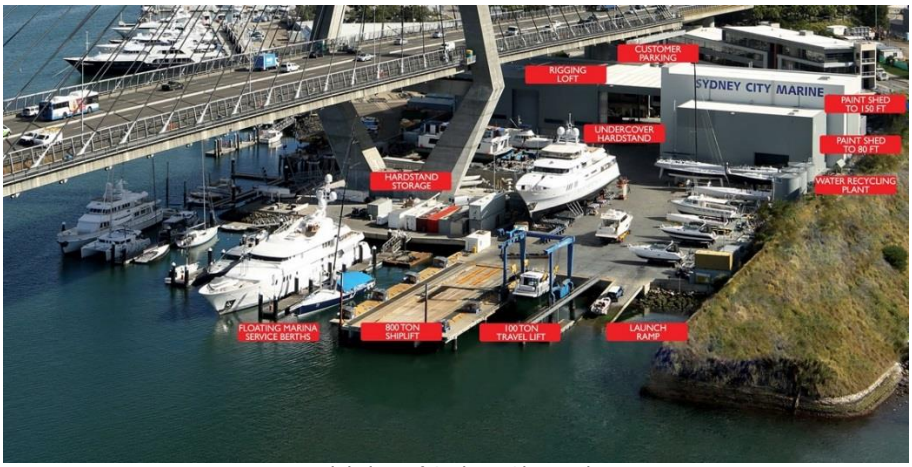
**Technical Meeting — 3 May 2017**

Brenton Fischer, Director and General Manager at Sydney City Marine, gave a presentation on *Shipyards Adapting to Changing Markets* to a joint meeting with the IMarEST attended by 19 on 3 May in the auditorium at Royal Prince Edward yacht Club, 160 Wolseley Rd, Point Piper.

**Introduction**

Brenton began his presentation by giving a brief summary of his career to date, with a background in computer engineering and construction project management, and a degree in business, not to mention his grandfather, well-known yachtsman Syd Fischer.

Sydney City Marine (SCM) was purpose built under the western end of the Anzac Bridge in Sydney, completed in 2009, and subsequently purchased by the Fischer Group in 2011. The site comprises 24 000 $m^2$ of leased waterfront land/water area. It has floating marina berths for vessels of up to 800 t, an 800 t shiplift, a 600 t ship transporter, a 100 t Travelift, a 47 t submersible trailer, 45 t boat transporter. an open-air hardstand, an undercover hardstand, a 27×9 m painting shed and a 40×12 m painting shed. The heaviest lift to date on the shiplift has been 768 t!

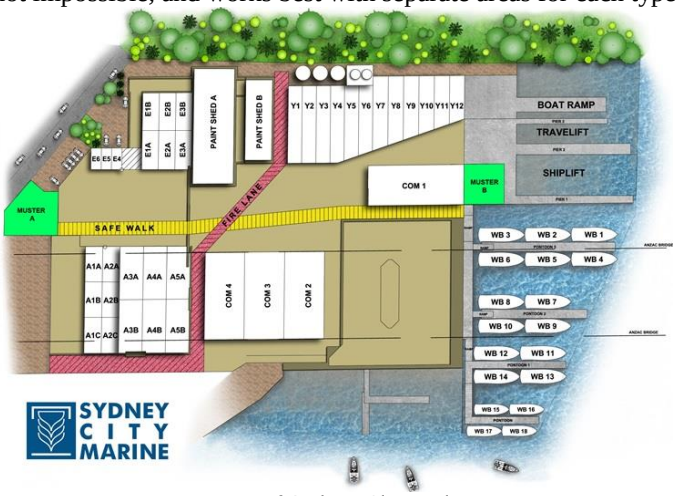



Aerial view of Sydney City Marine
(Photo courtesy SCM)

Here Brenton said that there are many challenges faced by a shipyard in the modern (read changing) environment. However,, he would concentrate on half a dozen of the most-important challenges.

**Challenge 1**

The yard services sailing yachts (including catamarans), power boats, commercial vessels and superyachts. Here Brenton asked the question "Can they all fit under one roof?" The answer is yes, but only under special circumstances, and those circumstances involve separation. You have to keep the black vessels (read commercial) away from the white (read recreational) craft. Separation can be achieved with careful planning and layout. It is difficult but not impossible, and works best with separate areas for each type of vessel.




Layout of Sydney City Marine
(Drawing courtesy SCM)

**Challenge 2**
Understanding the motivations and competing demands of the various types of customers.
Yacht owners are *extremely* cost conscious, demand a quick turn-around, consider that cost generally outweighs time, and demand a high level of quality and a *very high* level of communication.
Power-boat owners are less cost conscious, happy to pay more for quality, more flexible with timeframes, and demand a good level of communication
Commercial operators are *much less* cost conscious, happy to pay more for quality, consider that timeframes are imperative and that time matters more than cost, and demand a high level of communication and reporting.
Superyacht owners are a mix of all the above; they are cost conscious, happy to pay more for quality, consider that timeframes are imperative, and demand a *very high* level of communication and reporting.

**Challenge 3**
How do you structure the business to deal with these competing demands?
At SCM, the General Manager answers direct to the Board. The General Manager has four managers answering to him; The Shipwright manager, the Recreational Manager, the Commercial Manager, and the Engineering Manager.

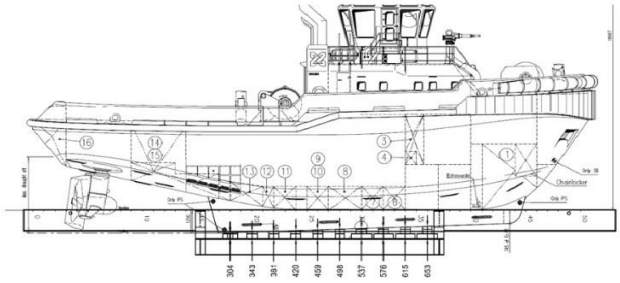
**Challenge 4**
How do you identify and exploit new opportunities?
This can be done using a combination of

- listening to the market;
- forming strategic alliances with key suppliers;
- investing in and adapting facilities to cater for a new market;
- recruiting appropriate staff;
- conducting a complete process review; and
- raising your standards to a level that matches the new market.

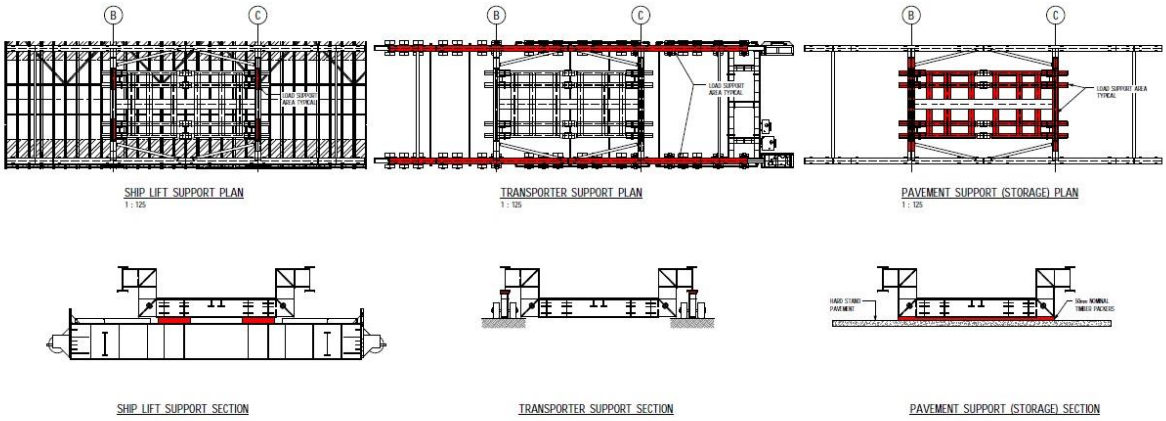
*Listening to the Market*
SCM was contacted in late 2013 and asked if they were capable of docking a Damen 2411 tug. After conducting a feasibility study, it was fund that the localised loading on the shiplift platform exceeded the certified limit of 24.5 t/m MDL (maximum design load)?
SCM then contacted Damen in the Netherlands and asked for their opinion and advice on whether anything could be done to overcome the issue.

*Forming Partnerships*
In 2014 , the Damen regional service manager contacted SCM and organised to inspect the facility. Damen were already looking at new docking options in Australia, particularly on the lower east coast, given the limited availability at that time. They identified SCM as an excellent opportunity to dock this type of vessel.
Damen proposed that SCM investigate the feasibility of constructing a purpose-built cradle for tugs to overcome the limitations of the shiplift's per-meter load limit. They put SCM in contact with Damen's research-and-development engineers in the Netherlands to come up with a solution
In June 2016, SCM and Damen signed a Memorandum of Understanding (MoU) which detailed how they would work together. The basis of the MoU is for SCM to provide the facilities and workforce to undertake the dockings, and Damen to provide parts and specialist assistance for the dockings.

*Adapting the Facilities*
Under the MoU, Damen proposed a special cradle which would pick up the highly-concentrated load from the tug keel line and spread the load over the length of the shiplift platform via the transporter support rails.



Tug on cradle
(Drawing courtesy SCM)




How it all works
(Drawing courtesy SCM)

Damen completed the design calculations and conducted a finite-element analysis to ensure that the von Mises stresses were kept below allowable levels in all parts of the cradle and supporting structure.
The cradle was built in Brisbane. However, the design was modified part-way through construction so that it could accommodate a wider variety of vessels. The completed cradle was trucked to Sydney under police escort, as it was 6 m wide and required two traffic lanes.

SCM's completed cradle
(Drawing courtesy SCM)

*Conducting a Process Review*
In early 2016 a contractor-approval audit process was commenced, and quickly identified gaps between what SCM did and what the contractors expected. SCM currently had ISO 9001:2008 accreditation but, by mid-2016, obtained accredition to ISO 9001:2016, ISO 14001:2015 and AS 4801:2001 by Lloyds Register Quality Assurance. In late 2016 the contractor-approval audit was finalised and approval granted.

*Raising Standards*
As part of the process review, significant changes were made to the day-to-day operations of the business. Principally, construction rules were imposed on site with a requirement for personal protective equipment to be worn by visitors, contractors and staff.

*The Result*
The result of all of this activity was the first docking of a large tug, *Svitzer Warang*, at SCM in early 2017.

*Svitzer Warang* on the shiplift
(Photo courtesy SCM)


*Svitzer Warang* on the transporter
(Photo courtesy SCM)

*Svitzer Warang* in the main paint shop
(Photo courtesy SCM)

*Svitzer Warang* back in the water
(Photo courtesy SCM)

**Challenge 6**

Brenton's final challenge is a combination of items:

- re-educating existing customers to the new access requirements of the facility;
- retaining and training staff throughout the process;
- filling a shortage of skilled labour;
- managing the peaks and troughs of work flow;
- managing variations and associated spikes in labour demand; and
- overcoming an apparent reputation for price gouging in the marine industry.

**A Winning Formula?**

There really isn't one. Every vessel is different. Every owner or operator is different. Every scope is different and variable.

Each customer and vessel has to be treated on an individual basis.

However, there has been a definite shift in SCM's overall revenue break-up, as can be seen in the accompanying table.

| Revenue % | 2014 | 2015 | 2016 | 2017** |
|---|---|---|---|---|
| Yachts | 35% | 34% | 20% | 16% |
| Power | 30% | 31% | 44% | 39% |
| Commercial | 35% | 35% | 36% | 45% |
| **Total** | **100%** | **100%** | **100%** | **100%** |

SCM revenue break-up
(Table courtesy SCM)

**Yachting**

Having a well-known yachting grandfather, it is unsurprising that Brenton has inherited a love of yachting. In 2014 he skippered the Trans-Pacific 52, *Ragamuffin 52*, in the Sydney–Coffs Harbour Yacht Race, and crewed on the super-maxi, *Ragamuffin 100*, in the Sydney–Hobart Yacht Race. In 2015 he skippered *Ragamuffin 52* in the Sydney–Hobart Yacht Race, and in 2016 skippered her in the Sydney–Gold Coast Yacht race and the Sydney–Hobart Yacht Race.

*Ragamuffin 52* and crew
(Photo courtesy SCM)


*Ragamuffin 100* and *Ragamuffin 52* at Sydney City Marine
(Photo courtesy SCM)

Here Brenton showed a video of *Ragamuffin 100* hitting38 kn in the 2016 Sydney–Hobart Yacht Race. For aficionados, the video is available on YouTube at https://www.youtube.com/watch?v=TsJewTrY5v0.

**Summary**

The presentation covered the facilities which are available at Sydney City Marine, and gave insights into how a modern shipyard has to adapt to cater for the changing marketplace.

**Questions**

Question time was lengthy and elicited some further interesting points.

Looking back at the revenue break-up, the proportion of the yard's work on yacht is decreasing, but is that just because the proportion of commercial work is increasing but the amount of yacht work is steady? An interesting thought. Smaller yards tend to be emotional about their business, but they run SCM professionally and try to remove the emotion. However, they are finding it difficult to attract yachts to the yard, and yacht work has actually declined.

The original design of the cradle was just for Damen vessels. However, the re-design mid-way through construction has enabled them to subsequently dock an older Barnes and Fleck design which was built at Carrington Slipways in Newcastle as well as a 100 ft (30 m) super-maxi yacht.

The process review involved a big culture change at the yard. They have a database of circa 4000 visitors, contractors, owners, etc., and everyone was kept informed of the changes on the way; i.e. progressively, they did not come as shocks.

It can be difficult to hire skilled tradespeople. However, they have a structured training program in place for engineering, shipwrights and painters. They tend to have about six or seven qualified tradespeople permanently, and they can manage the peaks and troughs of workload.

They handle a range of materials of construction: steel, aluminium, composite, carbon fibre and timber, and their shipwrights have (and *have* to have) a wide range of skills. Their foreman knows a lot about carbon fibre and managing "lamination engineers", but their apprentices gain experience in all materials.

SCM can handle catamaran beams of up to 14 m. The widest catamaran which they have docked on the shiplift is *Magistic*, and her sponsons hang out over the winches. On the Travelift, the widest beam they can handle is 6.9 m.

SCM is interested in Defence work, and is in the process of obtaining approval for the facility.

SCm experienced a lot of resistance from their contractors to the new rules for entry to the yard, wearing PPE, etc.

Noise from the facility is an issue. SCM actually has EPA approval to work 24/7. However, they have a concern for their neighbours and try not to annoy them and so attract the attention of the authorities. They *could* sand or water blast on Sundays, but would never do that; i.e. they have self-imposed restrictions.

The vote of thanks was proposed, and the certificate and "thank you" bottle of wine presented, by Bill Bixley, who said that he has been to SCM both as an owner's representative and as a paying customer, can vouch for the high quality of the work they do there, and asked Brenton to keep it up! The vote was carried with acclamation.