



rePort

a community newsletter from **Esperance Ports Sea & Land**

Corrosion Project

Esperance Port operates in an extremely hostile environment. Strong, cyclonic winds and driving rain, raging seas and battering swells, and blazing heat take their toll on the Port's infrastructure, as does the increasing tonnes of cargo being handled.

Port personnel are vigilant in inspecting berths, conveyors and storage sheds to identify problems caused by the elements and operations, and preventative maintenance including shutdowns are on-going, daily activities.

Consultant engineers engaged to inspect the Port's berth two and three loaders annually, identified major corrosion problems with the berth three ship loader.

This is vital infrastructure: last year it handled more than 11 million tonnes of Cliffs' iron ore, and nearly 100 million tonnes has run down its belts since it was commissioned in 2002.

Repairing the corrosion damage was to be a major activity.

Two 10-day shutdowns were planned to deal with the problems: the first in April last year to sandblast and paint the affected areas on the landside bogey beam and the second in May to undertake similar work on the loader boom.

The first went off without a hitch, although the extent of the problem was worse than first thought when the two large concrete counterweights weighing 21 and 15 tonnes attached to the beam were lowered exposing the extent of the corrosion.

The second had to be postponed until October because inclement weather over the winter months would have extended the time needed to carry out repairs. This could have caused extensive delays to shipping.

Scaffolding encapsulates the berth three boom



The second shutdown started in late-October. Local company South East Scaffolding erected 110 tonnes of scaffolding to encapsulate the ship loader boom and capture sandblasted debris. It took five days to erect and five days to pull down when the work was completed; a great example of the Port and a professional local company working together to achieve a positive outcome.

Lessons have been learnt from these shutdowns, the main one being that these works must be done in the autumn months of March, April and May when the summer sea breezes abate somewhat and the winter storms have yet to arrive.

FROM MY DESK

2013 was a hectic and challenging year for the Esperance Port.



Shayne Flanagan
CEO

Hectic insofar as there was a significant increase in our container trade, dealing with the effect winter flooding had on our operations and shutting down our iron ore berth on two occasions to carry out major maintenance work.

It was challenging insofar as dealing with the Southern Ports Authority merger and the proposed Multi User Iron Ore Facility (MUIOF) process.

2014 offers better times and new opportunities, and there is a sense of optimism and confidence amongst our people that we have turned the corner.

I am also delighted that we have re-established our good working relationship with the Esperance community through our Port Consultative Committee and our support for a number of local organisations through our donations and sponsorship policy.

This edition of the EPSL RePort looks at some of the issues that I have mentioned as well as overcoming a nuisance noise problem, issues relating to ports dealing with Post Panamax vessels, and what the Port's pilots have done to make their job safer. Our Port personality for February is a young family man who is a credit to our organisation.

Happy reading.

MARITIME NAVIGATION GOES DIGITAL

Maritime navigation has come a long way over the past 800 years or so.

The science evolved from the humble magnetic lodestone, or guiding stone as it was called by seamen, that was hung on a deck of a vessel and pointed to the north. Today we have Global Positioning Systems (GPS) that can indicate a vessel's position from satellite signals.

In between has been the astrolabe and cross staff, ancient precursors to the marine sextant that was used to determine a vessel's position from sun, moon and star observations. Then came radar, Decca and LORAN, a long-range navigational system.

Although the means of navigation have continued to evolve and improve, one thing has been constant and that has been the recording of information on paper. Almanacs for lunar readings, and traverse tables meridional tables, azimuth tables, charts and so on.

Esperance Port's three pilots – Harbour Master Rob Lovell and his deputies Captains Stephen Dickason and David Teague – completed an ECDIS training course at the Maritime College in Tasmania during 2013. This was to acquaint themselves with the technology that they may be required to use on vessels visiting the Esperance Port and to revalidate their Certificates of Competency.

The digital age is changing that. Up until now, the International Maritime Organisation (IMO) required all ships to carry nautical charts and publications to plan and display the route of an intended voyage and plot and monitor positions throughout the voyage.

Increasingly, vessels plying their trade between continents are turning to the computer driven Electronic Chart Display Information System (ECDIS) to navigate their journey.

IMO has decreed, however, that in the future paper charts will not be necessary on vessels that have two independent ECDIS systems that comply with the regulations.

ECDIS displays information such as a vessel's position and speed, and position in relation to charted objects, navigational aids and hazards. It integrates position information from the GPS and other navigational sensors such as radar, fathometers and automatic identification systems (AIS).



Auger Noise Under Wrap

Environmental manager Alex Leonard and Maintenance Manager Ian Handley noise test the Auger.

The thinking caps of personnel from both the Esperance Port's Environmental and Maintenance departments were put on to come up with a solution to a noisy problem.

Noise, along with dust and traffic congestion, is a major issue for most ports, but in Esperance we have specific regulations that require us to manage our problem because of the close proximity of our residential neighbours.

And we are diligent in meeting the standards set for us.

What made the problem more intriguing was that the noise came from machinery used to move captured dust in the iron ore circuit.

Augers, the name for high powered motors attached to screws that feed dust captured in bag houses back into the stockpile, are attached to all 12 dust collectors installed on the Port's four iron ore sheds.

Dust created in the inloading and outloading of iron ore is sucked up by the dust collectors and deposited into the bag houses, then the augers take over and transfer the product back into the storage sheds.

The problem is that the dust is abrasive and gets into the motor parts, and when it becomes moist the motors work overtime to move the product.

The noise it makes is as pleasant as nails dragged across a blackboard.

The maximum noise levels at which the regulators allow us to operate within the Port boundary is 97 decibels; some of the augers were working up to this level and something had to be done.

The Environmental Department got advice from an acoustic consultant who suggested installing a sound absorbent wrap around the noisiest of the augers as a trial. With this modification done the noise dropped from 97 to 85 decibels, which was a measurable improvement and below our regulated level.

However, another issue arose as the noise resonated into the hopper chutes inside the shed, like an echo.

It was then that the Maintenance Department suggested installing rubber gaskets between the various parts of the auger and using sound dampening paint as an alternative option.

The gaskets did the trick by reducing the emission to a squeak at 78 decibels, a noise that was unlikely to be audible by the time it reached the Port boundary with the community.

All of the Port's augers are having wrapping and gaskets fitted.



Mackenzie's New Tug

Mackenzie Tug Services are renowned for being innovative when it comes to building new vessels. Back in 1995 they were trendsetters when aluminium was first used for the Cape Le Grande 11 and later Cape Arid, two 28-tonne bollard pull tugs that served the Esperance Port for many years.

They then produced a pair of the most powerful, most manoeuvrable and most cost effective harbour tugs to operate in Australia: Cape Paisley in 2001 and Shoal Cape in 2006.

This was to meet the increasing number of vessels berthing at the Port to load iron ore for the Asian markets and, in particular, to handle the increasing number of Cape sized vessels visiting Esperance.

Cape Paisley was a Tiger Class vessel built to a design penned by Canadian Naval Architect AG McLain by Structural Marine at Henderson near Fremantle. Shoal Cape is a 2411 tug (24 m long and 11 m wide) designed and built by Dutch Company Damen Shipyards in Shanghai in China.

Both are fitted with azimuth thrusters that provide the ability to move in any direction and two powerful engines that provide forward speeds of upward of 12.5 knots, sideway speeds of 7.8 knots and bollard pulls of more than 65 tonnes, which refers to a tug's pulling power.

So when it came time to add a new tug for the Esperance fleet

where did the Mackenzie brains trust turn for innovation: nowhere, for they realised that when you are on a good thing you stick by it.

The latest addition to their fleet – Hellfire Bay – is another Damen designed and built 2411, constructed with a steel hull and superstructure at the company's shipyards in Danang in Vietnam. In 2006, Shoal Cape was the sixth built by Damen; the latest addition to Mackenzie's fleet was number 60, and the shipbuilder is currently working on number 75, such is the high regard ports around the world have for this design.

Like the other two tugs, she is short and beamy: 24 m long, 11 m wide, a 4.6 metre draft, and a dish-shaped under body that doesn't have a skeg. With two powerful Caterpillar motors and azimuthing thrusters, she matches her sister ships in power and manoeuvrability.

Accommodation is simple: four berths and a large mess room and functional galley. The wheelhouse is air conditioned and mounted on rubber to provide insulation against vibration. The master's control position has a suspension seat running between two control consoles, and with no window frames vision is 360 degrees. She has a working crew of six.

Like Cape Pasley and Shoal Cape, Mackenzie's named the latest addition to their local fleet after another well-known land mark – Hellfire Bay in Cape Le Grand National Park.

MAGNETIC ATTRACTION IMPROVES PILOT SAFETY



Port pilots prepare to board a vessel

Esperance Port has taken action to ensure the safety of its three Pilots.

Port pilots are specialists who know local maritime conditions and the hazards a vessel faces when entering and leaving a port. All Government Ports in Australia employ pilots.

Maritime authorities, like the International Maritime Organisation (IMO), regulate and seek improvements to practices to ensure that ship owners and masters look after their people for they know that oceans are hostile and unforgiving environments in which to work.

Esperance Port pilots face these dangers every time they embark or disembark from a vessel they are guiding into or help leave the Port.

The risky part of their business, apart from their responsibility for the ship's safety, is scaling the side of a vessel in all conditions day and night.

Some vessels, like the iron ore carriers that ply their trade in Esperance waters, have a freeboard of more than nine metres and they can rock and roll in the huge seas and swell and strong winds.

In these conditions, the pilot's ladder swings freely in the breeze.

IMO has issued a regulation relating to the use of pilot ladders and accommodation ladders, and that new vessels must be fitted with lugs on the ship's side to which the ladders can be lashed.

EPSL has complied with the instruction to maintain pilot safety by buying a set of powerful hull magnets made from Rare Earth Neodymium as its magnetic core.

The magnets have a gripping force of up to 600 kg, strong enough to hold the ladder and gangway in the roughest conditions.

They have an easy release pivoting lever, and are kept aboard the Port's pilot boat for easy access.

Port Personality

Justin Major

All-rounders are vital to any team. People who bring high quality skills to a job and then spend time learning new ones to add value to their already impressive CV are indispensable.

Fitter and First Class Machinist Justin Major ticks these boxes.

Justin started at the Esperance Port as a Team Fitter in 2005, only his second job after finishing his apprenticeship with Central Norseman Gold Mine and working as a tradesman for the company for 16 years.

And he liked working in the mining industry. It was only when the Norseman Football Team folded and he travelled to Esperance every weekend for three years during the season to play for Ports, and then got married and had children that he realised that he needed to make a permanent move.

He was delighted to have found his niche with the Port's Operations Department. Operations are responsible for the movement of cargo – more than 11 million tonnes last year – and the skills its personnel require are as diverse as the cargo it handles.

Justin saw an opportunity to not only improve his skill base but also learn new ones required as the Port's cargo handling operations changed, for it no longer exported bulk concentrates and its new container trade flourished, and sulphur imports for the Ravensthorpe Nickel mine increased.

Today Justin's all-round skills see him fill roles such as the Cargo Supervisor for the loading or discharge of cargo from and to ships; Gantry Crane Operator for the movement of empty and full containers; and Ships' Crane Operator for the discharge of bulk fertiliser.

He is also a Train Supervisor for the unloading of iron ore wagons and a Heavy Fork Lift Operator for the containers and, when necessary, acts as a Terminal Supervisor and Team Leader.

And he is still the team fitter, regularly called on to undertake maintenance work during a breakdown while on shift.



Justin Major and his wife Paula watch daughters Demi, Ryley and Jordan practice their basketball shooting skills

Justin is a dedicated, highly respected Port employee who has a work ethic second to none.

But while work is important, family comes first and when his three daughters – Demi (15), Ryley (13) and Jordan (10) – started playing basketball as juniors, Dad stepped up to teach them the basics of the game.

One year was enough as each daughter came through the junior ranks and then he moved on, passing their mentoring to others.

These days he is happy umpiring games, particularly games in which his daughters play, although his girls think he is very hard on them, and afterwards there is plenty of discussion and questions about his interpretation of the rules.

POST PANAMAX REVIEW

The fanfare accompanying the loading of a record 77,250 tonnes of barley on the Minoan Falcon in November had hardly faded when discussions about the handling of Post Panamax sized vessels started.

These vessels are a child of the Panama Canal expansion project, which will see a new traffic lane created and a third set of locks opened in the 77km long canal in 2015, which will allow more and larger ships to transit between the Pacific and Atlantic Oceans.

The original Panamax vessels specifications were set by the canal's lock dimensions: 320m long, 33.5m wide and 12.5m deep. (Panamax vessels are about 294m long, 32.3m wide and have a draft of 12m.)

The locks are necessary to lift transiting vessels 26m above sea level when crossing the man-made Gatun Lake, which is located in about the middle of the canal.

With the new locks being longer at 427m, wider at 55m and deeper at 18m, it didn't take long for naval architects, ship builders and ship

owners to realise that economies of scale could be achieved by building bigger vessels that can use the new locks.

The problem is that shipping infrastructure at ports around the world was not built to handle vessels this size and harbours are being dredged, bridges are being raised and discussions are being held about the stress factors the larger vessels have on berths, pylons and fenders.

At Esperance, the extra freeboard of the Minoan Falcon caused loading problems: the vessel's height above the water was too high for the grain loader on berth one. Normally, grain is gravity-feed into the ship's holds.

To overcome the problem, extra ballast had to be taken on to sink the vessel while at berth to enable the loading to start. As the vessel went deeper into the water during loading, the ballast was pumped out and the ship was loaded with its record cargo.

What do you think ?

We are interested in your comments on this RePort, please send feedback through to **Esperance Ports Sea and Land:**

(08) 9072 3333 admin@eps.com.au PO Box 35, Esperance WA 6450
www.eps.com.au www.eps.com.au/map-port.asp



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