthing pockets 280m in length.
- **Corporation Wharf:** Operated by the Victoria Group, the berth is a declared Not Always Afloat But Safely Aground berth.
- **Millbay:** Comprises a tidal basin with 13ha of water situated within Plymouth Sound. From here ferries operate.
- **Victoria Wharf:** An all-purpose multi use facility in the Port of Plymouth, experienced in handling bulk, unitised and project cargo for the wider UK markets to support the wind and wave renewable energy markets.

As well as five marinas and a ready supply of chandleries:

- The Marina at Sutton Harbour
- King Point Marina
- Queen Anne's Battery
- Plymouth Yacht Haven and Dry Stack facility
- Mayflower Marina

With clear steaming routes to the Western Approaches the city is ideally located to support the roll out of the planned Celtic Sea Floating Offshore Wind Array.

“The unique waterfront location at Turnchapel Wharf will provide access to shallow and deep-water trial areas for the development of cutting-edge maritime solutions. Our ambition is to help anchor a vibrant ecosystem in Plymouth for the development of advanced autonomous systems and we are already working with a range of academic and industry partners to make this a reality.”

Victor Chavez, Chief Executive of Thales UK

Plymouth and South Devon Freeport

With a focus on marine, defence, space, advanced manufacturing, engineering and net zero tech, Plymouth and South Devon Freeport presents a unique proposition for investment, development and doing business and delivering social value in the South West.

Three tax sites including, Language, Sherford and South Yard – comprising 88ha of land in the Plymouth area.

Incentives

- Enhanced Capital Allowance
- 100% Business Rates Relief for five years
- 0% National Insurance Contributions Relief
- Enhanced Structures and Buildings Allowance
- Full Stamp Duty Land Tax Relief

pasdfreeport.com

Smart Sound Plymouth

Private, public and academic institutions have partnered to create Smart Sound Plymouth. Described as the UK's premier proving area for designing, testing and developing cutting edge products and services for the marine sector. This multi-million pound development provides access to first class off- and onshore facilities plus marine science and technology expertise.

The area is perfectly suited for conducting sea trials, including sub-surface trials with access to offshore water depths of 75m, providing the ideal environment for multi-platform mission operations.

In addition to the Smart Sound Plymouth and the city's natural marine and shore side infrastructure offerings, Plymouth is also home to one of the most prestigious clusters of marine teaching, research and educational organisations in Europe including Plymouth Marine Laboratory, University of Plymouth, and the Marine Biological Association.

Future Autonomous at Sea Technologies Cluster (FAST):

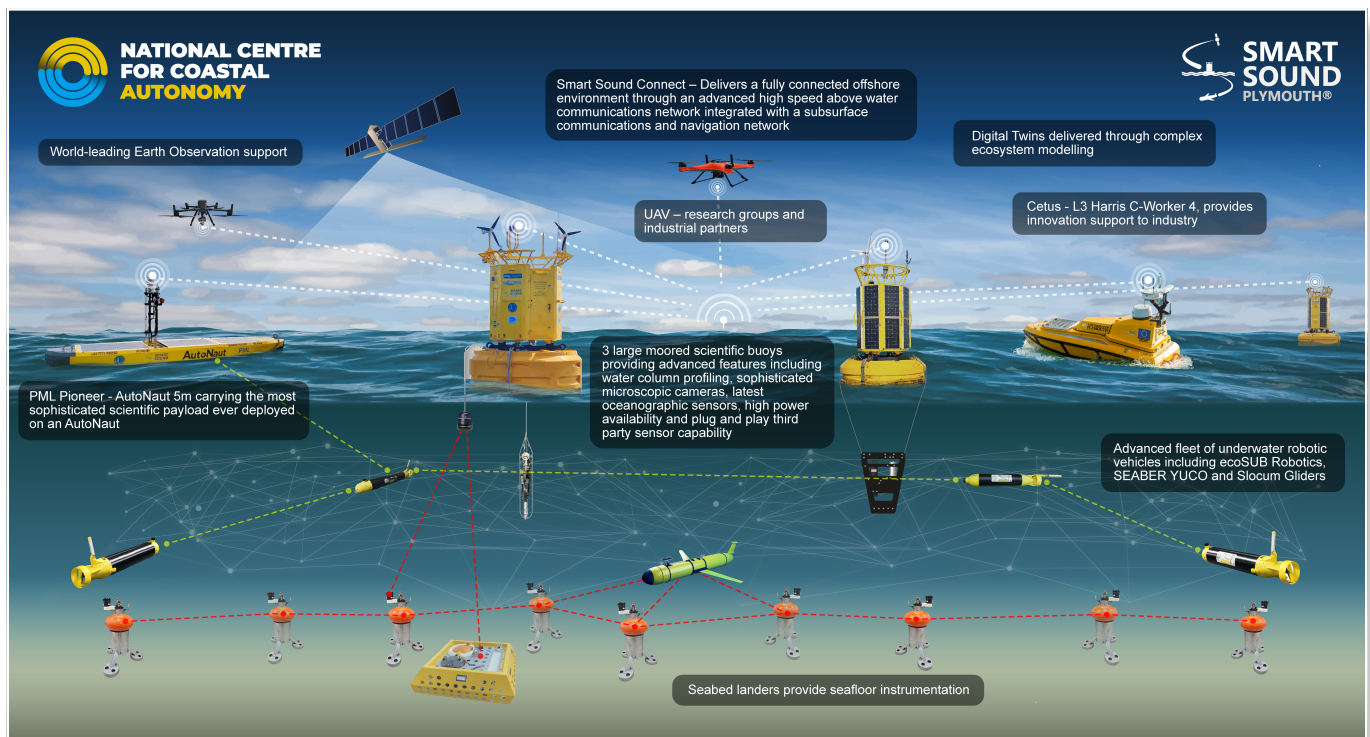
The FAST Cluster works to bring together autonomy-focussed businesses across the area. With key partners including Thales, Valeport, Fugro, M-Subs, Sonardyne and many more the group acts as commercial partners with Smart Sound Plymouth.

The Best People

Plymouth boasts a secure pipeline of labour. University of Plymouth is home to approx 2,600 students enrolled across a variety of marine related programmes; these students are more likely to stay in the city than other graduates.

The university delivers post-graduate courses in both Autonomous Systems and Robotics. Working alongside industry partners and the University's Autonomous Marine Systems Research Group these programmes cater to the demand for expertise in AI decision-making, navigation guidance, control and sensor fusion, machine learning, security and data management.

Widening the pool of talent in the city, City College Plymouth have invested £2m to develop state-of-the art facilities to grow and develop higher education programmes such as the UK's first Marine Autonomous Vehicle Foundation Degree.



South West Regional Defence and Security Cluster

The SWRDSC is the first pan-Defence and Security (D&S) cluster in the UK. It forms a collaboration led by industry and academia with the support of government and its ministerial departments such as the MOD and its innovation directorate, and the Defence and Security Accelerator (DASA).

The cluster helps over 400 businesses find out about opportunities and latest research, connecting like-minded businesses and provides networking opportunities.

Maritime UK SW

Plymouth is a key supporter of the Maritime UK SW cluster group. Maritime UK South West is a public, business, research partnership, focussed on innovation and skills. We enable innovation and collaboration, finding the right business support and skills and driving strategic development and investment.

Thales: A key defence prime, Thales stated their ambition of establishing Plymouth as the premier location for the development and testing of Marine Autonomous Systems. The waterfront facility provides access to trial areas for the development of cutting-edge maritime autonomous systems. The centre is also integral to a joint programme between the UK and French governments to develop the next generation of autonomous mine hunting systems – the Maritime Mine Countermeasures programme (MMCM). The facility is available to academia, SMEs, partners and suppliers to use.

Research Capabilities

Marine Research Plymouth is a partnership and shared vision to harness the expertise of the UK's largest cluster of marine science researchers and cutting-edge facilities. Marine Research Plymouth combines the internationally-renowned marine science capabilities of the Marine Biological Association, Plymouth Marine Laboratory and the University of Plymouth.

Marine Research Facilities and Assets:

- Coastal Ocean and Sediment Transport (COAST) laboratories,
- The Marine Navigation Centre,
- The Marine Innovation Centre and
- The multidisciplinary Marine Institute whose facilities include:
 - One of the most advanced wave tank and testing facilities in the country
 - Hydrodynamic test laboratory with tidal and wave test basins
 - A ship simulator which uses advanced computer imaging, projection, and a 270-degree screen
 - Dedicated technical support and office facilities for up to 150 marine institute researchers and technology developers

- The Cyber SHIP Lab offers a unique, configurable, hardware-based maritime cyber security research and development platform
- The Maritime Simulation Laboratory simulates, tests and optimises marine operations; and
- The CROWN Lab (Cyber Resilience of Offshore Wind Networks) a sister Lab to the Cyber-SHIP Lab using the same ideology of a configurable 'physical twin' testbed facility to address the problems of cyber security in offshore wind developments

The National Centre for Coastal Autonomy (NCCA)

was opened by Princess Royal in 2023 in Plymouth. The NCCA is lead by Plymouth Marine Laboratory, University of Plymouth and the Marine Biological Association and focuses on the delivery of autonomous capability in coastal marine science. Principally delivering a fully connected autonomous scientific observatory to the Western Channel Observatory off Plymouth (Western Channel Observatory).

Centre for Decarbonisation and Offshore

Renewable Energy (C-DORE): C-DORE is a research centre focused on developing sustainable solutions to combat climate change. Based on expertise across the University of Plymouth, C-DORE is working with partners to accelerate sustainable solutions in decarbonisation and offshore renewable energy.

Regulators Pioneer Fund: Plymouth City Council, University of Plymouth, University of Exeter, the Maritime and Coastguard Agency and Plymouth Marine Laboratory is leading the development of a new framework for the regulation of the testing and demonstrating of autonomous marine vessels and alternative fuel sources in the marine environment. Once implemented this will establish the UK as an international centre for zero emission and autonomous vessel development and production.

CASE STUDIES

Marine AI - Launched in 2019, Marine AI has quickly established itself as an independent force in maritime software. Their team has significant experience in the industry as well as a background in companies such as IBM, and leads in maritime innovation. Marine AI are uniquely positioned to drive advancements in maritime operations through cutting-edge autonomous technologies. The experience and knowledge gained from the successful transatlantic autonomous voyage of the Mayflower 400 also included collaboration from MSubs and Marine AI.

Oshen - This start-up makes and deploys constellations of small, autonomous, rugged robots across the world's oceans. These "micro-vessels" gather environmental information from various areas of the ocean where data is sparse, providing a cost effective, wide reaching solution.

“MSubs continues to invest in the design and manufacture of autonomous submersibles in Plymouth because it provides a compelling mix of skilled labour, including the next generation graduating from the University and City College underpinned by proven sub-contractors, and suppliers. Plymouth also has unparalleled access to open water for testing military systems in the most demanding and realistic of conditions.”

PLYMOUTH

Millbay Docks, Billacombe, Fore, Broa

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SMART SOUND PLYMOUTH

- Advanced private marine communications network, including 5G and Wave Relay capabilities.
- Over a 1,000 sq. kilometres of authorised and de-conflicted water space.
- Western Channel Observatory - putting the 'Smart' into Smart Sound.
- Centre of excellence for marine autonomy assurance.
- Largest grouping of marine science and technology expertise in the UK.
- State-of-the-art fleet of surface and sub-surface autonomous vehicles available for trials.
- Interconnected high performance remote operations centers for mission delivery.
- Platforms for technology testing, including data buoys & sensors.
- Research and mission support vessels.
- Future Autonomous at Sea Technologies (FAST) Cluster.

TAKE ACTION

To find out more about what Plymouth has to offer the marine autonomy sector contact:

Enterprise and Inward Investment Team

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investplymouth.co.uk



Invest in business services