

Last updated 11 June 2021

INFORMATION
PACKAGE



2021 Maintenance Dredging at the Port of Geraldton



Mid West Ports Authority (MWPA) is planning to remove naturally accumulated sediment from within the commercial harbour and shipping channel in order to maintain safe navigational depths.

Maintenance dredging is common practice in ports around the world and is essential to keeping our ports operating.

It involves removing naturally accumulated sediment from within the port's navigational channel to return it to its original design depth, and differs to capital dredging, which involves enlarging or deepening navigation channels.

Maintaining safe and efficient navigation is vital to supporting national and international trade, economic development in the mid west region and its continued connection to global markets.

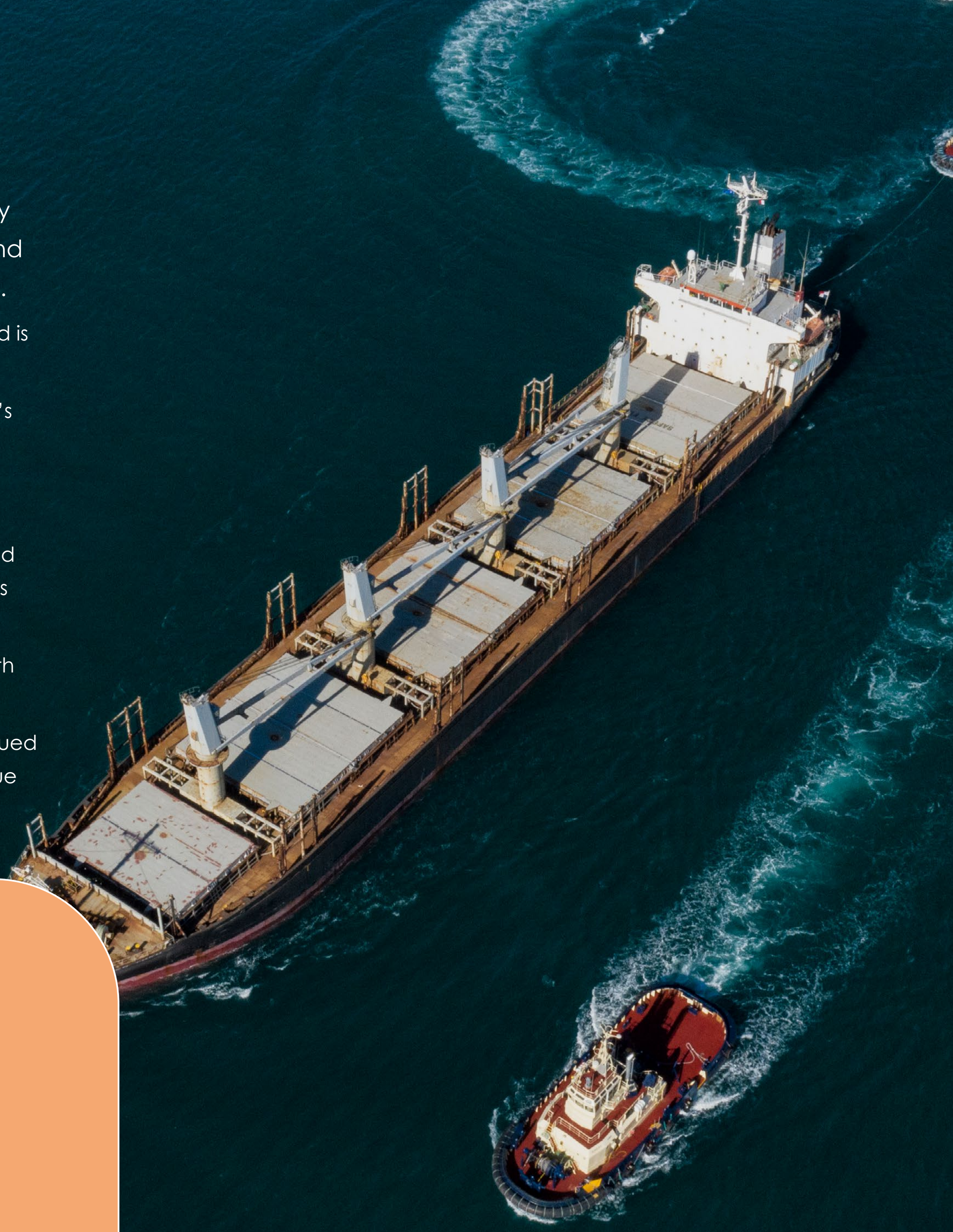
Left unmanaged, our port's capability would be significantly reduced, with the flow on effect impacting local businesses and our community.

Integral to our operations is maintaining the balance between the continued development of a sustainable world-class port, while protecting the unique marine and coastal environment in which we operate.

OVERVIEW



→ **WE'VE COMPILED THIS INFORMATION PACKAGE TO HELP OUR STAKEHOLDERS AND COMMUNITY BETTER UNDERSTAND MAINTENANCE DREDGING AND OUR APPROACH TO SUSTAINABLE SEDIMENT MANAGEMENT.**



Background

Mid West Ports Authority is planning to remove built-up sediment from within the commercial harbour and shipping channel later this year.

We have undertaken detailed studies and engaged with a range of stakeholders to understand the source of natural sediment accumulation and appropriate placement options at the Port of Geraldton.

Following an extensive evaluation process, a combination of nearshore placement and land reclamation has been identified as the strongest performing placement option for our 2021 campaign, enabling 100 percent of material to be beneficially reused.

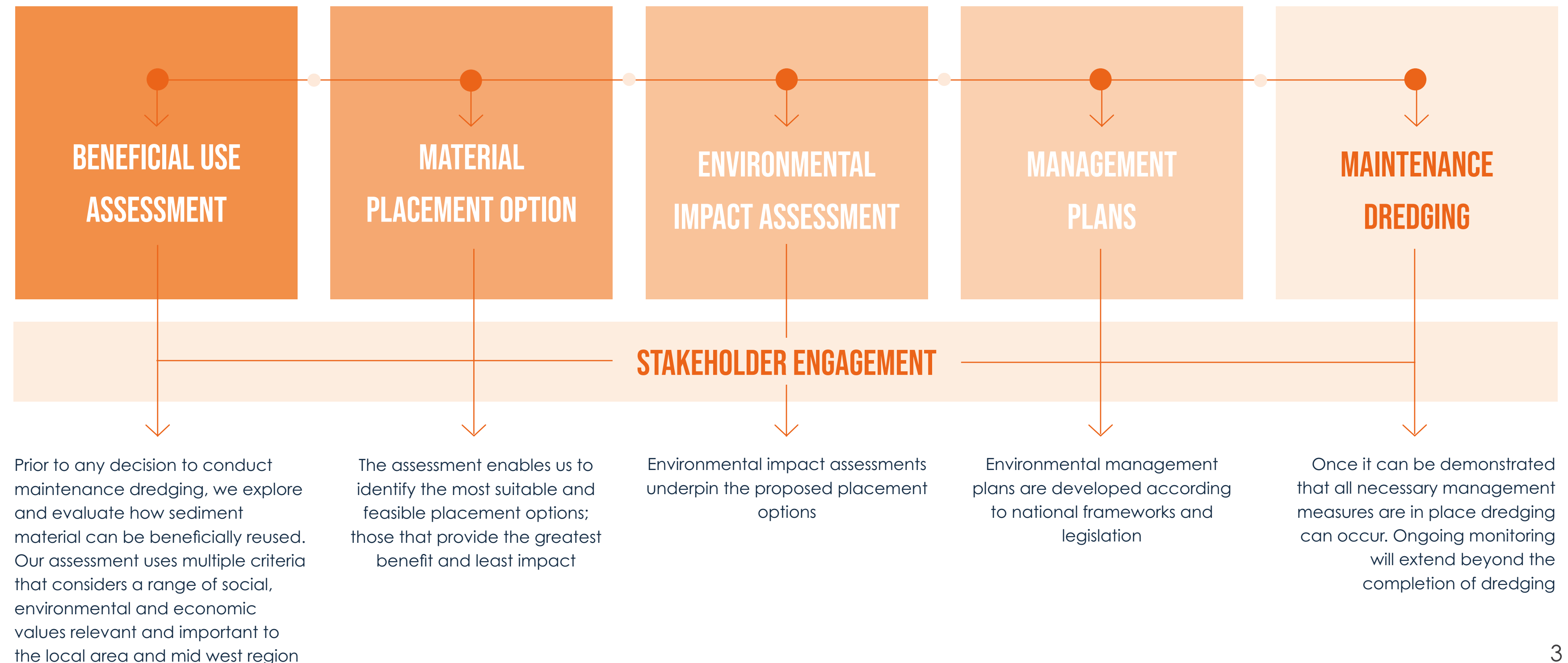


To learn more about the scope of work and proposed placement locations see page 15.

OVERVIEW



A comprehensive framework guides our decision making around the sustainable management of marine sediment.



An introduction to the Port of Geraldton

Mid West Ports Authority is one of Australia's most diverse ports, providing a gateway for both trade and tourism. We play an essential role in planning, facilitating and building sustainable trade in the mid west region.

MWPA operates:

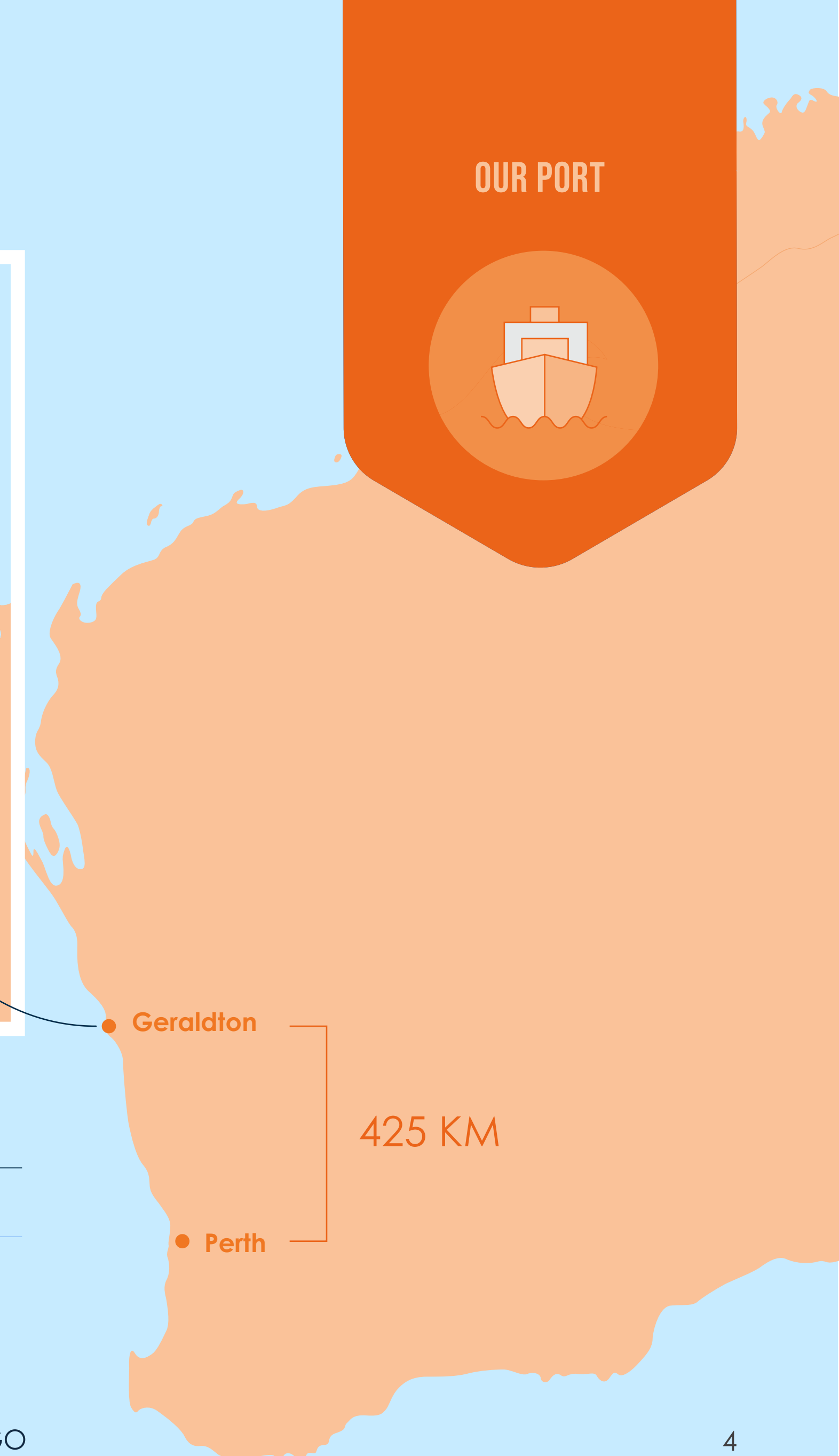
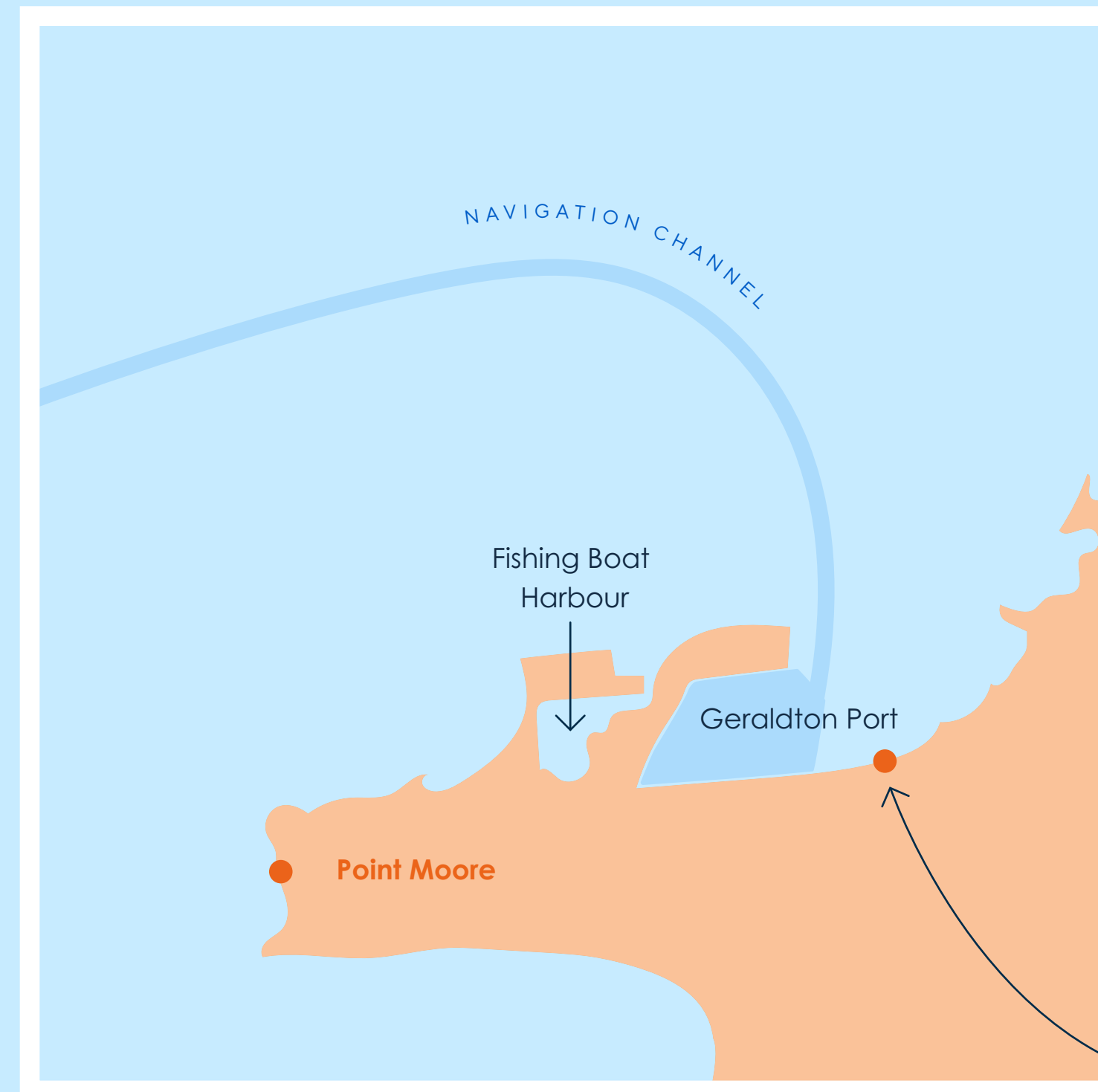
7 commercial berths, associated circuits and ship loading infrastructure

Harbour basin and channel


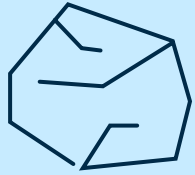
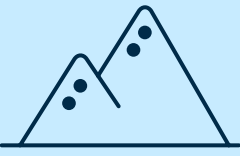
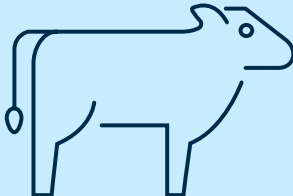
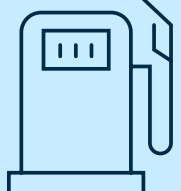
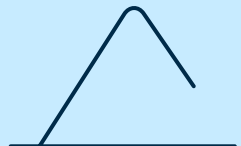
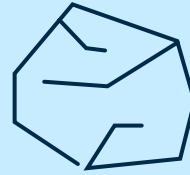
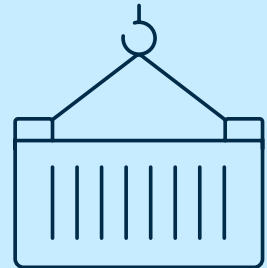
Rail terminal, associated railway tracks and unloading infrastructure

MWPA holds and manages environmental licences for commodities exported and imported through the Port of Geraldton.

Unique to MWPA, is the management of the Geraldton Fishing Boat Harbour, which supports the region's largest fishing industry.



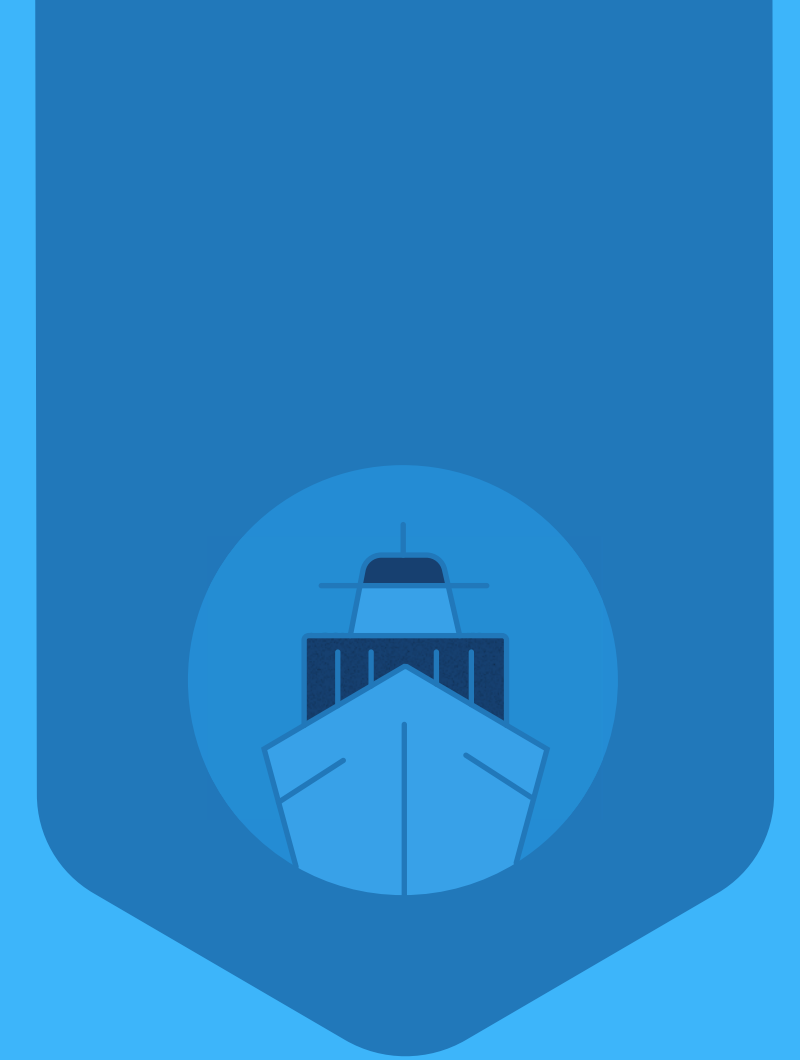
TRADE

Exports				Imports			
							
GRAIN	MINERALS	SANDS	LIVESTOCK	FUEL	FERTILISER	MINERALS	BULK CARGO

What you'll find in this information package



MAINTENANCE DREDGING



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How is maintenance dredging performed?	8
What frameworks are in place to manage maintenance dredging?	8
Why is maintenance dredging important?	9

What is maintenance dredging?

Just like roads and rail, port infrastructure requires maintenance to ensure vessels can continue to safely enter and manoeuvre into port.

Maintenance dredging is common practice in ports around the world and is essential to keeping our ports operating.

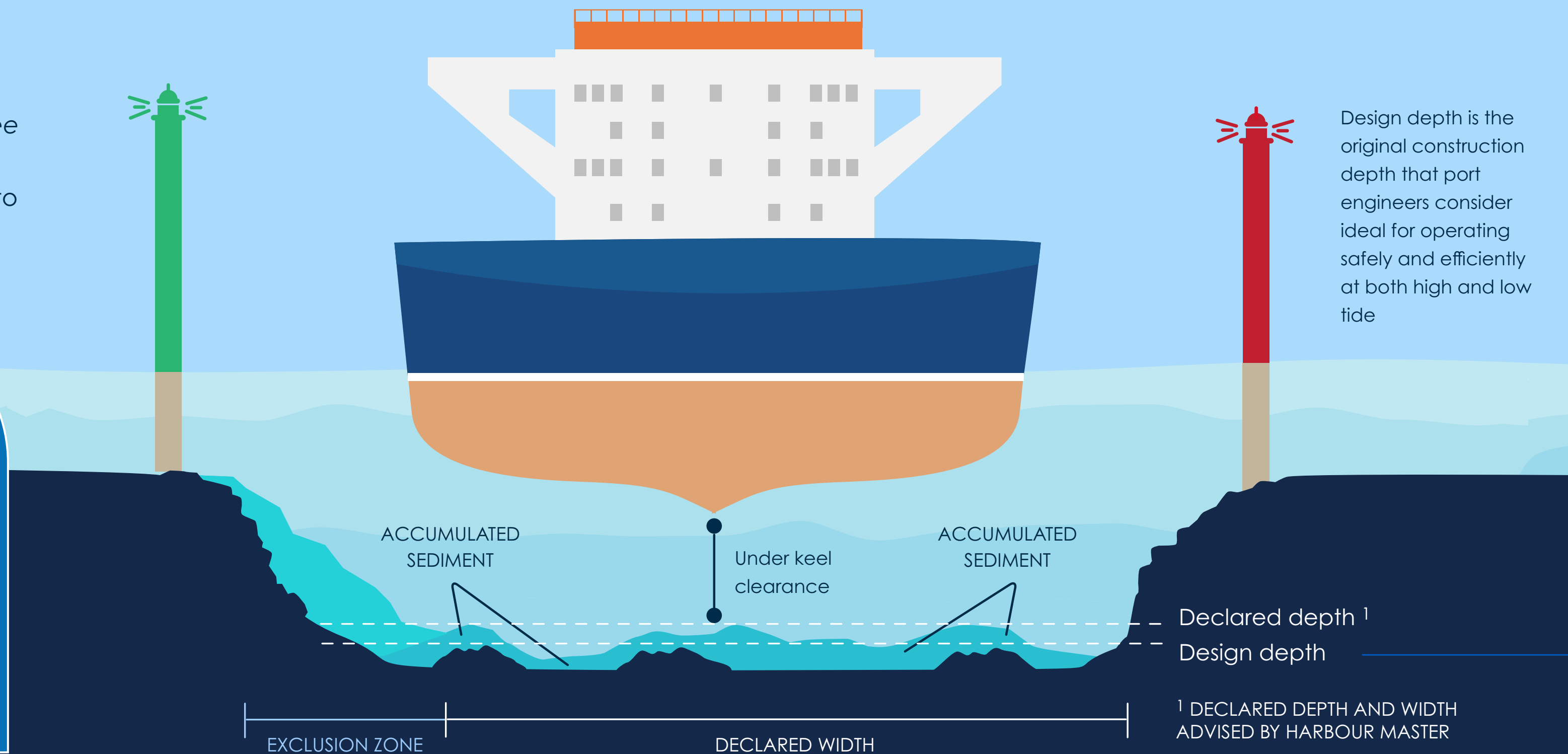
It involves removing naturally accumulated sediment (see page 11 to learn more about coastal processes) from within navigational channels, berths or other port areas to maintain design depths.

MAINTENANCE DREDGING



i

Maintenance dredging differs from capital dredging, which involves enlarging or deepening the channel.



How is maintenance dredging performed?

Mid West Ports Authority uses a Trailing Suction Hopper Dredger (TSHD) to undertake maintenance dredging.

Mainly used for dredging loose and soft material such as sand, gravel and silt, these types of vessels are crewed by highly experienced people, with equipment and technology designed to protect the environment.

A suction tube is lowered to the seabed and is trailed over the bottom. A pump system sucks up the sediment, in our case sand and cobble rocks.

Once fully loaded, the vessel sails to the selected placement site. The material is then deposited through bottom doors.



WHAT FRAMEWORKS ARE IN PLACE TO MANAGE MAINTENANCE DREDGING?



- + Activities to manage marine sediments in ports are highly regulated with maintenance dredging and material placement subject to detailed regulatory approval processes under international conventions, national and state legislation.
- + Australia is a signatory to the London Protocol, an international convention that aims to “protect and preserve the marine environment”.
- + The National Assessment Guidelines for Dredging (NAGD) set out the framework for the environmental impact assessment and permitting of ocean placement of dredged material.

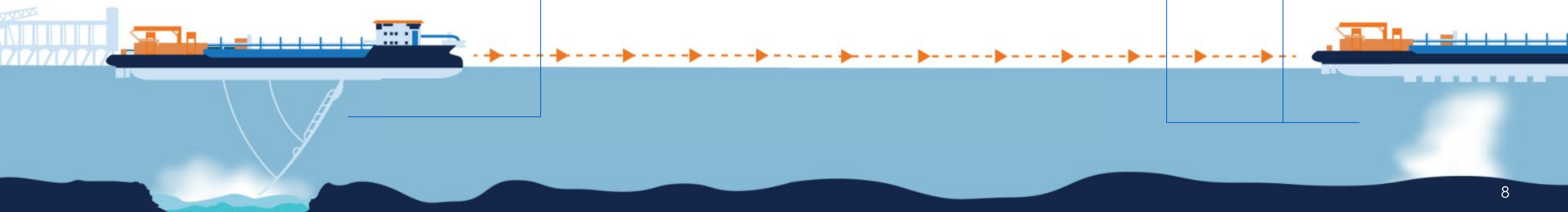
MAINTENANCE DREDGING



A suction hopper dredge removes the sediments that have settled into the shipping berths and channels

Vessel travels to location to place material

Material can also be pumped ashore into specifically engineered reclamation areas



Why is maintenance dredging important?

Maintaining safe and efficient navigation is vital to supporting national and international trade, economic development in the mid west region and its continued connection to global markets.

The commercial harbour and channel is a critical piece of infrastructure that supports regional industries such as agriculture, mining, transport and logistics, as well as tourism.

Left unmanaged, our port's capability would be significantly reduced, with the flow on effect impacting local businesses and our community.

Maintenance dredging was last conducted in 2012. Since that time, MWPA has taken interim measures, such as sea bed levelling, to maintain channel infrastructure. To manage continued natural sediment accumulation, however, maintenance dredging is required.

The Geraldton Port channel is 3.2km long and has a design depth of:

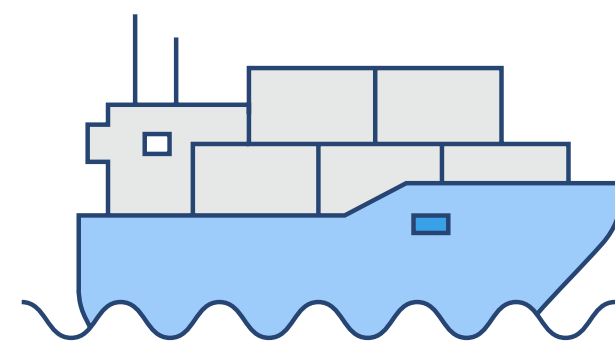
-12.8 -14.5

Lowest Astronomical Tide (LAT)

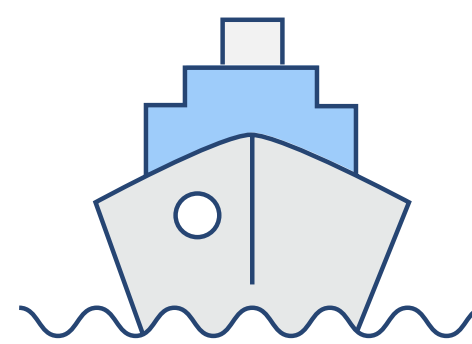
240-180m

WIDE

These depths are required to accommodate current vessels including:



BULK CARRIERS
Up to 253m Length Overall (LOA)
x 43m beam



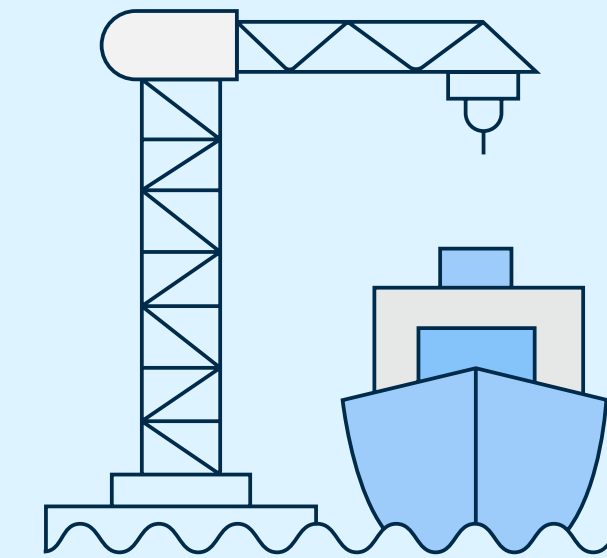
CRUISE SHIPS
Up to 293m LOA x 32m berth

SAFETY, SOCIAL + ECONOMIC CONSIDERATIONS



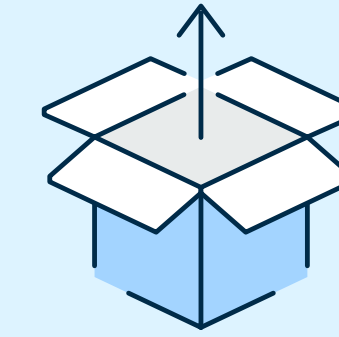
2019/2020 PORT HIGHLIGHTS

In enabling sustainable trade and tourism, our focus is on contributing positively to the industries and communities we serve.



14,950

TOTAL TRADE THROUGHPUT '000 T



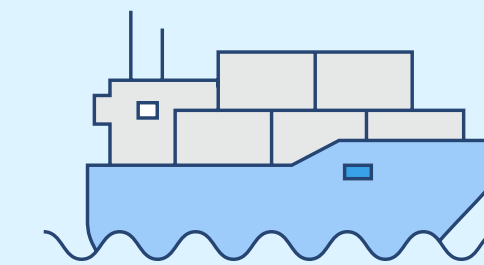
14,234

TOTAL TRADE EXPORTS '000 T



715

TOTAL TRADE IMPORTS '000 T



379

SHIP VISITS



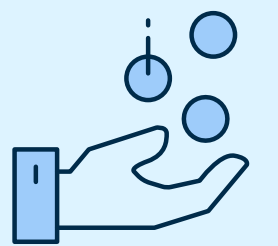
849

SAFE VESSEL MOVEMENTS



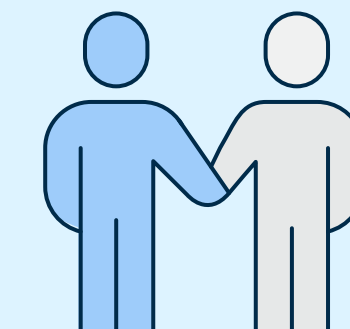
\$67,315

IN REVENUE '000



\$9.4M

OF DIVIDENDS TO THE STATE GOVERNMENT



\$12.1M
LOCALLY SOURCED
PROCUREMENT



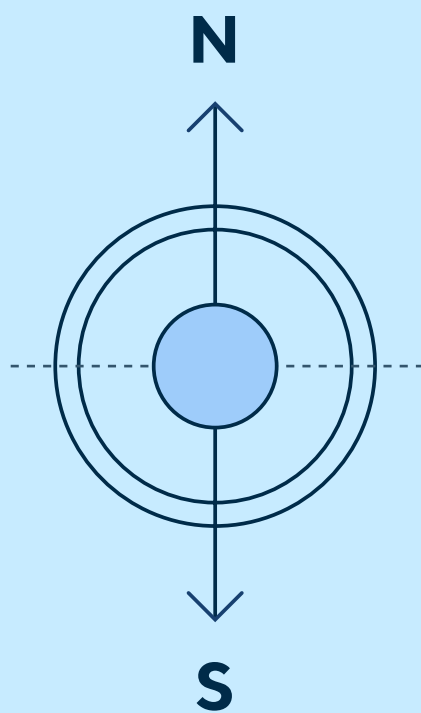
COASTAL PROCESSES AND OUR PORT ENVIRONMENT

Where does sediment come from?	11
Where does sediment accumulate?	12
How do we monitor the port environment?	13

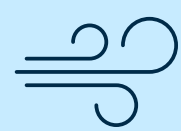
Where does sediment come from?

AND HOW DOES IT MOVE?

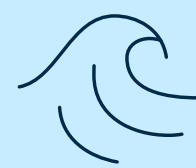
Sediment re-suspension and movement occurs as a result of natural processes like wind and waves. How, and in which direction sediment travels, will depend on the characteristics of the coastline and its coastal processes.



Sediment resuspension occurs along the mid west coastline as a result of



WIND



WAVE



SWELL

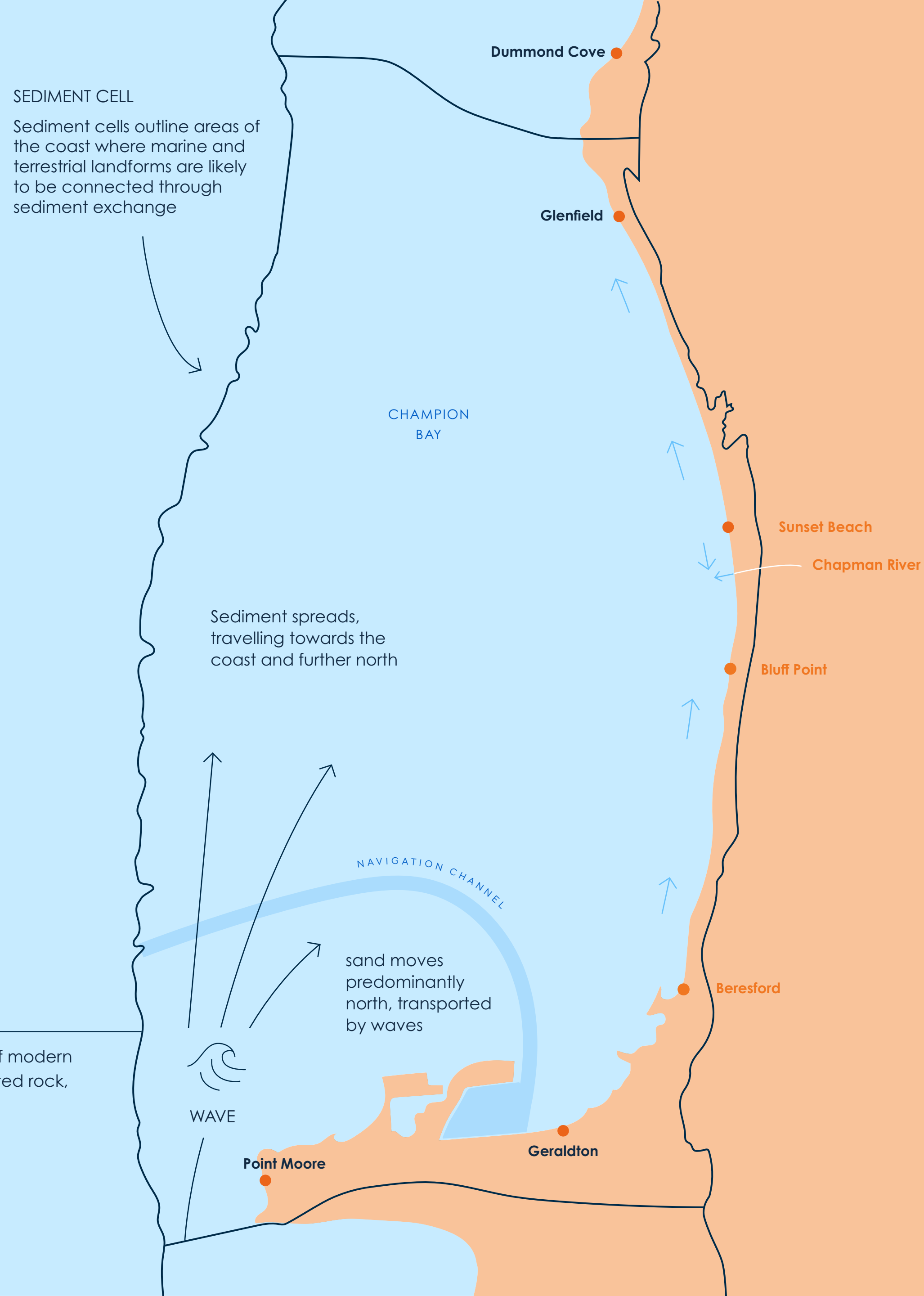
with sediment typically moving from **south to north**



Sediment material is primarily made of sand, which consists of modern bioclastics - small shells that grow on seagrass - and fragmented rock, with some sand also derived from river catchments

SEDIMENT CELL

Sediment cells outline areas of the coast where marine and terrestrial landforms are likely to be connected through sediment exchange



Sediment spreads, travelling towards the coast and further north

sand moves predominantly north, transported by waves

COASTAL PROCESSES



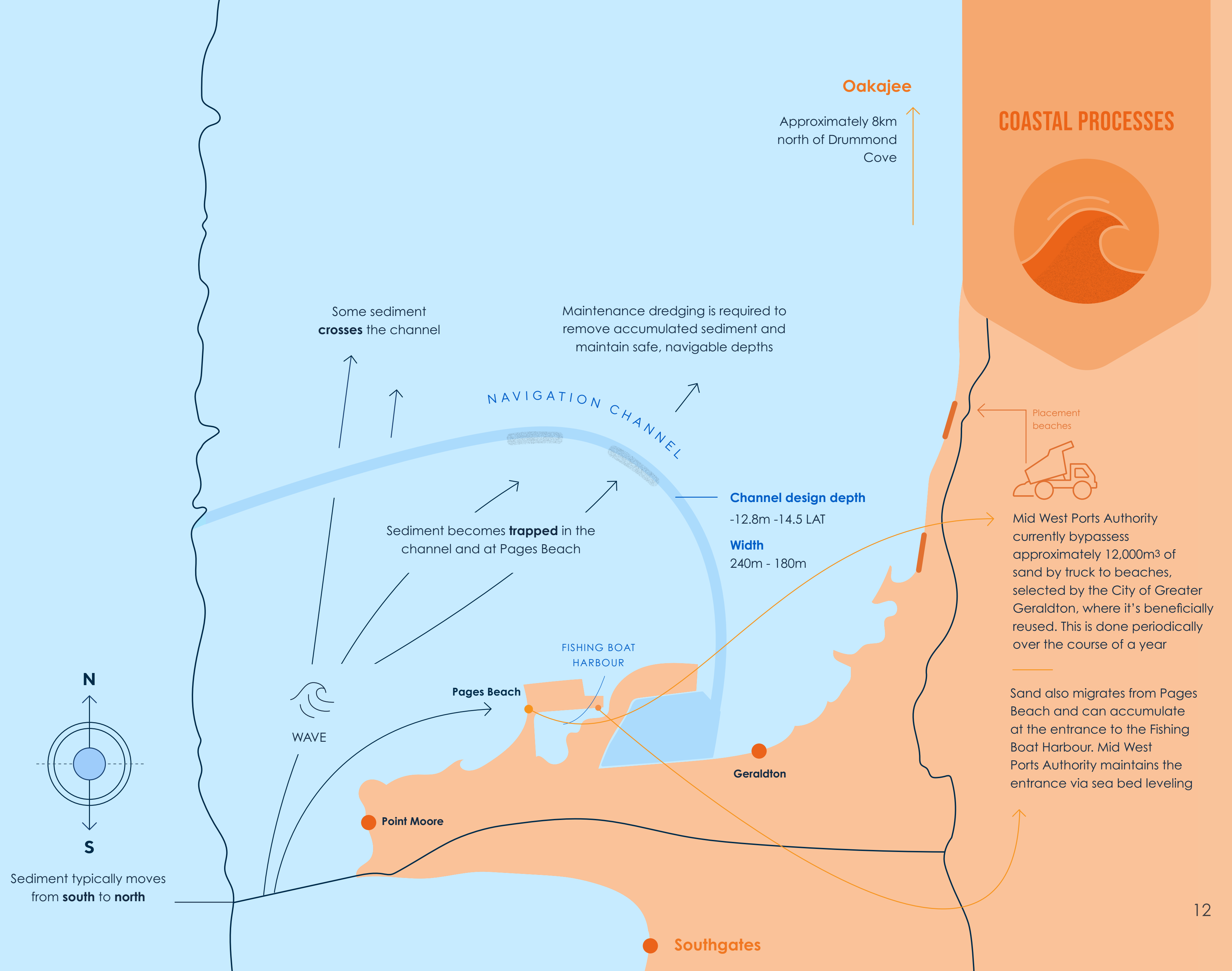
WESTERN AUSTRALIA
MID WEST REGION

Where does sediment accumulate in port areas?

In 2020, MWPA invested in the development of a coastal sediment model to determine how natural sediment cycles occur between Southgates through to Oakajee.

Modelling confirmed that natural sediment transport at the Port of Geraldton occurs as a result of wind and wave energy moving sediment predominantly in a northerly direction.

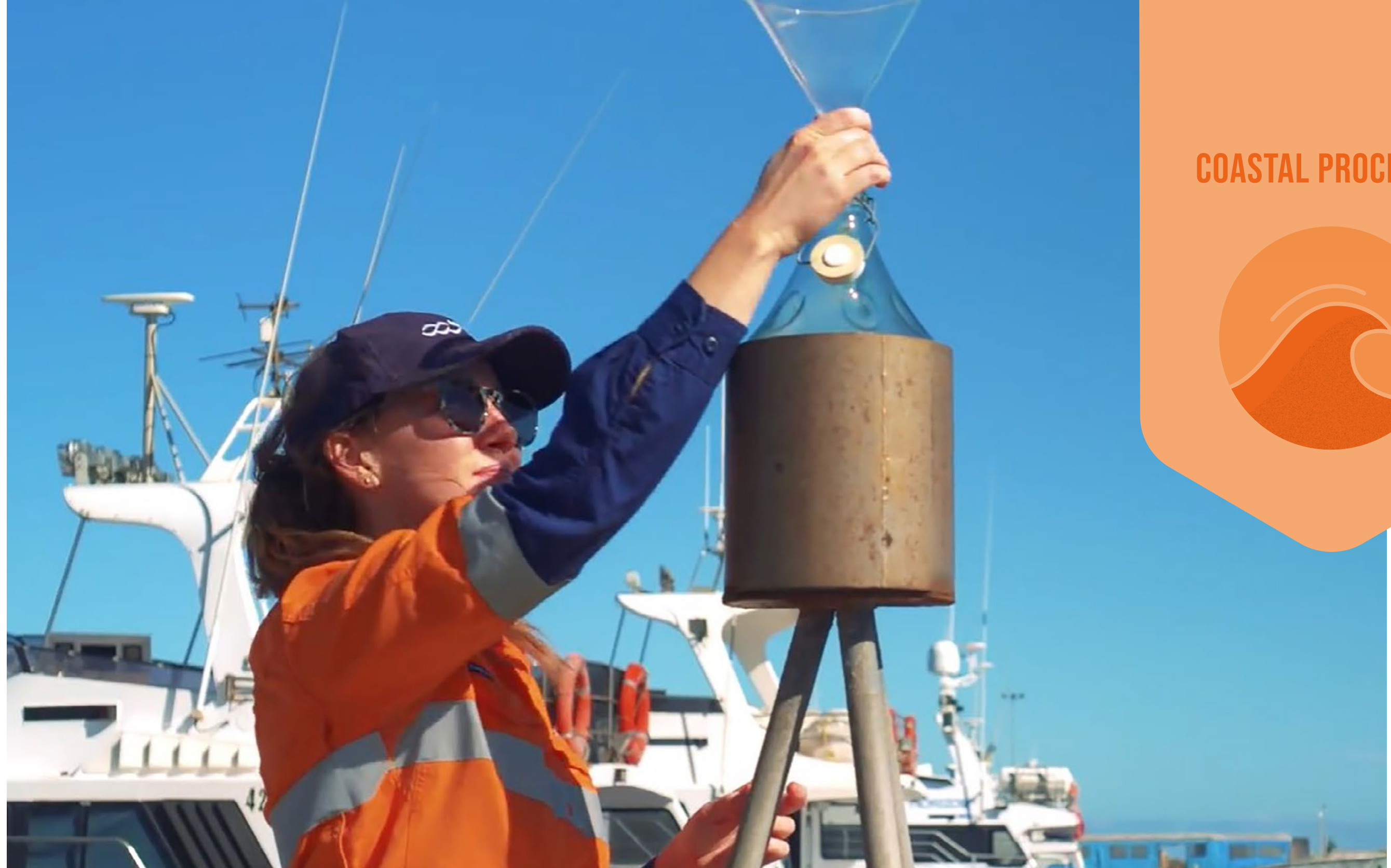
While some sediment crosses the channel, it also becomes trapped in the navigational channel.



How do we monitor the port environment?

Mid West Ports Authority has a range of programs in place to monitor the environment in and around the port. We currently monitor seagrass, marine fauna and marine pest populations and undertake routine sediment and water quality samples.

In addition to these initiatives, the port is also currently monitoring the natural seabed climate. This involves collecting data on light, temperature, salinity, turbidity and sediment resuspension.



COASTAL PROCESSES



UNDERSTANDING OUR PORT ENVIRONMENT

We regularly monitor

 SEDIMENT + WATER QUALITY	 WATER DEPTH	 AIR QUALITY	 SEAGRASS POPULATIONS	 MARINE FAUNA	 MARINE PESTS
--	---	---	--	--	--

We've commenced collecting data on

 LIGHT	 TEMPERATURE	 SALINITY	 TURBIDITY	 SEDIMENT RESUSPENSION
--	--	---	--	---

METEOROLOGICAL
+ SEA CONDITIONS



2021 MAINTENANCE DREDGING CAMPAIGN

OUR APPROACH



How much material needs to be relocated?	15
What does our approach involve?	16
What beneficial reuse options were identified?	17
What is the preferred placement option?	19
What are the environmental values, receptors and risks?	21
What is the project timeline?	23
Who has been engaged and consulted?	24

How much material needs to be relocated?

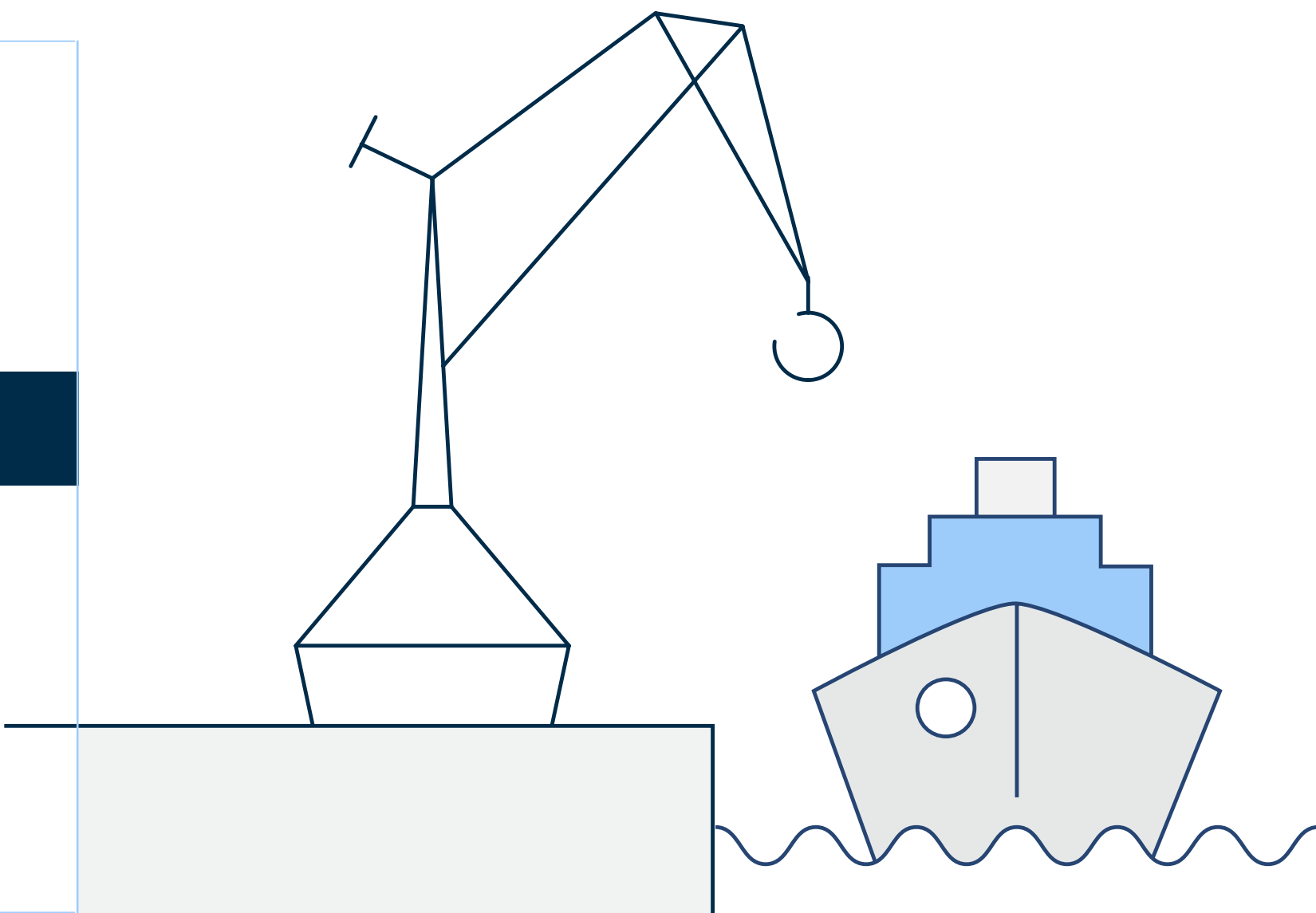
To restore navigational depths to design levels, sediment material needs to be removed from the navigational channel and within the inner harbour.



VOLUMES

We estimate the following volumes will need to be removed:

<p>235,000m³ TOTAL VOLUME</p>	<p>190,000m³ NAVIGATION CHANNEL</p>	<p>45,000m³ INNER HARBOUR</p>
<h2>PLACEMENT</h2>		
<p>i To learn more about the proposed placement locations see page 19.</p>	<p>SEDIMENT MATERIAL TO BE PLACED AT SELECTED NEARSHORE LOCATION</p>	<p>SEDIMENT MATERIAL TO BE PLACED AT BERTH 7 RECLAMATION</p>



What does our approach involve?

Our approach to maintenance dredging is anchored around finding the most sustainable way to manage naturally accumulated sediment.

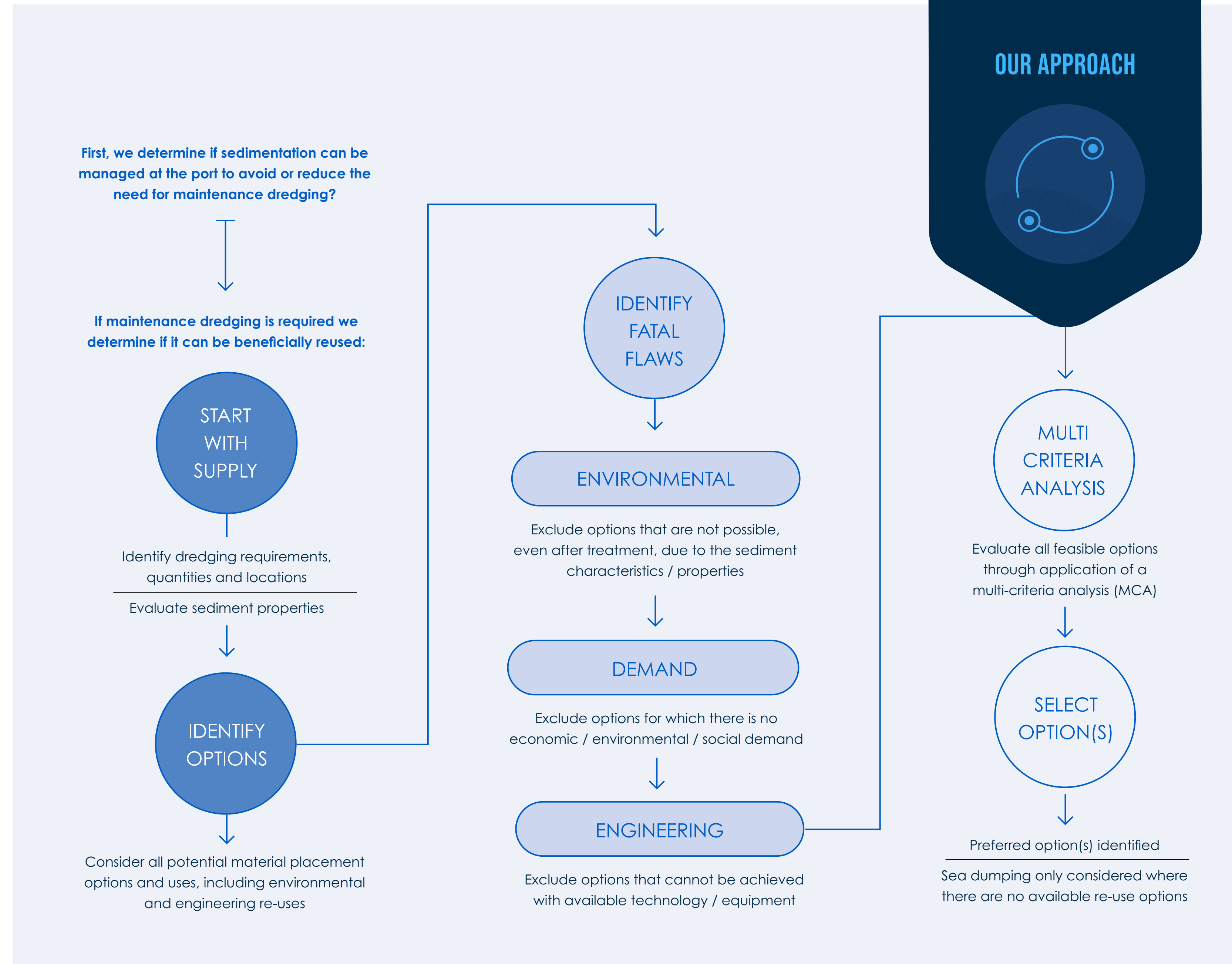
Prior to any decision to conduct maintenance dredging, we explore and evaluate how sediment material can be beneficially reused.

We utilise internationally recognised frameworks created by PIANC, the world association for waterborne transport infrastructure, to support the implementation of the London Protocol - an international treaty to protect and preserve the marine environment.

Where possible, alternatives to off-shore at-sea disposal, known as sea dumping, are preferred.

The PIANC framework for dredge material reuse is focused on matching the supply of dredged material with beneficial use demand. It does this by considering the following factors:

- **Quality of material** (physical and chemical properties of dredged and required material)
- **Quantity of material** (volume of dredged and required material)
- **Location of material** (is it technically feasible to move/place material)

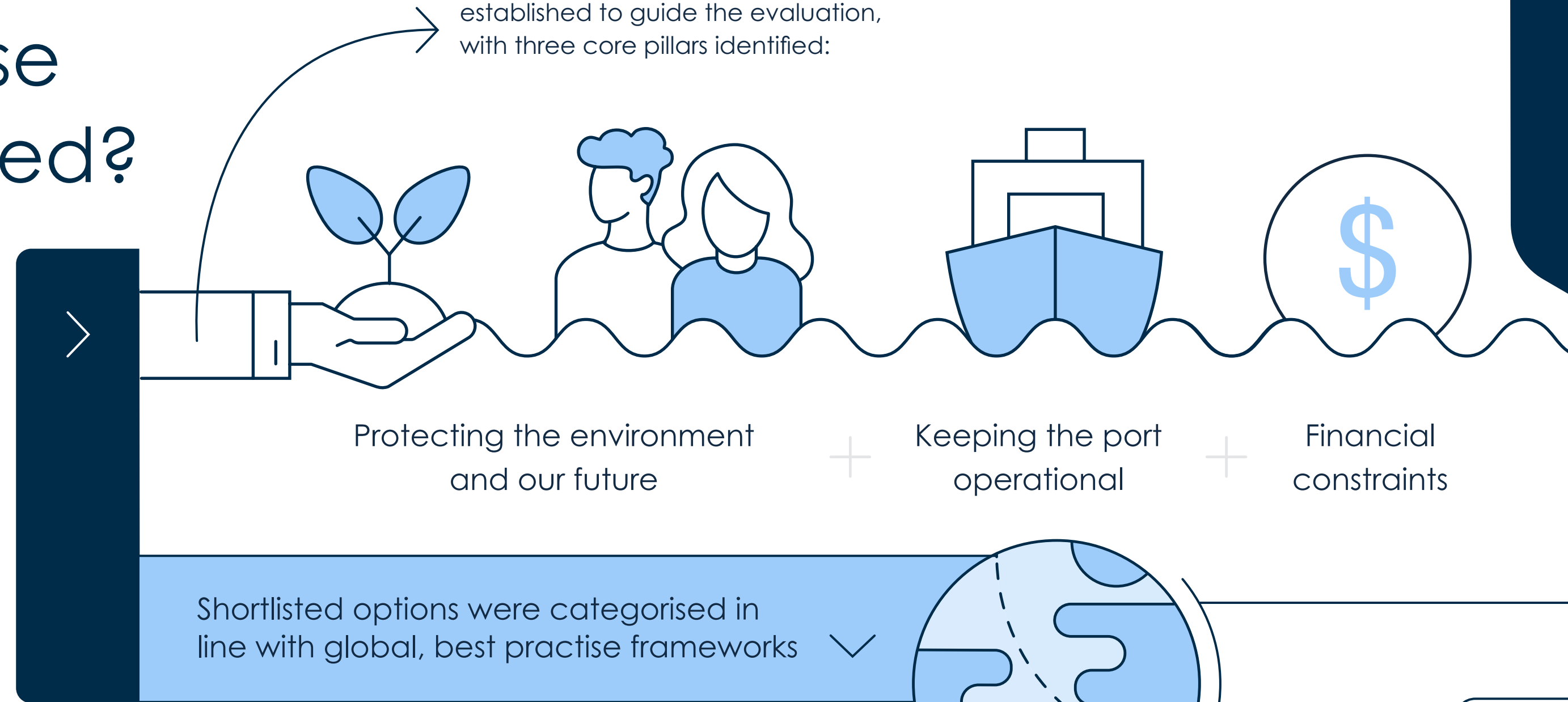


What beneficial reuse options were identified?

Our beneficial use assessment explored 24 placement options for the 2021 maintenance dredge, with 16 pre-screened and rejected due to fatal flaws and eight shortlisted for consideration.

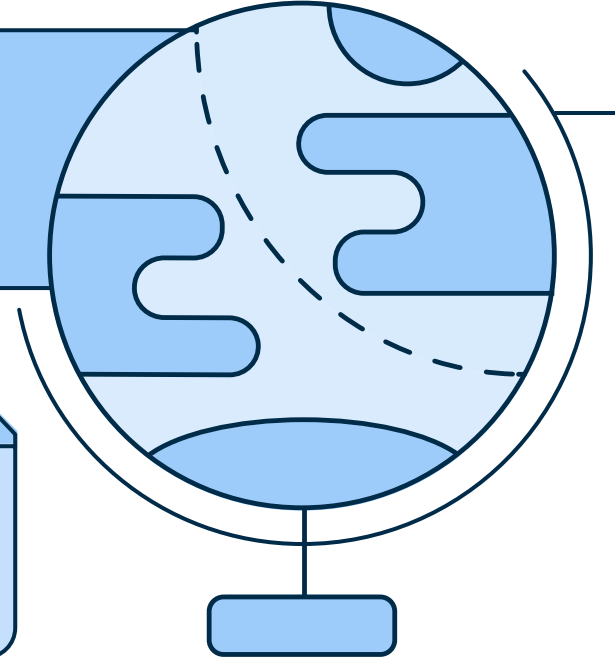


From the workshop, criteria were established to guide the evaluation, with three core pillars identified:

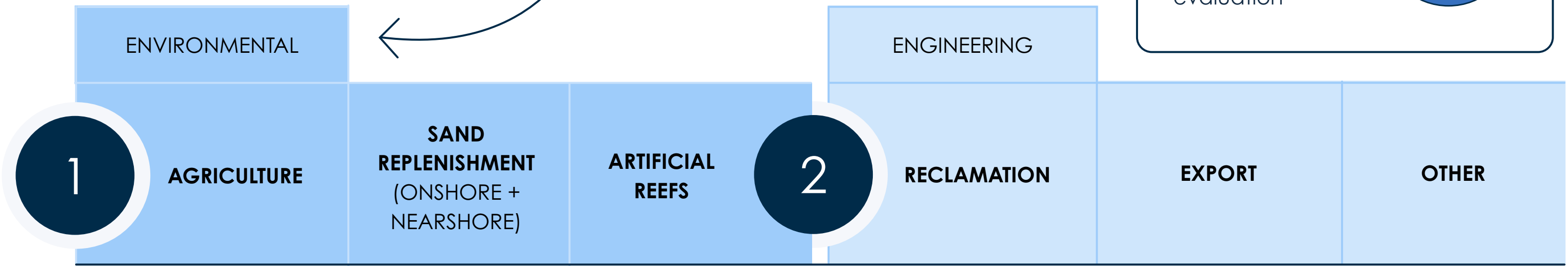


London Protocol

PIANC



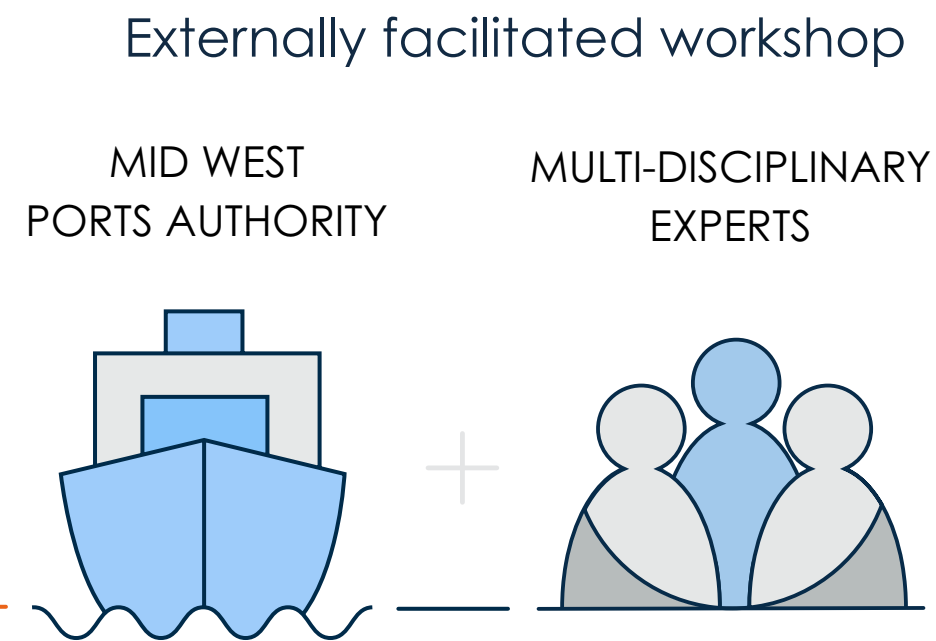
OFFSHORE DUMPING
Considered if beneficial reuse is determined inviable in evaluation



16
PRE-SCREENED + REJECTED

- ✗ ENVIRONMENTAL FATAL FLAW
- ✗ ENGINEERING FATAL FLAW
- ✗ DEMAND FATAL FLAW

8
SHORTLISTED



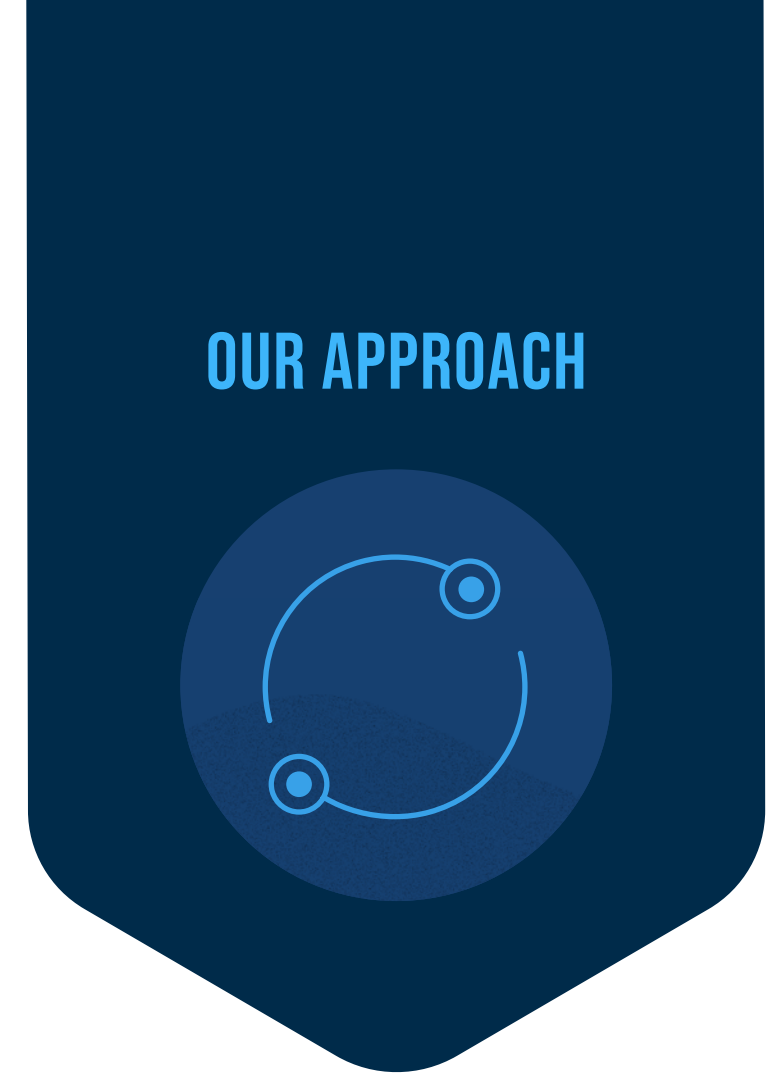
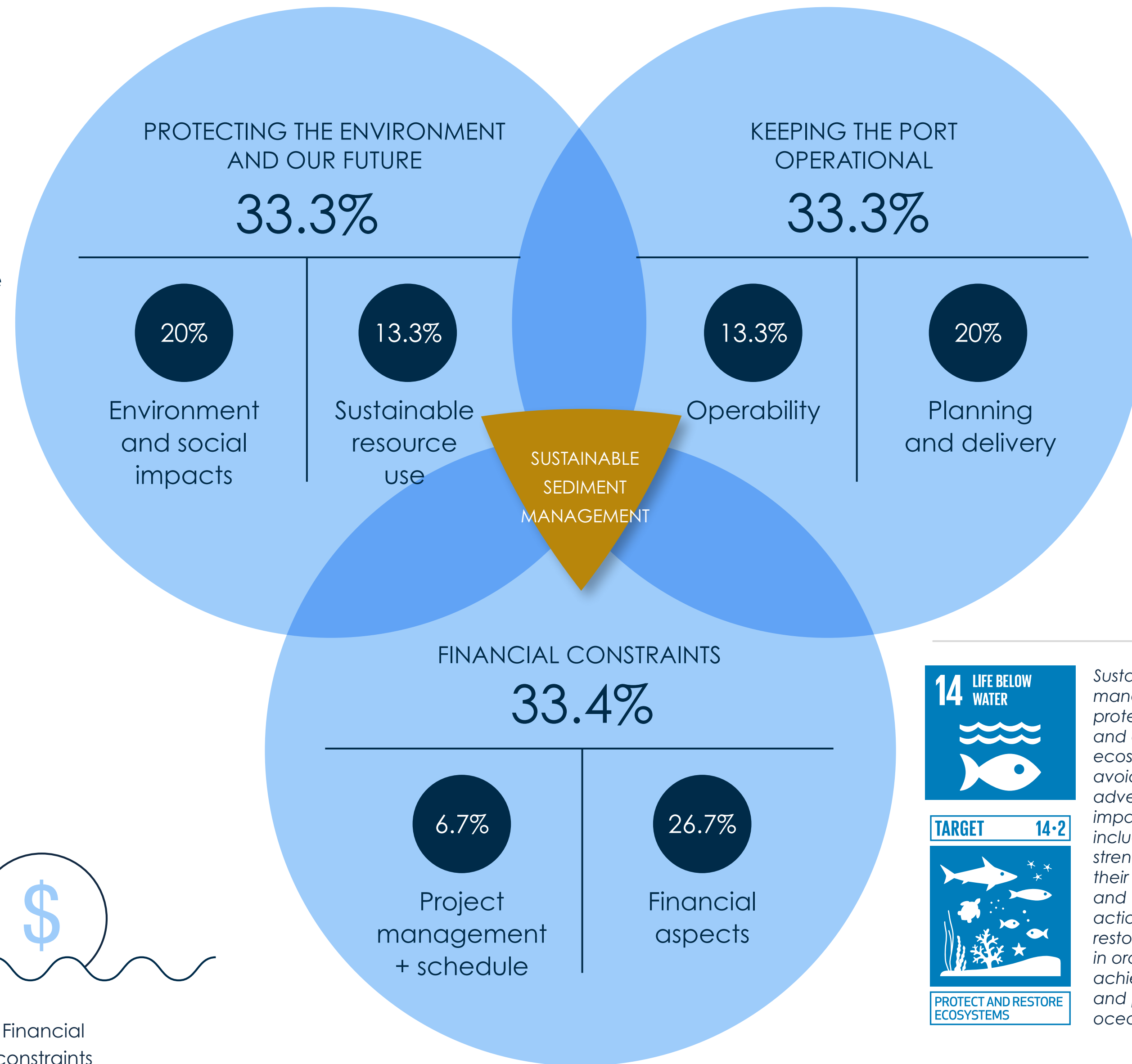
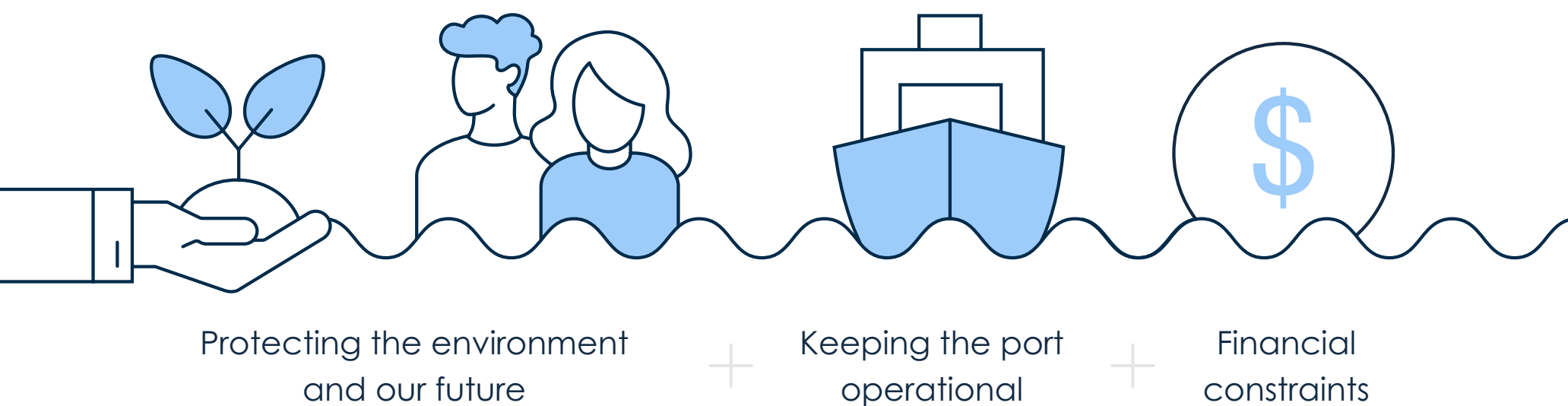
Multi-criteria analysis weighted evaluation

To ensure a consistent and transparent approach, each placement option was evaluated alongside multiple criteria that considers a range of social, environmental and economic values relevant and important to the local area and region.

In developing the criteria, diverse perspectives were considered with input sought from multi-disciplinary experts. From this, three core pillars emerged:

- Protecting the environment and our future
- Keeping the port operational
- Financial constraints

In keeping with our ongoing commitment to operate in balance with the environment - and to align our business strategy with the United Nations Sustainable Development Goals - each pillar was given near equal weighting.



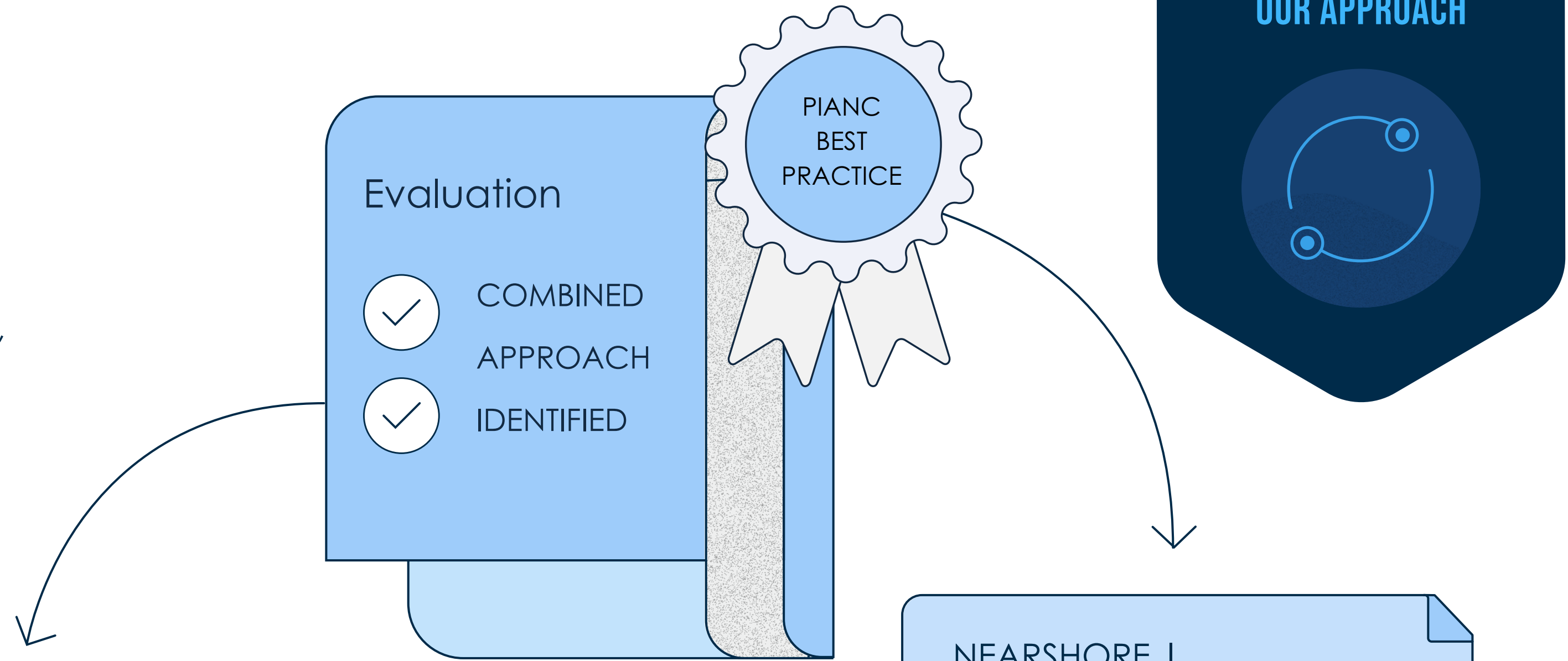
	<p><i>Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.</i></p>		<p><i>Achieve the sustainable management and efficient use of natural resources.</i></p>
<p>TARGET 14-2</p>		<p>TARGET 12-2</p>	
<p>PROTECT AND RESTORE ECOSYSTEMS</p>		<p>SUSTAINABLE MANAGEMENT AND USE OF NATURAL RESOURCES</p>	

What is the preferred placement option?

The evaluation identified a combination of nearshore placement and land reclamation as the strongest performing placement option, enabling 100 percent of material to be beneficially reused.

While off-shore sea dumping was considered – and deemed the most cost effective option – the proposed placement option was found to deliver far greater social and environmental value.

Placement options were considered alongside best practice frameworks and reflect globally preferred solutions.



ONSHORE | ENGINEERING BENEFICIAL REUSE

Extend height of, and fill extended Berth 7 reclaim

- ✓ Usage for commercial harbour sediment
- ✓ Supportive of long-term vision identified in Port Master Plan
- ✓ Increased storm surge protection



NEARSHORE | ENVIRONMENTAL BENEFICIAL REUSE

Nearshore placement adjacent to Bluff Point
Usage for channel sediment

- ✓ Sediment remains within natural sediment cell
- ✓ Sediments can continue to migrate north along the coast by natural processes

Nearshore placement

BLUFF POINT

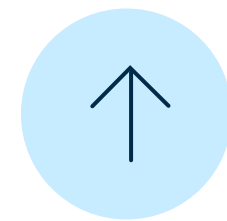
1km - 1.6km

DISTANCE FROM THE SHORELINE

8-10m

WATER DEPTH

NATURAL CONDITIONS



WIND



WAVE



SWELL

Coastline is naturally turbid with wind and wave energy supporting sand migration

Placement area is bare sand

1.4km long - 0.4km wide | 530,000m²

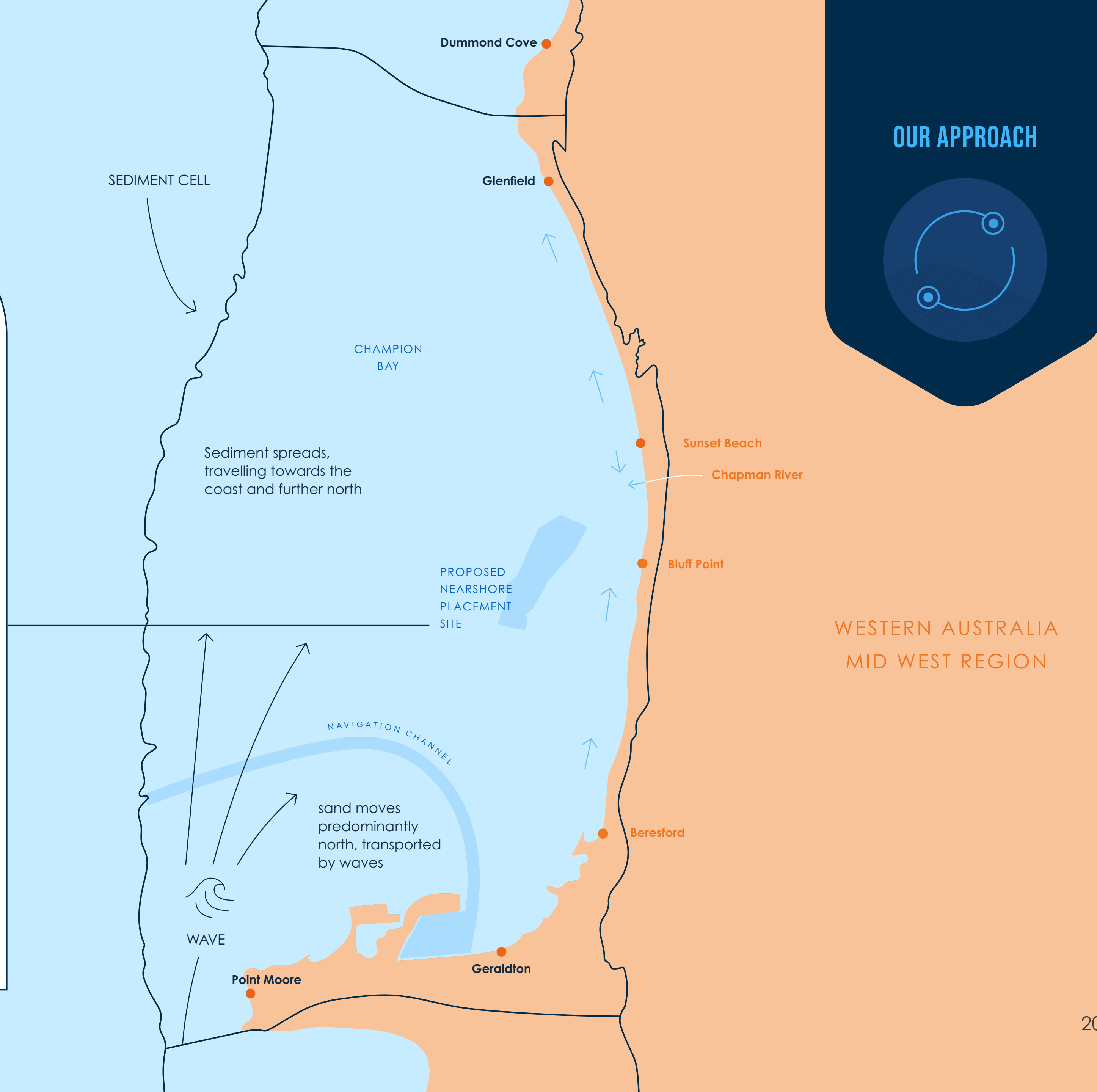
APPROACH AIMS TO:



Build coastal resilience by supplementing sediment supply to nearshore natural processes



Provide ongoing source of sand nourishment required for healthy seagrass growth



What are the environmental values, receptors and risks?

Environmental Impact Assessments (EIA) underpin the proposed placement options and are developed in accordance with state and commonwealth regulatory requirements and supported by detailed technical studies.

The EIA process sees environmental values specific to the port and the surrounding region mapped and the extent, severity and duration of impacts to environmental receptors assessed. The assessment ensures both risks, and measures to prevent or minimise impacts, are clearly identified.

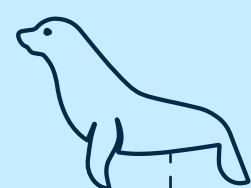
Champion Bay is a healthy ecosystem driven by quality water. Marine habitats include benthic (seafloor) infauna and seagrass communities, as well as fringing high and low profile rocky reefs that support macro algae and small coral communities.

Scientific research, detailed technical studies and an independent Environmental Impact Assessment have concluded that the risk to environmental receptors from maintenance dredging at the Port of Geraldton will be predominantly low, with any possible impacts to the marine environment likely to be minor and short-term.

BREEDING GROUNDS

60KM

WEST OF GERALDTON



A number of protected fauna species are known to occur at the port at times, including Australian Sea Lions, dolphins and migratory shorebirds. While the Australian Sea Lions utilise port areas as resting haul-out sites, their main breeding ground is the Arolhos Islands, located 60km west of Geraldton

Existing populations have a demonstrated capacity to comfortably co-exist with shipping movements and recreational marine activities

Proposed maintenance dredging schedule to occur outside of seagrass seeding season, prior to the migration of 'the whites' (rock-lobster) and post humpback whale migration

Detailed technical studies and modelling predict small volumes of the placed material will move gradually over time (as a result of wind and wave energy), mirroring natural coastal processes

Placement site is bare sand

Risks to sensitive seagrass communities are likely to be minor and short term. Studies have indicated these communities are highly resilient to coastal processes, significant weather events and temporary changes in the natural environment

The inshore marine environment is naturally turbid due to sediment resuspension driven by wind and wave energy

Resuspension of sediments from maintenance dredging are expected to be less than natural concentrations experienced during a normal winter storm, with any impact likely to be temporary, localised and spatially small



OUR APPROACH



SEDIMENT CELL

Dummond Cove

Glenfield

CHAMPION BAY

PROPOSED NEARSHORE PLACEMENT SITE

Sunset Beach

Chapman River

Bluff Point

Beresford

Point Moore

Geraldton

NAVIGATION CHANNEL



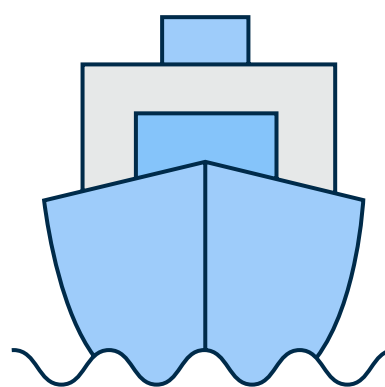
What measures are in place to protect the environment?

In addition to the regular environmental monitoring and detailed studies we undertake, project monitoring and management plans will be developed in consultation with technical experts. These outline our environmental management approach and aim to:

- Detect any impacts from maintenance dredging activities
- Respond to environmental conditions during maintenance dredging to manage unpredictable changes to water quality

A THREE TIERED APPROACH TO ENVIRONMENTAL MONITORING ENABLES US TO:

- Capture current environmental conditions
- Monitor environmental conditions during maintenance dredging
- Assess long-term environmental conditions



BASELINE DATA

Benthic habitat mapping

Seagrass health assessment

Hydrographic surveys

Sediment characterisation

Water quality and light data

Wind, waves, currents

PRE-DREDGE >

MONITOR + MANAGE

Marine fauna observers on board vessel. If a sighting occurs, dredging activities pause for a specified period of time

Aerial surveillance conducted by drone to monitor turbidity

Monitoring of weather conditions

Regular monitoring of water quality and light levels

Wind, waves, currents

DURING DREDGE >

ONGOING MONITORING

Nearshore placement site and surrounding area:

Hydrographic surveys

Beach profiles

Seagrass health surveys

Water quality monitoring

Wind, waves, currents

Reclamation area

Sediment quality sampling

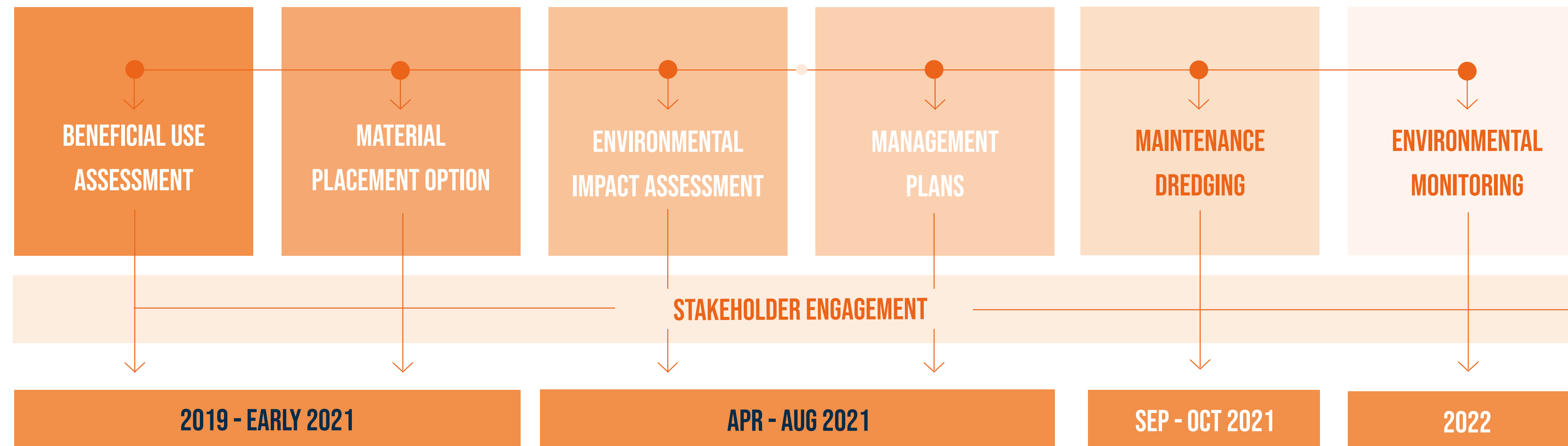
Groundwater monitoring

POST-DREDGE >

What is the project timeline?

After completing an extensive period of stakeholder consultation with key government agencies, industry partners and our local community, MWPA is planning to commence works in late 2021, between September and October.

It is estimated the program will take between 4-8 weeks, with timings dependent on shipping schedules and weather conditions.



Who has been engaged and consulted?

MWPA will continue to engage with stakeholders throughout the assessment period, operation and review phases. We want to ensure information is clear and accessible to all our stakeholders and community.

REGULATORY AGENCIES

- Department of Water and Environmental Regulation (DWER) including the Environmental Protection Authority (EPA)
- Federal Department of Agriculture, Water and Environment (DAWE)

STATE AND LOCAL GOVERNMENT AGENCIES

- Department of Transport
- Department of Primary Industries and Regional Development including Fisheries, Biosecurity and Quarantine
- City of Greater Geraldton

TRADITIONAL OWNERS

- Yamatji SRC

INDUSTRY

- Commercial Harbour importers and exporters
- Aquaculture and commercial fisheries
- Contractors and suppliers
- Land leaseholders

NON-GOVERNMENT AGENCIES

- Northern Agriculture Catchment Council (NACC)
- WA Marine Science Institution (WAMSI)

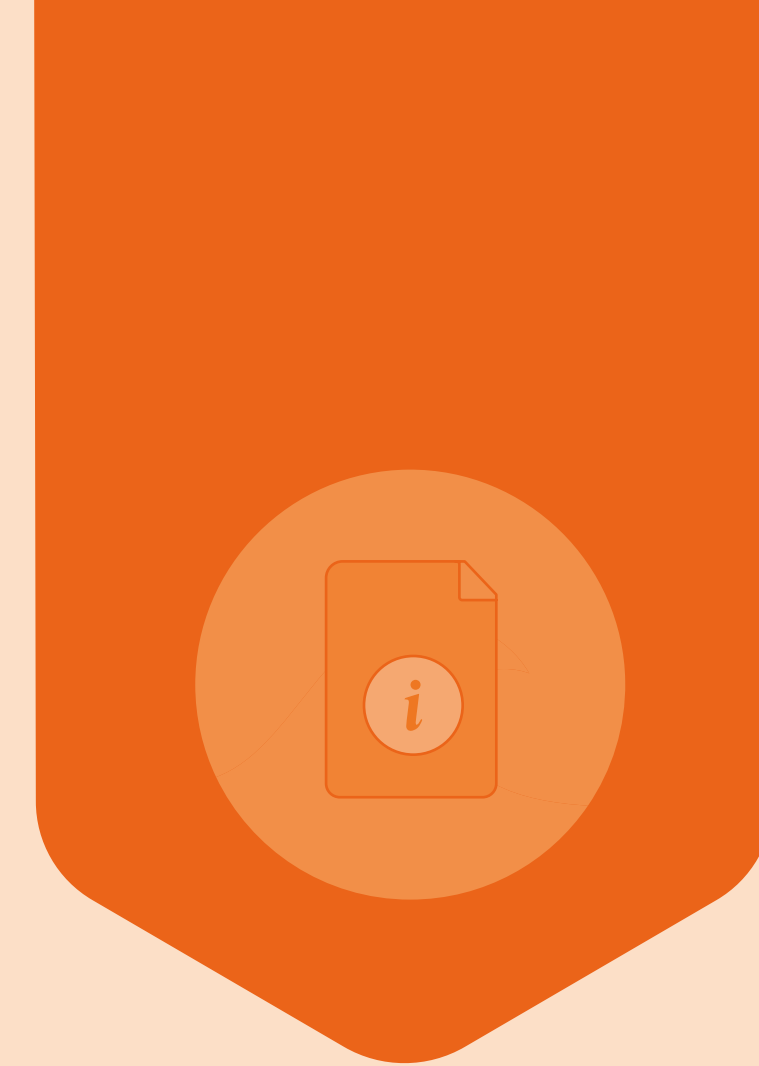
COMMUNITY

- Public information sessions

PROJECT DETAILS



ADDITIONAL REFERENCES + FAQs



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Additional external resources

Learn more about...

THE LONDON
PROTOCOL



PIANC - WORLD ASSOCIATION FOR
WATERBORNE TRANSPORT INFRASTRUCTURE



NATIONAL ASSESSMENT
GUIDELINES FOR DREDGING



WA EPA - TECHNICAL GUIDANCE -
ENVIRONMENTAL IMPACT ASSESSMENT OF
MARINE DREDGING PROPOSALS



SEDIMENT CELLS IN
WESTERN AUSTRALIA



COASTAL SEDIMENT CELLS FOR
THE MID WEST COST REGION



GERALDTON EMBAYMENTS COASTAL
SEDIMENT BUDGET STUDY



FAQS

Why is maintenance dredging required? +

What happens if maintenance dredging isn't undertaken? +

How does this campaign differ to the 2012 maintenance dredge? +

How does maintenance dredging differ from capital dredging? +

What other placement options were considered? +

Why don't you take the material out to deeper water? +

What about beach placement? Was this considered? +

What size is the nearshore placement area? +

What is the best time for nearshore placement in Champion Bay? +

What will happen to the sediment long term? +

How will the port monitor the health of seagrass long term? +

What are the project timings? +

Will there be any restrictions on boats using the local marine waters? +



Why is maintenance dredging required?

Maintenance dredging was last conducted in 2012. Since that time, MWPA has taken interim measures, such as sea bed levelling, to maintain channel infrastructure. To manage continued natural sediment accumulation and maintain safe, navigable depths, maintenance dredging is required. +

What happens if maintenance dredging isn't undertaken?

If maintenance dredging does not occur, the declared depth of the navigation channel will continue to become shallower. This impacts the type and frequency of vessels that can safely enter and manoeuvre into the port. If left completely unmanaged, eventually, all commercial sized vessels would be unable to enter port waters. +

How does this campaign differ to the 2012 maintenance dredge?

Like the 2012 maintenance dredge, the 2021 campaign will use a Trailer Suction Hopper Dredger, which is a specialised vessel - crewed by highly experienced people - with equipment and technology designed to protect the environment.

The difference between the two campaigns relates to the volume of sediment material and its placement. +
In 2012, MWPA removed 130,000m³ of sediment material will the full amount relocated to the port's Berth 7 reclamation area.
As a result of additional sediment accumulation MWPA is planning to remove approximately 235,000m³ from the navigation channel and harbour areas with a combination of nearshore placement and land reclamation proposed. See page 19 for further information.

How does maintenance dredging differ from capital dredging?

Maintenance dredging differs from capital dredging in that it removes naturally accumulated sediment from within the navigational channel to return it to the original design depth, as opposed to enlarging or deepening the channel. Capital dredging requires cutting and grinding of harder material, using different equipment. +



What other placement options were considered?

We considered a range of placement options, with 24 initially identified, 16 pre-screened and rejected due to fatal flaws and eight shortlisted for consideration. To ensure a consistent and transparent approach, each option was evaluated alongside multiple criteria that considers a range of social, environmental and economic values, relevant and import to the local area and region.

+

Why don't you take the material out to deeper water?

While off-shore placement, known as sea dumping, was considered (and deemed the most cost effective option) the proposed placement option was found to deliver far greater social and environmental value. Placement options were considered alongside best practice frameworks and reflect globally preferred solutions. Our proposed approach - and preference for finding a beneficial reuse - is in keeping with our ongoing commitment to operate in balance with the environment.

+

What about beach placement? Was this considered?

Mid West Ports Authority has other initiatives in place to assist with on-shore sand replenishment. The port's Beach Nourishment Program sees sand that naturally accumulates at Pages Beach transported by truck to beaches selected by the City of Greater Geraldton. Approximately 12,000m³ of sand is periodically transported each year.

Beach placement was one of 24 options considered, however, nearshore placement was deemed to have the greatest net environmental benefit.

+

Beach placement would require material be transported directly by pipeline or trucked onto beaches. Due to the shallow water depth at each of the identified sites, direct placement would require the installation of a pipeline from deeper water. Placing a pipeline on the seabed could have an impact on the seagrass and reef structures. Transporting material via vehicle would require more than 9,500 trucks (based on 20m³ carrying capacity) and 19,000 truck movements to accommodate the 190,000m³ of sediment material.

These options were considered unfeasible from both a social and economic perspective.



What size is the nearshore placement area?

The proposed nearshore placement site is located 1km to 1.6km from the shoreline with a water depth of 8-10m. The area is bare sand and is approximately 1.4km long by 0.4km wide or 530,000m². See page 20 for further details. +

What is the best time for nearshore placement in Champion Bay?

MWPA's environmental impact assessment identified September and October 2021 as the preferred timing for the following reasons:

- Seagrass is relatively dormant post winter and therefore intermittent turbidity from dredging will have minimal impact
 - Avoidance of juvenile rock-lobster (whites) which leave near-shore reef systems in mid to late November and head for deeper water +
 - The aquaculture industry have removed all their fish cages from Champion Bay with plans to return them in 2022
 - The demersal fin fishing season is closed from mid-October minimising interactions between dredge operations and recreational fishers
 - The weather is more favourable for dredging operations reducing the length of time needed for dredging
-

What will happen to the sediment long term?

Sediment from the navigation channel will be relocated to the selected nearshore placement site 1km-1.6km from the shoreline.

Within Champion Bay sediment movement is predominantly northwards driven mainly by waves. The placed sediment will re-join the natural system and over time be moved northwards by natural processes. As it moves in this direction, some sediment is expected to be brought to the beach by waves with most of the material expected to remain in deeper water. The amount of sediment reaching the shoreline will be dependent on the strength and direction of waves and the natural occurrence of storms. +

Over time sediment will leave Champion Bay and continue northwards along the coastline.



How will the port monitor the health of seagrass long term?

MWPA has periodically assessed seagrass health within Champion Bay and at reference sites including Greenough River, Port Denison and Jurien Bay since 2002 and completed a baseline health assessment in early 2021 which confirms an overall improvement in seagrass communities within Champion Bay since our last surveys in 2012. MWPA will conduct post maintenance dredge seagrass surveys to verify modelling and impact assessments.

+

Many factors contribute to seagrass health including water temperature and quality, cyclones and storms, runoff from rivers and stormwater as well as dredging and development activities. Therefore MWPA intends to conduct routine seagrass health monitoring longer term to better understand changes in seagrass species and population densities over time.

What are the project timings?

MWPA is planning to commence works in late 2021, between September and October. This schedule has been designed to occur outside of seagrass seeding season, prior to the migration of 'the whites' (rock-lobster) and post humpback whale migration.

+

It is estimated the program will take between 4-8 weeks, with timings dependent on shipping schedules and weather conditions.

Will there be any restrictions on boats using the local marine waters?

Any impacts to boaties using the local marine waters will be minimal. The dredging vessel will operate between the channel, basin and placement area. The dredge will be classified as Restricted in Ability to Manoeuvre (RIATM) during dredging, recreational boaters will need to follow the relevant Notices to Mariners.

+



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