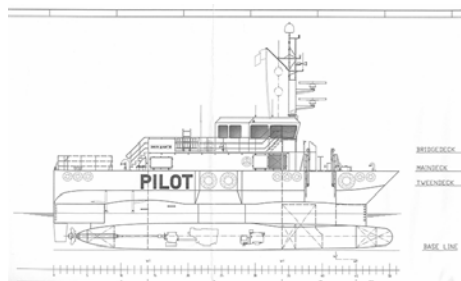


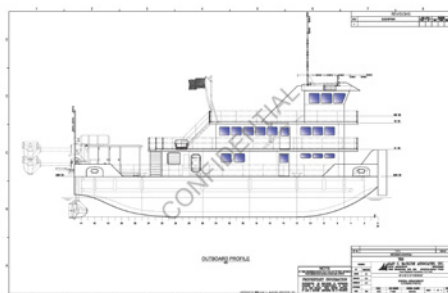
Current Projects

SWATH New-Build - ACMA is working with the Houston Pilots on an as needed basis providing “on-site review and local support” for two new-build vessels under construction at Abeking & Rasmussen (A&R) in Lemwerder, Germany. This project is a direct response to an overworked fleet currently in use. A&R has a long and successful history of building unique SWATH hull forms, an expertise that ACMA also developed with the success of their SWATH (Small Water-plane Area Twin Hull) vessel design, the STILLWATER RIVER. When providing on-site services, Darrel Harvey has reported that the quality and overall



workmanship to date has been good for both fit and finish. The yard has built this design more than 20 times and therefore has a good track record on stability, weight control and powering issues. A&R is most noted for building mega-yachts, so these vessels demonstrate their ability to successfully diversify their expertise.

Inland Tug Design – ACMA has developed an innovative, cost-effective inland tug design that is structurally and mechanically simpler, easily modified for size and service applications, maintenance-friendly and more habitable for the attending crew. The inspiration for this development came from the desire to provide a flexible platform for operators to adapt



to crew needs while simplifying hull structure and machinery requirements. Scott McClure notes that the design “eliminates the engine integration issues in the hull, removes shafting and rudder complications and, in the event of a small or large failure, provides easy access to critical components. Even better, time requirements for

the replacement of the whole package should be in the order of hours and not days”. Although this concept is not new and has been used in a number marine applications, ACMA believes that with all its intrinsic benefits, it’s time to commercially introduce this design to the US inland waterway. This is another example of taking tried-and-true technologies and repurposing them for an improved application.

ACMA Website Optimized for Mobile Applications

ACMA recently launched its new mobile website and while Darrel Harvey noted that this conversion “won’t work on my flip phone, but it seems like a good idea”, he later added “so this is what the 21st century is like” after someone loaned him their smart phone.



From Keel Laying Ceremony at Abeking & Rasmussen in July 2016



Alan C.
McClure Associates, Inc.

Naval Architects • Engineers
A Registered Texas Engineering Firm

From the Top

Sometimes it's hard to remain optimistic in today's environment. Like so many others, we've had to make some very tough decisions. But now, I'm beginning to see changes in the industry taking form and we're determined to be part of this "new" business environment.

As is the case throughout the offshore industry, expenses are being scrutinized, manpower requirements are being reviewed and new business strategies are being put into place for the future. We've all had to make the same adjustments.

I'm reminded of the story of two people walking in the woods and one comments that if they were attacked by a bear, neither of them could outrun it. The other replies that he doesn't have to outrun the bear, he only has to outrun his hiking partner.

That's exactly what we have positioned ourselves to do in this "bear" market... outlast the other guys to emerge as a more viable and efficient resource to the offshore and marine industry. So stay strong. We'll see you on the other side.

Scott C. McClure, President



John Petersen – NACE Level III Corrosion Expert

When you need the very best advice on specialized marine coatings for vessels and rigs, you don't have to look any further than ACMA Associate John Petersen. With a B.A. degree in Chemistry from the University of Central Florida and a lifetime of experience as a consultant, John is considered one of the best in the business.

How impressive are his credentials? John is a NACE Level III Certified Coating Inspector with broad international and multicultural experience. His career has taken him to over 50 shipyards in the Americas, Europe, Middle East and Far East where he has applied his extensive knowledge and skill in managing asset integrity and implementing fabric maintenance in all aspects of surface preparation and coating application.

He has also performed successful vessel surveys at-sea as well as supervised coating refurbishments on a voyage-repair basis. Numerous coating manufacturers, coating application contractors and ship owners have entrusted him with the surface protection of their vessels/assets and continue to use or recommend his services. His partial client list includes the US Navy, Military Sealift Command, Arco, Exxon, ConocoPhillips, Matson, APL, SeaLand, Marine Transport Lines and Acomarit (now V Ships).

"We've had the good fortune of working with John on a number of projects", said ACMA VP Darrel Harvey. "Some of the most notable include working with ACMA promoting SPS (Sandwich Plate System) for various offshore projects such as the ZAFIRO PRODUCER where John served as Business Development Manager.

Notes Petersen, "Over the past ten years, I have had a strong professional relationship with ACMA. They have always shown themselves to be consummate professionals with a keen eye for innovative solutions to intricate problems."

So, whenever one of our projects calls for corrosion and steel preservation expertise, the first call we make is to John Petersen.



John Petersen

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Founded in 1975, Alan C. McClure Associates, Inc. (ACMA) is one of the industry's premier naval architecture and engineering firms. Headquartered in Houston, Texas, we've provided advanced design and engineering services to our international clientele in offshore exploration, production and marine transportation for four decades.

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Vessel Mooring: The Hidden Dangers



Nicholas Barczak, P.E.
Naval Architect

Where do you have the highest risk of a vessel collision? When moored to the pier. You sit right next to a fixed structure with your engines off and limited maneuvering options. The only thing that stands between you and a very bad day: the mooring lines. But they don't have an easy job. Three environmental factors pose hidden dangers to vessel mooring: passing ships, tide and wind.

Passing Ships

Imagine a powerful wave of water rolling up the channel. First, the water sucks at your ship and tries to pull it from the pier. As it draws in closer, it tries to pry your bow out. You think you are safe until things reverse and it pulls the stern out. Your vessel sways and strains against its mooring lines, trying to break free. This is the effect of a large passing ship. The danger lies in your own ship's momentum. Ships are heavy, and even a little movement can generate enough momentum to break a mooring line.

Passing ships are not usually a concern if they maintain approximately 60 meters of separation between vessels. Less than that, and we definitely recommend a mooring analysis to assess the risk. But, be

careful to use the right software. Passing ship scenarios require dynamic mooring analysis software, like ANSYS AQWA. Software like Optimoor Standard does not include dynamic motion and will drastically underestimate the line tensions.

Tide

The hidden danger behind the tide is the increased stretch in the mooring lines. The same is true for loading or unloading operations. The vertical movement changes the stretch of your lines and they have little margin to accommodate this. Take a typical Dyneema rope. It reaches its load limit when stretched to just 2.7% of the set length. In practical terms that means you can only stretch the rope by about 0.2 meters when setting winch pretension or adjusting for tide. Anything more and you eat into the reserve capacity that the line needs to handle extreme wind scenarios.

Wind

Don't underestimate the wind. Under the OCIMF, the standard survival condition for a moored ship is a wind speed of 60 knots, nearly the speed of a Category 1 hurricane! When ACMA applied these winds to a typical VLCC, the wind force reached 340 MT. This is the equivalent of three or four escort tugs lined up and pulling you off the pier! This is what the mooring lines must hold against.

Need Help?

Vessel mooring is an imperfect process, full of compromises. ACMA can help you understand those compromises and reduce your risk. As a general rule, don't imagine a happy sunny day when considering a mooring arrangement. Plan for a nasty storm combined with the worst round of bad luck possible. On that day, you will truly need the full capacity of your mooring system to protect you from these hidden dangers.

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