THE AUSTRALIAN NAVAL ARCHITECT





Volume 7 Number 1 February 2003





Wärtsilä delivers solutions of all shapes and sizes – from single components to fully compatible ship machinery, propulsion and manoeuvring solutions tailored to suit your ship's specific design and its operational requirements. Lifetime support included and added value guaranteed. For all your needs, Wärtsilä is the one.

Main and auxiliary engines • Generating sets • Reduction gears • CP propellers • FP propellers • CIPS

Steerable thrusters • Waterjets • Transverse thrusters • Control systems • Rudders • Seals • Bearings • Design
Engineering • Project management • Commissioning • Financing • Technical support and maintenance



· For more information visit www.wartsila.com · Wärtsilä is a registered trademark

THE AUSTRALIAN NAVAL ARCHITECT

Journal of

The Royal Institution of Naval Architects (Australian Division)

Volume 7 Number 1 February 2003

Cover Photo:

Traditional sailing on Sydney Harbour — the couta boat *Rob Roy* (C300) and the replica traditional 18-footers *Tangalooma* and *Aberdare* shortly after the start of a race last November. The 18-footers have recently visited Auckland to compete in races in the lead up to the America's Cup. (Photograph John Jeremy)

The Australian Naval Architect is published four times per year. All correspondence and advertising should be sent to:

The Editor The Australian Naval Architect c/o RINA PO Box No. 976 EPPING NSW 1710 AUSTRALIA email: jcjeremy@ozemail.com.au

The deadline for the next edition of *The Australian Naval Architect* (Vol. 7 No. 2, May 2003) is Friday 25 April 2003.

Articles and reports published in *The Australian Naval Architect* reflect the views of the individuals who prepared them, and, unless indicated expressly in the text, do not necessarily represent the views of the Institution. The Institution, its officers and members make no representation or warranty, expressed or implied, as to the accuracy, completeness or correctness of information in articles or reports and accept no responsibility for any loss, damage or other liability arising from any use of this publication or the information which it contains.

> The Australian Naval Architect ISSN 1441-0125

© Royal Institution of Naval Architects 2003

Editor in Chief: John Jeremy Technical Editor: Phil Helmore

Print Post Approved PP 606811/00009 Printed by B E E Printmail Telephone (02) 9437 6917

CONTENTS

- 4 From the Division President
- 4 Editorial
- 5 Letters to the Editor
- 7 News from the Sections
- 10 Coming Events
- 12 General News
- 21 From the Crow's Nest
- 23 Education News
- Submissions for Survey and Classification: Do Yours Make the Grade?
 Lina Diaz
- 32 Industry News
- 33 RINA High-speed Craft Conference Lawry Doctors
- 34 The Internet
- 36 Professional Notes
- 37 Naval Architects on the Move
- 38 Membership Notes
- 39 From the Archives

RINA Australian Division

on the World Wide Web **www.rina.org.uk**

From the Division President

As this is my last contribution as Division President to *The Australian Naval Architect* I thought it might be useful to look back to my first contribution, in the October 1998 edition, and see what sort of progress has been made since then.

Some aspects which I regarded as particularly important at that time were:

- The involvement of naval architects in government decision processes relevant to the industry and the profession;
- The development of active and vibrant sections of the Australian Division;
- The provision of services to members of the Division and the fostering of Division membership; and
- The cultivation of links with associated professional bodies, especially IMarEST and IEAust.

When I look back I can see that considerable progress has been made in all these areas, even though a lot remains to be done. Some activities of note are:

- The Division actively contributed to the *Defence 2000* review and has provided significant feedback to the National Marine Safety Committee's review of the Uniform Shipping Laws Code. It was also represented by Mr Bob Dummett, co-chairman of the Safety Group, at the Marine Safety 2002 conference in Brisbane.
- Division representation was actively sought by both the Australian Maritime College and The University of NSW in the re-accreditation of their naval architecture courses.
- A new section has been established in Queensland and all sections have active on-going programmes.
- While the key service to Division members was *The Australian Naval Architect*, which continues to develop, support was also provided in the job-search area, via both *The ANA* and the web site, and in the search for professional indemnity insurance for self-employed members.
- Division membership increased from some 410 in 1999 to about 480 at present.
- The Division worked actively with both IEAust. and IMarEST in conducting the Sea Australia 2000 and Pacific 2002 conferences and is also involved with the Pacific 2004 conference.
- An agreement on cooperation and mutual recognition was signed with IEAust and work in this area is continuing. Direct results from this are access to IEAust facilities for technical meetings and the publication of section meeting notices via IEAust publications and web pages.

In my view these are decent achievements over the four year period, and I thank all those who have served on the Council in that time for helping to make them come about.

Looking to the future, the Division President-elect is Robin Gehling, who will assume office at the end of the Annual General Meeting on 25 March. Many of you will know Rob through his work with AMSA over the last 25 years or so, and he is also a familiar face at IMO. I congratulate Rob on his election and wish him well. I won't be disappearing from the scene just yet — I will be supporting Rob in a few specific areas, principally further development of the relationship with IEAust, and I have been recently elected to the RINA (London) Council, where I will sit alongside Noel Riley and Martin Renilson. In this role I hope help give a greater voice to all overseas members of RINA, including those of the Australian Division.

Bryan Chapman

Editorial

Ship losses often provide useful reminders of hazards at sea and the need to provide for the consequences in ship design. In his column in the last edition of *The ANA*, Bryan Chapman cautioned against reliance on double-hull tankers to prevent incidents like the sinking of the tanker *Prestige*, a saga which continues with the submersible *Nautile* sealing leaks in the wreck at a depth of 3 500 m and a radical suggestion for a deep-sea steel sarcophagus to encase the remains of the ship. Another recent incident has reminded us of the need to be conscious of potential risks with new design solutions — in this case, modern materials.

On 19 November last year, fire broke out in the lifting fans near the engine room of the Norwegian Alta-class air-cushion catamaran minesweeper KNM *Orkla*. The fire spread rapidly and took only seven minutes to engulf the bridge. Despite considerable efforts to fight the fire, the ship was lost. The fire proved impossible to put out, as it had spread to the composite hull. The use of aluminium in the ship also proved to be a problem.

Experience with fire in ships of solid GRP construction (like the RAN's Huon-class minehunters) has shown that solid GRP can withstand fire quite well. The difference in the case of *Orkla* was the use of composite construction, with a sandwich material which burned fiercely giving off clouds of choking smoke and toxic gas. Whilst this potential hazard is widely known, as are the risks of aluminium construction exposed to fire, composite materials are being used in the construction of warships because of its effectiveness in reducing radar cross-section. Examples are the Swedish Visby-class corvettes and the Norwegian Skjold-class fast attack craft. It is also being considered for other larger warship designs.

All ship design is a compromise. Warships are intended to go in harm's way, and risk attack and damage from many weapons ranging from the terrorist's rubber ducky to surfaceto-surface anti-ship missiles. Experience in the Falklands and the Gulf has emphasised the dangers of fire, even in steel ships, particularly when sustained by unexpended rocket fuel. GRP sandwich and aluminium are much more vulnerable in such circumstances and, whilst they give considerable benefits in some ways, those benefits need to be carefully weighed against the increased risk of loss of the ship and the even more valuable crew or, in the case of highspeed transports, passengers.

John Jeremy

Letters to the Editor

Dear Sir

As John Jeremy has reported in his Editorial in the last edition of *The ANA* there are many good aspects of the Naval Shipbuilding and Repair Plan, and it is to be hoped there will be a successful implementation of its principal proposals. It has been suggested by a number of engineers with shipbuilding industry experience that it would be better if Defence could bring some high-level industry experience to its representation in the alliance, if it could provide for independent review of the operations of the alliance, and if it can reschedule and optimize the current acquisition plan. It should also look closely at the prospect of allowing the repair yards the opportunity to play major roles in equipment installation.

However the section of the Strategic Plan relating to the economic life of warships needs close examination and does not appear to be convincing. It is based on the Anzac frigates, and purports to assess their effectiveness some twenty or thirty years from now. That needs a crystal ball which has to guess the pace of technological development, and the ability to vary the payload of the ships, and the reduction in the capability of the platform to support the payload. Such estimates are clearly guesstimates today. It is almost certain that technological development will require more frequent replacements of capability. Manpower reductions should be expected. It may or may not be appropriate to replace the ships after a shorter life. Is the DMO saying FFGs Adelaide, Canberra and Sydney should now be replaced? The ships were completed 20 years ago, and according to the economic life analysis would now be due for replacement.

W. J. Rourke

Dear Sir,

I refer to the Letter to the Editor in your November edition from Ms Maurene Horder in which she encouraged and welcomed me to participate more actively with the NMSC and in which she invited myself and others to do so.

It may not be widely known within the higher echelons of the NSMC that I did rub shoulders with some of the lower echelons earlier. However, like St John the Baptist, I felt that I was a voice crying in the wilderness. To illustrate this point I will quote a few examples.

In the early days of the formation of the NMSC, I was approached by one of its high-priced help to chair a subcommittee on, I think it was, the re-vamping of the steel and/or timber structure parts of the code. I felt honoured to be approached and I inquired who the other inmates of the sub-committee were. I was informed that they would be drawn from the various state marine authorities. This approach seemed a good idea to me and I agreed to act as chair with the intention that I would be able to leaven the youthful impetuosity of the members with a little mature judgement. I asked what the remuneration would be and, in reply, I was informed that NSMC did not have sufficient funds to pay me anything. I was a little disappointed with this reply, given that the rest of the sub-committee would be drawing their respective salaries from the public purse. In view of the fact that I was then, and am still, trying to earn an honest living from the industry, I was forced to decline the invitation.

Later I was invited to participate in a talk-fest that was chaired by Neil Applin in Sydney. My main recollection of this event was that a substantial amount of the time was taken up by one representative who had a bad case of verbal diarrhoea. The message from the chair was that the NSMC was on a tight budget and that it would not be able to re-vamp all of the USL Code. My further recollection was that the meeting recommended that effort should therefore be directed towards those matters related to safety and training. Unfortunately, like a lot of other matters in life, I think that I will die curious on the outcome of that particular meeting. I have never been provided with a copy of its minutes.

A colleague of mine was contacted by one of the NMSC's staff on matters relating to the stability of tugs. I understand that my colleague referred him to me, as I am one of the few remaining practising naval architects around who has had much experience in tug design. That was some twelve or eighteen months ago. It was just as well that I did not hold my breath waiting to hear from him. He has not contacted me yet.

The USL Code may not be a perfect document, but it has been a good guide for the industry for the last thirty years or so and I agree that it is time that it was updated. As I have bought my last suit and am now only going to work to wear out my old clothes, I should not be too concerned about what the NSMC is going to do with the USL Code. However, I can not afford to retire just yet and thus am still actively engaged in the industry. Therefore the outcome of the NSMC's work in this area will have some affect on me in the latter stages of my unillustrious career.

It has been my experience that the decisions made by professional administrators, who have come into the industry from outside, are only as good as the advice provided to them by their underlings. I therefore hope that in making her decisions, Ms Horder has widely consulted senior members of the industry who are still involved and have been around for more than a dog-watch. Some of the names that spring to mind are Bob Herd, Neil Fleck, Rick James, Ken McAlpine and Ron Halstead, to name but a few. I believe that to rely on advice from personnel who have had little design and practical shipbuilding experience, and who have spent most of their working life in regulatory authority service, may tend to provide a myopic view to any decisions that may be made, based on that advice.

Those in the industry who know me will be aware that I like to keep a low profile, and that I do not relish becoming involved in contentious matters. I therefore do not wish to engage in verbal fisticuffs in the columns of this journal. As an alternative, I suggest to Ms Horder that, if she has the time and the inclination, we could resolve some matters of mutual interest over a quiet lunch at a nice little eatery I frequent on the Kirribilli foreshore. I will wait to hear from her.

Noel Riley

Dear Sir,

I am a third-year student in Naval Architecture at The University of New South Wales. This is my first year at UNSW, and I am a new reader of *The ANA*. The comprehensive articles in *The ANA* impress me. I recently learned that all the work for the journal is voluntary. As students we would like to participate the publication process of *The ANA* if it is required.

I read that there was grounding on the Great Barrier Reef in the newspaper, which was not a very comprehensive article. Certainly, the 225-metre, 73 000-tonne bulk carrier left behind damage to Great Barrier Reef coral that could take centuries to recover. Is it possible to put this sort of fresh news in *The ANA* with technical perspective and prevention of such accidents?

I would like to thank all the people who are involved the publication of The *ANA* voluntarily. I urge readers to join this effort.

Cengizhan Uluduz UNSW Student

Dear Sir,

In the past decade there has been growing global concern about the damaging environmental effects caused by fossilfuel energy dependence. Recent global conferences in Kyoto and Europe have encouraged the development of sustainable and environmentally-responsible energy sources such as wind, solar and hydrogen combustion.

Regretfully, our industry has been very slow to adopt or even consider these new alternative energy sources. Since beginning my subscription three years ago to *The Australian Naval Architect* and RINA publications *The Naval Architect* and *Ship and Boat International*, I cannot recall one significant feature discussing renewable-energy initiatives for commercial or industrial vessels. *[see The Solar Sailor,* The ANA, *February 2000* — Ed.] It is the responsibility of publications such as *The Australian Naval Architect* to promote new energy technology. It is only with greater awareness that this issue will be properly addressed. If we remain complacent and uninformed then our industry will undoubtedly lose its competitiveness. I urge you to include regular updates of relevant energy initiatives in your journal. With foresight and a willingness to embrace new technology, the naval industry has the ability to lead the transport sector in the 21st century.

Tony Sammel UNSW Student

Dear Sir,

Editor in Chief John Jeremy, Technical Editor Phil Helmore, and contributors to the November 2002 issue of *The Australian Naval Architect* are to be congratulated. The letters to the Editor, the reports from Sections, the News of the Industry, Mori Flapan's article on Marine Safety, the report on the Marine Safety Conference, the Education news, Gregor Macfarlane's report on the September ITTC, and John Jeremy's historical article on *Voyager* combined to create the best journal of naval architecture it has been my privilege to read. Articles were well written and replete with good news.

I would suggest to UNSW student Niclas Backstrom that although he is right to recommend more naval architectural research, he should be able to find a lot being done at present, and more is to be expected in the future. One very positive recommendation of the Naval Shipbuilding Strategic Plan is that the proposed alliance prepare and implement a longterm research and development investment plan, that embraces participation by small to medium enterprises, universities and co-operative research centres, as well as support from the DSTO. It would be good to see strong support from RINA to encourage the establishment of a new maritime CRC.

Bill Rourke



THE AUSTRALIAN NAVAL ARCHITECT

Contributions from RINA members for *The Australian Naval Architect* are most welcome. Material can be sent by email or hard copy. Contributions sent by email can be in any common word processor format, but please use a minimum of formatting — it all has to be removed or simplified before layout. Many people use Microsoft Word, but illustrations should not be incorporated in the document. Photographs and figures should be sent as separate files with a minimum resolution of 150 dpi. A resolution of 200–300 dpi is preferred.

NEWS FROM THE SECTIONS

Victoria

Stuart Cannon from DSTO gave the final technical presentation of 2002. The paper entitled Design Innovations for Patrol Boat Capability was a repeat of the presentation that Sam Yamunarajan (DMO) and Stuart gave at the Pacific 2002 conference earlier in the year. The objective of the paper was to explain the philosophy behind the decisions made to allow industry the freedom to develop innovative designs for the replacement patrol boats (now known as the Armidale-class patrol boats). Stuart also explained some of the modelling and simulation that his group carried out to support the replacement patrol boat project. This included models to determine the minimum number of patrol boats required, given the probability of encountering illegal fishing boats and concurrency of operations in a number of sea areas. A proportion of the time was spent outlining technical studies into crewing numbers, seakeeping assessments and issues relating to the use of different materials for the tendering designs.

Stuart Cannon

ACT

On 7 November Tim Lilienthal, postgraduate research student from AMC, provided a presentation on The Use of a Dynamic Stability Approach for the Assessment of Intact Stability of Ships. The aim of the work was to demonstrate how non-linear ship motion codes could be applied for determining the limiting KG of ships, thus eventually superseding the established quasi-static still-water approaches for stability assessment. Broadly, the approach was to assess the roll amplitudes of the ship in regular waves across a wide range of wavelengths with constant steepness up to a limiting wave height of 20 m. Numerous simulation runs were performed for different ship speeds and headings relative to these waves. The KG of the ship was gradually increased until capsize occurred for any of the cases examined. The regular wave analysis has also been compared to the use of irregular wave simulations.

On 26 November Ian Laverock of the Defence Materiel Organisation provided a review of the Department of Defence *Naval Shipbuilding and Repair Industry Sector Plan* to RINA and IMarEST members including visiting RINA CEO, Trevor Blakeley. Ian reviewed the analysis that has been undertaken into how the naval shipbuilding sector in Australia could best be sustained. The plan points to the need for rationalisation and this was the subject of most of the questions that Ian fielded during his presentation. The presentation was followed by an informal dinner with the CEO the same evening.

Earlier in the day Trevor Blakeley also took the time to exchange views with the Director Navy Platform Systems (DNPS), Gordon MacDonald and a number of DNPS staff on strategies for maintaining professional competencies in the engineering community within the Department. Gordon felt that professional institutions may have a role to play in monitoring the competency of their membership. Trevor

February 2003

advised that while RINA was in a position to assess initial competencies of its membership, currently it remained the responsibility of the members, and their employers, to maintain their competencies thereafter.

The Nautical Institute arranged a meeting at the AusSAR offices on 22 January at which Dr C.B. Barrass FRINA, gave a presentation on *Ship Squat*. Dr Barrass described straightforward equations for estimating the maximum squat that may be encountered for a ship of a specified block coefficient travelling at a given speed in restricted or unrestricted waters. The equations were developed from the results of a large number of tests. He also described a number of ship casualties where the cause was in part attributable to squat.

Martin Grimm

Tasmania

Trevor Blakeley Visit to AMC

The Chief Executive, Trevor Blakeley, made a brief visit to AMC prior to attending the High-performance Yacht Design Conference in New Zealand. During this visit Trevor met with a number of AMC staff and students and local members and had a tour of AMC facilities.

2003 AMC/RINA Seminar Series

The AMC/RINA Seminar Series for 2003 is due to kick off shortly after the commencement of the academic year in late February. Details of upcoming seminars will appear on noticeboards at AMC and UTas and via email to those members who are on the Tasmanian Section email list. If you wish to be added to this list then please email your contact details to Gregor Macfarlane at g.macfarlane@mte.amc.edu.au.

Gregor Macfarlane

New South Wales

John Robinson of the Wolfson Unit at Southampton University gave a special presentation on *The Work of the Wolfson Unit* to a joint meeting with the IMarEST attended by thirteen at The University of New South Wales on 20 November.

The Wolfson Unit for Marine Technology and Industrial Aerodynamics is part of the commercial arm of the University of Southampton's School of Engineering Sciences. Named after Isaac Wolfson, a philanthropist, the Unit was founded in 1967 in order to offer a scientifically-based consultancy to the small-craft industry. The first director, John Flewett, came from the British Hovercraft Corporation with the idea of making towing-tank facilities available to small craft. The Unit's engineers quickly became the focus, but they have access to the academic resources of the University to draw upon. That focus remains to this day, and the engineers are all practical people who can work with tools to modify models, experimental rigs and the like. Not only that, but the engineers enjoy the change of pace and using their hands. The Unit's work has grown over the years to encompass many areas of experimental and theoretical naval architecture and industrial aerodynamics.

The Wolfson Unit is best known for their tank testing work, which comprises about fifty percent of their business, although they have no tank of their own! They use three tanks, those of Southampton Institute in Southampton, QinetiQ at Haslar, and GKN Westland on the Isle of Wight. The tanks have the following principal characteristics:

Tank	LuBxD (m)	Model Length (m)	Displacement (kg)	Max. Speed (m/s)
S/Institute	60x3.7x1.8	2.5	100	4.5
QinetiQ	258x12.2x5.5	5.5	600	9
Westland	200x4.6x1.7	4		14

Some of the interesting jobs they have done in the tanks include testing of a megayacht at 60-70 kn which is destined to be the world's fastest megayacht, flow-line visualisation (using an oil/paint mixture to show the direction of flow) to reduce the noise on the sonar of a survey vessel, flow-line visualisation for the fitting of bilge-keels up to 600 mm wide in line with the flow to minimise the resistance, testing of an 86 m superyacht with the world's tallest mast (originally designed with two centreboards and two rudders, reduced to one of each as a result of the tests), testing for America's Cup yachts (e.g. Team New Zealand, and the Prada syndicate of Italy), capsizing of multihulls in beam and following seas and in breaking waves, behaviour of yachts in breaking waves following the 1979 Fastnet Race, and an investigation for the MCA of a fishing vessel hydrostatically releasing an inflatable liferaft underwater and having the raft catch in the rigging.

In contrast to the tank-testing side, the Wolfson Unit has two wind tunnels of its own, on site. The tunnels have the following principal characteristics:

Tunnel	Working WxHxL (m)	Max. Speed (m/s)	No. of Balance Components
1	(4.6x3.7x3.7	50	4
	(2.1x1.5x4.4	50	3
2	3.5x2.6x10.5	55	6

WT2 has a moving ground board for the baseplane, and was once almost fully booked by the Maclaren and Brabham Formula 1 racing car teams, but they have subsequently acquired their own. The Indy Cars then used it extensively, but is now becoming more available. Some of the interesting jobs they have done in the tunnels include flow visualisation using tufts on a 41 m motor sailer, and then PIV (particle image velocimetry) on the helo deck for landing operations, smoke tests on and modifications to funnels for the spread of exhaust gases, development of the sails for the J-class yacht *Velsheda* (built in the 1930s and restored in the 1980s), and the sail testing which led up to the UK's stability criteria for sail training vessels.

Other work in which the Wolfson Unit has been involved includes:

• Structural Failures: e.g. a 65 m motor yacht which developed cracks and large-scale deformations. A finiteelement analysis showed too little connection between the aft ends of the top two decks and the hull girder. This was rectified, refaired, and is being continuously monitored.

- Self-propulsion Tests: This has been done using radiocontrolled models on lakes, e.g. on a model of one of the RNLI lifeboats to keep the propellers away from grounding damage.
- Laser Spray Measurement: They were requested by the Transport Research Laboratory to measure the *perception* of spray from lorry wheels on a roadway in order to improve the design of mudguards! One of the physics lecturers at the university theorised that the attenuation of a laser beam through spray would be similar to that of human sight. Tests showed that he was right, and so they developed a rig to test mudguard shape and lining materials.
- Wind-tunnel Dynamometry: They have been successful in marketing the dynamometers which they have developed for specialised wind-tunnel testing techniques.
- Towing-tank Dynamometry: They have been successful in marketing the three-post dynamometers which they have developed for specialised towing-tank testing techniques.
- Software: The Wolfson Unit has successfully marketed a range of software for hydrostatics, hullform generation, ship motions, propeller design, resistance prediction, and a VPP (velocity prediction program) for yachts. Much of this software has developed from work which they were involved in at the time, and is developed as required, rather than for a market.
- Expert Witness: This work has seen them involved in a wide range of cases, including structural failures, capsizes, delivery of vessels not conforming to designs, personal injury, and the proof of scuttling of a large motor yacht.

At least some of the success of the Wolfson Unit John attributes to their flexibility. There is no demarcation, and any of the engineers could be assigned to any job. The proof of the pudding is that they are still in business!

The vote of thanks was proposed by John Jeremy, and his discussion with John Robinson appeared to be an attempt to extend the question time.

Following the presentation, John was taken to dinner in Randwick by Noel Riley, Lina Diaz, David Gosling, and Phil Helmore.

The third SMIX (Sydney Marine Industry Christmas) Bash was held on Thursday 5 December aboard the beautifullyrestored *James Craig* alongside Wharf 7, Darling Harbour, from 1730 to 2130. The Bash was organised jointly by the IMarEST (Sydney Branch) and RINA (NSW Section). About 217 guests came from the full spectrum of the marine industry, including naval architects, marine engineers, drafters, boatbuilders, machinery and equipment suppliers, regulators, classifiers, surveyors, operators, managers, pilots, navigators, researchers, and educators. Equally importantly, the full spectrum of age groups was represented, from present students to the elders of the marine community.

Sydney turned on another beautiful evening, after a hot day and bushfires to the south and north of the city, and many partners in attendance enjoyed the view from the decks of *James Craig.* Drinks (beer, champagne, wine and soft drinks) were provided, and a buffet dinner was served on the 'tween deck (chicken, steak, sausages and salads), and many tall tales and true were told.

Formalities were limited to a short speech by the Chair of the NSW Section of RINA, Bob Dumett, who welcomed the guests and thanked the sponsors.

Bill Bollard had made a beautiful varnished half-block waterline model of *James Craig* to a scale of 1:48 (¼ inch = 1 foot) from laminations of Australian cedar and white jellutong, mounted on a jarrah backboard. The model was raffled by RINA NSW, and drawn by Mrs Anne O'Connor on board the full-sized vessel after dinner. The winner was Marino Gomes of Hydranautics Australia. Marino must know something about playing the percentages, as he had purchased more tickets that anyone else. Congratulations Marino!



Bill Bollard's Half-block Model of James Craig (Photo courtesy Jennifer Knox)

RINA NSW would like to thank all our wonderful sponsors, without whom SMIX Bash could not happen. Our major sponsor was WARTSILA AUSTRALIA PTY LTD, and the event was also sponsored by:

- American Bureau of Shipping
- Akzo Nobel Pty Ltd
- AMC Search Ltd
- Analytical Control Engineering
- Captain Cook Cruises
- Dilmun Navigation Co. Pty Ltd
- Defence Maritime Services
- Det Norske Veritas
- Electrotech Marine Pty Ltd
- Energy Power Systems Australia
- G. James Extrusion Co. Pty Ltd
- Germanischer Lloyd
- Intercontinental Ship Management Pty Ltd
- Lloyd's Register of Shipping
- MAN B&W Diesel Australia
- Rolls Royce Australia Ltd
- Teekay Shipping (Australia)

Our thanks to them for their generosity and support of SMIX Bash 2002.

The Sydney bushfires were also in party mode, and were helped along by the southerly which came through at about 2200. The fire caused the closure of Heathcote Road in the south, Pittwater Road in the middle, and the Pacific Highway, the F3 Freeway and the northern railway line in the north, causing much inconvenience (if not excitement) to those who had come from the Menai or East Ryde areas, or had

February 2003

journeyed south to attend SMIX Bash.

The NSW Section Committee met on 6 February and, other than routine matters, discussed:

- SMIX Bash: SMIX Bash 2002 attracted a total of 217 people and, for the first time, returned a small profit, shared between RINA and IMarEST. This will start to defray the losses previously suffered. Ben Hercus has offered his services in helping organise future bashes and his offer was accepted.
- Finance: The budget for 2003 has been presented to the AD Treasurer. The financial statement for 2002 does not include SMIX Bash transactions (which passed through our accounts) and has yet to be audited before presentation. At 31 December we had \$411 in the bank.
- Report from Report from Australian Division Council: The deliberations of the AD Council meeting on 11 December 2002 were reported (see *Membership* column in this issue).
- Technical Meeting Program for 2003: Presentations have been arranged for June and October, with one more agreed without a date; presentations are to be solicited promptly for the AGM, and more leisurely for the other dates.
- Committee for 2003: Two members have agreed to join the committee, and two more are to be asked, to replace the three retiring members. Committee positions were discussed and pencilled in.

Phil Helmore

Queensland

The Queensland Section Committee met on 3 December at the Gateway Campus of the Brisbane and Northpoint Institute of TAFE. A technical meeting attended by sixteen members and visitors followed the section committee meeting. The subject of the technical meeting was *Boat and Shipbuilding Vocational Education* by Rhys Jeffries and Geoff Pemberton. The technical meeting was then followed by an inspection of the boatbuilding education facilities available at the Gateway Campus.

Rhys Jeffries, principal teacher, and Geoff Pemberton, teacher, from the Boat and Ship Building Section of the Gateway Campus of the Brisbane and North Point Institute of TAFE outlined the history and development of the curriculum and facilities for the provision of vocational educational and training for pre-apprenticeship students and apprentice boatbuilders and shipwrights in Queensland. Rhys and Geoff provided members with a copy of *Celebration of Fifty Years Boat Building and Shipwrighting Training in Queensland*, 4 October 1996, which detailed the development and history of the course.

The course was implemented in 1946 in the Domain in Brisbane which was then part of the Central Technical College. It is now part of the Gardens Point Campus of the Queensland University of Technology. Later the course was relocated to the Merivale Street Training School (campus of the Central Technical College) which in 1968 became the South Brisbane Technical College (later College of TAFE) before being subsumed into the current Southbank Institute of TAFE. The boat and shipbuilding centre was relocated to new facilities at the Ithaca College of TAFE before being moved to custom refurbished current facilities at the Gateway Campus

Geoff and Rhys worked through the TAFE course attendance requirements, which have increased since its implementation to meet the needs of the industry almost fifty-five years ago. Apprenticeship students attend the course for the equivalent of 21 weeks of a four-year apprenticeship. Rhys and Geoff pointed out that only apprentices may attend the apprenticeship course while the pre-apprenticeship course is advertised for those who wish to become apprentices. Its reputation and benefits to both the student and the employer have developed to the extent that employers seek its graduates to become their apprentice in the industry

Working from the training plan documentation provided to members' Rhys and Geoff discussed the process of determining the training pathway workplace skill development and assessment process for an individual student. This training pathway ensures that graduating preapprenticeship and apprenticeship students have gained relevant and employable knowledge and skill. They pointed out that the training program at the Institute was oriented towards wood, metal, exotics and composites construction of the boat and shipbuilding industry and that, in itself, this required very flexible arrangements based on high level industry support and collaboration. This extends to taking classes of students around the industry so that they may be fully aware of the extent of its operation.

Both Rhys and Geoff stressed the individual and sometimes

COMING EVENTS

Australian Division AGM

The Annual General Meeting of the Australian Division of RINA will be held on Tuesday 25 March at 5:00 pm at the Institution of Engineers, Australia, 21 Bedford St, North Melbourne (see notice elsewhere in this issue). The AGM will be followed by the scheduled technical meeting of RINA (Victorian Section) and IMarEST (see Victorian Section *Coming Events*)

NSW Section AGM and Technical Meetings

The Annual General Meeting of the NSW Section of RINA will be held on Wednesday 26 March immediately following the scheduled technical meeting of RINA (NSW Section) and IMarEST (Sydney Branch) at 5:30 for 6:00 pm in the Harricks Auditorium at the Institution of Engineers, Australia, 118 Alfred St, North Sydney; see notice mailed to NSW members with this issue.

Technical meetings are generally combined with the Sydney Branch of the Institute of Marine Engineering, Science and Technology, and held on the fourth Wednesday of each month (February through October) in the Harricks Auditorium at the Institution of Engineers, Australia, 118 Alfred St, North Sydney, starting at 5:30 pm for 6:00 pm and finishing by 8:00 pm. The program of meetings for 2003 is as follows:

26 Feb Jude Fernandes, ADI Limited *Main Engine Breakdowns* collective industry employer involvement and support under this workplace competency requirement in the development of the training plan for each student. They pointed out that in some cases this required moving a student around different yards to ensure that they gained the level of skill prescribed in their training plan. As well, some skill may only be assessed in the workplace which necessitated ongoing involvement of the four boat and shipbuilding teachers with industry. Furthermore, to keep at least abreast of technological and workplace change each teacher, as part of their professional development provision, rejoins industry for two weeks each year.

Rhys and Geoff showed members around the training facility identifying the various training requirements responding to what seemed like a barrage of questions.

Brian Robson

A navy Sea King helicopter displaying the Australian flag over Sydney Harbour on Australia Day (Photo John Jeremy)



26 Mar	Andy Dovell and Bruce McRae, Murray,
	Burns and Dovell
	Design and Construction of High-
	performance yachts
	plus RINA NSW Section AGM
23 Apr	MTU Australia
	Machinery for High-speed Vessels
28 May	Australian Transportation Safety Board
-	The Top-side Ballast Tank Explosion on
	board Nego Kim
25 Jun	Michael Andrewartha, UNSW
	Performance of Foil-assisted Catamarans
23 Jul	TBA
27 Aug	TBA
24 Sep	TBA
22 Oct	Noel Riley, Commercial Marine Design
	The Evolution of Australian Tug Design
4 Dec	SMIX Bash 2003
Victoria	n Section Technical Meetings

Technical meetings are generally combined with the Victorian Branch of the Institute of Marine Engineering, Science and Technology and held on the third Tuesday of each month (February through November) at the Institution of Engineers Australia, 21 Bedford St, North Melbourne, starting at 5:30 for 6:00 pm and finishing by 7:30 pm.

The program of meetings for 2003 is as follows:

18 Feb	Ken Greig, Siemens Podded Propulsors
25 Mar	Kaspar Wijsbeck Gas Turbine Applications
15 Apr	Ray Goodwin, Azko Nobel Marine Coatings
20 May	Geoff Goodwin, DSTO Failure Investigations of Marine Engines
17 June	Robert Phillips Refurbishment of FFG Superstructures by welding and composite repairs

Queensland Meeting

The Queensland Section will hold its AGM on Tuesday 4 March at 6.30 pm. The AGM will be followed with a presentation by Ray Burrows who will speak about the progress made with the curriculum and administration of the Diploma of Engineering (Yacht and Boat Design) for the Yeronga Institute of TAFE. This meeting will be held at the Boat and Shipbuilding Section of the Gateway Campus of Brisbane and Northpoint Institute of TAFE

Strategic Maritime Building, Repair and Maintenance

Australia is currently at the forefront of the design, construction and operation of vessels with maritime training and engineering among the best in the world. Equally, our manned ships enjoy an international reputation of safe and efficient operation. However, projected demand for these core capabilities in the building and repair sector is under threat. The future of the maritime industry hangs in the balance and the outcome will depend on how well government in industry manages these resources.

The Australian Defence Force is a key contributor to the maritime industry through its naval operations. However, predicted demand for major naval shipbuilding and repair during the next 15 years will total only around \$6 billion, compared with \$12 billion in the last decade and a half. The government has proposed a new strategic reform plan for the naval shipbuilding and repair sector to allow a small number of companies to form a single consolidated contract alliance to deliver major naval contracts. The rationalisation will have wide-reaching implications for the structure of the maritime industry and will impact on the current model of competition.

The ANA reported on the Naval Shipbuilding and Repair Sector Strategic Plan in November 2002.

A two-day conference will be held on Wednesday 26 and Thursday 27 March 2003 at the Carlton Crest Hotel, Sydney, on *Strategic Maritime Building, Repair and Maintenance*, to explore the implications of the Naval Shipbuilding and Repair Sector Strategic Plan.

Key contributions will be made by:

- Defence Materiel Organisation (DG Maritime, Land, Weapons and Industry Capability; DG Major Surface Ships; and DG Maritime Support);
- Department of Defence (Amphibious Afloat Support

System Program; ANZAC System Program; Engineering; Navy Certification, Safety and Acceptance; and Director of Submarine Sustainment);

• Industry (Tenix Defence, BAE Systems, Austal Ships, P&O Maritime, Saab Systems, Australian Defence Industries, Forgacs, Sydney Ferries, and the Society of Accredited Maritime Professionals Qld).

For further details phone the conference organiser, the International Quality and Productivity Centre, on (02) 9223 2700, email registration@iqpc.com.au, or visit their website www.iqpc.com.au, where registration may be done online.

Marine Safety 2003

The National Marine Safety Committee will host another major marine safety conference, Marine Safety 2003, at Stadium Australia at Sydney's Olympic Park from 22 to 24 September, and is calling for papers. The NMSC expects the conference to equal the success of the inaugural Marine Safety 2002 conference, when around 400 marine industry leaders joined together in Brisbane. The aims of the conference are to accelerate the exchange of ideas and knowledge between people involved in Australia's coastal marine industries, promote national marine safety, and assess NMSC's work on the introduction of uniform national commercial and recreational marine safety standards. For further information, or to register interest in presenting a paper, contact the secretariat on (02) 9555 2879, email mglenister@nmsc.gov.au, or visit their website www.nmsc.gov.au.

Ausmarine East

The two-yearly Ausmarine East Conference and Exhibition will be held in Brisbane, at the Brisbane Convention and Exhibition Centre, from 28 to 30 October 2003. Ausmarine is one of Australia's leading international commercial and government marine events. It is aimed at owners and operators of fishing boats, tugs, ferries, offshore support vessels, pilot and rescue craft, aquaculture vessels, cargo ships and smaller naval craft.

For further information contact Mike Orr or Jodie Ramage at Baird Publications on (03) 9645 0411, fax 9645 0475, email marinfo@baird.com.au, or visit their website www.baird.com.au.

Pacific 2004 International Maritime Conference

The Pacific 2004 IMC will be held at the Sydney Convention and Exhibition Centre Darling Harbour, Sydney, between 3 and 5 February 2004. It will be presented in association with the Pacific 2004 RAN Sea Power Conference as part of the Pacific 2004 Maritime Congress.

The conference, which is being organised by The Royal Institution of Naval Architects, The Institute of Marine Engineering, Science and Technology and the Institution of Engineers, Australia, follows the success of the Pacific 2002 event held in January 2002.

More information can be found at www.tourhosts.com.au/ pacificimc2004, email pacificimc2004@tourhosts.com.au.

GENERAL NEWS

ADI Short-listed for Bridge Erection Boat Contract

ADI Limited has been short-listed to bid to supply 24 new bridge erection propulsion boats (BEPB) to the Department of Defence. Developed to fully meet Australian Army requirements, ADI's BEPB could also be used as a ferry to transport personnel, equipment and stores and as a diving support tender. The 24 boats with transportation cradles are required to replace all of the existing Army craft used to assemble the pontoons that create bridges across strategic waterways.

ADI's BEPB is a highly manoeuvrable, stable and robust platform. The hull is a unique part-asymmetric configuration which produces the excellent directional stability and safe operation required by the Army.

The boat is powered by twin 6BTA (168–235 kW) marine diesel engines, each coupled to a vertical thrust waterjet which provide full power in any direction. The waterjets are flush with the underside of the hull ensuring that the boat can operate in minimum water depths with minimal risk of fouling the waterjets or injuring personnel who may be working in the water nearby.

Crew comfort and safety are design priorities. The BEPB's layout enables the two-man crew and any additional personnel on board to operate it in all expected situations efficiently and safely. A purpose-designed console is provided for crew amenity while the absence of any moving parts external to the hull enhances safety.

Another safety feature is the ADI-designed hydraulic linetensioning system. The system ensures that the BEPB's securing lines are secured at the correct tension during all marine operations, particularly for the floating support bridge (FSB) ferries and FSB crossing site roles. As well, levers operated by the coxswain control tensioning, so eliminating the need for personnel to handle securing lines.

If successful, ADI will build the BEPBs at its Newcastle facility, where it is currently producing six watercraft for the Australian Army.



ADI's proposed bridge erection propulsion boat (ADI image)

New ship for Kangaroo Island

AMD Marine Consulting is designing a new vessel for Kangaroo Island Sealink. At 50 m overall, with a beam of 17.8 m, and a deadweight capacity of 350 t, the new vessel will be slightly larger than *Sealion*, the current flagship of the Sealink fleet.

AMD was commissioned to carry out a preliminary design last year in order to prepare tender documents, and Sealink formally announced the awarding of the construction contract late last year (see *The ANA*, November 2002, page 20). The vessel will be built by NQEA in Cairns.

Aluminium was chosen as the preferred material for both hull and superstructure, the reduced structural weight compared to steel construction enabling the deadweight capacity to be increased by 100 t over that of *Sealion*, while achieving a slightly higher speed with the same installed power.

The particulars of the vessel are:

1	
Measured length:	49.99 m
Beam moulded:	17.8 m
Draft loaded:	2.50 m
Passengers:	250
Crew:	6
Fuel:	Two 20 000 L (normal)
	Two 40 00 L (long range mode)
Fresh water:	20 000 L
Deadweight:	350 t
Speed loaded	15.6 kn at 95% MCR

Propulsion power will be provided by two Wartsila 6L20C engines rated at 1080 kW at 1000 rpm, with Reintjes WAF 842 reverse reduction gearboxes driving five-blade propellers.

The deck layout and deadweight capability provides for the carriage of 8 semitrailers and 16 cars. The vessel is intended to carry fuel and gas tankers, and will have a fire fighting system appropriate for this use; however, in fuel/gas carrying mode, no more than 25 passengers will be permitted on board.

The vessel's hull, machinery and electrical systems will be classed by DNV, while fire fighting, safety, stability and navigation will be the responsibility of Transport South Australia.

Tenix delivers Search and Rescue vessel to Philippines

On 30 January 2003, Tenix Defence handed over a 56 m search and rescue vessel to the Philippines Coast Guard — the first of six vessels it is building under a follow-on contract with the Philippines Government.

Named BRP *Pampanga* by the Philippines Secretary of Transportation and Communications, the Hon. Leandro R. Mendoza, the ship was handed over to the Commandant of the Philippines Coast Guard, Vice Admiral Reuben S. Lista, during a ceremony at Tenix's specialist shipbuilding facility in Henderson, Western Australia.



services and naval architecture software. O World-wide consultancy specializing in propulsion

and power analysis.

Internationally recognized firm providing engineering

- NavCad Performance prediction software with personal developer library.
- NEW! SwiftCraft Speed and power prediction for vessels under 75m.

HYDROCOMP. 13 Jenkins Court Suite 200 Durham, NH 03824 USA T: 603.868.3344 F: 603.868.3366 info@hydrocompinc.com

Chief Executive Officer of Tenix Defence, Mr Robert Salteri, said the Philippines Search and Rescue Project is the latest success in the long history of Tenix patrol boat design, construction and export based in WA.

"Two 56 m SAR vessels, BRP *San Juan* and BRP *Edsa II*, were delivered to the Philippines Coast Guard in 2000, on schedule and on budget. They are now in service.

"It is a measure of the success of these ships and the project that, in December 2001, the Philippines Department of Transportation and Communications through the Philippines Coast Guard placed a follow-on order with Tenix for two further 56 m SAR vessels and four 35 m SAR vessels with an option for 10 more 35 m SAR vessels," he said.

The contract value for the first six vessels is \$A115 million.

Designed for rapid response in a maritime emergency, the 56 m vessels are equipped for recovery of survivors, coordination of rescue operations and support of a helicopter (for either airborne search and rescue or emergency evacuation).

Three Coast Guard Vessels for Kuwait

In January Austal announced that it has secured an order for three coast guard vessels from the Government of Kuwait, Ministry of the Interior. The trio of 22 m aluminium monohulls will be built by Austal's subsidiary, Image Marine, and are due for delivery by early 2004.

Image Marine delivered seven 16 metre and two 22 metre patrol boats to the New South Wales Police in 2000, and the

February 2003

WWW.HYDROCOMPINC.COM

success of these vessels was an important part of the bid for the Kuwait contract.

Based on the larger NSW Police boats, the Kuwait coast guard vessels will operate with three crew and will be capable of carrying up to 41 additional personnel at 25 kn. Propulsion will be provided by twin MAN diesels each developing 735 kW and driving propellers via ZF gearboxes.

The vessels will be capable of all-weather operation in the Arabian Gulf in sea conditions up to Beaufort 6, and have been designed taking into account the extreme climatic conditions encountered in the area.

General Particulars

Length overall:	21.6 m
Length waterline:	19.6 m
Beam moulded:	5.96 m
Hull depth moulded:	3.6 m
Hull draft (maximum):	1.5 m
Crew:	3
Additional personnel:	41
Fuel (maximum):	6 000 L
Range (with 10% reserve):	325 n miles

Propulsion

Engines:	Two MAN D2842 LE 408,
	735 kW at 2 300 rpm each
Gearboxes:	Two ZF 550A
Propulsion:	Two fixed pitch
Speed (fully loaded):	25 kn at 100% MCR

Anzac frigate progress

The ninth Anzac frigate Toowoomba will be launched on Friday 16 May at the Tenix shipyard in Williamstown.

Armidale: Class Name for Australia's New Patrol Boats

Australia's new patrol boats will be known as the Armidale class, Defence Minister Robert Hill announced on 29 November. Senator Hill made the announcement to coincide with 60th commemoration events of the sinking of the original HMAS Armidale.

"There has been strong community support to continue the Armidale name and its proud links to the Royal Australian Navy," Senator Hill said.

"The Government has agreed to the recommendation of the Chief of Navy and it is a great honour to announce the Armidale class for the replacement patrol project, given the proud history and heroic feats of the original corvette Armidale."

Armidale was a Bathurst-class corvette with a crew of 149. Her initial service was as an escort vessel protecting Australian coastal and mainland-to-New Guinea convoys. She was sunk by enemy action on 1 December 1942 during operations off Betano, on the south coast of Timor. Of the 49 survivors, only five are still alive today.

Armidale is also significant for the heroic actions of Ordinary Seaman Edward 'Teddy' Sheean who, while wounded and after 'abandon ship' had been ordered, returned to the 20 mm gun and strapped himself to the weapon. He destroyed a Japanese aircraft before going down with the ship, still firing. The Collins-class submarine HMAS Sheean is named in memory of his heroic efforts.

The first of the Royal Australian Navy's Armidale-class replacement patrol boats is to be delivered during the second half of 2004, consistent with the Government's 2000 Defence White Paper commitments. Tenders for the new patrol boats are currently being evaluated by Defence.



The first HMAS Armidale (J C Jeremy collection)

HMS Nottingham to be Repaired

The damaged Royal Navy Type 42 Destroyer HMS Nottingham will be repaired at HM Naval Base at Portsmouth, England. Repairs are expected to take up to 18 months to complete.

The future of HMS Nottingham has been subjected to a full investment appraisal, which considered a range of options. Since HMS Nottingham underwent an extensive refit in 1999, which extended her operational life to 2012, the most costeffective solution was established to be a full repair of the ship.

HMS Nottingham was delivered to Southampton by the heavy-lift ship Swan in December, and then towed to HM Naval Base, Portsmouth. In choosing the preferred contractor, Fleet Support Limited, the UK MOD invited only those UK dockyards that had demonstrable experience in maintaining Type 42 destroyers.

New Vehicle Ferry order for Austal

Western Australian shipbuilder Austal Ships announced on 5 December a contract for a 66 m high-speed vehiclepassenger catamaran for a well-established ferry operator. This is the customer's first contract with Austal and brought the total number of vessels under construction in the Austal group to sixteen.

Due for delivery in August 2003, the Auto Express 66 will operate at a speed of approximately 31 kn and will have the capacity to carry 450 passengers and 69 cars or 110 lanemetres of trucks plus 37 cars.

Austal Ships also has an 86 m vehicle-passenger catamaran ferry available for delivery in June/July 2003. Capable of loaded speeds in excess of 42 kn, this vessel provides capacity for 774 passengers and 238 cars or 10 trucks and fewer cars. In addition to the 66 and 86 m vehicle ferries, Austal Ships is currently building two 69 m cruise yachts for Tahiti.

General Particulars — Auto Express 66

1

Overall length:	66.2 m
Waterline length (approx):	59.0 m
Moulded beam:	18.2 m
Hull depth (moulded):	5.9 m
Maximum hull draft:	2.5 m
Passengers:	450
Cars:	69 (max)
Heavy vehicles:	110 truck lane-metres
	(plus 37 cars)
Propulsion	
Main engines:	Two MAN 18VP185
	and two MAN
	12VP185
Gearboxes:	Two Reintjes VLJ 2230
	and two Reintjes VLJ
	1130
Waterjets:	Two Kamewa 80SII
-	and two Kamewa 90SII
Speed:	31 kn

Minehunter Project Completed on Schedule

ADI Limited has handed over *Yarra*, the last of the six Huon Class minehunters it has built for the Royal Australian Navy on 12 December 2002. ADI has completed the \$1 billion project on schedule and within budget. The company has a separate contract to provide in-service support for the minehunters. The Huon class ships have already performed successfully in international exercises and Australia now has an advanced mine warfare capability that is second to none.

Managing director of ADI, Mr Lucio Di Bartolomeo, said that the original minehunter contract, signed in 1994, provided for *Yarra* to be handed over in September this year.

"To further boost the Huon class capabilities, the scope of the work was subsequently increased by 4% but *Yarra's* handover has been achieved with only a 1% timetable extension," he said.

Mr Di Bartolomeo said all of the Huon Class ships now in service had participated in a number of multinational exercises.

"The Australian ships have proved superior to the minehunters of other nations in their ability to locate, classify and destroy sea mines.

"The in service support model ADI established for the minehunters two and a half years ago has been another success. The turnkey approach of this contract allows ADI to handle the technical support and provide effective routine maintenance and defect rectification at locations as far away as South East Asia and the Pacific Rim. This approach has enabled the minehunters to achieve the highest level of availability for the Maritime Commander."

The outstanding commitment of the facility's workforce and subcontractors and the goodwill of the Hunter community had been vital contributors to the success of the minehunter project Mr Di Bartolomeo said.

"With 1900 Australian businesses as well as major international companies required to work together on such a complex task, the team spirit engendered on this site has been one of its great achievements.

"We now will continue to provide whatever assistance is required by our customer before the *Yarra* is commissioned and to meet any minehunter in service support needs," he added.

Mr Di Bartolomeo said ADI aimed to win Defence's replacement patrol boat contract to ensure that the company could boost its Newcastle shipbuilding facility and that the Hunter region and Australia continued to benefit from the outstanding achievements of the minehunter project.

"Our bid to construct the Navy's newly named Armidale Class patrol boats follows the Huon Class strategy — we will take a proven international design, adapt it to meet the Navy's requirements and build the hulls from advanced composites at Newcastle.

"Our Newcastle workforce is now less than 150, having reached 580 at the peak of the minehunter work. The facility's current contract, the design and production of six new watercraft for the Australian Army employs 40 people and is scheduled for completion in April 2005.

"So the patrol boat contract and the 400 new jobs it will generate at our site and about 2,000 in the region is crucial to the future operation of our Newcastle facility, the utilisation of the skills developed in the Hunter for the minehunters and the economic wellbeing of the Hunter.

"The facility is Australia's largest capacity, advanced composites building capability and advanced composites are the 21st century building material. We believe any long-term planning of Australia's defence needs should encompass such an asset."

New Aircraft Carriers for Royal Navy

The UK Defence Secretary, Geoff Hoon, has announced that the Royal Navy's new generation of aircraft carriers will be designed and built by an alliance between the Ministry of Defence and BAE Systems/Thales UK.

Subject to detailed final negotiations, BAE Systems will take the leading position as preferred prime contractor, with Thales UK performing a major role as key supplier. The project will develop the carrier design put forward by Thales UK. The ships will be designed and built entirely in the United Kingdom, with shipyards at Babcock BES at Rosyth in Scotland, BAE Systems on the Clyde, Swan Hunter in the North East and Vosper Thornycroft at Portsmouth playing key roles, creating or sustaining around 10 000 jobs in the United Kingdom.

The two vessels, which are expected to displace around 60 000 t each, will be the largest and most powerful surface warships ever built in the UK. They will be equipped with the world's most advanced stealthy and supersonic jumpjet, the Lockheed Martin F35.

Geoff Hoon said: "Proposals put forward by BAE Systems and Thales UK have been considered carefully. Both proposals have significant strengths. We envisage that this strong alliance will allow us to combine the considerable capabilities and expertise of both contractors to ensure that this important new capability for the Royal Navy is delivered to time and to budget.

This is excellent news for British industry. It will create or sustain thousands of jobs, not just at major defence suppliers but also in many small and medium sized companies across the United Kingdom."

The First Sea Lord, Admiral Sir Alan West, said: "These ships and their aircraft will enhance the Royal Navy's ability to be a powerful force for good in the world at great range from the UK and, most importantly, without host nation support. The joint air wing will be able to exert considerable influence on events over the land. It is important that these ships are brought into service on time in 2012 and 2015, and today's announcement brings that a major step closer."

The MoD approached both BAE Systems and Thales UK to discuss a possible alliance with the MoD on the programme. Both companies have accepted the logic of the approach.



An impression of the new aircraft carriers ordered for the Royal Navy (UK MoD image)

Opportunity for Austal Ships

As the world's only active large catamaran builder with highpower gas turbine experience, Austal Ships has a strategic advantage in the growing market for high-speed military vessels, a fact reflected in its US joint-venture shipyard being short-listed in January 2003 to build an experimental vessel for a program sponsored by the US Office of Naval Research.

Dubbed the "X-Craft", the 80 m catamaran will feature twin LM2500 gas turbines and be capable of speeds of around 50 kn. Prime contractor for the project is San Diego-based Titan Systems Corporation, which has selected Austal USA as one of five shipyards to participate in the final tender round. The tender closes early in 2003, with delivery of the independently-designed aluminium catamaran scheduled for mid-2004.

In bidding for the project, Austal USA has been able to draw upon the extensive high-speed catamaran experience of its parent company, Austal Ships of Western Australia. Among the more than 60 fast catamarans built by the yard are six fast ferries powered by gas turbines, including the 86 metre catamaran *Villum Clausen*. In February 2000 this vessel claimed the world record for the longest distance travelled by a ship in a 24-hour period.

"While a number of shipyards, Austal included, have built diesel-powered high-speed vessels, Austal stands alone as the only company in the world still building high-speed craft that has experience in the design and construction of large, gas turbine-powered catamarans," said Austal Ships' Military Projects Manager, Mr Kim Gillis.

Mr Gillis says this expertise is highly significant when it comes to the X-Craft project and other high-speed vessels for defence applications.

"The world's major navies have typically selected gas turbines for all but their smallest surface ships, citing their high reliability and availability, quiet operation, low life cycle costs and reduced manning and maintenance requirements," he explained. "We expect that this preference will continue for many of the HSV (High Speed Vessel) and TSV (Theatre Support Vessel) projects that are on the military's radar screens at present." In fact, the vessel size and speed requirements which military planners are seeking from future HSVs indicates that gas turbines may well be the only viable propulsive power source. Present day diesel engines are either too heavy or not sufficiently powerful for these larger ships.

"These factors both show that Austal's expertise with gas turbines in similar applications will be an important strategic advantage over other shipyards when pursuing military contracts. It really sets Austal apart," Mr Gillis said.

The propulsion plant on *Villum Clausen* comprises two 18 000kW GE LM2500 gas turbines each driving a pair of steerable waterjets via single-input, dual output gearboxes. During its record-breaking journey, the ship covered a distance of 1,063 n miles at an average speed of 44.29 kn.

Austal is pursuing a number of other opportunities in the market for large, high-speed military vessels.

In one key project, Austal USA is playing an integral role in developing advanced concepts for a Focused Mission High-Speed Ship (FMHSS) for the United States Navy. The Mobile, Alabama shipyard is part of a study team led by General Dynamics' Bath Iron Works which also includes The Boeing Company, British Aerospace Corporation, Maritime Applied Physics Corporation, CAE Marine Systems and five other General Dynamics business units.

Austal Ships' advanced hull form technology forms the basis of the team's FMHSS which will be capable of speeds in excess of 50 kn as well as providing outstanding efficiency and performance in all sea conditions, endurance and reliability for sustained independent operations and shallow draft for operations in the littoral environment.

The FMHSS study will assist the U.S Navy in defining requirements for the rapidly emerging Littoral Combat Ship (LCS) program, which is expected to involve the construction of between 30 and 60 ships starting in 2005.

Queensland Industry News

At present there is considerable activity at the Gold Coast City Marina. Last year custom boat builders Azzura Yachts launched *Wild Oats*, the new Reichel Pugh 60 that features a canting keel and twin foil rudders. Having completed its maiden regatta at Hamilton Island, she won six out of nine races in the big-boat division and regularly beat some larger yachts around the course. Azzura Yachts is presently completing a 14 m FRP game fishing boat while construction is also progressing on a 30.5 m FRP luxury motor yacht. Both of these vessels have been designed and surveyed to the USL Code by Oceanic Yacht Design.

Perry Catamarans, in consultation with Oceanic Yacht Design, are busy developing a new model for their existing fleet — a luxury 17 m sailing catamaran. Oceanic Yacht Design is also involved with the design and build of a 16.5 m FRP power catamaran, as well as other refit projects on various motor yachts.

Sea Transport Solutions (STS) has a number of large projects underway. These include *Sea Wind*, a 47 m passenger/vehicle inter-island ferry for Bahamas Searoad which is being built at South Pacific Marine and is to be launched during the



first week in February. The vessel's structure has been assessed by Lloyds and survey by the Queensland Department of Transport..

Construction of a 47 m passenger/vehicle ro-ro catamaran, *Sea Breeze*, for Islands Transport has also begun with launching scheduled for late August 2003. STS have been commissioned to provide the design of a sister vessel to *Sea Wind* to FBM Aboitiz of Cebu in the Philippines. Delivery is expected in August 2003. STS are also finalising the design of a 64 m passenger ro-ro ferry for a Dutch client. Tender packages have been issued with several European, Asian and Australian yards submitting prices.

Other STS projects include preliminary design of an 80 m oil supply vessel in conjunction with a Singapore client, a 50 m pollution clean up vessel for a Hong Kong client, and a 35 m passenger/cargo catamaran for the Isle of Sark. South Pacific Marine are to start building a STS designed 12.5 m amphibious vessel for a Gold Coast client in February 2003.

Brian Robson

WaveMaster Delivery

Last November WaveMaster International delivered the first of four 34 m custom-designed offshore crew/supply vessels ordered by Singapore-based Abeer Marine Services as part of a contract signed in April 2002.

The vessels are designed to transport personnel and equipment to offshore rigs and platforms at high speed — over 30 kn.

Increased Inspections for Tankers

All single-hulled oil tankers visiting Australian ports will he subject to increased inspections, under new measures to protect the marine environment.

The Federal Government said further protection would come through the introduction of legislation to increase the amount of compensation following an oil spill to \$480 million.

The Australian Maritime Safety Authority (AMSA) was asked to upgrade its inspection regime after the sinking of *Prestige* off Spain and the European Commission's subsequent crackdown on certain vessels. AMSA's target inspection rate will move from 50% for single-hulled tankers built since 1987 and 80% for single-hulled tankers more than 15 years old to a blanket 100% rate. This will mean that Australia's inspection regime, already one of the toughest in the world, will become even tougher.

The strengthening of AMSA's current Port State Control inspection regime is consistent with actions being considered by the European Commission, which has previously had a less strict inspection regime. The EC's actions have raised worldwide concerns that aged single-hull tankers will be forced out of Europe to trade in alternative markets, including our region.

AMSA will continue to closely monitor tanker operations in our waters and, if warranted, further strengthening of our Port State Control regime will be introduced. Meanwhile, greater compensation for those suffering the potentially-devastating effects of an oil spill from a tanker will be available under new Federal legislation. The legislation increases the maximum amount of compensation payable from \$320 million to \$480 million.

The rigorous ship inspection program conducted by AMSA helps ensure that sub-standard ships do not trade with Australia. If there is an oil spill or any other pollution incident in Australian waters, a robust contingency plan is in place to minimise its effects.

Compensation for oil spills is paid through ship insurance companies. Where needed, compensation payments are topped up through a fund contributed to by organisations receiving oil by sea.

The increased compensation limits — contained in the Maritime Legislation Amendment Bill 2002 — will apply from 1 November 2003, the date on which amendments to the applicable International Maritime Organisation conventions enter into force internationally.

Preparing the Shipyard Work Force of Tomorrow

Training tomorrow's workforce of skilled artisans and engineers has become a leading priority of America's public and private shipyards.

It takes an average of six to eight years to train a fullyqualified shipyard worker to the level of journeyman mechanic, technically skilled to work on nuclear submarines and aircraft carriers. The average age of a US shipyard worker is about 45 years, and 33 percent of US shipyard workers are over the age of 50.

To meet this challenge head on, the naval shipyards, under the guidance of Naval Sea Systems Command (NAVSEA), are rejuvenating the skilled workforce base through the shipyard apprentice program.

The congressionally-supported shipyard apprentice program for blue-collar production trades is a subset of the shipyard workforce revitalisation program, designed to ensure that the naval shipyard workforce will have the skills and flexibility required to meet the demands of the future workload and business environment.

Graduates of the program are US Department of Labor certified journeyman, with a technical certificate or associated degree. There are currently more than 1750 apprentices in the four US naval shipyards.

Projections indicate that over the next ten years, the shipyards will need to hire and train an additional 1400 workers each year to compensate for attrition and maintain critical skills.

Irene Smith, Naval Sea Systems Command Public Affairs

WA Industry News

At the end of January 2003 Strategic Marine were completing sea trials on a 40 m aluminium high-speed utility craft. Three 13 m high-speed aluminium crew boats are under construction and two 20 m patrol boat kits are being assembled in Malaysia.

Kim Klaka

NSW Industry News

New Design

Crowther Design has recently signed two contracts: a 25 m catamaran for Tasmania's Peppermint Bay/Woodbridge Ecotourism Project and a 22 m catamaran cruise vessel for Melbourne's Port Phillip Bay. The 25 m catamaran will be operated by Peppermint Bay Pty Ltd, and will take 210 passengers from Hobart to — you guessed it — Peppermint Bay. This contract is testament to the customer loyalty Crowther develops, as it is the second catamaran to be delivered to the operator. The 22 m vessel will be operated by Melbourne Harbour Cruises and will run corporate charters out of the Docklands.

The first of the Sydney 32 yachts designed by Murray, Burns and Dovell to enter commercial survey is currently undergoing initial survey by the Waterways Authority. The Sydney 32 is the little sister of the Sydney 36 and the Sydney 38, and is designed for those for whom a 36 or a 38 is too much boat.

A 22 m aluminium catamaran designed by Incat Designs is currently undergoing initial survey by the Waterways Authority, with the builder to be announced soon.

New Construction

A 25 m FRP sailing catamaran designed by Grahame Parker is currently being built by Jarkan Yachts at Jervis Bay.

Pontoon houseboat construction on the Murray River remains steady with three currently undergoing initial survey, despite the drought conditions.

Deliveries

Morton Bay whale Watching has recently taken delivery of the 29.5 m catamaran *Eye Spy* designed by Crowther Design and built by South Pacific Marine in Brisbane. She has accommodation for 313 passengers, with a walkway surrounding the entire upper bridge and a large open-top deck, in addition to a saloon featuring many floor-to-ceiling windows for enhanced viewing, and cruises at 30 knots. However, her first operation is as a spectator vessel for the America's Cup in Auckland, New Zealand. She will then return to Redcliffe, just North of Brisbane, for the whalewatching season and will run daily trips from there.

Another Crowther-designed recent delivery is the 21 m dive/ surf charter catamaran *Adventure Komodo* built by Batavia Boats in Geraldton. She has accommodation for 12 passengers and 5 crew, cruises at 22 knots and was purposedesigned for surf and dive tours in the Pacific. She has a high-quality but robust fitout to target the more-affluent US surf charter market. She is based in Tahiti, but first contracts were trips to remote surf breaks in the Pacific for three separate surfing magazines.

Refit

Paddle steamers Canberra and Avoca have undergone major

THE ROYAL INSTITUTION OF NAVAL ARCHITECTS AUSTRALIAN DIVISION

ABN 84 024 326 548

NOTICE OF ANNUAL GENERAL MEETING

Notice is hereby given that the Annual General Meeting of the Australian Division of the Royal Institution of Naval Architects will be held at the Institution of Engineers, Australia, 21 Bedford Street, North Melbourne Victoria on Tuesday 25 March 2003 commencing at 5.00 pm.

AGENDA

- Opening
- Apologies
- To confirm the Minutes of the AGM held in Sydney on Wednesday 27 March 2002
- To receive the President's Report
- To receive, consider and adopt the Financial Statements and Auditor's Report for the year ending 31 December 2002
- Announcement of appointments to the Australian Division Council
- Other Business

Keith M Adams Secretary February 2003 modifications with a view to prolonging their historical runs on the Murray River. Their stability is currently being assessed by the Waterways Authority.

Around and About

Cruise ships have continued to visit Sydney. Recent visitors include *Crown Odyssey, Pacific Princess, Regal Princess, Pacific Sky, Legend of the Seas, Prinsendam, Europa,* and *QE2* on her annual circumnavigation. These vessels usually arrive about 0600–0800 to debark one lot of passengers, and depart about 1600–2000 on the same day after embarking the next lot, providing passengers and spectators alike with great views.

The Australian National Maritime Museum has a current exhibition on the Antarctic. Some of the gems on display include Mawson's sledge and personal possessions in a symbolic hut, photographs by Australian photographer Frank Hurley (who accompanied some of the greats, including Mawson, Scott and Shackleton, on their expeditions), and Shackleton's lifeboat *James Caird* in which he made the epic voyage from the Antarctic to Elephant Island, and thence to South Georgia for help after his vessel *Endurance* was crushed by pack ice and sank. Much of Australia's part in the exploration of the Antarctic, the men and women, and the conditions they faced are covered here. If you would like to see the Antarctic, but are hampered by the cold, the cash, or other responsibilities, etc., then this exhibition is a must. It remains on display until 4 May.

Restoration work on the Sydney Heritage Fleet vessel John Oxley is proceeding on board the pontoon in Rozelle Bay. The volunteer teams completed all structural repairs in the lower main hold in 2002. The main hold was the worst damaged part of the ship. Volunteers replaced 100% of the structural members in the lower part of the hold. Wasted components were removed to the workshop where they were replicated and then returned to the ship for riveting to new frames. A hydraulic riveter resembling a huge G-clamp was the brainchild of team leader Barry Jones and sped up the work. Work in 2003 will extend into the forward hold where at least four floors and part frames, along with assorted patching of rusted structure, will commence. The work-forthe-dole team, under shipwright supervisor Ian Smith, completed the galley restoration in 2002 and have also recaulked the entire boat deck. They are currently working on restoration of the wheelhouse. Further details and photos of work in progress can be found on the website www.seaheritage.asn.au/jorest/jolatest.html.

Phil Helmore



Australian Maritime College

HYDRODYNAMICS OF HIGH-SPEED VESSELS

26 TO 28 June 2003

Australian Maritime College Newnham, Launceston, Tasmania

A short course to introduce the hydrodynamics of high-speed vessels to practicing professionals in the maritime industry

Comprehensive course notes will provided and demonstrations will be given of the College's extensive specialised facilities including the towing tank and cavitation tunnel

FURTHER INFORMATION

More information can de found at www.amc.edu.au/downloads/high-speed.pdf

REGISTRATION

Register by 15 April 2003 — late registration may attract a \$25 fee

CONTACT

Short Course Manager AMC Search Ltd. PO Box 986 LAUNCESTON, TAS 7250 Telephone (03) 6335 4852 Fax (03) 6362 3790 C. Wilson@search.amc.edu.au Accommodation will be available on campus

FROM THE CROW'S NEST

Maxsurf Upgrade

Maxsurf, the well-established suite of naval architectural software from Formation Design Systems, has recently been upgraded to Version 9.5. This upgrade adds several enhancements, including being able to read NURB surfaces from IGES files, even if the surfaces have been created in another program, using a non-uniform knot vector. A nonuniform knot vector is sometimes used to create a knuckle or tangent discontinuity in the middle of a surface. New options have been added for bonding together two surface edges, making bonding easier while maintaining overall fairness. New light sources have been added to aid visualisation of the rendered hull shape as it is turned, and the position and type of each light can be specified.

Hydromax's range of stability criteria which can be applied has been extended, and now includes IMO, SOLAS, HSC Code, USL Code and US Navy criteria, as well as criteria which are fully-customisable and user-defined, starting from any chosen parent set of criteria.

Workshop includes enhanced options for specifying the precision and forming information used for plate development.

Seakeeper now allows multiple speeds, headings and spectra to be specified and solved in a single analysis run. This makes it easier to investigate seakeepping characteristics for a range of operating conditions.

Further details are available on the FDS website www.formsys.com.

TBT Antifouling Ban

Laws banning the use of antifouling paints containing tributyl tin (TBT) on ship hulls have been agreed by IMO and will be adopted by over 25 countries, including Australia. Once the new laws come into force, all countries which have signed the convention must ensure that the hulls of all vessels entering their ports or shipyards for repairs comply as follows:

- The application of TBT products to ship hulls is totally banned as from January 2003.
- Any hulls which still have TBT products adhering after January 2008 must have the material removed or have an effective series of sealer coats applied.

The Maritime Platforms Division of the Defence Science and Technology Organisation has been researching antifoulings since the early 1990s, when they began testing more than 150 antifouling products from all over the world. Both new and experimental products were assessed under Australian conditions, and promising products were progressed through small-scale panel trials, ship patch trials and full hull trial applications. The results demonstrated the effective performance of one particular product, and led to the development of a new antifouling system for the Royal Australian Navy. The new paint will be manufactured at the Melbourne plant of Azko Nobel, and HMAS *Adelaide* is the first ship in the RAN fleet to be painted with the new system as part of the scheduled phase-in of tin-free products in compliance with the TBT ban.

For steel hulls, the first generation of tin-free antifoulings used natural gum resin as the binder, compared to the polymeric binder used in TBT antifoulings. High amounts of resin allow high polishing rates, but give poor mechanical properties, while low amounts solve the mechanical problem but stop the polishing mechanism. Hempel have come up with a new binder called Globic which gives superior mechanical properties, antifouling performance and polishing control over long service periods. Further details can be found on the website www.hempel.co.sg.

For aluminium hulls, the choice of antifoulings has previously excluded copper-based paints for obvious reasons. However, Altex Coatings in New Zealand has been researching the problem and has come up with a system which allows the use of copper-based antifouling paints on aluminium hulls. The innovation is the use of their 'zeca' priming and buildcoat system, whose unique chemical and physical properties give protection when the antifouling paint is applied over the top. Further details can be found on the website www.altexcoatings.co.nz.

Sagas of Steam and Sail

Neil Cormack, former surveyor with the South Australian Department of Marine and Harbours, published his work *Sagas of Steam and Sail* in June 2002.

This is a book born of the author's love of the square riggers which sailed to South Australian ports up till the end of World War II, and the steam vessels which took over from them. It includes details of many of these lovely old vessels, and interesting stories about their voyages, as well as details of the shipping companies, shipbuilders and the dependence of the South Australian farmers on them. The book is available from the author on (08) 8248 1780 or at 17 Warwick St, Largs SA 5016.

Port Victoria 50 Years On

This book was written by Neil Cormack expressly for the fiftieth anniversary of the departure from Port Victoria, SA, of the last two square riggers in 1948, the four-masted barques Pamir and Passat. This ended an era which had begun seventy years previously when, in 1879, the British ship Cardigan Castle loaded 1800 tons of grain for the United Kingdom. The book describes many of the vessels which called at Port Victoria, including famous names such as Archibald Russell, Grace Harwar, L'Avenir, Lawhill, Moshulu, and Pommern. But this book is not a dissertation on each vessel; rather, it encompasses the decades, the types of vessels, the grain races and the winners, and illustrates it all with many photographs of the tall ships. The time is approaching when these vessels will have passed from living memory, and Neil's book preserves the history of the tall ships which visited Port Victoria. It is available from the Central Yorke Peninsula Branch of the National Trust.

Of Lines Lifting and Men

Where was your last lines lift done? In the comfort of a slipway or graving dock, with a full ship to work from? We all have horror stories of lines lifts, about things which went wrong and how we overcame them. However, spare a thought for Neil Cormack, whose last lines lift was done in the midst of the mangroves, with tide, mud and trees to contend with, and only the bottom half of the hull — sitting *in* the mud — remaining to work on!

It all began with a letter to the editor which he read in the Journal *Sea Breezes* in July 2000, containing a request from a Yorkshireman, whose father had served on the tall ship *Garthneill* (ex *Inverneill*), for drawings of the vessel. Neil knew that *Garthneill* had ended her days in the 'ship graveyard' in the North Arm mangroves at Port Adelaide, as

shown in the photographs below. One thing led to another, and he ended up lifting measurements as she lay. Using these with the known displacement at the load draft, the end profiles from the sail plan of a sister vessel, and some offsets from a half model of a sister vessel, he drew up the lines plan. Not content with that, he checked photographs of the vessel against the rigging plan of the sister vessel, and drew up the sail plan. To complete the story, he ran out the hydrostatics and cross curves and analysed three estimated stability conditions, in ballast, part loaded with scrap iron, and fully loaded with coke.

If you are interested in details of *Garthneill* then you can contact Neil Cormack on (08) 8248 1780 or at 17 Warwick St, Largs SA 5016.

Phil Helmore





Garthneill bottom remains (above), looking aft at low tide (note the reverse frames forward of midships in the foreground) (Photo courtesy Neil Cormack)

> Garthneill port bow plates, looking forward (left) (Photo courtesy Neil Cormack)

MISSING IN ACTION

Mr S. Maung FRINA, last known address Alice Springs, is missing in action.

If anyone knows his present location, please let Keith Adams know on (02) 9876 4140, fax (02) 9876 5421 or email kadams@zeta.org.au.

The Australian Naval Architect

EDUCATION NEWS

Australian Maritime College

The Australian Maritime Hydrodynamic Research Centre

The development of the Australian Maritime Hydrodynamic Research Centre at the AMC is progressing well. Coproponents of the Centre include the Defence Science and Technology Organisation (DSTO) — Maritime Platforms Division and the University of Tasmania. Specific activities which will be facilitated by research in the Hydrodynamics Centre include the development of underwater and surface naval platforms, the advancement of high-speed craft design, increased realism in the modelling of simulated port areas and navigation channels, an improved capacity to undertake calm water and seakeeping experiments within a controlled environment, and an advanced capability for research into the hydrodynamic performance of fishing gear and aquaculture sea cages.

As part of the Centre's development, upgrades and expansions are planned for many of AMC's hydrodynamic research facilities, including the Towing Tank, Cavitation Tunnel, Shiphandling Simulator and Circulating Water Channel. In addition, it is expected that vacancies for a number of support and research staff associated with the operation of these facilities will be advertised within the next 12 months. Watch this space!

Attendance at the High Performance Yacht Design Conference 2002

AMC had a strong showing at the High Performance Yacht Design Conference 2002 with no fewer than 6 students attending. Jonathan Binns, who is currently studying full-time for a PhD, found time to get away and present some work completed earlier in the paper *Development of a More Realistic Sailing Simulator* by J. Binns, F. Bethwaite, and N. Saunders.

On-going Research into the Virtual Sailing Simulator

Research is continuing into the Virtual Sailing Simulator. Virtual Sailing Pty Ltd is marketing the product and AMC is continuing to conduct research and development. It is currently possible to simulate performance of three dinghies, the Laser, the Byte and the Optimist. The simulation model is relatively simple, but still retains features pertinent to each of these boats. Overall sailing performance of the Laser has been quantitatively compared with on-water data very successfully. The most recent development has been to add a pre-recorded performance function, so that it is actually possible to sail against yourself, a function clearly unavailable to real sail training exercises. As a training and teaching tool this simulator is truly unique.

Currently there are numerous simulators around the world being used for training and teaching, all designed, researched and built in Tasmania. Below are pictures of simulators being used in Sandy Bay, Tasmania, and Toronto, Canada.

Gregor Macfarlane



Sailing simulators at Sandy Bay (above) and Toronto (below) (Photos courtesy AMC)



Curtin University

The Centre for Marine Science and Technology at Curtin University will be offering three short courses again this year — Design for Small Craft, Applied Hydrodynamics and Marine Acoustics. The courses run for two hours per week over twelve weeks, starting in the first week of March in late afternoon/early evening to make it easier for people with full-time jobs to attend. Further details are available from Mrs Ann Smith on email a.smith@curtin.edu.au, phone (08) 9266 7380 or fax (08) 9266 4799.

Dr Tim Gourlay joined CMST at Curtin in December and is already active in conducting applied research and development for industry clients, including Tenix and Wavemaster. Tim specialises in hydrodynamics but brings a wide range of skills to bear on both practical and fundamental problems.

Javier Periera has graduated with a master's degree by research from Curtin University, for his thesis *System Identification of Underwater Vehicles*. I was about to write that Javier is probably the last of the AME CRC funded students to finish, but there is still one left on the books — Stephen Cook is nearing completion of his master's degree on *Wave Induced Loads on Catamarans*. Needless to say, their AME CRC scholarships ran out some years ago! *Kim Klaka*

The University of New South Wales Staff Changes

There have been a number of staff changes for the coming year.

Kerry Byrne, after four years as Head of School and twentyeight years teaching in the School, has retired. He will maintain his ties though, as a visiting professor, to continue his research into sound and vibrations.

A/Prof. Robin Ford, after twenty-six years teaching in the School, has taken over as the Head of School. Many former students will remember Robin for the solid grounding which he imparted in mechanics and professional responsibilities, and the enthusiasm with which he did so.

Phil Helmore, in addition to his teaching, has taken on the responsibility of Director of Undergraduate Studies in the School.

Graham Taylor has taken over the teaching of the Ship Design Project course. Graham brings with him a wealth of design, supervision of construction and operational experience from the consultancy world, and will inject a highly practical flavour to the design projects.

Noel Riley continues to teach part of the Ship Standards course, giving our students a practical feel for using the various rules, writing specifications, contract documentation, the tendering process, acceptance trials and running a small business. The first sections of the new National Standard for Commercial Vessels have been promulgated by the NMSC, and so the students will have their first taste of the NSCV requirements for shafting, steering gear and bilge piping, in addition to the USL Code requirements for structure.

Undergraduate News

Among the interesting undergraduate thesis projects completed last year were the following:

Nigel Lynch studied *Wave Generation of a High-speed Catamaran.* He used the Australian Maritime College's models of Yeh's Series 64 hullform in a catamaran configuration. The models differed from the parent in having the tumblehome removed and beam reduced to 80% of the parent to give a demihull length/beam ratio of 13. The model had variable demihull separation and was tested in various depths of water at the model basin at the AMC. The model test results were compared with predictions from Lawry Doctors' program, Hydros, and excellent correlations found. Two-dimensional shaded plots of the waves give a realistic impression of the waves generated.

Minh Pham studied *Computational Cavitation Analysis for Marine Screw Propellers*. He used two computational fluid dynamics packages, CFX-Tascflow and Fluent, and modelled a propeller in both open-water and behind-hull conditions. Both packages were able to model the cavitation in the openwater condition, but only Fluent could be used in the behindhull condition. In the open-water condition, CFX-Tascflow had a shorter solution time and a more accurate prediction of cavitation, whereas Fluent could also be used to analyse behind-hull conditions and was very flexible in the size of the fluid domain.

Tommy Ericson studied *Trim Tabs versus Interceptors for Ride Control*. He tested models of trim tabs and interceptors behind a generic hull model in the wind tunnel, and came up with an experimental set of lift/drag ratios for each. The overall results showed that interceptors re capable of generating high forces, but that there is an associated drag penalty. The lift/drag ratio of trim tabs for a given projected area was substantially higher. He also modelled the flow in the computational fluid dynamics package, Fluent, to check on the applicability of CFD to this type of flow, and found good agreement at the finer mesh sizes. This opens the way for future projects to check the effects of detail design using CFD. A feature of the CFD analysis was the plotting of flow velocities, giving an immediate visualisation of the flow.

Michael O'Connor studied The Impact of Amendments Made to the HSC Code 2000. He studied a 40 m fast monohull ferry (which had not been designed to the HSC Code) and looked at how the vessel would fare on damaged stability under the requirements of the HSC Code 1994, and under the HSC Code 2000. The extent of flooding in the 2000 code is now based on the volume of displacement, rather than on the length of the vessel as in the 1994 code. As-built, the vessel would not meet the requirements of either version of the code. However, he analysed the cost to modify the vessel to meet the requirements, and found significantly more cost for the 2000 code. The payoff comes in that the vessel is significantly safer as, with the incorporation of the double bottom required by the 2000 code, it can withstand 100% raking damage. The height above the final waterline of openings through which further flooding could take place has been significantly increased (700% for Category A), and this would place limitations on the area of operation for an existing vessel.

Phil Helmore

Post-graduate and Other News

Dr Tim Baynes of the School of Physics won one of the 2002 Fresh Science awards which are run annually as part of Science week to highlight the work of Australia's best young scientists. Tim developed a new method for camouflaging ships and submarines against magnetic detection — demagnetising, degaussing or deperming. Depermed vessels have minimum magnetic signature, and can avoid detection by mines and sonar. Deperming has worked satisfactorily for the past fifty years, but has not been well understood, and equipment operators often have to improvise to fully demagnetise a vessel.

Tim looked at various theories of magnetism in materials, and constructed a scale model of the RAN's magentic treatment facility (MTF) in Perth where vessels are depermed. He then tested an alternative deperming method, based on the way computer discs and tapes are bulk erased in the magnetic recording industry, on the model MTF in the lab and on a full-sized vessel in the Navy's MTF. 'Compared to the old deperm protocol, it was much simpler and quicker and more reliable. Significantly, at every stage of the process, the magnetism of the whole vessel could also be predicted using the theory I developed in parallel with the model experiment', he said.

Tim has applied for a patent for his new method of deperming, and presented the results of his findings at a recent conference in Korea. The Korean, US, German, French and Royal navies have shown great interest in the new method.

Submissions for Survey and Classification: Do Yours Make the Grade?

Lina Diaz

Naval Architect, Waterways Authority of NSW

Introduction

The Waterways Authority is responsible for maintaining the standard of commercial vessels in the state of New South Wales. As such, commercial vessels are required to be in survey with the Authority with some exemptions.

It is a requirement under the USL Code, Section 1 Part 5 Submission of Information that certain drawings and vessel particulars be submitted to the Authority for approval for any vessel wishing to operate commercially. The Authority has prepared a pamphlet which is made available when any enquiries about the requirements for commercial vessels are made.

The purpose of this paper is not to discuss the code, rules or interpretations thereof, but rather to explain the reasons why it is important to provide the information as required by the code and requested by the Authority. It has become apparent to the Authority that not everyone is aware of what the requirements are and why the requirements are there. This is an effort to try to simplify and expedite the plan approval process for vessels coming into survey in NSW. The same principles are applicable to submissions to classification societies as well as to other Statutory Authorities.

As we are all aware, there is a "trickle down" effect with regard to the implementation and development of rules and regulations, mainly IMO — AMSA — State and Territory Authorities. The roles of these organisations will be explored later. The rules and regulations are developed with the aim of safer shipping and cleaner oceans. They are a direct result of major incidents where there has been loss of life or damage to the environment. For example, the sinking of *Titanic* led to the development of the SOLAS convention; *Torrey Canyon* leaked 120 000 t of oil into the ocean in 1967 leading to the development of MARPOL and lately, the sinking of *Estonia* in 1994 led to further amendments to SOLAS and the establishment of STCW95.

International Maritime Organisation (IMO)

The IMO is a specialised agency of the United Nations responsible for measures to improve the safety of international shipping and to prevent pollution from ships. IMO is a technical organisation and most of its work is carried out in a number of committees and sub-committees. The Maritime Safety Committee (MSC) is the most senior of these. The organisation is also empowered to deal with administrative and legal matters related to these purposes.

In order to achieve its objectives, IMO has promoted the adoption of some 40 conventions and protocols and adopted well over 800 codes and recommendations concerning maritime safety, the prevention of pollution and related matters. The most important IMO conventions contain provisions for governments to inspect foreign ships that visit their ports to ensure that they meet IMO standards. If they do not, they can be detained until repairs are carried out.

Implementation of the requirements of a convention is

February 2003

mandatory on countries which are parties to it. Codes and recommendations that are adopted by the IMO Assembly are not binding on governments; however, their contents can be just as important, and in many cases governments implement them through incorporation into domestic legislation.

The International Maritime Organisation works through a number of specialist committees and sub-committees. All these bodies are composed of representatives of member states who discharge their functions with the assistance and advice of appropriate bodies of the United Nations or the specialised agencies, as well as international governmental and non-governmental organisations with which formal relationships have been established. IMO does not implement legislation; governments are responsible for implementing it. When a government accepts an IMO convention it agrees to make it part of its own national law and to enforce it like any other law.

Australian Maritime Safety Authority

The Australian Maritime Safety Authority (AMSA) is a largely self-funded government agency with the charter of enhancing efficiency in the delivery of safety and other services to the Australian maritime industry. It is responsible for ensuring that Australia complies with its obligations to international and national legislation and conventions.

One of the major functions of AMSA is its responsibility of ensuring that IMO standards are met in international ships through port state control inspections.

Waterways Authority

The Waterways Authority is a State Government agency exercising an on-water management role for the NSW Government on behalf of the broader community. Waterways' primary responsibilities are to achieve the highest possible standards for the safety of commercial and recreational vessels and other users of NSW navigable waters, the protection of the marine environment, and the provision of waterways infrastructure for vessels.

The Authority is also responsible for the implementation of state laws, rules and regulations with regard to commercial vessels as well as pollution control from all vessels and protection of the marine environment.

Classification Societies

Classification societies originated from a need within the insurance market, as it was impossible for them to verify that a vessel did in fact exist, and whether or not it would actually arrive at its destination. Lloyd's Register took the first step with the set up of a register, thus the existence of a vessel could now be confirmed through the register. The classification of vessels was the next step and this was started by what is now known as Bureau Veritas. Classification was given to a vessel in order to provide a level of confidence in vessels for underwriters as well as proof of existence of the vessel. The various classification societies employed masters and engineers as surveyors for the purpose of assigning and monitoring class as required.

Classification societies have spent a great deal of time and money in the development of rules. Each classification society has and continues to develop their own set of rules.

Through the formation of the International Association of Classification Societies (IACS), there has been some standardisation of requirements for certain types of vessels. These developments have occurred as a result of detentions or failures that have occurred on ships amongst others.

Classification societies are involved through technical committees in IMO (for further information you should ask your local class surveyor) and some flag states have delegated some classification societies to carry out statutory surveys on their behalf. The responsibility still lies with the flag state! It should be noted at this stage that statutory surveys are not the same as port state control inspections.

Applicable Rules and Regulations in New South Wales

The applicable rules and regulations for the state of New South Wales are as follows:

- USL Code
- Australian Standard AS4132, Parts 1 to 3
- Australian Standard AS1799, Parts 1 to 5
- Commercial Vessels Act 1979 and Regulations
- Navigation Act 1901 and Regulations
- Marine Pollution Act 1987 and Regulations
- Protection of the Environment Operations Act 1997 and Regulations
- Management of Waters and Waterside Lands Regulations 1996
- Marine Orders

No IMO conventions are called on their own as they are incorporated in the above. For example, the USL Code Section 7 deals with load lines; similarly Section 5G deals with structural fire protection, which is called for under SOLAS.

As previously mentioned, the Authority is required to ensure that commercial vessels comply with the requirements of the above list. As such, it is imperative that the Authority takes all the necessary steps required to ensure compliance. This does not mean that the Authority wishes to stifle innovation or to launch vendettas against owners or operators. Quite simply, the Authority has a job to do, and that is to ensure that neither safety nor the environment are at risk or compromised. It is not in the interest of the Authority to restrict competition or the number of vessels in survey.

Submission of Information

The USL Code Section 1 Part 5 outlines the information that should be submitted to the Authority. The pamphlet *Initial Survey Requirements for Commercial Vessels* (Appendix 1) provides a summary of this section of the code.

The USL Code Section 14 Part 2 — Survey Requirements, also outlines information required by the Authority. This section of the code deals with the requirements for initial,

The Australian Naval Architect

periodic and occasional surveys. It clearly states in clause 14.6.7 that "the information in respect of a new vessel shall be forwarded prior to the commencement of construction and construction shall not begin until approval has been obtained from the Authority".

It is sad to say that the standard of submissions is declining and that more and more vessels have begun construction prior to approval being granted by the Authority. Plans contradict themselves or are missing information that is vital to the Authority for its assessment. Waterways is not the only Authority facing this problem — the standard of plans required is as for any classification society, state or territory authority or indeed any flag state. The USCG, through their Marine Safety Centre, has published a set of guidelines stating the details required, as well as plans and documentation that must be provided for the review. These guidelines cover conversions, steel, aluminium, FRP and wooden vessels as well as stability.

The major cause for delays during plan approval is due to insufficient information and poor drawings being submitted for review.

Structural Assessment

As previously mentioned, comments on the appropriateness of the standards or interpretations thereof will not be discussed. These issues can be discussed with the Ntional Marine Safety Committee, as they would welcome any feedback, comments or suggestions with regards to the National Standard for Commercial Vessels.

The minimum information required for structural approvals is as follows:

- Waterline length
- Maximum loaded displacement
- Maximum service speed at the maximum loaded draft
- Draft at the maximum loaded displacement (from bottom of canoe body for yachts)
- Laminate schedule, clearly stating properties of each laminate, the core for sandwich construction and the resin used
- Grade of aluminium used for the plating stating the temper; this also applies to any extruded sections used in the construction.

In short, if the information is required during the design stage, the Authority will need it to check the design.

Why is this Information Required?

In AS 4132.1 Design Loadings, these are the parameters used to determine the loadings on the structure of the vessel. These apply to both aluminium and FRP hull materials. Similar information is required for timber and steel vessels as per the USL Code Sections 5G (Design Loadings), 5K (Steel) and 5M (Timber).

Approvals issued by the Authority mean that the structure complies with the Commercial Vessels Act 1979 and Regulations for a particular vessel classification. For vessel classifications refer to the USL Code Section 1.6.

The purpose of the Act and its regulations are to ensure that vessels covered by the Act comply with a minimum safety standard.

Section 5.B.1.6 allows a 25% reduction in loadings for class E service (smooth waters only).

If structural approval has been granted by a classification society, then this approval will be accepted by the Authority as being equivalent to the requirements of the Authority provided that the design complies in full with the rules of the said classification society. A copy of the approved plans, stamped by the classification society together with a hull and machinery certificate are normally required.

FRP vessels wishing to enter commercial survey once the hull has been constructed, more often than not, have difficulties in demonstrating equivalence, and have often been constructed without any approved third party monitoring the construction. Importers of yachts mainly encounter this problem. If further information is desired with regard to this issue, contact should be made with the Commercial Operations Branch of Waterways and ask to speak with the Naval Architects. An information letter explaining the various options can then be sent to the client.

Stability Assessment

Stability is assessed in accordance with the USL Code Section 8 for intact stability and the USL Code Section 5C for damage stability. It should be noted that prior to acceptance of the stability, the lines plan (if required) needs to be certified by a surveyor of the Authority.

Conduct of the inclining experiment (or lightship check for sister vessels) is to be in accordance with Appendix A of the USL Code 8A. If the inclining is not conducted correctly, the stability will not be accepted and the vessel will be required to be re-inclined. The role of the surveyor is to witness the inclining, and not to conduct the inclining. Hydrometers must be used. If there is a problem with the availability of a hydrometer, let the surveyor know prior to the date scheduled for the inclining. Pendulums must be used to determine the angle of heel. U-tubes or manometers are not allowed by the USL Code Section 8A Appendix A 1.3.4.

The presentation of data in the stability book is to be in accordance with the USL Code Section 8, A.4. This is a very important point, as good layout and clear information makes the review process much easier and any discrepancies can be found easily.

The datum to be used is to be at the intersection of the centre line and the baseline amidships as per the USL Code Section 8A. When a submission where the datum is in a different location is received, it becomes more difficult to trace errors and to determine reasons for discrepancies. The use of the forward perpendicular is not acceptable to the Authority.

The stability criteria to be used should be clearly stated in the book and the information easily identified in the book. The calculations should demonstrate compliance with the criteria stated, as there is no point in stating that the criteria to be used is category R whilst showing calculations for category S. References to other stability criteria should be omitted. When the vessel is not covered in the USL Code, like the snagged net criterion for trawlers, then use Marine Orders.

Please remember that the book is not going to be used by

other naval architects that are fully conversant with the principles of stability. The book should be written in such a way as to be easily understood by the master of the vessel.

Just as with structural assessments, the main concern of the Authority is that the vessel is safe to operate within the limits set by its classification and that the information necessary for the master is contained in the stability book.

Notable Remarks

Owners and builders, as well as designers, have actually made the questions and statements below. These were issues taken very seriously by the people who asked, with some still being under dispute.

Why do I need bulkheads to subdivide my vessel? It has a foam core and is therefore unsinkable!

The boat cannot be inclined, as it is impossible to obtain the required 5t of weights in Brisbane.

Why do I need a lines lift?

But I've already built my boat. Why do I need plans?

Don't you know that it is impossible to incline a catamaran as the results cannot be repeated?

Q - Can I do my structure to the HSC code?

A - Yes

Action — Submit design to DNV High Speed Light Craft and Naval Service Craft Rules.

My boat operates in fresh water. Why do I need to comply with a marine standard?

My vessel is a catamaran and therefore can't capsize.

What is the point of an inclining experiment?

Why can't I have a hull return for my 240V system on a steel vessel?

Observations and Recommendations

Major delays in plan approval are due to not enough information being shown on the plans. More delays arise when vessel construction begins prior to plans being submitted for review. Remedial work is necessary more often than not.

Vessel particulars given for the structural approval are compared to those provided with the stability book. If there is a difference, than a structural re-assessment is required. This can be a major problem if the weight estimate is not carried out correctly or if the structure was designed very close to the required factors of safety. If the vessel is heavier, then the structure might no longer comply.

Rule shopping is not acceptable. There are many cases where designers have proposed to use the design loadings from one set of rules and to carry out the determination of scantlings to another. Whilst all methods will produce similar end results, the method for arriving to these results varies considerably.

Changes in drawings should be documented and any other affected drawings re-submitted. This enables checks to be carried out much more efficiently and will avoid the need to re-assess all components of the structure each time a new revision of the plans is received. By providing all the necessary information with the plans, it will mean that the approval time can be reduced. This is of benefit to all concerned as prompt approval means that the construction can be started much earlier.

There is often confusion between the roles of the classification society and that of the statutory authority. The roles of both are important, but quite distinct. Compliance with the rules of a classification society does not immediately mean compliance with all the statutory requirements. Whilst there is an overlap, the statutory requirements must be complied with, and exemptions are only issued by the statutory authority. Statutory requirements are those set forth by IMO conventions, Commonwealth, State and Territory acts, laws and regulations.

Acknowledgments

I wish to thank the following people for their opinions, guidance and advice:

A. Pengilly, J. Ritchie and D. Gosling of the Waterways Authority

J. McAuley and L. Emmett of AMSA

L. Michaels of Bureau Veritas

D. Wilson of American Bureau of Shipping

P. Helmore of UNSW

Consultant designers and naval architects, you know who you are.

References

Uniform Shipping Laws Code AS 4132 Parts 1, 2 and 3 Marine Orders U.S. Coast Guard Marine Safety Centre — Procedure Nos E1-30, H1-10, H1-12, H1-13, H2-3, T1-1, T1-4, T1-11 and T1-19.

Appendix I

WATERWAYS AUTHORITY OF NSW

INITIAL SURVEY REQUIREMENTS FOR COMMERCIAL VESSELS

INTRODUCTION

These notes are intended to assist persons who wish to operate a vessel commercially in New South Wales.

Commercial vessels are defined as vessels that are used for any type of business, trade or commerce. They can include Fishing vessels, Tourist/Charter boats, Work boats, Ferries, Water taxis, Dive boats, Hire and Drive, etc. All commercial vessels are assessed in accordance with the Uniform Shipping Laws (USL) Code or equivalent standards.

Initial Survey is the process of surveyor inspections, plan approval and stability approval for vessels entering NSW Survey. At the completion of the Initial Survey a Vessel Permit is issued, and the vessel enters Periodic Survey.

INITIAL SURVEY

Application for Initial Survey

The enclosed APPLICATION FOR INITIAL SURVEY OF A COMMERCIAL VESSEL form is to be completed and returned to the Authority together with the prescribed fee. This fee only covers duties completed by the Authority and does not include the cost of consultants engaged in preparing plans, stability, etc. for approval by the Authority.

SUBMISSION OF THE FEE, PLANS AND SPECIFICATIONS

NEW VESSELS

Before the start of new vessel construction, a minimum of 2 sets of plans are to be forwarded to the Authority for approval, together with the prescribed fee.

The size and class of the vessel will determine the extent of plans and information required. In general plans are required for new vessel construction in the following cases.

- All fibreglass vessels
- Class 1 and Class 2 vessels 7.5 metres and over
- Class 3 vessels 10 metres and over. Class 3 vessels less than 10 metres require an accurate arrangement plan when operation will involve large weights on decks or rigging, e.g. tuna fishing, beam trawling, large fish tanks on deck, etc.
- Class 4 vessels 7.5 metres and over. Construction plans for hire houseboats may be replaced by a list of scantlings for the house, deck and pontoons.

EXISTING VESSELS

The plan submission requirements for existing vessels are the same as for new vessel construction.

Existing timber fishing vessels less than 15 metres may be considered without formal plans if currently in survey in another state.

In order to ascertain the extent of survey work necessary before proceeding with Initial Survey, owners are advised to have

The Australian Naval Architect

a Preliminary Survey inspection completed by a private Marine Surveyor or private Naval Architect with commercial vessels experience. (Note the Waterways Authority does **not** conduct these inspections).

SURVEY DURING CONSTRUCTION

NEW VESSELS

Vessel construction is not to start until approval of the construction drawings has been completed and the builder notified. If any construction is started before this approval is given, the builder accepts all responsibility for any remedial work which may be required as a consequence of the construction approval.

The Authority will inspect the vessel at various stages during construction, in particular:

- Framework completed and ready for plating, or at each layer of reinforcement after setting of resin in GRP construction
- Hull plating and stiffening completed, or completion of framing in GRP construction.
- Installation of machinery, propulsion system, piping systems, electrical systems, fuel tanks, etc.
- Checking of lines plan, bulkheads, arrangement, draft marks, etc.
- Witnessing of the appropriate stability test

NOTE: The particular survey program for each vessel should be discussed with the surveyor responsible for the initial survey.

EXISTING VESSELS

Inspections of the vessel are required, the number of inspections being dependent upon the size, classification and condition of the vessel. The surveyor will be able to indicate these during the first survey inspection.

STABILITY APPROVAL

After the appropriate stability test has been conducted by the owner/applicant or consultant and witnessed by a Waterways Authority surveyor, a stability report is to be forwarded to the Authority for approval.

The stability report can in some instances be complex and may require the services of a consultant naval architect for preparation.

COMPLETION OF INITIAL SURVEY

A final inspection is required at the completion of the Initial Survey process to check the vessel's safety equipment and to conduct sea trials to confirm the safe operation of the equipment and machinery.

All outstanding plans, stability information, test certificates, documentation and any outstanding fees must be submitted to the Authority before a vessel permit will be issued.

PROTOTYPE APPROVAL

Prototype approval is a process of plan and stability approval and surveyor inspections for a series of vessels entering NSW Survey. At the completion of this process the design is granted Prototype Approval and an associated Prototype Approval number. The benefits of prototype approval include:-

- Eliminating the need to submit plans for each vessel.
- Eliminating the wait for plan approval of each vessel.
- Streamlined survey procedures for vessels less than 10 metres in length.
- Clear control over ownership of a design.
- Enhanced marketing appeal as a "Prototype Approved" vessel.
- Reduced costs for a series of vessels. The 'break even point' should be 2–3 vessels.

Additional information on prototype approval can be obtained from the Vessel Survey Branch.

ISSUE OF A CERTIFICATE OF SURVEY

On satisfactory completion of all plan approval, stability approval and inspections, the vessel is issued with a Waterways Vessel Permit valid, in most cases, for 12 months.

EXCEPTIONS

VESSELS EXEMPT FROM INITIAL SURVEY

- Class 3D/ 3E professional fishing vessels.
- Class 2 work vessels of less than 6 metres carrying no passengers.
- Class 2D/ 2E work vessels of any length carrying no passengers, no dangerous goods, no fuel in bulk, or no crane with a lifting capacity greater than 5 tonnes.
- Class 4E hire vessels of less than 4.25 metres.

February 2003

Details Required on Plans

New Vessels

The minimum level of detail to be provided on plans is shown in the table below.

Existing Vessels

Plans are required as for "New Construction" except that, where no construction plans are available, the need for these plans may be waived subject to certain provisions.

Presentation of Drawings

Plans should be submitted according to one of the following scales:

1:1, 1:2, 1:5, 1:10, 1:20, 1:25, 1:50, 1:75, 1:100. Imperial scaled drawings are only acceptable for existing designs prepared prior to 1987.

For ease of handling and filing, the plans are be folded to A4 size.

Note: The enclosed information is not intended to explain all aspects of Initial Survey. The information provided is designed to inform owners, operators, builders, etc. of the general requirements for Initial Survey in New South Wales. For additional information please contact the Authority.

WHO TO CONTACT

For information on the Initial Survey requirements, please telephone (02) 9563 8777 between 8:30 am and 4:30 pm Monday to Friday. Alternatively you can address correspondence to the Naval Architect by facsimile on (02) 9563 8788 or mail to:

Waterways Authority Vessel Survey Branch PO Box R228 ROYAL EXCHANGE, NSW 1223

TYPE OF PLAN	DETAIL REQUIRED
(WHEN REQUIRED)	
General Arrangement	Tanks, deck openings, seating and berthing, bulkhead locations, accessways, bulwarks & railings, navigation lights, ventilation, ballast, buoyancy material, the intended use of each space, watertight closing appliances.
Lines Plan	Body plan, sheer plan, draft marks and watertight
(Where hydrostatic data is required)	bulkhead locations.
Sail Plan (Sailing vessels only)	Location and size of sails and underwater profile of vessel from keel to truck.
Damage Control Plan	Boundaries of watertight compartments, openings,
(Vessels 35 metres and over)	and means for closure, arrangements for correcting list.
Structural Drawings	Structural profile and decks, bulkheads, sections, superstructure, engine girders, fastening/welding/layup details, material details, thickness and material of windows and window frames.
Rudder and Steering Gear	Stock and bearings, construction, couplings, emergency steering, and materials used.
Structural Fire Protection	Type and disposition of fire divisions, alternative fire protection systems, locations of escapes,
Machinery Arrangement	Arrangement and function of main and auxiliary machinery.
Piping Schematic	Bilge, fuel, sanitary, venting, exhaust, steam, etc. Valves and overflows.
Electrical Schematic	Electrical equipment, wiring overload, low voltage
(32 Volts and over)	and other protection devices, emergency power arrangements where necessary.
Shaft Line	Propeller Shafts, brackets, material details, couplings, stern tube and bearings.
Freestanding Fuel Tanks	Construction, Baffles, Support, materials.
Fire Control Plan	Location and type of life saving appliances, access
(Vessels 35 metres and over)	routes.
Sewage holding tank details	For all vessels operating on Sydney Harbour, Murray River or inland waters.

Notes:

- 1. Electrical schematics for systems of 32 volts and higher are required for vessels of all lengths and classes.
- 2. Fuel tank plans(where the tanks are not portable) are required for vessels of all lengths and classes.
- 3. For vessels where no plans are lodged with the Authority, the Initial Survey Approval Report for the vessel should be accompanied by a photograph. This will then be incorporated in the Survey Record Book that is issued by the Waterways Authority to assist in periodic surveys.

THE INTERNATIONAL MARITIME EXPOSITION & CONGRESS FOR THE ASIA PACIFIC

3 – 6 FEBRUARY 2004 SYDNEY AUSTRALIA

PACIFIC

Eerry

www.pacific2004.com.au

INTERNATIONAL MARITIME CONFERENCE Tuesday 3 - Thursday 5 February 2004

MARITIME ENGINEERING - CHALLENGES & OPPORTUNITIES

Organised by:



IMAREST

For further information visit: www.tourhosts.com.au/pacificimc2004

ROYAL AUSTRALIAN NAVY SEA POWER CONFERENCE

Organised by:



Tuesday 3 - Thursday 5 February 2004

For further information visit: www.tourhosts.com.au/seapower2004

For further information on the above conferences contact: Tour Hosts Conference & Exhibition Organisers GPO Box 128, Sydney NSW 2001 AUSTRALIA Tel: + 61 2 9248 0800 Fax: + 61 2 9248 0894 Email: Pacific 2004 International Maritime Conference: pacificImc2004@tourhosts.com.au Pacific 2004 Royal Australian Navy Sea Power Conference: seapower2004@tourhosts.com.au

Wärtsilä Tests First Wärtsilä 50DF Dual-fuel Engine

Wärtsilä Corporation announced in January that it had successfully completed the factory acceptance test of the first Wärtsilä 50DF engine in a series of four dual-fuel engines for a 74 000 m³ LNG (liquefied natural gas) carrier.

The LNG carrier is under construction at the French shipyard Chantiers de l'Atlantique for the French gas holding company Gaz de France. Due for delivery in 2004, it will be powered by four Wärtsilä 6L50DF dual-fuel engined generating sets which will meet all the ship's propulsion and shipboard electrical requirements. The Wärtsilä 6L50DF engines each develop 5 700 kW at 514 rpm. This will be the first LNG carrier to be powered by electric propulsion, and one of few to have internal-combustion engines instead of the more usual steam turbine plant.

Compared with the alternative power plants, the Wärtsilä 50DF engines have distinctive benefits in LNG carriers. Whilst making maximum use of the gas fuel (boil-off from the cargo of liquefied natural gas) to develop useful power, the high efficiency of these engines calls for a much lower fuel consumption overall and thus lower operating costs than the conventional steam turbine plant. The Wärtsilä 50DF engines also have much lower stack emissions than a steam plant. Their low NOx emissions are about one-tenth those of the equivalent diesel engines. The combination of the engines' low fuel consumption and their maximum use of natural gas means the Wärtsilä 50DF engines also have low CO_2 emissions.

Developed from Wärtsilä's very successful Type 46 diesel engines, the Wärtsilä 50DF engines have cylinder dimensions of 500 mm bore by 580 mm piston stroke. Available in configurations with six, eight and nine cylinders in line, and 12, 16 and 18 cylinders vee-form, they develop 950 kW per cylinder MCR at 500 or 514 rev/min for 50 Hz and 60 Hz electricity generation respectively.

The Wärtsilä 50DF engines can be run alternatively in gas mode or liquid fuel mode. The engines are also fully capable of switching over from gas to liquid fuel (marine diesel oil) automatically should the gas supply be interrupted, while continuing to deliver full power.

Gas fuel is supplied at a low pressure (less than five bar) to the engines. In gas mode, the Wärtsilä 50DF engines operate according to the lean-burn Otto process. Gas is admitted into the air-inlet channels of the individual cylinders during the intake stroke to give a lean, premixed air-gas mixture in the engine combustion chambers. Reliable ignition is obtained by injecting a small quantity of diesel oil directly into the combustion chambers as pilot fuel which ignites by compression ignition as in a conventional diesel engine.

The Wärtsilä 50DF engines use a "micro-pilot" injection with less than one per cent of the fuel energy being required as liquid fuel at nominal load. Electronic control closely regulates the "micro-pilot" injection system and air-gas ratio to keep each cylinder at its correct operating point between the knock and misfiring limits.

2000th Wärtsilä 20 Engine

Wärtsilä Corporation has manufactured the 2000th Wärtsilä 20 diesel engine. The Wärtsilä 20 engine type was introduced in 1992 as a heavy-duty diesel engine for economical, reliable operation on heavy fuel oil. In its ten years' production, the engine has been further developed and still offers a remarkable combination of state-of-the-art design and top performance in a compact, space-saving package. Its service experience has confirmed its ability to achieve long times between overhauls. Up to 24 000 hours' operation between overhauls are achieved on light fuel oils.

The Wärtsilä 20 now gives up to 180 kW/cylinder at up to 1000 rpm. Thus, with four to nine cylinders in-line, it now offers maximum continuous outputs of 520 to 1620 kW. The summer of 2003 will also see the delivery of the first pilot engines with the next output stage, which is 10% above the previous stage.

This engine type has been particularly popular for auxiliary shipboard applications. Indeed the 2000th engine is one of three nine-cylinder engines being supplied as complete diesel generating sets for a 2500 TEU container ship being built at the German shipyard Aker MTW Werft GmbH in Wismar for the German shipowner Reederei Nord Klaus E. Oldendorff GmbH. This is one of 16 container ships of the same class from Aker MTW for various owners, for which Wärtsilä has also supplied Sulzer 7RTA72U-B main engines but with various configurations of Wärtsilä 20 generating sets according to the shipowners' requirements.

More Electronically-controlled Sulzer Lowspeed Marine Engines

Three Sulzer 9RT-flex60C low-speed diesel engines have been ordered by the German shipbuilder Volkswerft Stralsund GmbH for installation in three 2100 TEU container ships contracted there by Safmarine, part of the the Danish group A.P. Møller. The ships are due for delivery in 2004.

These nine-cylinder engines will each have a maximum continuous power output of 21 240 kW at 114 rpm. They will be built under license from Wärtsilä Corporation by HSD Engine Co. Ltd in Korea.

Developed by Wärtsilä Corporation, Sulzer RT-flex engines are the first low-speed engines to have electronicallycontrolled common-rail systems for fuel injection and valve actuation. This gives unrivalled flexibility in the way the engines operate, to deliver benefits such as lower exhaust emissions, lower fuel consumption at part load, and better manoeuvring ability.

Sulzer RT-flex engines are attracting increasing interest from shipowners. The above orders bring the total number of these engines in service and on order to 13, amounting to an aggregate power of 209 590 kW. The first series-built RT-flex production engine in service is the Sulzer 6RT-flex58T-B in the bulk carrier *Gypsum Centennial* which entered service in September 2001. In addition to the three Sulzer 9RT-flex60C engines mentioned above, there are six Sulzer 7RT-flex60C engines, another Sulzer 6RT-flex58T-B engine and two Sulzer 5RT-flex58T-B engines on order.

RINA High-speed Craft Conference

Report by Lawry Doctors

This year's RINA event on high-speed craft was entitled "High-Speed Craft: Technology and Operation", and took place at RINA headquarters in London on 11 and 12 November 2002.

The conference boasted sixteen papers on a wide variety of topics, although the principal emphasis was the question of ship motion and its influence on kinetosis. The conference was well attended, with a total of fifty-three delegates in addition to the seventeen authors, all representing thirteen countries.

Most of the papers dealt with practical aspects of ship design, with the catamaran and small-waterplane-area twin-hull (SWATH) vessels featuring most frequently. The trimaran and the pentamaran were also considered in some of the presentations.

In the majority of cases, the ship design included rather extensive ship-motion tests in model basins, in a large range of sea states and vessel headings. An interesting aspect, included in the studies described by some of the authors, was the speed loss associated with the ship motions.

The complete list of papers is as follows:

Ferries and Fast Craft: A North American Perspective, B. Hutchison

The Use of Tactile Navigation Cues in High Speed Craft Operations, T. Dobbins and S. Samways

Ocean Transits in a 50 m, 45 kn Catamaran — The Minimisation of Motions and Speed Loss, E. Dudson and J. Roy

Motion Prediction and Sea Trial Measurements for Comfort Rating of a Catamaran, A. Köhlmoos and T. Schellin

Prediction of Motion Sickness in High Speed Craft, C. Verveniotis and O. Turan

A Conceptual Model for a Shipboard Motion Monitoring and Operator Guidance System, P. Crossland and M. Johnson High Speed Ro-Ro Designs, J. Moret

Air Crew Training Vessels: A Study of the Synergy between Fast Patrol and Passenger Craft, A. Bailey and N. Warren An Investigation of the Comparative Costs of High Speed Sealift versus Airlift, M. Williamsen, C. Kennell, and C. Broadbent Theoretical Study of the Tradeoff between Stabiliser Drag and Hull Motion, L. Doctors

The IZAR Pentamaran — Tank Testing, Speed Loss and Parametric Rolling, N. Gee, J. Gonzales and E. Dudson

Design Building and Trials of Two High Speed Landing Craft Prototypes LCM-1E for the Spanish Royal Navy, J. Pérez, J. Toro and J. Clemente

Speed, Seakeeping and Efficiency (Fast, Safe and Cheap - FSC): Three into One, V. Tugolukov

Rough Seas and Small Passenger Ferries: The Damen 3737 SWATH Solution, R. Vrugt, P. Noordenbos and E. Dudson Apply (sic) Tanaka's Nomogram to the PT Thrust Estimation, Y. Yoshida

Motion of Wave-piercing Trimaran: Test Data and a Comparison with the Motion of the Other Vessels, V. Dubrovsky



Look Out! This unusual image of two RAN Oberon class submarines(taken over 20 years ago) suggests an incident that, surely, we would all have heard about. Actually, it is a rather deceptive double exposure (analogue rather than digital mischief!) (Photograph courtesy Peter May)

February 2003

THE INTERNET

MaritimeEXODUS

For passenger ships constructed on or after 1 July 1999, Regulation II-2/28-1.3 of the SOLAS Convention requires escape routes to be evaluated by an evacuation analysis. Design of escape routes and evacuation of ships has traditionally been addressed by the prescriptive regulations set out in SOLAS (1974 as amended). These regulations address the specific structural design requirements of the escape routes, but do not take account of the people-to-people and people-to-environment interactions.

MaritimeEXODUS is a software program developed by the Fire Safety Engineering Group at the University of Greenwich in London. This is a powerful tool for identifying problematic areas of a vessel layout at the design stage, and can optimise or improve existing ship evacuation strategies. It can be interfaced with fire and smoke-spread modules, and will estimate the exposure of passengers and crew to smoke, heat and gases. It can be used to visualise the behaviour of passengers and crew throughout the evacuation process. Further information can be found on the website www.fleetech.com/ss/exodus/maritimeexodus.htm.

Concept Boat Competition

The Concept Boat Competition is an annual competition intended to encourage enthusiasts, professional or amateur, to show the global small craft industry what they believe the industry should develop in this new millennium. The organisers of this competition, the British Marine Federation, supported by the Royal Institution of Naval Architects, wish to encourage everyone involved in the design, development, production and use of small craft to look to the future and, through the competition, influence the future. The Concept Boat Competition will cover the full range of recreational and commercial/working boats, and each year will have a different theme. This the second year of the Concept Boat competition. The theme for 2003 asks for designs to satisfy the following brief: A new design of recreational or commercial craft of up to 24 m in length intended for a purpose (or purposes) specified by the entrant. The judges will be looking for designs that either:

- encourage new waterborne activities; or
- satisfy a previously unfulfilled need; or
- is a significant advance on existing craft designed for the same use.

The intended purpose(s) of the entry must be clearly defined in no more than 25 words on the competition entry form.

The competition prizes are as follows: First £5000, Second £3000 and Third £2000. An experienced panel of judges will be drawn from the Royal Institution of Naval Architects Small Craft Committee, BMF and appropriate user representatives.

Further details can be found on the website www.conceptboat.com

The Australian Naval Architect

Crowther Brokerage

Crowther have launched a commercial vessel and motor yacht brokerage service through their website. The pilot service, Crowther Brokerage, was inevitable considering the volume of enquiries the company receives regarding sales of new and used vessels. The benefits to potential brokerage customers are straightforward: Crowther already has a large client base and contacts throughout the marine industry, they have the marine knowledge you expect from a longestablished, diversified vessel designer and their brokerage rates are highly competitive. The company hopes to see the listing grow quickly for both new Crowther vessels offered by their builders and used vessels of quality design and construction. Visit www.crowther.com.au.

Voith Cycloidal Rudder

Voith have announced a new propulsion and manoeuvring system for ships, the Voith Cycloidal Rudder (VCR). Based on the Voith-Schneider Propeller (VSP) that has been the hallmark of safety, precision and manoeuvrability for approximately 75 years, the Voith Cycloidal Rudder was developed. It is a new propulsion and manoeuvring system for all ships that operates with a maximum of manoeuvrability over the entire speed range.

As with the Voith-Schneider Propeller, the Voith Cycloidal Rudder has a rotor casing with a vertical axis of rotation. Two rudder blades lying parallel to the axis of the rotor casing project from it. There are two different modes of operation:

In passive mode, the rotor casing only performs partial rotations in both directions. Thus the locked rudder blades are adjusted relative to the inflow and transverse forces for steering are generated. The passive mode of operation of the Voith Cycloidal Rudder is identical to a conventional ship's rudder and is used for cruising speed of the vessel.

In active mode of operation, controllable thrust, stepless in direction (0-360°) and magnitude is produced just as with a conventional Voith-Schneider Propeller. The uniform rotation of the rotor casing is superimposed by an oscillating movement of both blades around their own axis. The oscillating amplitude is the determinant factor for the thrust amplitude. The phase between 0° and 360° controls the thrust direction. Therefore an identical thrust can be generated in all directions. Both variables, thrust magnitude and thrust direction, are controlled by the hydraulically-activated kinematics of the Voith Cycloidal Rudder with a minimum of power consumption. This mode of operation is selected for slow-speed operation of the vessel, e.g. during estuary trading or in the harbour as transverse forces of the conventional rudder may be insufficient because of reduced inflow speed. In emergency situations, e.g. black-out of main propulsion, the Voith Cycloidal Rudder offers a secondary propulsion and guarantees take-home capability.

The dual mode of operation of the Voith Cycloidal Rudder provides a number of important properties and application possibilities that are important for many maritime applications, civil or naval, and that contribute as a whole to an increased ship safety. Further details may be found on the website www.voith-schiffstechnik.com/news/vcr.htm.

About 80 000 viruses now exist, having grown at a rate of around 600-700 new ones each month in 2002.

Engineers Australia Enews, 24 January 2003

America's Cup

The Louis Vuitton Cup, to decide the challenger for the America's Cup, has been held in Auckland over the last few months, and was decided in January in favour of *Alinghi*, the Swiss yacht. A colleague was recently advised by email that *Alinghi* fever was rampant in Switzerland and, never having heard of her, wondered what new disease this was!

This illustrates the most disappointing aspect of the current series, the lack of coverage of the LVC races by the Australian media. Fortunately, those interested can keep up-to-date with the action and results on the website www.americascup.co.nz. It is to be hoped that the Australian media interest will pick up when *Alinghi* challenges *New Zealand*, with the first race starting on Saturday 15 February at 1300 (Auckland time).

Phil Helmore

Deleting Emails could be Illegal

Australian companies may be seriously breaching archives and corporations law by deleting business-related emails, Legato Systems has warned.

The enterprise software firm said a survey of Australian companies had found that 77% use or accept email for financial transactions such as orders, confirmations and pricing. But few records were kept, as half of the companies said they kept a printed copy of less than 5% of their emails, with 80% of companies deleting their emails within a month and 42% deleting them daily.

"While there is no general provision dealing with retention of emails in Australia, the corporations law requires financial documents to be retained for five years and government departments, under the Archive Act, need to retain emails for seven years," said Dr Adrian McCullagh, a solicitor with Australian law firm Freehills.

AAP via Engineers Australia Enews, 24 January 2003

Record year for computer viruses predicted

UK-based antivirus expert Sophos believes computer users should brace for a new onslaught of viruses this year, especially worms deployed into instant messaging systems.

"Virus writers are most interested in creating the next super Windows worm, spread by email or instant messaging, as these mass-mailing viruses carry the greatest impact," Graham Cluley, senior technology consultant at Sophos, told a news conference.

Popular instant messaging systems include AOL Time Warner's subsidiary ICQ, Microsoft Corp's MSN Messager and a similar system run by Yahoo.

Sophos also expects to see a rise in the number of backdoor trojans, which open up holes in operating systems enabling hackers to implant remote access tools that can operate an infected computer by remote control.

Historic Eighteens

Sydney has seen something of a revival of the historic eighteen footers, powered by vast acres of canvas and crewed by a football team, which once graced the harbour. In 1993 Reg Barrington built a replica of Tangalooma, the 1932 Australian champion. In 1994 he commenced building a replica of Scot to race against Tangalooma, and she was completed by Len Heffernan. In 2000 Rob Tearne built a replica of the revolutionary Aberdare (1932) for himself (narrower, fewer crew and more modern sails made her unbeatable and split the sport), Top Weight (1930) for Grant Taylor, and Australia (1947) for John Winning. In 2001 Tearne built Alruth (1935) for Winning, and in 2002 Ian Smith built a replica of 'Wee Georgie' Robinson's famous Britannia (1919). These boats are now raced regularly by the Australian Historical Sailing Skiff Association from the Sydney Flying Squadron, and a spectator ferry follows the racing. These historic eighteens are racing in Auckland, between the Louis Vuitton Cup and the America's Cup, as we go to press. Further details are available on the websites http://ahssa.jcncomputers.com or www.sydneyflyingsquadron.com.au.

Phil Helmore



Britannia sailing on Sydney Harbour (Photograph John Jeremy)

PROFESSIONAL NOTES

NMSC Extends to 2008

The Australian Transport Council (ATC) has extended the National Marine Safety Committee's life to June 2008 under current funding and operational arrangements to enable it to complete its implementation of the national marine safety strategy for Australia's recreational boats and domestic commercial fleet. The decision marks a watershed for NMSC in securing and ongoing role and recognition of the work being undertaken by its members and staff.

The ATC said funding, comprising contributions from federal, state and territory marine safety agencies, should reflect NMSC's work program requirements. NMSC will submit an updated marine safety strategy — detailing tasks, timeframes and costings for completion of its prioritised work program within the five-year timeframe — to ATC for endorsement at its next meeting.

A key element of the revised strategy will be greater industry involvement in marine safety initiatives. This follows concerted calls for greater consultation and involvement by industry stakeholders, including NMSC's Industry Advisory Committee, the Seafood Industry Council and surveyors and engineers, at consultative workshops in 2002. [And Noel Riley, via the pages of this journal — Ed.]

Major industry stakeholders have strongly supported NMSC's continuing role.

The ATC decision, at its last meeting in 2002, recognised that NMSC is effectively progressing 'a considerable body of work under its current work program that will take five years to complete' and needed adequate funding, staffing and project management arrangements to achieve this.

As a result of the ATC's decision, NMSC is establishing strategic priorities for future developments in marine safety over the next five years, a governance model for NMSC operations, work plans and revised budget estimates.

NSCV Operating in Tasmania

Tasmania — the first Australian state or territory to do so has implemented the crew levels and competency section (Part D) of the National Standard for Commercial Vessels by adopting model clauses to amend legislation. The new standard came into operation in Tasmania in late December.

The amendments which brought the NSCV section into force are in the:

- Marine and Safety (Certificates of Competency) Bylaws 2002; and
- Marine and Safety (Safety Manning) Amendment Regulations 2002.

Copies of the by-lawas can be obtained from www.mast.tas.gov.au, and copies of the regulations from www.thelaws.tas.gov.au.

Part D of the NSCV, which deals with the requirements to obtain a certificate of competency and how crewing levels

are set, provides a national common standard for crewing matters.

To ensure consistent application of the standard in jurisdictions around Australia, NMSC wrote a set of model legislative principles for incorporation in federal, state and territory legislation.

Once fully implemented around Australia, NSCV Part D will mean that an unrestricted Certificate of Competency issued by any marine authority will be accepted by all other jurisdictions.

Safety Lines, January 2003

National Register of Compliant Equipment

The National Register of Compliant Equipment is a comprehensive database of approved marine safety equipment such as life saving and fire appliances. All products and systems that are listed on the register have met the requirements of the Uniform Shipping Laws Code or the National Standard for Commercial Vessels, through compliance with appropriate national and international marine standards and approved by a recognised product-certification or testing organisation.

The register is of benefit to suppliers and buyers alike.

Suppliers benefit in that listing on the register (valid for five years) provides nationwide recognition that a product or system is approved for use on Australian vessels. Buyers benefit in that all products listed on the register have been approved by all relevant regulatory authorities and are backed by a rigorous quality system.

The register can be found at www.nmsc.gov.au/nrce. The website is full searchable by keywords, manufacturer or supplier, name of product, USL Code/NSCV or product dsescriptions. Purchases may also be made online by accessing the manufacturer/supplier's website using the hotlinks provided.

Find an Engineer

The Institution of Engineers, Australia has developed an online search facility for specific skills and services of professional engineering firms and consultants. IEAust Chief Executive, John Boshier, launched www.findanengineer.com.au on 27 November in Perth.

"The website offers a detailed search for engineering expertise across all disciplines including the more obscure and niche areas of the profession", he said.

Your scribe immediately sought the site to test the claim, but found it lacking at the levels of highest skill: naval architects were not even mentioned! An impassioned plea brought results: naval architecture is now listed as an area of expertise on the site but, to date, no listings have appeared. Perhaps you would care to list your services and make the site more widely known.

Phil Helmore

NAVAL ARCHITECTS ON THE MOVE

The recent moves of which we are aware are as follows:

Bronwyn Adamson has moved on from Stewart Marine Design in Cairns and, after a couple of months R&R and contracting to SpearGreen Design in Sydney, has taken up a position with Austal Ships in Fremantle in their Research and Development Department.

Habibul Ahmed has moved on from Austal Ships and has taken up a position as a Hull Structural Engineer (Naval Architecture) in the Directorate of Submarine Sustainment with the Department of Defence in Perth.

Levi Catton, a graduand of the Australian Maritime College, has taken up a position with the Directorate of Navy Platform Systems within Navy Systems Branch, Canberra.

Joe Cole, a graduand of the Australian Maritime College, has taken up a position with the Department of Defence in Canberra.

Stephen Cook, a graduand of the Australian Maritime College, has taken up a position with Brisbane Ship Constructions in Brisbane.

Ben Duncan has moved on from Austal Ships and is outward bound on an extended overseas sojourn/life experience.

Andrew Forbes, a graduand of the Australian Maritime College, has taken up a position with Wavemaster International in Fremantle.

Scott Hunter, a graduand of The University of New South Wales, has taken up a position with Energetec (pronounced 'energetic') in Sydney. They are a wave-energy company, using waves to generate power, and Scott is using CFD to research and develop the design.

Martin Johnson, a graduand of The University of New South Wales, has taken up a position with Bethwaite Design in Sydney. Martin says that he is working as a boatbuilder, mainly on production sailing dinghies and the occasional custom-built skiff, but also doing a bit of naval architecture on their new designs.

Wade Limpus, a graduand of the Australian Maritime College, has taken up a position with the Directorate of Navy Platform Systems within Navy Systems Branch, Canberra.

Brett Longmuir has taken up a position with Australian Maritime Technologies in Williamstown.

Cameron Lowry has moved on from Image Marine and has taken up a position with Alan R. Conroy and Partners in Dubai, UAE.

Nigel Lynch, a graduand of The University of New South Wales, has taken up a position with North West Bay Ships in Sydney.

Simon McGoldrick, a graduand of the Australian Maritime College, after contracting to Crowther Multihulls, has now opted go sailing around the world.

Giang Ngo, a graduand of The University of New South Wales, has taken up a position as a naval architect with Geoff Glanville and Co. in Cairns. February 2003 Michael O'Connor, a graduand of The University of New South Wales, has taken up a position with the Directorate of Navy Platform Systems within Navy Systems Branch, Canberra.

Paul O'Connor has moved on from Australian Defence Industries and has taken up a position as a Surveyor in the Design Appraisal Centre of Lloyd's Register of Shipping in Sydney.

Rozetta Payne, a graduand of The University of New South Wales, is about to add a degree in naval architecture to her degree in mechanical engineering from the University of Adelaide, and continues in her position as an engineer with Commercial Marine Design at Daley's Point on the Central Coast.

Minh Pham, a graduand of The University of New South Wales, has taken up a position with the Viet Nam Shipbuilding Industry Corporation (Vinashin). Minh says that he will start his 'career' at Huyndai-Vinashin shipyard (one of Vinashin's joint ventures with Huyndai Shipping Group) in Nha Trang, Viet Nam, in mid February.

Dave Pryce has moved on from North West Bay Ships in Hobart and, as we go to press, is finishing a Master Class V course at the Australian Maritime College in Launceston prior to heading for ports abroad.

Anton Schmieman, a graduand of the Australian Maritime College, has taken up a position with Austal Ships in Fremantle in their Research and Development Department.

Ben Smith, a graduand of The University of New South Wales, has taken up a position with Austal Ships in Fremantle, in their Marketing Design Support Department.

Michael Tiller, a graduand of the Australian Maritime College, has taken up a position with North West Bay Ships in Sydney.

Lachlan Torrance has taken up a position with Structural Polymer Technologies in Southampton, UK. He says that he is now officially a structural engineer for racing yachts, and that his latest boat is for the king of Spain, no less! He works with composites and struggles to get home before 10 pm most nights, which is a turnabout as he thinks he must have been the laziest student in his year.

Byron Walpole, a graduand of the Australian Maritime College, has taken up a position with Austal ships in Fremantle in their Design Contracts Department.

This column is intended to keep everyone (and, in particular, the friends you only see occasionally) updated on where you have moved to. It consequently relies on input from everyone. Please advise the editors when you up-anchor and move on to bigger, better or brighter things, or if you know of a move anyone else has made in the last three months. It would also help if you would advise Keith Adams when your mailing address changes to reduce the number of copies of *The Australian Naval Architect* emulating boomerangs.

Phil Helmore Gregor Macfarlane

MEMBERSHIP NOTES

AD Council Meetings

The Australian Division Council met on 11December 2002, with teleconference links to all members and John Jeremy in the chair in Sydney. Matters, other than routine, which were discussed included:

- WA Section Nominee: Secretary advised Council that Mr Shaun Ritson had been **a**ppointed to Council by the WA Section to replace Dr Armstrong.
- Support for the Australian Maritime College: A letter of support had been provided to the AMC by the President in their bid to change the name of the College to The Australian Maritime University.
- Budget 2003: The Treasurer presented the Budget for the Year 2003, forecasting a slight deficit for the year. He also pointed out that Sections, in the past, had always had their requests for funds approved and no one had ever been denied reasonable funding for Section activities.
- Membership: Attention was drawn to the number of Student Members who were really graduates. A list of Student members would be provided to Mr MacFarlane and Mr Helmore for their perusal and, if corrections were needed, these were to be conveyed to London with a suggestion they be urged to upgrade their membership.
- *The Australian Naval Architect*: Mr Riley offered his services to assist the Editor-in-Chief and Technical Editor as a "reader", not to act as a referee but to assist in establishing the suitability of articles for inclusion in *The ANA*. His services had been accepted by Council.
- Advertising Rates for *The ANA*: The question of advertising rates was raised by Mr Jeremy, the Editorin-Chief, who compared *The ANA*'s rates with those of other publications. While agreeing rates were comparatively low, the attention of members was drawn to the limited distribution of the publication. The matter of advertising rates for the ANA and advertising on the Web was to be left to the Executive Committee of Council.
- Divisional President 2003–2004: Mr Chapman, President of the Australian Division, will complete his term of office at the conclusion of the next AGM and Council approved the appointment of Mr Gehling, currently the Division Vice-President, as President to serve for a two year term from the conclusion of the next AGM. The appointment was endorsed unanimously by Council.
- Draft National Standard for Commercial Vessels: The President informed Council that he had written to NMSC expressing Council's concern over the draft National Standard for Commercial Vessels using comments made at the last meeting of Council.
- Assistance to AMC for Workshop on *Hydrodynamics* of *High Speed Craft*: Dr Prasanta Sahoo had requested assistance for the AMC workshop on *Hydrodynamics* of *High Speed Craft* and Council agreed to provide free advertising in *The ANA* and would support any approach from the College to London for any additional support.

The next meeting of the Council of the Australia Division will be held on Wednesday 5 March 2003.

Keith Adams

Walter Atkinson Award 2002—Call for Nominations

Selection Criteria

- The nomination may be for a presentation which includes a written technical paper, or for a technical published paper, and it must be more than just a promotional presentation.
- The paper must be first presented at a maritime conference or RINA meeting within Australia, or first published in a maritime journal within Australia, during the current year.
- All authors are eligible.

Nominations

Nominations for the Walter Atkinson Award are made by members in writing to the Secretary of the local Section (or, for NT or SA residents, the Division Secretary). Nominations must include a hard copy of the paper for assessment, except for papers published in *The ANA*. It is the responsibility of the nominator to obtain the consent of the author(s) of the paper to the nomination.

Assessment

Sections then consider the papers nominated to them in the light of the assessment criteria and each make one or more recommendations to the Australian Division. A subcommittee of the Australian Division Council considers the nominations in the light of the assessment criteria and decides the award, which is then announced in *The ANA*. The following are considered:

- Is there a stated or implied purpose?
- How important is that purpose in the context of the Australian industry?
- Does the paper have any new ideas to impart?
- How easy is the paper to understand?
- How rigorous is the paper?

No member of a local Section Committee or the Australian Division Council who is an author or contributor to a paper may be involved in the nomination or decision process at any stage.

Call for Nominations for 2002

Nominations for the Walter Atkinson Award for papers presented in 2002 are therefore requested. If you wish to nominate a paper for the award, your nomination should be in writing (which includes email or fax) and should be received by the Secretary of your local Section (or, for NT or SA residents, the Division Secretary) by Friday 18 April 2003.

Sections then consider the papers nominated to them and each make their recommendation to the Australian Division by 31 May. The Division will then consider the recommendations from the Sections and decide the award by 31 July, and the award will be announced in the August issue of *The ANA*.

FROM THE ARCHIVES

BRAESIDE AND BURNSIDE

John Jeremy

In the later years of World War I, the demand for new cargo ships for Allied use was outstripping the supply of steel. In 1917 the Australian Government ordered fourteen wooden ships from American shipyards. Four of the 3 260 t ships were to be built in Olympia, Washington and completed as motor ships. The remaining ten were to be built in Seattle as steam ships. The program was beset with difficulties, and in the end only eleven of the ships ever reached Australian waters.

Meanwhile plans were developed to build twenty-four wooden ships in Australia — perhaps the least successful shipbuilding program in the last century. At the end of the war, contracts for all but two ships were cancelled. These ships were under construction by the firm Kidman & Mayoh at Kissing Point on the Parramatta River, a company formed for the purpose by people with no prior experience of shipbuilding.



Looking aft on the upper deck of *Braeside* during construction (Photo John Jeremy Collection)

Designed by the Sydney firm Kay McNicol & Co., the ships were designed to be 74 m long between perpendiculars, 13.3 m in beam with a depth of 7.4 m. They were intended to be fitted with two semi-diesel auxiliaries and rigged as fourmasted barquentines. The hulls were to be built from Australian hardwood with oregon used for masts and spars. Subsequent design changes saw the engines deleted and the rig changed to five-masted barquentine.

Braeside was not launched until 20 April 1920. She was slightly damaged during the launching, and her pre-launch sag of 0.22 m became a hog of 0.6 m — not a good start. Problems with plan approval and classification by Lloyd's were compounded by shortages of funds and concerns about the quality of the workmanship. Arrangements had been made to sell the ships to Burns Philp, but by October 1920 that company had decided that the ships were useless.

The project was examined in great detail by the Parliamentary Standing Committee on Public Works. The Committee's report was tabled in April 1921 by which time some £112 320 had been spent on construction, and the estimated total cost of completing the ships and rectifying the many faults was over £231 000. The Committee felt that the cost of £24 000



Burnside and Braeside (left) under construction (Photo John Jeremy Collection)

to strengthen the *Burnside* and £28 000 for the *Braeside* was not warranted.

The Commonwealth cancelled the contract with Kidman & Mayoh and the dispute moved to court. In June 1922 the parties agreed on arbitration, and on 30 June the arbitrator ruled that the Commonwealth was entitled to reject the ships, and that the builders owed the Commonwealth £75 665, with costs. Kidman & Mayoh sought to have this decision set aside by the court, but without success. The matter dragged on for some years.

By December 1920, *Braeside* was very nearly complete. She lay at Cockatoo Island for some time, and was finally returned to a site near her building slipway on the Parramatta River until, on the afternoon of 21 December 1923, she was taken 12 miles south-east of Sydney Heads and burnt. *Burnside* changed hands twice before she was burnt on the slipway on 4 September 1923. Little remains today to remind us of this unhappy episode in Australia's shipbuilding history.

Reference: *Build a Fleet Lose a Fleet*, Capt. R. McDonell, The Hawthorn Press, 1976.



Braeside nearly ready for launching (Photo John Jeremy Collection)



We are where you are.

Wärtsilä is the world's leading supplier of complete ship power solutions and a major provider of turnkey solutions for distributed power generation. In addition Wärtsilä operates a successful Nordic engineering steel company. More than 10,000 service oriented people working in 50 countries help Wärtsilä provide its customers with expert local service and support, wherever they are.

