



NORTH DEVON & TORRIDGE

CLEAN MARITIME GROWTH VISION

2024-2050



Vision

A proud maritime heritage. An innovative maritime future.

Our vision is for a growing and dynamic blue economy, built on a long maritime heritage and culture, where our rural and coastal setting shifts from decline and deprivation to being a thriving partner in delivering critical priorities in Net Zero, energy, health and food security. By playing our role in a bigger picture we will help decarbonise the maritime sector and create lasting positive benefits for our community, our economy and the wonderful natural environment of North Devon and Torridge.

This future is not about the giant infrastructure construction for floating offshore wind assembly or availability of a deep water port. Instead, our vision is for how passionate, insightful people and organisations can be supported to come together and use the sea as a productive asset to create commercialised, impactful solutions to drive forward our clean marine sector, linked to our vibrant green economy.

The Appledore Clean Maritime Innovation Centre will provide a dynamic focus point within the heart of northern Devon, working with academia, the private sector and public sector innovation support to deliver next-generation solutions to decarbonise and drive local competitiveness.

The Harland & Wolff Appledore shipyard will facilitate our capabilities and direct the development and integration of Zero Emission propulsion systems.

Growing and innovating seaweed aquaculture will inspire offtake potential, from agri-feeds to plastic replacement products and cosmetics, whilst also trailblazing within High Integrity Natural Capital markets.

As an ideal base for operations and maintenance activities, with proximity to Celtic Sea floating offshore wind arrays and local strengths in smart environmental intelligence, we will enable technology to reduce risks, enhance safety and improve efficiencies.

With an expectation of up to 6GW of green energy cabled to shore locally by 2035, we have the ideal conditions for local green hydrogen production.

A strong, aligned North Devon and Torridge Maritime Network is bringing together existing maritime and engineering businesses with local authorities, The Royal Navy, The Crown Estate, Petroc and The University Centre for Northern Devon, primary and secondary schools as well as renewable energy developers.

This is all underpinned by dynamic local and national skills partnerships delivering a high-quality, skilled workforce across the entire span of maritime and engineering fields, with ambitions for further curriculum alignment across local schools to strengthen aspiration and social mobility impacts as the sectors grow.

This will create a place where people are proud to live and work, where businesses are innovative and resilient, and where both our community and visitors are inspired and engaged.

Prepared by:



A region with a prosperous blue economy



A dynamic industrial base with leading businesses in clean maritime and advanced manufacturing supply chains



A range of ports, harbours, and jetties, with a detailed study in place to de-risk investment



A dynamic further and higher education sector working in partnership with the private sector to deliver a skilled workforce

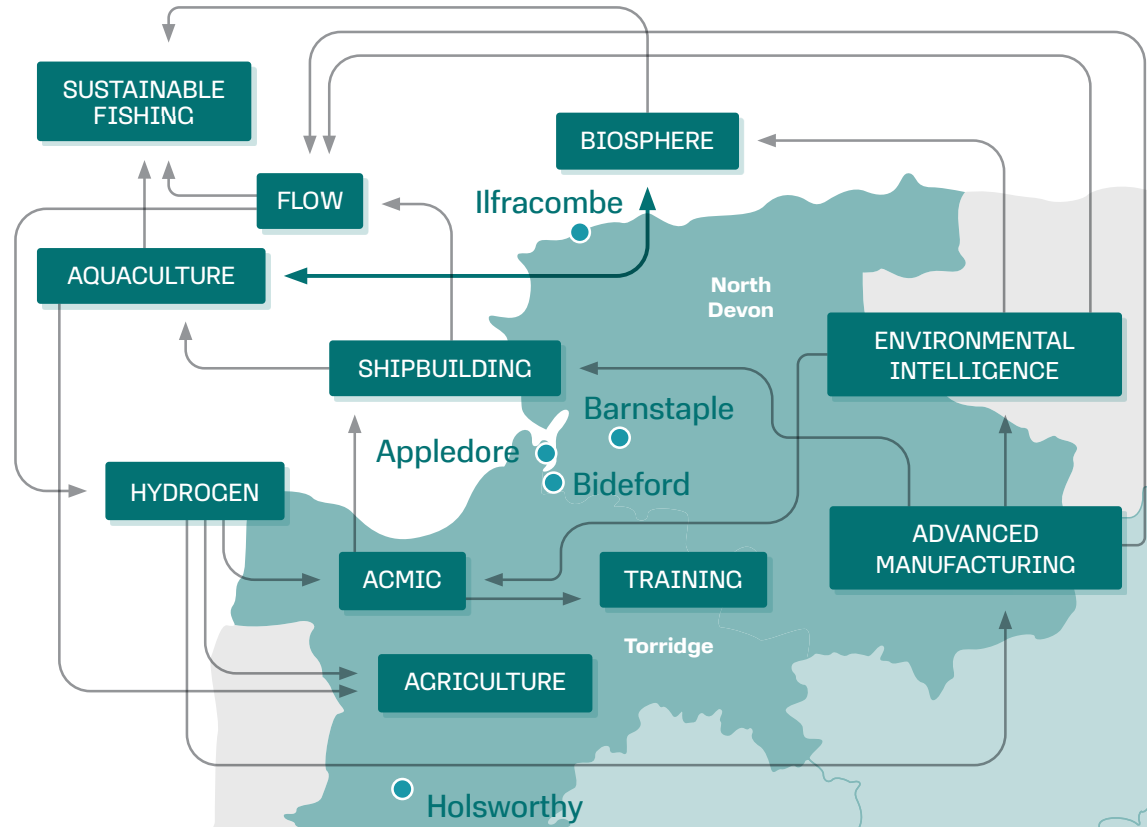


A proud coastal community built around a beautiful natural environment and rich heritage of blue and green economies

We are using nature-enhancing approaches to deliver more sustainably from the sea by leading the way in aquaculture and food innovation.



We are working to decarbonise the maritime industry, including zero emission propulsion, supported by academia, The Crown Estate and The Royal Navy.



We are supporting supply chain readiness in our local manufacturing industry to take advantage of the Celtic Sea Floating Offshore Wind development.



We are enhancing our natural capital and UNESCO Biosphere through environmental intelligence and autonomous surveying.



We are building a cutting-edge innovation centre focused on enabling technologies in clean maritime, working closely with Innovate UK and the catapult network.



We are creating hundreds of jobs and skilling young residents for exciting careers within our blue economy, supporting social mobility.

300+

Advanced manufacturing and engineering businesses

4,860

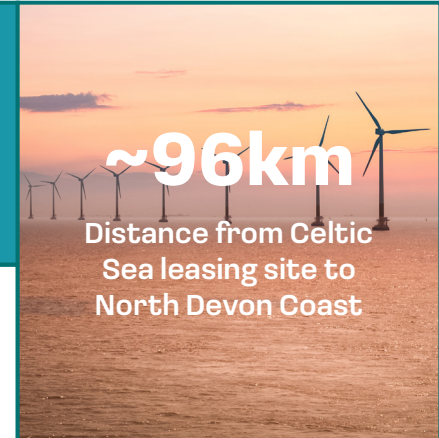
Jobs in manufacturing and engineering

£15.6m

Appledore Clean Maritime Innovation Centre

£1.44bn

International Exports (Devon CC, 2022)



~96km

Distance from Celtic Sea leasing site to North Devon Coast



Grid connection at Alverdiscott, East Yelland and Pyworthy



144km

South West Coast Path

400+ years of shipbuilding heritage

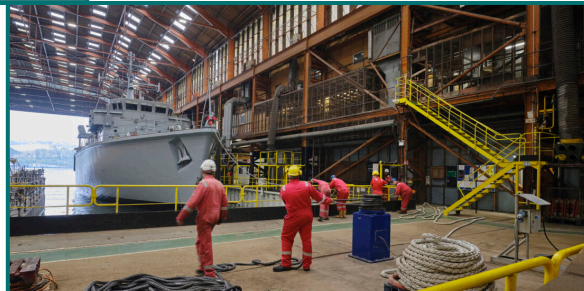


5,262km²

UNESCO Biosphere

11%

Nominal Annual GDP Growth Rate (2021-22)



118m long

drydock at Harland & Wolff Appledore shipyard.



~10,000

Students enrolled at Petroc College (2022)

£3.38bn

GVA (2021)

6.7GW

potential green energy cable connections to North Devon & Torridge by 2035

2050

Net Zero commitment

Access to two

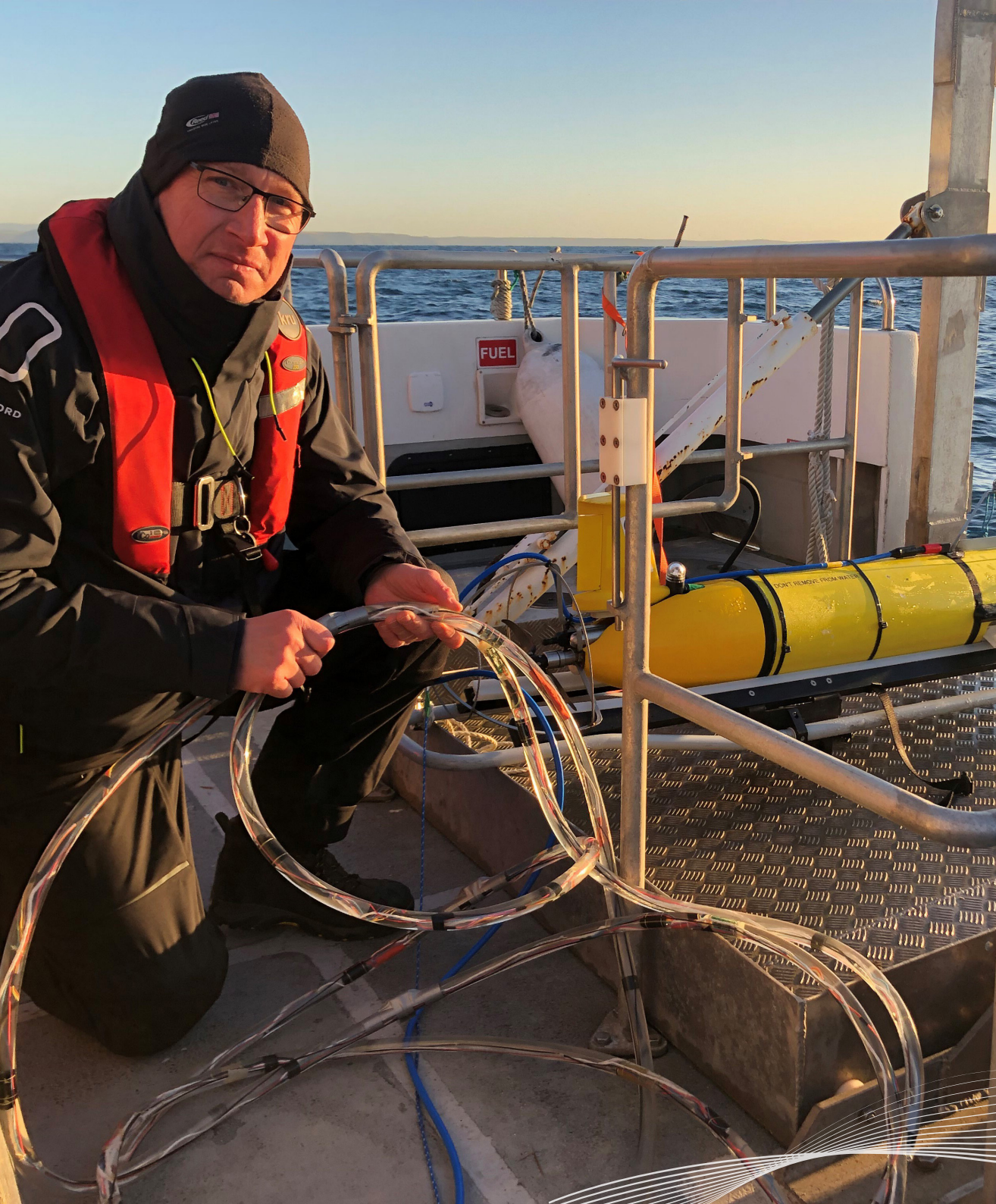
TOP 10



UK universities for research on UN SDG17: Life below water

80km

Coastline length of the North Devon Coast AONB



Clean Maritime

Clean maritime encompasses the transition of a range of sectors connected to the blue economy and marine environment towards decarbonisation and environmental sustainability.

Our oceans are globally important, recognised in the UN Sustainable Development Goals, for their resources and environmental habitats. The blue economy can both promote sustainable economic opportunities supporting livelihoods and social inclusion while preserving the environment. It has a crucial role to play to meet global and UK sustainability targets, including Net Zero 2050.

The maritime sector supports 30 million jobs worldwide and \$1.5 trillion in global Gross Value Added (GVA). In 2019, the maritime sector was responsible for £55 billion in business turnover and 227,100 jobs in the UK. Clean maritime is fundamental to the need to shift the maritime industry away from greenhouse gas emissions, while also reducing pressure on land-based food systems and avoiding biodiversity collapse.

As outlined in the Clean Maritime Plan 2050, this is the latest investment opportunity, generating returns from the transition to net zero and bringing opportunities to coastal areas which will be the economic engines of the future.

Aquaculture and Wild Caught Fisheries

Sustainably using the sea for innovative supply chains.

Up to 250 jobs by 2050

Up to £8m annual GVA

Scale of the sector

- European seaweed market of €3-9.3 billion by 2030
- 119 aquaculture production businesses in the South West currently turning over £32 million.
- Supply chains such as biostimulants (\$1.8bn), animal feed additives (\$1.2bn) and pet food (\$1bn) provide substantial short-term value opportunities. Human food production (~\$4bn), fabrics (\$850m), bioplastics (\$750m) are all potential markets in the medium term and in the longer-term construction uses may be viable (\$1.4bn).

Assets for North Devon & Torridge

- North Devon and Torridge coastal waters are highly suited to seaweed cultivation as well as crustaceans.
- Fewer use conflicts in North Devon and Torridge waters create an ideal opportunity for innovation compared to Cornwall, South Devon and Dorset.
- Water access and offload at Appledore, Bideford, Ilfracombe, Instow and Yelland.
- Maritime skills in the local population alongside sea license courses at Ilfracombe Sea Skills Academy.
- Potential to co-locate aquaculture with floating offshore wind.
- Currently collaborating closely with The Crown Estate on their English Aquaculture Study.
- A skills and innovation study to drive forward this sector is underway.
- South West Aquaculture Network
- Algapalego
- Additive.Earth
- Appledore Fish Dock



Clean Propulsion Shipbuilding

Leading the transition of marine vessels.

Up to 635 jobs by 2050

Up to £5m annual CVA

Scale of the sector

- The global shipbuilding market is estimated at \$145.6bn in 2024
- Clean propulsion methods will be required for new build and retrofit in ten's of thousands of vessels in Europe alone over the next 30 years.
- 2,200 vessels will be required to service the European offshore wind sector, and 200 for the Celtic Sea FLOW, contributing up to £1.2bn to the South West economy.

Assets for North Devon & Torridge

- The Appledore Clean Maritime Innovation Centre, due to open in 2026, will provide a regional focus for clean maritime activities. A part of its activities will provide a National Centre of Excellence for clean propulsion, working in partnership with local academia, to drive decarbonisation opportunities for the Celtic Sea and beyond, supporting both innovation and commercialisation.
- Harland & Wolff Appledore Shipyard has a clear drive to be at the heart of delivering the next generation of clean propulsion vessels as part of its strategic focus on offshore energy and aquaculture opportunities, with scope for significant expansion.
- Plans are being developed for a Maritime Technology and Green Energy skills centre to deliver the pipeline of required skills for the industry, from short courses to higher level apprenticeships.
- Links and partnership opportunities are emerging with:
 - Harland & Wolff
 - The Crown Estate
 - The Royal Navy
 - Plymouth and South Devon Freeport
 - The High Value Manufacturing Catapult (including the National Composite Centre)
 - FLOW developers



Smart Environmental Intelligence

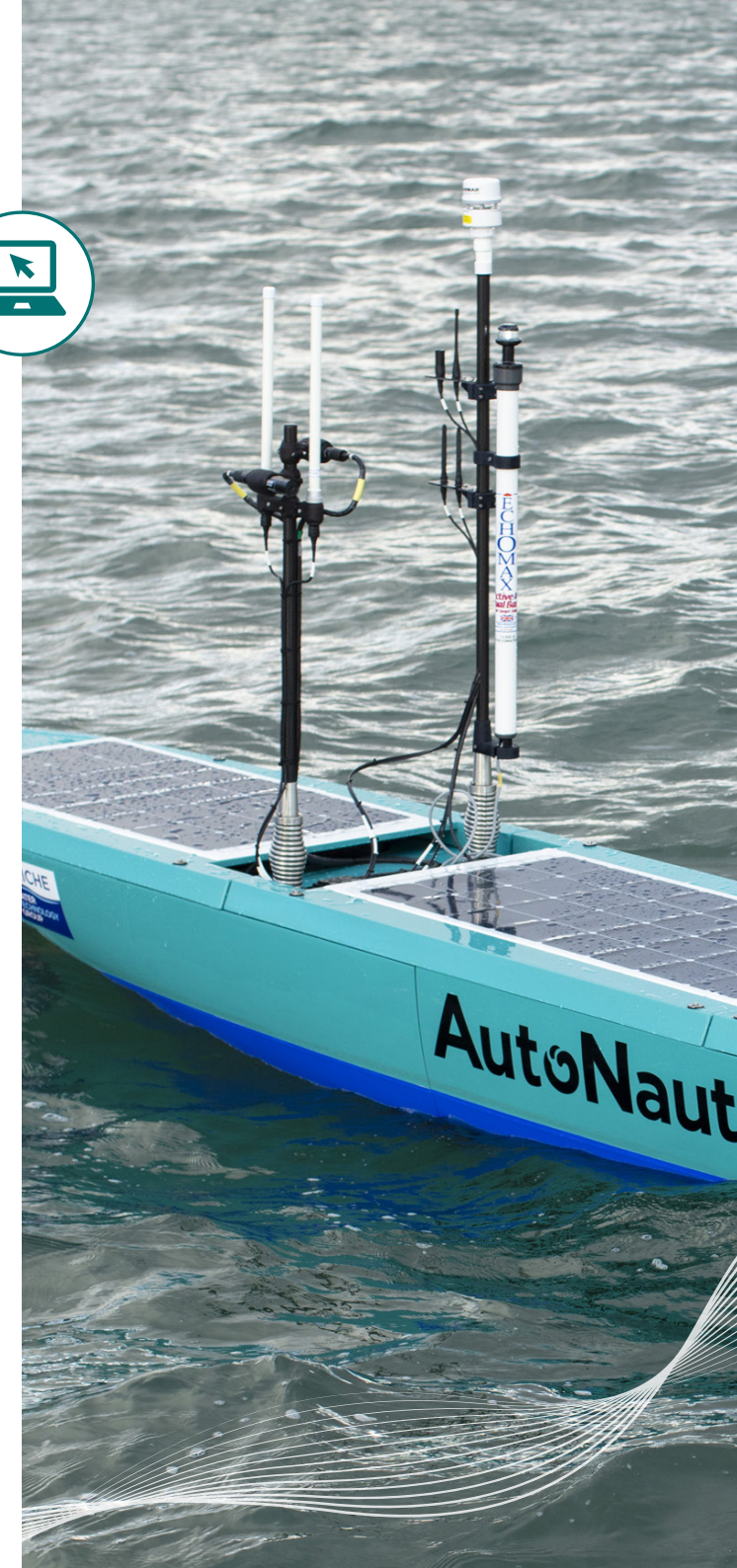
Supporting nature-based solutions through advanced manufacturing.

Scale of the sector

- By 2033 the UK remote sensing and monitoring market is set to reach £2.1bn.

Assets for North Devon & Torridge

- Existing network of leading technology businesses in this sector.
- Key role in the development and operations and maintenance of floating offshore wind in the Celtic Sea through autonomous surveying (linking to vessel development), remote sensing and inspection, marine dataset development and data analysis.
- Expanding supply chain potential and proximate nature based markets including aquaculture and fishing, as well as addressing environmental challenges through habitat monitoring and the Smart Biosphere.
- Appledore Clean Maritime Innovation Centre and other innovative activities and academic partnerships and opportunities with the Innovate UK Catapult Networks.
- Project opportunities that generate impacts for nature and society, while generating a commercial return.
- Seiche Group
- Centre of Technology and Innovation Excellence
- Additive.Catchments
- North Devon UNESCO Biosphere
- South West Institute of Technology



Floating Offshore Wind

Working for a clean energy future.

Up to 275 jobs by 2050

Up to £20m annual GVA

Scale of the sector

- The UK is a global leader in offshore wind with employment expected to increase from 32,000 to over 100,000 jobs by 2030.
- Fundamental to UK energy security and net zero emissions future, with ambitions to double R&D investment and triple manufacturing capacity.
- Celtic Sea construction will require 264 turbines, 1056 anchors, 317km of mooring lines, 3 sea-based substations, and over 850km of cabling, generating 5,400 jobs annually for 5 years and £1.4bn in GVA, with 450 jobs per year of operation. 24% of £1bn expenditure is expected to be in the South West and South Wales.

Assets for North Devon & Torridge

- Grid connection possibilities in Alverdiscott, Pyworthy and East Yelland
- Scoped opportunities to deliver operations and maintenance solutions capitalising on proximity to FLOW arrays.
- Ambitions for a circular loop of clean propulsion and environmental technology innovation to service the Celtic Sea developments and next generation operations and maintenance services.
- Maritime Technology and Green Energy skills centre being developed with Petroc College to deliver required skills pipeline.
- Strong existing manufacturing base which is already gearing-up to respond to specific supply chain elements.
- Appledore Clean Maritime Innovation Centre provides a regional focal point to work with innovators solving FLOW challenges through partnerships.
- Opportunities for delivery of up to 90m Crew Transfer Vessels and Service Operation Vessels at Harland & Wolff in Appledore.
- Investigations underway for an in-region Energy Park and direct energy offtake for battery storage or local industries including high energy users.
- Major test and development learning and supply chain opportunities from the 100MW Flotation-White Cross demonstrator, connecting into Yelland.
- Emerging opportunities from The Crown Estate Supply Chain Accelerator.
- The Crown Estate
- ORE Catapult
- National Grid
- White Cross



Green Hydrogen

Powering the future of green fuels.

Up to 200 jobs by 2050

Up to £140m annual CVA

Scale of the sector

- The hydrogen supply chain could contribute £124bn and 1.6m jobs to the UK in the period up to 2050.
- Hydrogen demand in the UK is estimated to reach 12Mt by 2050 and 139Mt across Europe while current production in the UK is close to zero.

Assets for North Devon & Torridge

- Grid connection and surplus energy opportunity from Celtic Sea FLOW and X Links alongside abundant water for electrolytic green hydrogen with potential grid connections at Yelland, Alverdiscott and Pyworthy.
- Development of a Green Hydrogen routemap for North Devon and Torridge to provide a de-risked environment for investment and a phased implementation plan, working with SW Net Zero Hub, The Crown Estate, National Composites Centre, Petroc College, Torridge and North Devon District Councils, Devon County Council and North Devon UNESCO Biosphere.
- Existing brownfield sites providing investment opportunities for small test site.
- Alignment to key potential local offtake sectors such as clean propulsion, agriculture and industry reducing costs and transportation limitations.
- Hydrogen SW.
- National Composites Centre.
- SW Net Zero Hub.

H₂





Invitation to Partnership

North Devon and Torridge has the people, organisations and ambition to play a key role in the growth of the clean maritime and renewable energy sector which is at the heart of creating a green, innovative and dynamic future for the local area, Great South West and national objectives.

We have a range of opportunity areas aligned to national priorities that provide the potential for partnerships to transform our blue economy, secure inward investment, support new local businesses, enhance expertise and restructure supply chains.

We want partners to help us fulfil our vision of realising the benefits of a just transition, for the wellbeing of our community, our businesses and our environment.

To learn more and explore partnership opportunities please contact fhenderson@northdevonplus.co.uk

The image features a vibrant blue, underwater-themed background. It is filled with numerous small, clear bubbles of varying sizes, some of which are in sharp focus while others are blurred, creating a sense of depth and movement. The lighting is bright, highlighting the textures of the water and the individual bubbles. Centered horizontally and slightly below the vertical midpoint, the words "GROWTH AREAS" are written in a large, bold, white, sans-serif font. The text is clean and modern, standing out prominently against the busy, textured background.

GROWTH AREAS

Aquaculture and Wild Caught Fisheries

Scale of the sector

Aquaculture assets are being developed in North Devon and Torridge to take advantage of the substantial market shifts over the next decade.

The production of seaweed is already a multi-billion dollar industry and the number of seaweed-related businesses in the UK doubled between 2016 and 2021. As humans look for more sustainable means of using the ocean's resources and options for carbon sequestration, the diverse opportunities in seaweed aquaculture include not only its ability to support marine habitats, but also the products that can be used in a number of different supply chains with increasing innovation. A promising example in the UK is the Earthshot Prize-winning company Notpla that is replacing plastic with seaweed-based packaging solutions.

In the short-term supply chains such as biostimulants (\$1.8bn), animal feed additives (\$1.2bn) and pet food (\$1bn) are likely to provide substantial value opportunities. Nutraceutical uses (extraction and use of nutrients in human food production) are a potential ~\$4bn global market in the medium term and there are also substantial opportunities in fabrics (\$850m), bioplastics (\$750m) and in the longer term, construction (\$1.4bn). As of 2022, 19% of UK seaweed-related businesses targeted the beauty industry and 13% were involved in nutraceuticals.



€3-9.3bn European seaweed market by 2030



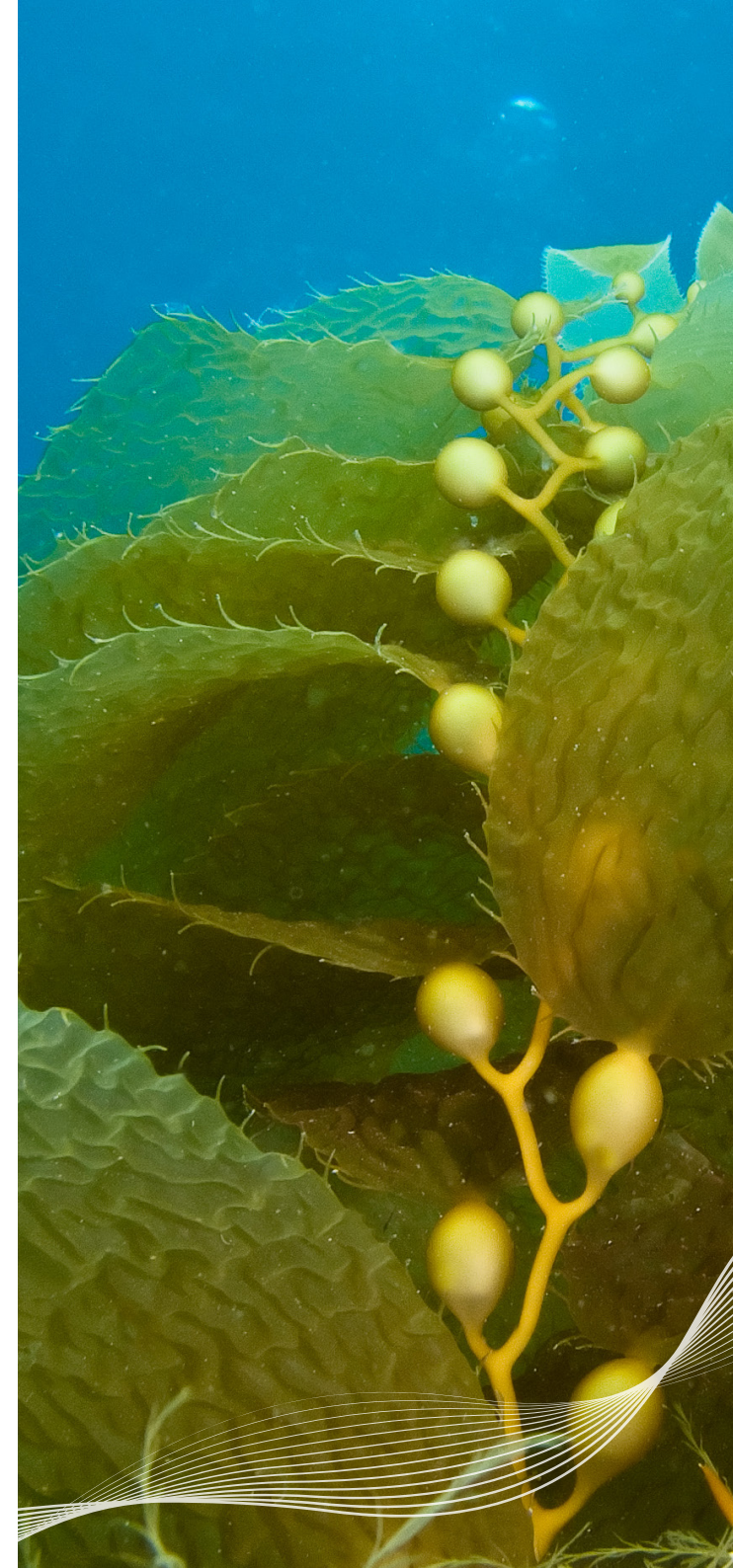
€129-386m UK seaweed sector supporting ~12,000 jobs



119 South West aquaculture businesses in 2019



~2,300 jobs in the South West by 2040



Opportunities for North Devon and Torridge

The coastal waters in North Devon and Torridge are highly suited for the cultivation of a range of seaweed species, as well as crustaceans and some suitability for Brown Trout. Some of the few UK seaweed businesses, including Algapelago (the largest Marine Management Organisation Licensed farm in the UK), are already investing in test sites in Torridge and North Devon. With the wider strengths of the local blue economy, the area will become a leader in the seaweed sector, positioning the region prominently in an international market.

A skills and innovation study to drive forward this sector is currently underway. With existing port infrastructure in Appledore and Bideford, as well as other harbours such as Ilfracombe and useable jetties at Instow and Yelland, the area has a solid foundation for aquaculture expansion and development. The waters around North Devon and Torridge are less congested than in South Devon or Cornwall providing space and opportunity for trialling and piloting new approaches to aquaculture. Existing marine skills in the labour market also offer the ability for businesses to access staff and support services, while the introduction of the Ilfracombe Sea Skills Academy will allow licenses to be renewed in the local area.

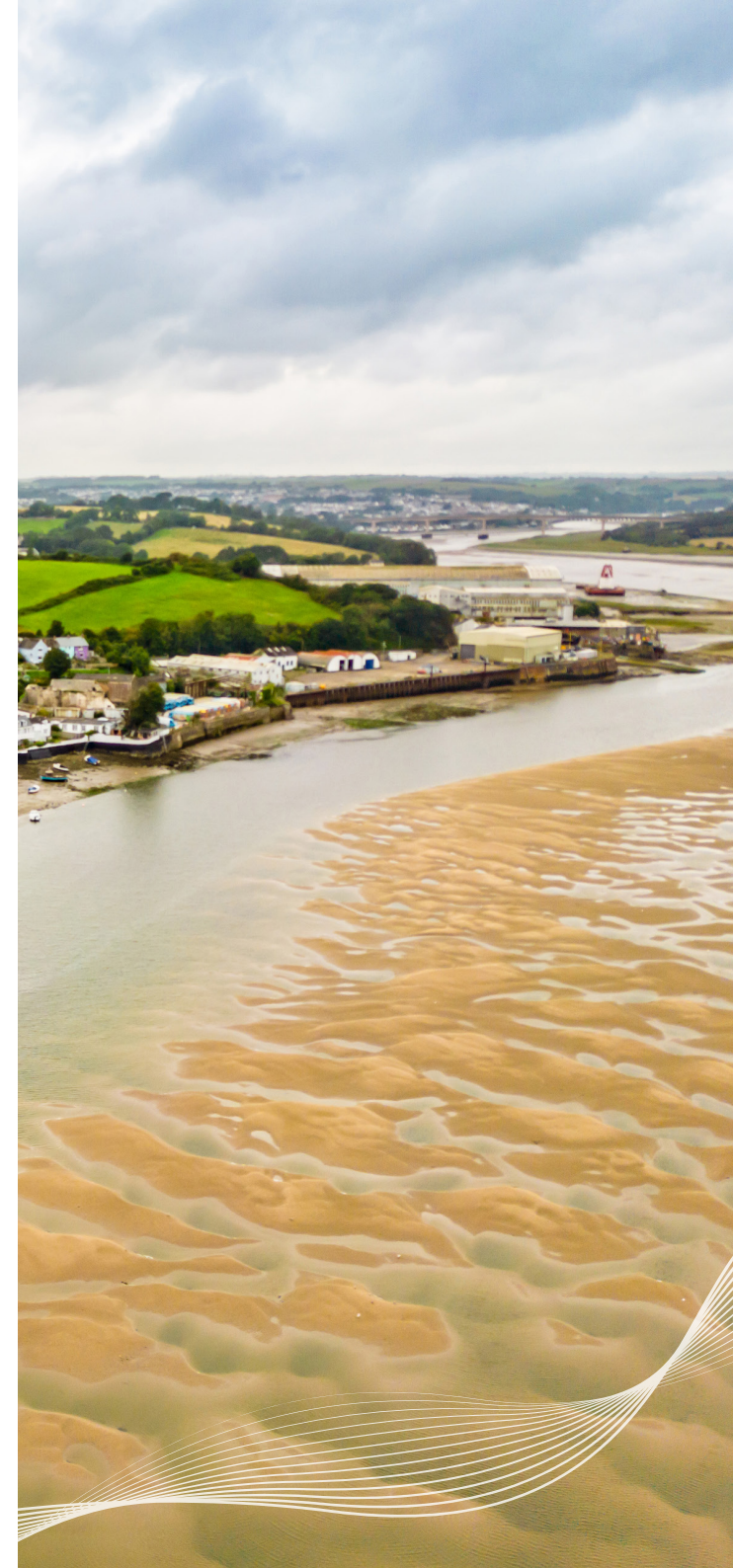
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Co-locating seaweed aquaculture with offshore wind farms provides an opportunity for integrated production and environmental benefits.

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Floating offshore wind farm developments in the Celtic Sea create an opportunity to emulate projects such as the North Sea Farm 1 which is piloting the co-location of seaweed farms with offshore wind farms. If only 10% of the expected 1,000 km² area of the Celtic Sea development was occupied by seaweed farms this could yield around 100,000t of dry weight seaweed annually (a third of the entire European seaweed production in 2020). Exclusion zones around floating offshore wind and aquaculture generate overspill benefits for wild caught fisheries, with local fishers driving protected areas in the marine zone to make practices sustainable and restore the £6m local fishing industry.

Aquaculture can provide important habitats and nurseries bringing biodiversity net gain and carbon sequestration opportunities. By attracting the English Low Trophic Seaweed Association to the region and establishing an English seaweed nursery or seedbank, the region will spearhead advancements in sustainable aquaculture and marine biodiversity conservation. Using seaweed to facilitate habitat improvement aligns with the North Devon UNESCO Biosphere contributing positively to marine ecosystems and climate change mitigation efforts through positive and well-monitored management.



Opportunities for North Devon and Torrridge

Exploiting aquaculture opportunities in North Devon and Torrridge could generate the following impacts.

2040	Low Scenario (per annum)	Medium Scenario (per annum)	High Scenario (per annum)
Jobs in Torrridge & North Devon	209	215	245
GVA in Torrridge & North Devon	£4.5m	£7m	£8m

At this stage of the seaweed sector development, support in product innovation is essential to realising the full potential of the supply chain, alongside investment. Appledore Clean Maritime Innovation Centre, with its links to local universities, as well as local environmental intelligence businesses, will provide collaboration opportunities. Research into the types of species cultivation and harvesting technology would enhance the competitive edge the area has while sector coordination by the South West Aquaculture Network will foster collaboration and knowledge exchange among stakeholders to encourage innovative practice and help secure market share. Active steps are currently being undertaken by Torrridge District Council to deliver key infrastructure and identify partners to stimulate growth in aquaculture and seaweed specifically.

Simpler routes to securing seabed leases or integrating into other infrastructures investments (such as FLOW) are required to expand the aquaculture opportunity. Better licensing arrangements to overcome current barriers can be mediated by initiatives such as an Aquaculture Enterprise Zone which need to be brought through in collaboration with The Crown Estate. Additional facilities, such as biorefineries, for primary and secondary processing, are required to capture added value locally and offering opportunities for businesses to facilitate a thriving regional sector.

Synergies with other sectors



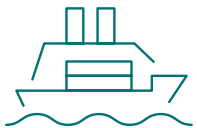
Clean Propulsion and Shipbuilding

Scale of the sector

North Devon and Torridge has a once in a generation opportunity to leverage its heritage in shipbuilding to develop innovative and investable solutions that respond to the demand for clean propulsion vessels of the future.

The impact of the UK maritime sector on the economy is almost £14.5bn in GVA and the shipbuilding market is estimated at \$145.6bn in 2024. The UK maritime sector is poised to establish itself as a global leader in zero emission shipping by 2050 and is currently attracting significant private sector and government investment funding to deliver on key decarbonisation goals.

Currently, the UK holds a 5% global export market share in alternative fuel production technologies. If maintained, this could bring an annual economic benefit of £360–510 million per year by 2050 as demand for clean fuels grows. In the South West, clean propulsion alone is expected to support 450 jobs by 2050 with Appledore and wider northern Devon at the heart of this growth.



23,000 vessels in the EU to transition to clean propulsion



2,200 vessels required for offshore wind



200 vessels in the Celtic Sea FLOW development



Offshore wind vessels could contribute £1.2bn to SW economy by 2050



Opportunities for North Devon and Torridge

Torridge and North Devon are leveraging their industrial and advanced manufacturing capability to generate clean propulsion solutions that can be adopted globally. Appledore Clean Maritime Innovation Centre, expected to be complete in 2026, will be a National Centre of Excellence for clean propulsion with close ties to academic research groups from local universities. Its facilities will help develop enabling technologies and test market-ready solutions, offering a range of flexible workshops and offices and dockside water access, bringing together a unique combination of services, skills and commercial R&D with a neighbouring shipyard.

Networking and knowledge exchange between maritime organisations in the area will be enhanced by North Devon Plus and the Appledore Clean Maritime Innovation Centre, bringing together academia, industry and support partners to leverage collective capabilities. Once built, the site will act as a hub for a clean maritime cluster and create opportunities to develop commercialised solutions to industry challenges, serving as a beacon to attract R&D-focused businesses to capitalise on the expansion of clean maritime opportunities and need.

Additional assets include Appledore Port and other maritime infrastructure of interest, such as the brownfield site at Yelland Quay and Instow Jetty, which offer investment opportunities for businesses to expand marine operations.

Neighbouring Appledore Clean Maritime Innovation Centre is the historic Appledore shipyard (and Richmond dry dock) operated by Harland and Wolff, which is continuing the shipbuilding heritage of the local area. As well as the nationally significant production and refitting capabilities of the shipyard, Harland and Wolff are exploring investments to improve the quayside infrastructure and ability to deliver advanced materials and production techniques. There is also the potential for clean propulsion service and crew transfer vessels to be used in the operations and maintenance of the Celtic Sea Floating Offshore Wind to be built or maintained locally.

Clear skills pathways to marine engineering are being developed through the Maritime Technology and Green Energy Skills Centre.



Opportunities for North Devon and Torridge

In addition to existing provision delivered by a University Centre partnership with the University of Plymouth, Petroc College are collaborating with partners, including Harland and Wolff, to develop a Maritime Technology and Green Energy Skills Centre which will deliver mid-level engineering courses through to higher level apprenticeships. In combination with the planned Ilfracombe Sea School being developed at Ilfracombe Harbour, these investments in the labour market will develop a pipeline of specialists in clean propulsion engineering and significant enhancements to the local supply of skills.

There are collaboration opportunities in marine across the South West from Plymouth Freeport to Cornwall Marine Network.

Research collaborations and funding opportunities for clean propulsion and shipbuilding across the wider South West and UK are also being explored, including:

- Department for Transport
- Maritime UK South West
- National Shipbuilding Office
- Offshore Renewable Energy Catapult
- High Value Manufacturing Catapult (including the National Composite Centre)
- Innovate UK Marine and Maritime Launchpad in the Great South West (up to £2m was available in the initial round with future rounds anticipated)
- Innovate UK EDGE
- Clean Maritime Research Hub at the University of Durham
- Global Underwater Hub
- Plymouth and South Devon Freeport
- The Cornwall Marine Network
- The FAST (Future Autonomy at Sea Technologies) cluster in South Devon (which includes partnerships with the Royal Navy, University of Plymouth, and Plymouth Marine Laboratories)



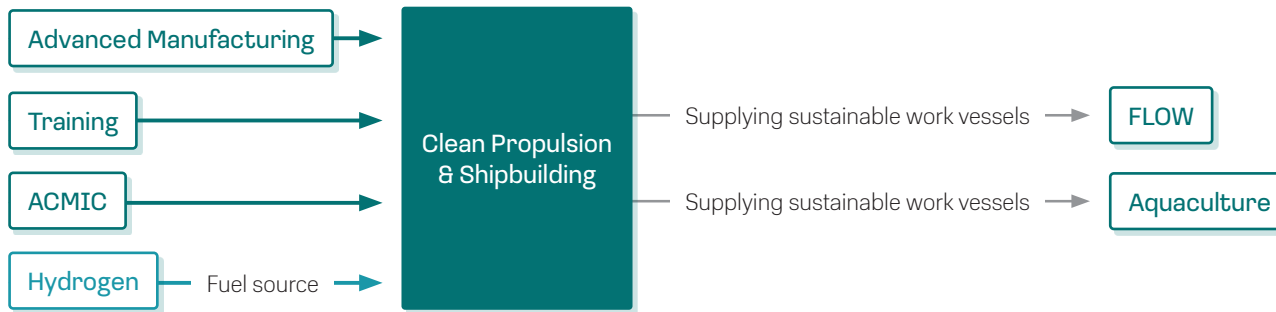
Opportunities for North Devon and Torridge

Exploiting clean propulsion and shipbuilding opportunities in North Devon and Torridge could generate the following impacts.

2050	Low Scenario (per annum)	Medium Scenario (per annum)	High Scenario (per annum)
Jobs in Torridge & North Devon	425	520	635
GVA in Torridge & North Devon	£30m	£37m	£45m

Innovation and research funding is required to unlock the clean propulsion potential in North Devon and Torridge, with Appledore Clean Maritime Innovation Centre providing the routes to access the innovation Catapult Network and catalysing research consortium bids. Investments from Innovate UK are already sending strong market signals and generating engagement with existing and prospective businesses to exceed their potential. More is needed to transform the first mover advantage of the Appledore Clean Maritime Innovation Centre into a permanent competitive advantage and to truly leverage the advantages of the South West’s wider maritime strengths, including the Plymouth and South Devon Freeport as well as the activities of Celtic Sea Power.

Synergies with other sectors



Smart Environmental Intelligence

Scale of the sector

Torridge and North Devon has an underappreciated yet thriving smart environmental intelligence sector which is capitalising on the UK wide growth in sensing and remote monitoring technology, and environmental monitoring specifically.

The adoption and innovation of monitoring equipment is being driven by the potential that such data can have in resolving environmental challenges, from Clean Air Strategies to the 25-Year Environment Plan. UK Government initiatives, such as the UK Geospatial Strategy 2030, are further encouraging the development of remote sensing. Across the country stewards of the environment and resources, are looking to how data and monitoring services can be used to improve the management of terrestrial and marine ecosystems. The Net Zero imperative is driving environmental research and intelligence which is opening possibilities for many organisations to use nature-based solutions to address environmental challenges.



UK remote sensing and monitoring market in 2033 will be worth £2.1bn



Annual sector growth rate is 15.3%



UK geospatial companies total £6bn in annual turnover



UK environmental monitoring to reach £700m by 2033



Opportunities for North Devon and Torridge

A thriving network of businesses in North Devon and Torridge, including the Seiche Group and Additive.Earth, specialise in technologies for environmental intelligence and autonomous surveying. Our cutting-edge knowledge and disruptive technologies in this area will enable businesses and supply chains to invest in projects and technologies that generate impacts for nature and society, while delivering commercial returns through high integrity markets that facilitate reaching net zero.

Remote monitoring and sensing is increasingly being used as part of the operations and maintenance of offshore wind farms.

The Celtic Sea will become one of the most monitored energy arrays in the world. This will create a strong demand for smart environmental monitoring as enabling technologies and a huge opportunity for businesses operating in this space through next generation technology, during the development, construction and operation and maintenance phases, where remote tools rather than crewed teams can be used. There are also opportunities in collecting data as part of the Marine Data Exchange to help inform new offshore developments. Further demand is expected from a sustainable blue economy including water quality and stock monitoring as the importance of these factors increases.

Smart environmental intelligence has a key role to play in supporting biodiversity, habitats and mitigating the effects of climate change through nature-based solutions.

The Smart Biosphere project, with partners at Siemens and the Met Office, is using environmental surveying and artificial intelligence to improve soil health, water quality and flood management while maintaining ecosystems in the North Devon UNESCO Biosphere, already demonstrating the potential uses. Further, organisations like South West Water are looking at how they can use nature-based solutions to respond to environmental challenges, with environmental enhancing benefits. Protecting the Biosphere not only safeguards North Devon and Torridge habitats but will help sequester carbon and support the tourism industry, as well as fostering local resident wellbeing.

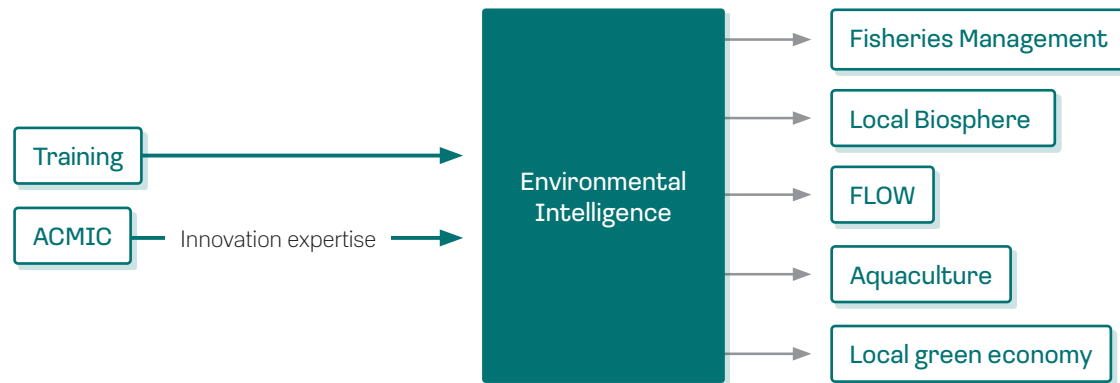


Opportunities for North Devon and Torridge

The breadth of key partners and opportunities in North Devon and Torridge provides an exciting opportunity for the region to be at the heart of industry growth in environmental intelligence. The North Devon and Torridge Maritime Network offers an ideal forum to bring projects together to strengthen local leadership and secure funding, including from Innovate UK and government departments, while supporting collaborations for offshore and onshore monitoring needs including working with the Catapult network.

To support this knowledge-based space, specialist training (at levels 4 and 5) from Petroc and degrees from the University Centre, as well as potential PhD placements in Appledore, will be developed. These include Higher National Certificates in Electronics, Degree level courses in Integrated Technologies Engineering or Sustainable Environment Management and higher-level apprenticeships for Engineering Manufacturing Technicians.

Synergies with other sectors



Floating Offshore Wind

Scale of the sector

North Devon and Torridge have a significant opportunity to activate and expand supply chain operations in support of the Celtic Sea floating offshore wind farms.

The UK is a global leader in the offshore wind farm sector with ambitions to quadruple existing capacity. As outlined in the Celtic Sea Blueprint, the scale of investment into floating offshore wind in the Celtic Sea represents a globally significant development and catalyst for the clean maritime sector and blue economy across the South West and Wales. Over an assumed 5-year construction period, the potential 4.5GW development is expected to require 264 turbines and floating platforms are required along with 1,056 anchors, 317km of mooring lines, 3 sea-based substations, and over 850km of cabling. As well as this, the support services throughout the supply chains will be substantial, from professional services to machinery maintenance. Forecasts show that £661m GVA and an additional jobs peak (in the early 2030s) of 3,600 could be generated in the South West and Wales.



£1.4 billion GVA and an average of 5,300 UK jobs expected to construct Celtic Sea FLOW



24% of £1bn lifetime Celtic Sea operations and maintenance expenditure spent locally would support up to 450 jobs



£50bn in capital spending by 2030



>100,000 jobs in the UK offshore wind sector by 2030



Opportunities for North Devon and Torridge

North Devon and Torridge businesses are geographically and economically positioned to take advantage of the proximate economic opportunities presented by the Celtic Sea FLOW sites and ambitions of the Offshore Wind Industrial Growth Plan to double research and development investment and output. The Torridge Estuary provides an ideal location for a multi-purpose operations and maintenance base for the Celtic Sea. This could include technological solutions that improve monitoring, reduce risks, enhance safety and generate efficiencies through use of remote monitoring and automated vessel operations.

The shipyard at Appledore also provides the specialist capability to both manufacture and refit vessels and smaller craft (including Service Operation Vessels and Crew Transfer Vessels) responding to the substantial demand in the Celtic Sea and other offshore wind activity. A key aim of ACMIC is to grow the supply chain by facilitating innovative collaboration between academia, industry and the public sector to support product development through technology readiness levels for commercialisation in target markets.

Harland and Wolff Appledore shipyard can manufacture and refit Service Operation Vessels and Crew Transfer Vessels for use in the Celtic Sea.

Torridge and North Devon will also play a significant role in providing the required electricity grid infrastructure for bringing the cables from the Celtic Sea sites ashore. Part of The Crown Estate's Test and Demonstration leasing opportunity, developers for the initial White Cross FLOW have applied for planning to route a cable that connects to the electricity grid at East Yelland substation. Additional grid capacity at both Alverdiscott and Pyworthy in Torridge can be utilised for further connections from the Celtic Sea and Xlinks offering substantial local high-energy user potential for industrial activities including green hydrogen production. Such grid connections will require large infrastructure investments and provide significant supply chain opportunities and jobs to deliver.

Petroc College is already supplying the skills and qualifications needed to service the FLOW developments and it's proposed Maritime Technology and Green Energy Skills Centre would further enhance the offer. Degree level courses in subjects such as Integrated Technologies Engineering and Sustainable Environment Management, higher level apprenticeships for Engineering Manufacturing Technicians and Higher National Certificates in Electronics are all offered alongside a host of T-Levels, diplomas and industry specific mid-level qualifications designed to deliver a workforce aligned to the renewable energy opportunity. The North Devon and Torridge area can also draw on the transferrable skills base built up through the construction of Hinkley Point C to support the installation of FLOW and related infrastructure with regional College collaborations established through Petroc's role within the SW Institute of Technology.



Opportunities for North Devon and Torridge

North Devon and Torridge offers a strong community and environment where FLOW operations and maintenance teams will want to live.

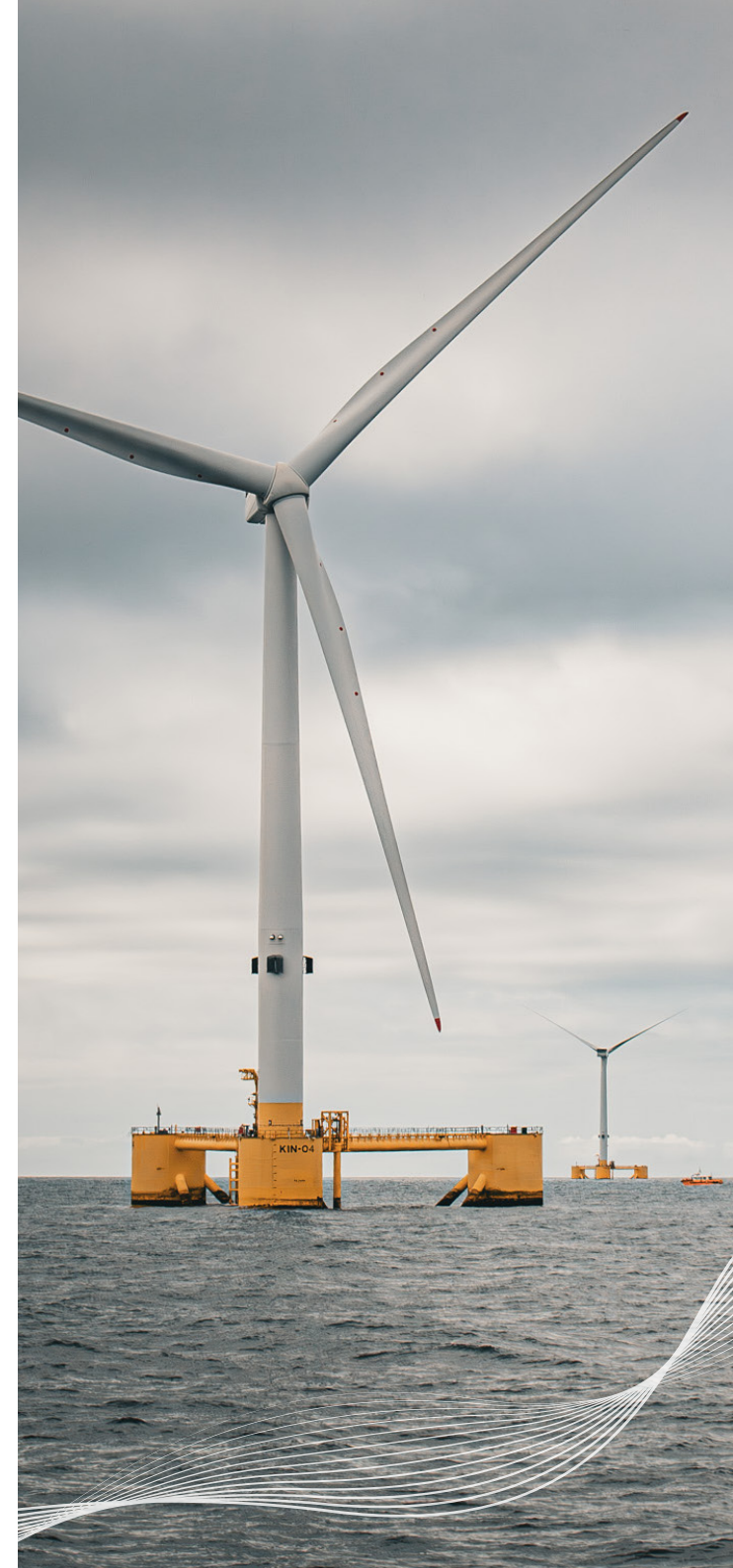
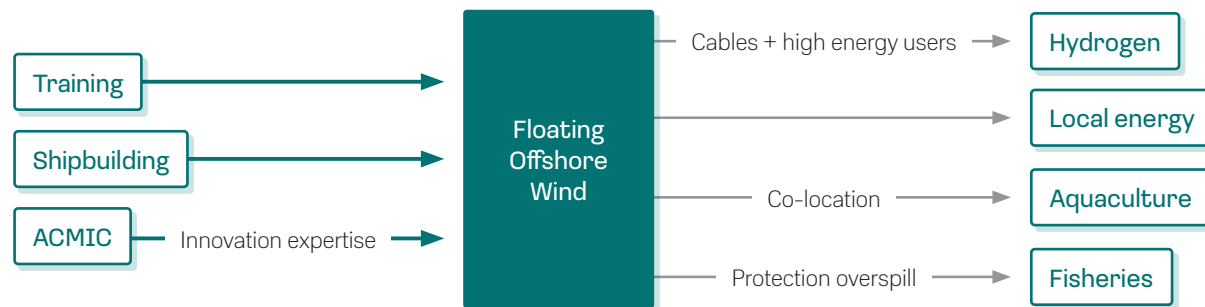
As well as local advanced manufacturing businesses seizing the supply chain opportunity from Celtic Sea FLOW, there is the potential for a renewable Energy Park in North Devon or Torridge with direct energy offtake for local industry and other uses (including supplying energy to green hydrogen to make production of a sustainable fuel source viable in the local area). There are also opportunities to integrate aquaculture within the Celtic Sea FLOW infrastructure, diversifying the site use, whilst supporting the ecological commitments of developers.

The supply chain potential of FLOW encompassing maritime skills, technological innovation and advanced manufacturing production capabilities all provide potential routes to generating local benefits from the Celtic Sea investment and sustaining local long-term jobs. North Devon and Torridge is ready for investment that will enable the area to play a key role in creating a business landscape that can respond with supply chain services, building on existing assets and coordinating with Cornwall, South Wales and the wider region.

Exploiting FLOW supply chain opportunities in North Devon and Torridge could generate the following impacts.

2030	Low Scenario (per annum)	Medium Scenario (per annum)	High Scenario (per annum)
Jobs in Torridge & North Devon	60	80	275
GVA in Torridge & North Devon	£4m	£5.5m	£20m

Synergies with other sectors



Green Hydrogen

Scale of the sector

The proximity and grid connections of Torridge and North Devon to renewable energy in the Celtic Sea provide a substantial opportunity to become leaders nationally, by reaping the benefits of co-locating both green hydrogen production and offtake.

In the UK and globally, generating green hydrogen through electrolysis of water constitutes a major focus for generating sustainable fuel. As green hydrogen draws on renewable energy sources to produce, it is therefore able to truly be a zero carbon fuel and a key potential replacement for diesel in shipping, agriculture and industry. Significant government funding through schemes including the recently announced Hydrogen Allocation Round 2, Net Zero Hydrogen Fund (worth up to £240m), Hydrogen Production Business Model (revenue support worth up to £100m over 15 years), and Low Carbon Hydrogen Supply 2 Competition (worth up to £60m), have been developed to enhance the UK's low carbon hydrogen production capacity.



£124bn and 1.6m jobs
in UK hydrogen supply
chain up to 2050



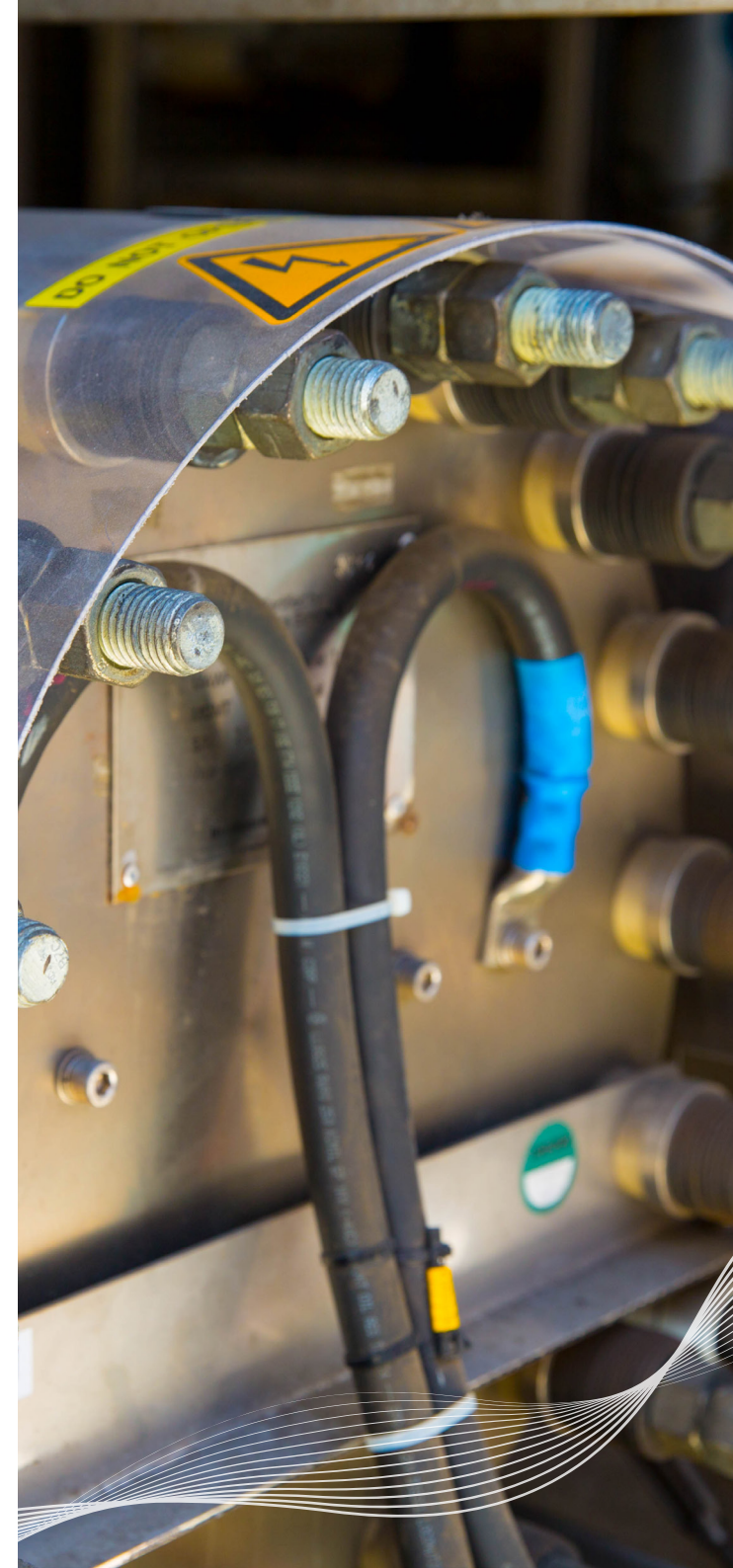
12Mt of UK hydrogen
demand by 2050
but current green
production is near zero



Hundreds of millions in
government hydrogen
subsidy and R&D funding



UK target of 6GW of green
hydrogen by 2030



Opportunities for North Devon and Torrington

North Devon and Torrington has the potential to not only host green hydrogen production with surplus renewable energy from the Celtic Sea FLOW, but also offers co-location of hydrogen supply and demand reinforcing commercial viability as a low carbon fuel source. With potential grid connection for the Celtic Sea wind farms coming ashore in Torrington, a green Energy Park would provide the opportunity to house one of Europe's largest green hydrogen plants and provide a supply of clean fuel to the growing blue and green economies. By using local renewable energy, fluctuations in the grid capacity can be utilised to turn surplus electricity, that would otherwise be wasted, into green hydrogen, enhancing efficiencies to drive down costs and deliver considerable competitive advantages.

Torrington and North Devon boast several investable sites which could catalyse the rapid development of hydrogen production and are already being explored by businesses eager to secure first mover advantages. Funded by SW Net Zero Hub, a Green Hydrogen Routemap for North Devon and Torrington is under-development in 2024. This will deliver a de-risked investment opportunity, examining Planning policy, environmental considerations (working with North Devon UNESCO Biosphere), a phased skills pathway (University Centre for Northern Devon, Petroc and the National Composites Centre) and delving further into the details of offtake opportunities, including zero emission maritime and agricultural fuels through to green fertilisers and public transport. The route map will explore both long-term production and phased pilots, providing an ideal testbed for green hydrogen innovation and prospective partners are encouraged to get involved. Alongside this there is a clear ambition to work alongside the private sector and government partners to collectively progress along the Hydrogen Production Delivery Roadmap to bring green hydrogen into use and positive environmental, economic and community benefit.



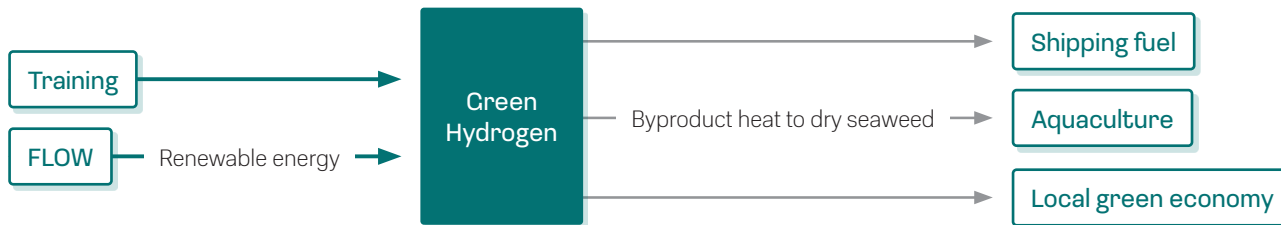
Opportunities for North Devon and Torrridge

As well as the development of the green hydrogen fuel production, the infrastructure requirements for transporting and using hydrogen fuel in local industries in North Devon and Torrridge will require innovation, building on support from key partners such as the National Composite Centre. The conditions and alignment of opportunity also creates an ideal opportunity for the region to be at the forefront of green hydrogen-based fertilisers, creating financial and decarbonisation gains for local agriculture. As an additional benefit, the waste heat from the electrolysis process also offers additional, circular benefits, such as for drying seaweed.

Exploiting green hydrogen supply chain opportunities in North Devon and Torrridge could generate the following impacts.

2050	Low Scenario (per annum)	Medium Scenario (per annum)	High Scenario (per annum)
Jobs in Torrridge & North Devon	8	60	200
GVA in Torrridge & North Devon	£5.5m	£45m	£145m

Synergies with other sectors



For more information and to collaborate with us,
please contact fhenderson@northdevonplus.co.uk

NORTH DEVON & TORRIDGE
**CLEAN MARITIME
GROWTH VISION**
2024-2050

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