

November 2023

navigate

Westport Program Update



Taking a closer look at some of the science, thinking and technical processes behind one of Western Australia's largest ever infrastructure projects.



Artist's impression of port

Managing Director's Message

We have identified a preferred design for WA's future container supply chain, which includes a new port in Kwinana supported by an upgraded road and rail freight network and logistics hub.

To reach this milestone, we have engaged heavily with industry, government, and the community, along with leading experts in engineering, marine science, economics, sustainability, and transport.

Stakeholder input has been critical, ensuring the outcome is one we can stand behind confidently. Many people have generously contributed to Westport, offering 'on the ground' insights and helping refine weighting criteria for design evaluations.

Balancing stakeholder interests was always going to be a hugely challenging process. Ultimately, feedback has informed and stress-tested our process, resulting in a design that offers the best outcomes for the State, industry, and community. Thank you to everyone who volunteered their time and expertise to Westport.

The design includes:

- A breakwater protected port parallel to shore in Kwinana, able to cater for larger ships, and the next century of trade growth.
- A port location and orientation that avoids direct impacts to Perth's key water and energy generation infrastructure, and encompasses the development of a new Kwinana Bulk Terminal.
- A second shipping channel that is safe and has the lowest amount of dredging required, resulting in the least environmental impact on Cockburn Sound.
- Improvements to the freight network with staged road upgrades from the new port along Anketell Road 'West', Kwinana Freeway and Roe Highway, followed by the full development of Anketell-Thomas Road Freight Corridor to connect the port terminal with Tonkin Highway in Byford.
- Rail duplication between the port terminal and Cockburn, and in the Forrestfield freight rail area, with level crossing removals across the network to support a high rail mode share for container distribution.
- Avoiding unnecessary costs by leveraging existing intermodal terminals (IMTs) at Kenwick and Forrestfield and a new IMT at Kewdale, with a longer-term plan for expansion, to establish a key logistics hub east of Perth where existing industrial land can support significant business activity.

Patrick Seares
Managing Director, Westport



To learn more visit
www.westport.wa.gov.au/planning

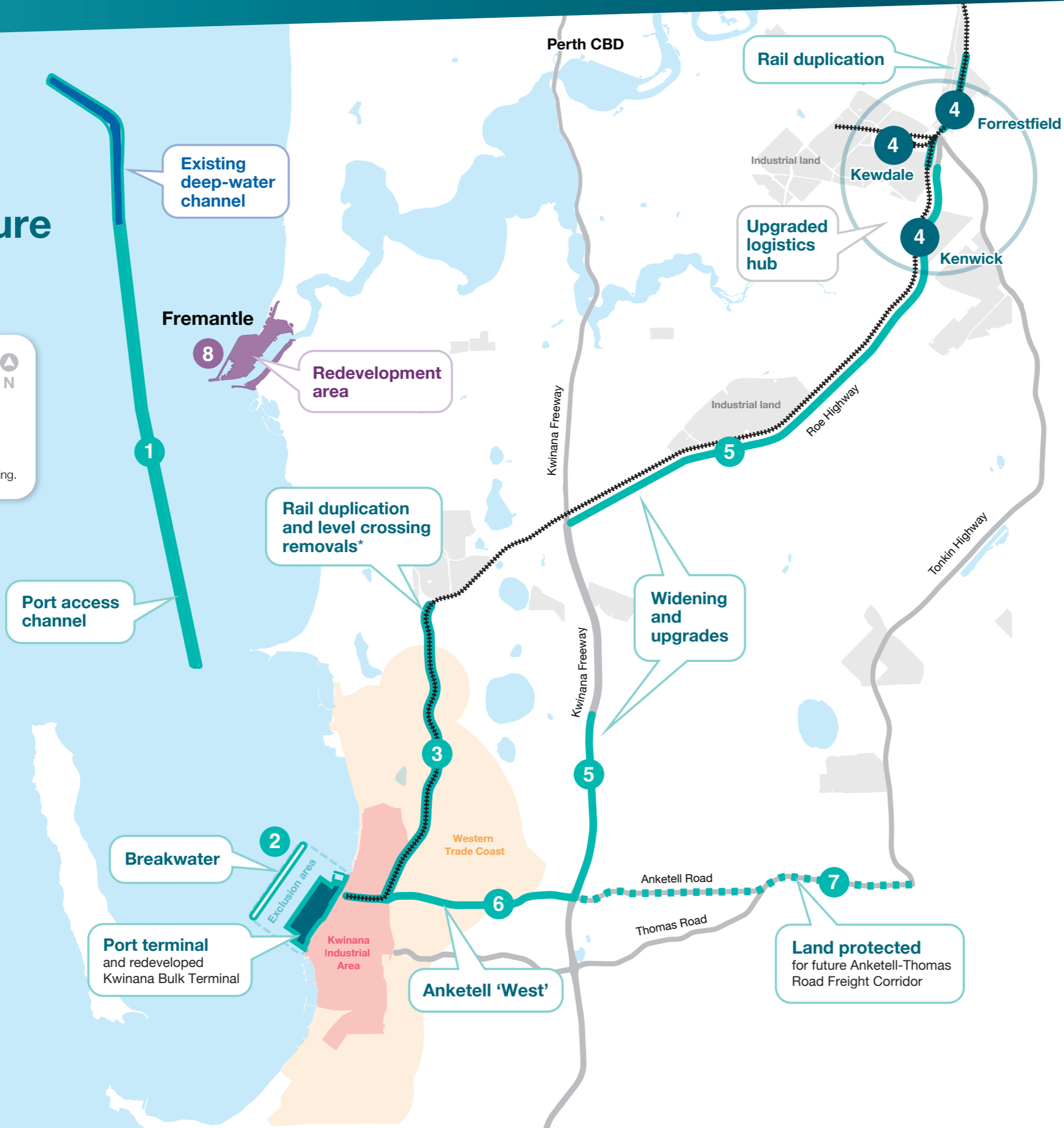


Proposed Westport infrastructure

Legend

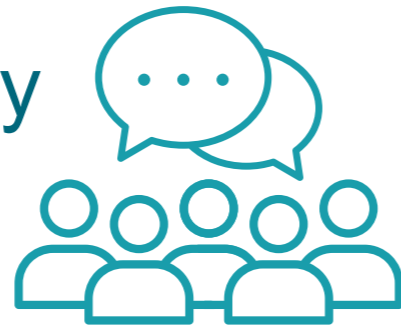
- █ Required for 'day one' of port operations
- ▤▤▤▤ Future works required

*To be determined in next phase of planning.



- 1 The proposed new channel will accommodate larger vessels.
- 2 A straight parallel breakwater on James Shelf will result in lower impacts to Cockburn Sound hydrodynamics. Wave modelling and downtime analysis helped evaluate and enhance the breakwater design, and test and improve operability under a range of weather conditions.
- 3 Rail duplication and level crossing removals between the port terminal and Cockburn will help support a high rail mode share for container distribution.
- 4 Leveraging existing intermodal terminals (IMTs) at Kenwick and Forreestfield and a new Intermodal Terminal at Kewdale will establish a key logistics hub east of Perth where existing industrial land can support significant business activity.
- 5 Widening and upgrades to sections of the Kwinana Freeway and Roe Highway will improve the movement and efficiency of the freight road network.
- 6 Anketell 'West' (Rockingham Road to Kwinana Freeway) will connect the port to an upgraded Kwinana Freeway.
- 7 Anketell 'East' (Kwinana Freeway to Tonkin Highway) will ultimately connect the port terminal with Tonkin Highway in Byford.
- 8 Removing trade from the Port of Fremantle while retaining its status as a working port for cruise, visiting naval and recreational vessels, will unlock 260 hectares of prime inner urban land in Fremantle to support WA's growing population.

Operators and community helping determine the preferred design



Westport engaged extensively with industry including leading experts in engineering, marine science, sustainability, and transport, to develop and review the design options.

We've spent more than 600 hours engaging with stakeholders. This includes face-to-face technical

engagement with industries and organisations that will operate within the port and supply chain. This level of engagement in a pre-business case project is unusual, but important when designing something to be operated by multiple interfacing private operators across the supply chain.

Community and Aboriginal groups were extensively consulted, through

more than 600 community interviews to map the important places and features around Cockburn Sound that the community enjoy, analysis of community infrastructure and priorities with Local Governments, the recording of recreational fishing locations with fishers, and innovative mapping of Noongar cultural and spiritual locations and Songlines.

Who we've talked to:

- ✓ Academics and thought leaders
- ✓ Importers and exporters
- ✓ Industry groups and associations (including freight and logistics, energy, commerce and industry, shipping, and ports sectors)
- ✓ Investors
- ✓ Kwinana industry
- ✓ Local Governments
- ✓ Marine service providers
- ✓ Other ports (national and international)
- ✓ Quarantine services/Border Force
- ✓ Rail and IMT operators
- ✓ Road transport operators
- ✓ State Government agencies
- ✓ Shipping lines
- ✓ Stevedores and port operators
- ✓ Traditional Owners

Snapshot of engagement outcomes:

- Mapping of Noongar cultural and spiritual values in Cockburn Sound.
- Mapping of social values associated with Cockburn Sound and surrounds.
- Feedback from key stakeholders during the MCA process resulted in additional sensitivity testing of assessment criteria.
- Importers, exporters, and stevedores helped us optimise the configuration for the terminal and supply chain.
- Community groups, conservationists, and researchers helped identify potential mitigation initiatives.
- The users of the terminal and supply chain helped define acceptable downtime and vessel queuing durations.
- Industry groups and operators provided insights on the future of their industries, including a shift to net-zero operations.
- Sustainability experts influenced Westport's commitment to net-zero operations and a circular economy.
- Data from marine researchers (including wave movements and benthic habitats maps) helped shaped the design options.
- Stevedores shared their recommendations for terminal's integration with rail and preferences regarding equipment.

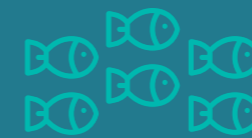


Westport's Noongar Advisory Group and Westport staff

Inputs into design

Stakeholder and community feedback and data complimented the extensive environmental, carbon, social, engineering, road design and navigation studies that we've previously reported on and helped inform the innovative supply-chain wide modelling framework that linked marine, terminal operations, rail, road, and land development models, as well as one of the largest marine research programs in the history of Cockburn Sound.

In addition to stakeholder and community feedback, examples of key inputs that helped develop, evaluate, and refine the design for the terminal and supply chain included:



Transport and trade modelling

- Calculations regarding capacity of the container terminal and intermodal terminals.
- Simulation of container movements and mode choice across road and rail networks.
- Simulation of private and non-container traffic.
- Calculations of emissions across the network.
- Analysis of key performance metrics, with a particular focus on the cost per TEU for container movements across the supply chain.
- Scenario analysis of trade impacts due to changes in supply chain capacity and efficiency.
- Analysing and determining economic drivers of container trade such as population growth, income levels, consumption, and exchange rates.



Marine and terrestrial investigations

- Benthic habitat mapping of Cockburn Sound and Owen Anchorage.
- Hydrodynamic modelling based on oceanographic data.
- Geophysical and sediment surveys within Cockburn Sound.
- Landside geotechnical site investigations between the port and Rockingham Road, as well as Anketell and Thomas Roads.
- Environmental, ground, and utility surveys west of Rockingham Road and the Anketell Road corridor.



Port operations modelling

- Simulation of vessel movements through the channel and into the port, under different conditions such as storms and engine failure.
- Forecasting the number of containers and ships that will arrive in WA over the next 50 years.
- Wave modelling data and downtime analysis.
- Under keel modelling.

The terminal and marine infrastructure

Between 2018 and 2020, the previous 'Westport Taskforce' looked at 25 different locations between Fremantle, Cockburn Sound and Bunbury for the new container port. This process identified the Kwinana Industrial Area serviced by an upgraded Anketell Road as the best location for a new land-backed port. The 2020 Recommendation report identified a number of studies that needed to be completed for further examination of this area.

Having completed these and a range of additional studies, the re-examination of the layout of the port in the Kwinana location provided a range of operational and sustainability opportunities. Westport identified 30 different design options for the new terminal which were screened to establish a long-list of 7 options. The long-list was narrowed to a short-list of 3 options using a multi-criteria analysis (MCA) process.

The MCA considered environmental impacts, long-term sustainability, efficiency of the supply chain and port, and financial value. Assessment criteria used in the MCA were based on Westport's goals and subgoals, which were translated into scoring criteria and measures to enable assessment.

Westport Goals

What do we want the new terminal to achieve?

Criteria

What will this look like?



1. Better trade outcomes for exporters, importers, and the economy

- 1.1 Efficient – operating costs for movement of containers across the network
- 1.2 Reliable – predictability and visibility of shipment movements
- 1.3 Resilient – capacity to better withstand, and recover efficiently from, disruptions
- 1.4 Scalable – capacity to expand or adapt to meet forecast trade and population growth
- 1.5 Flexible – ability to adapt to future market trends and operator innovation



2. Local economic growth and jobs are created

- 2.1 Western Trade Coast's growth is enabled
- 2.2 New technological innovation is introduced Western Australian technological innovation is leveraged
- 2.3 High quality jobs and training are created



3. Acceptable impact on the State's finances

- 3.1 Value for money
- 3.2 Attractive to private investment through commercial and Environmental, Social, and Governance (ESG) opportunities
- 3.3 Minimised impact on utilities and business



4. Plan, build and operate the most sustainable port in Australia

- 4.1 Cockburn Sound is protected
- 4.2 The container Supply-Chain is carbon neutral
- 4.3 Infrastructure development and operations are sustainable



5. Benefits to the community and Indigenous peoples

- 5.1 Recreational values protected or enhanced
- 5.2 Indigenous and non-indigenous heritage is protected and promoted
- 5.3 Aboriginal economic opportunities are delivered



6. Safety for workers and the community

- 6.1 Safe interaction between freight network and the community
- 6.2 Safe port operations

To inform the evaluation of the final 3 terminal options, Westport held a series of specialist stakeholder workshops to identify potential gaps in the proposed assessment criteria, re-evaluate the goal and sub-goal weightings, and provide general feedback on the options. From these sessions, over a dozen additional sensitivity tests were undertaken to 'stress test' the assessment criteria.

Of the three options, the preferred design performed best in terms of environmental outcomes and avoiding impacts to critical utility infrastructure located within the precinct. Where alternative options performed better than the preferred design for certain sub-goals, the difference was immaterial or was significantly detrimental to environmental outcomes.



The landside network

Artist's impression of port

Beyond the terminal and marine infrastructure, Westport is planning for the entire landside supply chain, including road and rail corridors, intermodal terminals, empty container parks, and complementary land uses for freight activities.

Through the MCA process and targeted stakeholder engagement these 3 design options were further tested and refined to reach a preferred option for the supply chain, including road and rail corridors, and intermodal terminals.

In 2022, through the Landside Logistics Opportunities Study, Westport identified 3 network options for the freight and logistics network, following:

To support forecast traffic growth and improve the efficiency of the freight road network, the preferred design proposes upgrades to Anketell Road, Kwinana Freeway, and Roe Highway, with full development of the Anketell Thomas Corridor to follow. To help achieve a higher commercial rail share for containers, the preferred design includes rail duplication and level crossing removals between the port terminal and Cockburn Triangle.

- Consultation with over 50 stakeholders including shipping lines, stevedores, logistics operations, importers, and exporters.
- An assessment of constraints on the current network around the Fremantle Inner Harbour.
- National and international case study analysis.
- Filtering via minimum standards and performance metrics.



New Kwinana Bulk Terminal included in Westport's scope

To avoid impacts on critical utility infrastructure and sensitive environmental areas, the port footprint has been moved further south than the Westport Stage 2 design from 2020. As a result, the preferred design directly impacts on the proposed location for a new bulk terminal, intended to replace the aging Kwinana Bulk Terminal (KBT).

Kwinana Bulk Terminal, owned by Fremantle Ports Authority, is critical for importing clinker (a vital component in the production of cement) into WA. Westport is working closely with the Fremantle Port Authority to ensure that development plans incorporate the redevelopment of the aging Kwinana Bulk Terminal.

Minister for Ports David Michael stated that, "Westport and Fremantle Ports have invested in the early design for the Kwinana Bulk Jetty and the Westport proposed design includes the development of a new dry bulk terminal at the southern end of the proposed reclaimed land for the container terminal."

"The Westport program recognises that the Kwinana Bulk Terminal in the Outer Harbour is also critical for economic growth in the Western Trade Coast. The redevelopment of this infrastructure is a critical enabler for Westport and is planned to be constructed ahead of the new container terminal."

Designing a port to deliver long-term environmental benefits for Cockburn Sound

The analysis undertaken in Cockburn Sound goes beyond the standard for a business case at this stage of infrastructure planning. We've chosen to do this because of the importance of an efficient supply chain to our whole economy, and because Cockburn Sound is so important to many people in WA for its recreational and environmental values.

We acknowledge that building a new port and related infrastructure will have environmental impacts in the short-term. However, based on the science completed to date, we are committed and confident that this project can be environmentally regenerative with a 'nature positive' outcome for Cockburn Sound after construction.

To help us protect and enhance the long-term health of Cockburn Sound, we've invested \$13.5 million with WA Marine Science Institution (WAMSI) to deliver one of the largest marine science research programs currently underway in Australia today.

Research has included:

- Modelling of currents around Cockburn Sound, and how this could impact fish aggregations.
- Investigations into habitats and movement of the key species that live in Cockburn Sound
- Modelling the flow of water and the movement of sand and sediment.
- Mapping of social values and recreational activities associated with Cockburn Sound.
- Trials of seagrass restoration methods and hard substrates for artificial reefs.

To date, benthic habitat mapping and hydrodynamic modelling of Cockburn Sound have influenced the recommended location and design of the port. Of the options considered, the preferred design has the smallest



Instrument used to measure sediment movement in Cockburn Sound. Credit: WAMSI.

dredging and reclamation requirements, a lower impact on hydrodynamics and the least impact on benthic habitat in Cockburn Sound.

Marine research is improving our understanding of ways to build resilience in Cockburn Sound before any construction commences. Importantly, research findings will also help increase the effectiveness of future restoration and mitigation activities, contributing to Westport's goal of achieving a nature positive port.

Over the coming months, the team will continue to explore potential restoration and mitigation activities including expanding current seagrass restoration efforts and deploying artificial reefs.



Next steps

Westport is now progressing the preferred design as part of our business case, which will deliver recommendations for the port and supply chain, development timings to Government in mid-2024.

Between now and mid-2024, Westport will be refining the design and working towards the business case. This includes completing costing estimates, delivering a transition strategy for the relocation of container trade from Fremantle to Kwinana, developing a mitigation strategy, and progressing

the environmental impact assessment, including submitting environmental referrals.

We look forward to ongoing engagement with the community and industry as the design progresses.