

The Royal Institution of Naval Architects



2018 Annual Report and Financial Statements for the year ending 30 September 2018

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Royal Institution of Naval Architects

2018 ANNUAL REPORT

OBJECTIVES OF THE INSTITUTION

The Objectives of The Royal Institution of Naval Architects are as set out in the Charter of Incorporation 1910 - ‘the improvement of ships and all that specially appertains to them, and the arrangement of periodic meetings for the purpose of discussing practical and scientific subjects bearing upon the design and construction of ships and their means of propulsion, and all that relates thereto’.

Today, reflecting the wider range of activities of the Institution as both a professional institution and learned society, the Objectives of the Institution are more aptly described as “to encourage and assist in the achievement of the safe and efficient design, construction, maintenance and operation of marine vessels and structures.”

These Objects are primarily achieved by:

- Setting of internationally recognised and accepted standards of professional competence and integrity required for membership.
- Encouraging membership of the Institution at all levels
- Enabling of the exchange of technical information through the Institution’s publications, conferences and local meetings, which are open to all those involved in the design, construction, maintenance and operation of marine vessels and structures.
- Contributing its collective expertise to national and international maritime organisations for the benefit of the profession and society.

The Institution’s specific objectives in 2018 have been to increase the internationalism of the Institution in both its membership and its activities, to encourage the younger members of the profession to become involved in the activities of the Institution, and to strengthen its links with academia and industry. These remain the Institution’s specific objectives for the forthcoming year.

ACTIVITIES, ACHIEVEMENTS AND PERFORMANCE

The Institution organised/co-organised 17 courses and conferences, covering the full spectrum of maritime technology and ranging from one-day seminars to major 2-day conferences. Throughout the year, the Institution published 9 journal titles, reporting on developments in the maritime industry and the results of research and development. Conferences and publications have also contributed to the Institution’s income.

The Institution’s local Branches and Sections have held regular meetings to present and discuss matters of professional interest. The Institution’s conferences, publications and local meetings are available to both members and non-members.

The Institution also contributed its collective expertise to national and international organisations, particularly concerned with maritime safety and the protection of the maritime environment. The Institution recognised and encouraged the achievement of individuals at all stages of professional development through its prizes and awards.

During the year, the Institution achieved its programme of planned activities in full, and increased their availability to both members and non-members. Feedback on its activities confirmed that the Institution was maintaining the high standard and value of its conferences, publications etc., and meeting its objectives.

Future Plans

In the forthcoming year, the Institution intends to maintain its programme of courses, conferences and local meetings, reflecting developments in the design, construction and maintenance of marine vessels and structures, and to continue contributing its collective expertise to appropriate national and international organisations.

BOARD OF TRUSTEES

The Royal Institution of Naval Architects, also known as “RINA”, is a registered charity (number 211161) incorporated under Royal Charter. The Board of Trustees is the governing body of the Institution. The Trustees are nominated by Council.

The Board of Trustees is responsible for the governance and management of the Institution. Responsibility for the day to day management of the Institution’s affairs is delegated to the Chief Executive, accountable through the Chairman to the Board of Trustees. All Trustees are provided with guidance documentation issued by the Charity Commission concerning their responsibilities.

Board of Trustees

(at 31 December 2018)

Chairman

R W Birmingham

Vice Chairman

N P Pattison

Treasurer

J Frier

Trustees

R Cripps

L Santini

F H Spencer

C Cooper

A King

P G Wrobel

C S P Hunter

A Pattison

C L Savage

The Board of Trustees met five times in the year, during which its principal considerations were the policy, management and review of the Institution's investments, the management and review of the Risk Register, and an internal audit of the Institution's financial and administrative procedures.

During the year, the Board commenced Phase 2 of the Strategic Review, taking forward the results of the major survey of the members, which concluded that no changes in the Institution's Objectives were expected in the foreseeable future. A number of Working Groups were tasked with identifying how the Objectives were being achieved today and what changes would be required to continue achieving these Objectives in the future, in response to expected changes in the maritime industry and members' professional needs. The recommendations of the Working Groups will be considered during Phase 3 of the Strategic Review during 2019.

Management of Risk

The Risk Register is reviewed and updated at every Trustees meeting.

COUNCIL

The Council is elected by the members. It is responsible for the appointment of the Board of Trustees, communicating the views of the Institution's membership to the Board and providing guidance and advice to the Board of Trustees on all matters related to the governance of the Institution.

The Council holds delegated authority from the Board of Trustees for the management of the professional, technical and learned society affairs of the Institution. Such delegated authority is principally exercised through the Institution's standing committees and the Chief Executive.

Council and Officers of the Institution

(at 31 December 2018)

President

2018- Professor R W Birmingham FRINA

Past Presidents

1984-1987 Professor J B Caldwell OBE PhD 7Sc FEng
 1996-1999 Sir John Parker FEng
 2002-2004 Professor W G Price FEng FRS
 2004-2007 Dr N Gee DEng FEng
 2007-2010 S Payne OBE HonPhD (Sc) FEng
 2010-2014 P French FEng FRSA
 2014-2016 B S. Rosenblatt FRINA
 2016-18 T Boardley FRINA

Honorary Vice Presidents

2004- E C Tupper RCNC FRINA

Date Elected	Date elected
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Vice Presidents

2016 Prof D J Andrews	2016 N P Pattison
2016 Dr D S Aldwinckle	2017 A Marsh
	2018 T Allan

Fellows

2016 A G Blyth	2017 R Cripps
2016 H Karanassos	2017 D Vassalos
2017 C S P Hunter	2017 C L Savage
2017 P G Wrobel	2017 R A Sheno
2018 J Frier	2018 A Subahani
2018 S C Rusling	2018 M d'Amico
2018 IKAP Utama	2018 D N Monioudis

Members

2016 A Pattison	2017 I D Grant
2016 P Gualeni	2017 D Spinney
2016 R Spink	2017 C De Marco
2016 A D King	2017 P Crossland
2017 D V Whittaker	2017 P B L Coley
2018 B Low	2018 Y Sarac-Williams

Associates

2014 G Smyth	2016 N Desty
2018 N d'Hubert	

Associate-Members

2018 M H Ghaemi

President of the Australian Division

2016 M Renilson +

President of the New Zealand Division

2016 R Flay +

Chairmen of Standing Committees

R Cripps (Maritime Innovation Committee)
 A Baines (Maritime Safety Committee)+
 T Strang (Maritime Environment Committee) +
 E Pang (IMO Committee) +
 F H Spencer (Disciplinary Committee) +
 N Pattison (Publications Committee)
 C Savage (Membership Committee) +
 N Atkins (Professional Affairs Committee)

+ Ex officio members

Chief Executive

T Blakeley

Auditors

haysmacintyre

Bankers

The Royal Bank of Scotland

Investment Advisors

PruM&G Investment Management Ltd

President

Board and Council record their grateful thanks to Professor Richard Birmingham for the service he has rendered to the Institution as its President and as Chairman of the Board of Trustees during the year.

Staff

The Board and Council record their grateful thanks to the Chief Executive and the Secretariat staff for their dedication to the work of the Institution during the year.

STANDING COMMITTEES

The Council thanks the chairmen and members of the Institution's standing committees for the time and effort which they devote to the work of the Institution.

Membership Committee

The Committee met five times during the year to consider applications for membership and registration with the Engineering Council UK. A number of new members joined the Committee during the year.

Disciplinary Committee

No allegations of improper professional conduct by members were received during the year.

IMO Committee

The Committee numbers around 28 and in 2018 contributed over 200 days (or around 1600 hours) to IMO meetings, industry meetings, correspondence groups and preparing submissions.

The Committee participated in the following Committees and Sub-Committee sessions:

- Ship Design and Construction (SDC)
- Pollution Prevention and Response (PPR)
- Ship Systems and Equipment (SSE)
- Intersessional Working Group on Greenhouse Gas (ISWG-GHG)
- Marine Environmental Protection Committee (MEPC)
- Maritime Safety Committee (MSC)
- Intersessional Meeting on Consistent implementation of regulation 14.1.3 of MARPOL Annex VI (ISWG-AP)
- Implementation of IMO Instruments (III)
- Intersessional Working Group on Greenhouse Gas (ISWG-GHG)
- Marine Environmental Protection Committee (MEPC)
- Maritime Safety Committee (MSC)

Committee members participated in 9 correspondence groups, and submitted or co-sponsored 7 papers, one of which was accompanied by a lunchtime presentation to ISWG-GHG4. Out of these, 4 were authored by the Institution.

The Committee continued to engage widely with individual stakeholders, including ICS, INTERTANKO, BIMCO, WSC, INTERFERRY, CLIA, ASEF, and also with Flag States and the European Commission. In particular, the Marshall Islands was very supportive of the Institution's stance on lifeboat seating arrangements. Without its co-sponsorship, it would not have been possible to propose a new work item on this subject at MSC 100

The major achievements of the Committee in 2018 were:

- Contributing to discussion on the SDC agenda item on preservation of electrical power after side raking damage which led to its closure.
- Winning support for the Institution's proposal to look into the issue of inadequate seating space of lifeboats - and getting it explicitly onto the agenda as part of the review of the LSA Code and SOLAS Chapter III

- Supporting China's paper at MSC 100 to bring domestic ferry safety back onto the agenda at the IMO
- Making the technical case during the EEDI and GHG discussions at MEPC 73

On that last point, there appears to be growing support for RINA to contribute more to the current discussions on GHG reduction and energy efficiency, exemplified by WSC's submission to the EEDI correspondence group where it was said:

"Submissions made by RINA to MEPC 73 and ISWG-GHG4 highlighted notable gaps and question marks with respect to the current EEDI framework and its ability to capture and motivate improved designs as well as the use of a wide spectrum of energy-efficient technologies. In this context, WSC suggests that it would be useful to consider the following:

Invite RINA to undertake a review of the issues identified in earlier submissions (including the influence of "correction factors") and to make recommendations for consideration by the Committee."

The Committee is considering how it may be able to coordinate a purely technical group of stakeholders drawn from shipowners, shipyard, class societies, and ship designers to conduct such a review.

Publications Committee

The Committee met to determine the award of Medals and Prizes for papers published in the Transactions.

Professional Affairs Committee

The Committee met on three occasions during the course of the year during which the following significant progress was made and actions taken;

- Established revised processes and procedures to comply with The Engineering Council's (Eng.) requirement for mandatory monitoring of CPD records from 01/01/2019;
- Made the decision to extend CPD monitoring to include non EngC Registrants. This brings the cover monitoring in line with the Institution's Code of Professional Conduct;
- Participated in a major review of EngC Standards covering PAC's key areas of operation. In addition PAC has reviewed EngC's proposed changes to their Council Charter and Byelaws;
- Review of the major changes to the Professional Affairs sections of the Policy & Procedures Manual undertaken by The Secretariat prior to bringing them into general use;
- The accreditation of the following academic programmes – University of Belgrade (MSc in Mechanical Engineering with a special module in naval architecture) and changes to the MSc in Marine Technology at the MTEC Consortium.
- The accreditation of Initial Professional Development (IPD) programmes (DNV-GL, Atkins, DESG and London Offshore Consultants);
- The endorsement of various CPD courses including MPI-MTA (surveying) and UCL (marine electrical systems);

- Undertook an Internal Audit primarily related to the operation of membership applications. No significant issues were identified.

Challenges for the forthcoming year include training of assessors (CPD monitoring, academic accreditations, etc.) and PAC succession planning.

Maritime Safety Committee

The Committee met four times during the year and followed its standing agenda of IMO subjects, specific incidents and hot topics. The Committee has begun to focus more upon the future, with a review of material for fundamental safety training and an updated handbook for all members of the maritime industry. It is hoped more can be offered in 2019/20.

A taxonomy or standard set of topic areas will also be considered as the Environmental committee.

A short report has been made to the Council after each occasion. The Committee is keen to reach out to the international membership and to work with other Committees to exploit social media and 21st century electronics to enhance member correspondence and better enable international contributions.

Lessons from Accidents

The impact of changing demographics in the workforce and the level of understanding of the operator of the design parameters have recurred. Specific discussions have been had around the El Faro accident report was briefly discussed and led to a conclusion for a need to create a process (based on the IMO's FSA philosophy). The LR Foundation reviews of international domestic ferry statistics and fishing vessel accident statistics will be reviewed at the next meeting.

The purpose of each review is to discuss the contributory causes and whether the expertise of the committee or wider membership can be used to propose solutions at IMO or through the profession.

Lifeboats

Work in 2017 on Lifeboats (and other lifesaving appliances) has progressed with a paper being supported by the IMO Committee. Of particular concern has been the need to improve the ergonomic base of seats and accidents. As the IMO or Branches or other HQ committees raise safety issues, Committee will endeavour to facilitate discussion across the membership.

Autonomous Shipping

The Committee has also corresponded with the IMO Committee on initiatives within the year on Autonomous shipping. The Committee's supports the recent MSC papers on AI systems, automation and full autonomy. They are seen to be an area that joint discussion with the technology committee may be fruitful, if a date can be found.

Analysis of data and use of risk techniques

It was agreed that use of Formal Safety Assessments, offshore and military safety cases are an important toolset for all in the profession, and that prior to any formal submission to IMO, further data should be sought to further demonstrate the issue.

Safety Techniques Workshop

A sub-committee has reviewed a programme for a one day Safety Techniques workshop, with volunteers approached from across all the Technical Committees. The Safety Committee is reviewing the business model to guarantee delivery it is hoped that the workshop will be run during 2019/20.

Safety Guidance for Naval Architects

A sub-committee issued a revised document (3rd Edition) issued on the website.

The Committee continues to have a good attendance and a number of new members have joined from a variety of different parts of the maritime industry. This has ensured that debate within the Committee is able to include aspects relating to the insurance industry and operational issues etc. as well as the more traditional aspects. The Committee is working closely with other Technical Committees to address issues in an efficient and effective manner, recognising the limitations of the resources available.

The principal issues summarised above demonstrate that this has been another very successful year for the Maritime Safety Committee, the plans already in place for the coming year will further demonstrate the effectiveness of the Committee

Maritime Environment Committee

During 2018 the Maritime Environment Committee met 3 times at Headquarters and once in Newcastle. It continued to work on the development of a Maritime Environment Vision Statement for the Institution and on guidance related to environmental considerations that need to be considered when designing marine vessels and structures. Both of these actions were completed at the end of the year and combined in a short document "*DESIGN FOR THE MARITIME ENVIRONMENT*" - *Environmental Considerations in the Design of Marine Vessels and Structures*,

Given the significant interest society in all matters environmental - including climate change - the publication of an environmental vision statement and publication of preliminary guidance on design environmental considerations is an important step forward for the Institution and demonstrates its commitment to continuing to update both its members and others in the maritime sector on relevant issues. The Committee will now take some time to review other documents such as the latest version of the Safety Guidance for Naval Architects and see if there is a need to further develop and align the environmental guidance accordingly.

The Committee continues to support the IMO committee in matters related to environment and in particular around the matter of GHG reductions, with members attending the IMO as required. New areas of possible interest are underwater noise, plastics, new fuels and new materials. The Committee will continue to work closely with the other technical committees related to ensure that it provides the necessary support

Maritime Innovation Committee

The Maritime Innovation Committee met five times during the year. The Committee has discussed at length the areas in which the innovative and emerging technologies will have an impact on

the industry, the profession and the Institution across all sectors in the immediate future and long term.

The following themes were identified:

- Design and Manufacturing incl. Materials and Coatings
- Hydrodynamics and Propulsors
- Power Generation and Energy Management
- Operations, Maintenance and Competencies
- Safety and Environment incl. Human Factors and Legislation
- Autonomy, Data, Digital and Cyber
- Business and Economics

Education and Research were considered to cut across all themes and sectors

Information from the various sub-groups for each theme has now been collated and these have been posted on the Institution's website.

The Committee have identified topics where academia could undertake specific research work, provide industry with development ideas and topics for future conferences or workshops.

Some of key disruptive technologies that have been identified include:

- 3D printing to support construction, repair and in-service
- Modelling and simulation to improve efficiency and effectiveness of marine vehicles (including use of AI for optimisation)
- Concept Design Process
- Advanced (digital) manufacturing - Industrial Revolution 4.0
- Digital Twin – use of data acquisition and analysis from the ship /platform to maximise efficiency of operations and effectiveness of future designs. Transition from Capex orientated designs to focus upon Opex optimisation.
- Virtual and Augmented Reality (VR & AR) in design, training and operational contexts
- Power system technologies to reduce use of fossil fuels and reduce emissions
- Fuel switch leading to different power generation technologies and propulsion arrangements. Noting that it is not possible to achieve IMO stated aims on emissions through technology alone fuel switch is a necessity. Fuel switch driving adoption initially of LNG and progressing to more challenging fuels. Likely to accelerate adoption of fuel cells and hybrid systems (batteries). Possible response to legislative actions. Legislative actions taking many possible forms.
- EST (Energy Saving Technologies). Greater emphasis on energy saving and propulsion augmentation technologies in order to reduce the burden when fuel switching.
- Greater automation, progressing to fully autonomous / unmanned systems to remove people from harm's way. Technology being utilised for intervention actions
- Use of digital models to change business focus and place value on emissions in response to either legislative actions and/or client demands. Models changing the value proposition and removing the split incentive as a barrier to change. Possibly changing the 'natural' shipping system speeds that we see today.
- Hull coatings and/or fouling management systems becoming effective against all forms of fouling inclusive of slime,

delivering flat hull degradation curves. Executed either through legislative demand and/or cost/benefit balance.

- Use of Nanotechnology

Benevolent Fund Committee

Limited financial assistance was given to members who found themselves in necessitous circumstances. The Council records its grateful thanks for the donations to the Benevolent Fund received during the year.

MEMBERSHIP

Members on the Roll at 31 December 2018 are shown below:

	Total
Hon Fellows	8
Fellows	992
Members	3231
Associate Members	3260
Associate	319
Student Members	2593
Junior Members	134
Corporate Partners	89

Total	10,626

Corporate Partners

The following companies were elected Corporate Partners in 2018, thereby demonstrating their commitment to achieving and maintaining high standards of professional competence amongst their engineers:

Fincantieri S.p.A.
 The Bahamas Maritime Authority
 Politeknik Perkapalan Negeri Surabaya (PPNS)
 Viktor Lenac Shipyard
 CMA Ships
 Optio Marine Pvt Ltd
 Australian Welding Solutions

COOPERATION WITH OTHER ORGANISATIONS

The Engineering Council

The Institution continued to carry out its responsibilities as a Licensed and Nominated Body of the Engineering Council of the United Kingdom. A total of 2321 members were registered with the Engineering Council through the Institution, with 93 members being registered during the year.

RINA and IMarEST

The Institution continued to work closely with the IMarEST through joint branch and accreditation activities.

Agreements of Co-operation

The Institution continued to work with national professional institutions with common aims and objectives through its Agreements of Co-operation.

The Council considers that these Agreements also serve to demonstrate the Institution's commitment to maintaining the professional standing and influence it derives from its international membership and activities.

International Maritime Organisation

The Institution has continued to make a significant contribution to improving safety at sea and the protection of the maritime environment through its work as an NGO at the International Maritime Organisation. The significance of this contribution is recognised by staff and members of the IMO, and is an important element of the public benefit which the Institution provides.

International Standards Organisation

The Institution fulfilled its role as a Liaison Member of the International Standards Organisation.

Confederation of European Maritime Technology Societies

The Council of CEMT met twice during the year. The Institution was represented by the Chief Executive, who is also the Chairman of the CEMT Council.

PUBLICATIONS

Journals

The Naval Architect, *Ship & Boat International*, *Ship Repair & Conversion Technology*, *Offshore Marine Technology* and *Warship Technology*, were published during the year, providing reports on technological development in all sectors of the maritime industry. *The Naval Architect* was again published in the Chinese language.

All journals published during the year were also published online.

eNewsletters

The eNewsletters *The Naval Architect eNews*, *Shiprepair & Maintenance eNew*, *Warship Technology eNews* and *Offshore Marine Technology eNews* were published during the year. These eNewsletters are available free to all members of the global maritime community, and may be read online and through the eNewsletters App, launched during the year

Significant Ships and Significant Small Ships

The series were continued with the publication of *Significant Ships 2018* and *Significant Small Ships 2018*

Transactions

Transactions Part A – *International Journal of Maritime Engineering (IJME)* was published four times during the year. Transactions Part B – *International Journal of Small Craft Technology (IJSCT)*, was published twice during the year.

Both the *IJME* and *IJSCT* were published in printed format, on CD-ROM and on the RINA website.

During the year, all papers published in the Transactions were made available to members.

CONFERENCES, COURSES AND EVENTS

Conferences and Courses

The following conferences and courses were organised or co-organised during 2018:

Smart Ship Technology
23-24 January 2018, London, UK

High Performance Yacht Design - HPYD 6
10-13 March 2018, Auckland, New Zealand

SURV 9 - Surveillance, Search and Rescue Craft
18 April 2018, London, UK

Contract Management for Ship Construction, Repair & Design Course
9-11 May 2018, London, UK

Ships & Ports Conference
14 May 2018, London, UK

Damaged Ship IV
16-17 May 2018, London, UK

Basic Dry Dock Training Course
5-8 June 2018, London, UK

Warship 2018: Procurement of Future Surface Vessels
11-12 September 2018, London, UK

Human Factors
26-27 September 2018, London, UK

Contract Management for Ship Construction, Repair & Design Course
17-19 October, London, UK

Full Scale Performance
24-25 October, London, UK

Decommissioning of Offshore Platforms
30 October 2018, Dubai, UAE

Education and Professional Development of Engineers in the Maritime Industry
14 November, London, UK

President's Invitation Lecture
29 November, London, UK

Computational and Experimental Marine Hydrodynamics
26 -27 November 2018, Chennai, India

LNG/LPG Ships
5 December, Athens, Greece

Historic Ships
5-6 December, London, UK

Sponsored Student Places

The Council record their grateful thanks to the following companies who generously sponsored places for students at Institution conferences during the year.

BMT Group
BAE Systems
Lloyd's Register
ABS

Annual General Meeting

The Annual General Meeting was held on 12 April 2018 at the Institution's Headquarters, at which the following Resolution was passed:

Resolution 1: To re-elect haysmacintyre as Auditors until conclusion of the next Annual General Meeting

On completion of the AGM, a presentation was given by Dr Alan J Murphy, BEng, PhD, FRINA of Newcastle University, entitled "*Where there's smoke there's fire! – Research initiatives for reducing exhaust emissions from ships*"

Annual Dinner

The Annual Dinner was held on 12 April 2018 at the Lancaster London Hotel. The principal speakers were David Dingle, Chairman of Carnival UK, and the Rev Philip Edell, Mission to Seafarers Chaplain to the Port of Dunkirk

President's Invitation Lecture

The President, Professor Richard Birmingham, welcomed guests and members to the 2018 President's Invitation Lecture on 29 November at One Whitehall Place, when Paul Flaherty, Director, Fleet & Technical Operations of Navigator Gas, presented "*The Navigator Aurora - The World's First Ethane Fuel Conversion*" in which he described the technical and commercial challenges which the design, conversion planning, implementation, commissioning and operation of the world's first ethane fuel conversion presented.

The President's Invitation Lecture was again sponsored by ABS, to whom the Institution is indebted for their support of this and other Institution activities.

Technical Forum

Extensive use was made of the Institution's Group on the online professional network LinkedIn as a technical forum as well as the Institution's groups on other social media websites.

Divisions, Sections and Branches

The Divisions, Branches and Sections provided a comprehensive programme of technical and social events during the year.

The Board of Trustees and the Council recognise of the value which the membership places upon the activities of the Divisions, Sections and Branches, and record their thanks to those members who spend much time and effort in organising these activities.

INSTITUTION AWARDS

Institution Medal of Distinction

The Institution Medal of Distinction for papers published in the 2018 Transactions was awarded to the following:

W Zhang, S Chai, H Nguyen and Y Jin for their paper *URANS prediction of the slamming coefficients for perforated plates during water entry*.

K Ljungqvist, M Orych, L Larsson and C Finnsgard for their paper *Comparison of modern keel types for sailing yachts*.

Jeom Paik Prize

The Jeom Paik Prize for the best paper on the subject of structures published by an author under the age of 35 in the 2018 Transactions was awarded to C Bonnici for his paper *Analysis of a WWII T2 tanker using a virtual 3D model and contemporary criteria*

Wakeham Prize

The Wakenham Prize for the best general paper published in the 2018 Transactions by a member under the age of 35 was awarded to J Mathew, S Denehy, J Norman, A Cameron and N Eutick for their paper *An experimental study of ship motions during replenishment at sea operations between a supply ship and a LHD*.

Austin Farrar Prize

The Austin Farrar Prize for the best paper published in the 2018 Transactions by a member under the age of 35 on the subject of small craft is awarded to K Ljungqvist for his paper *Comparison of modern keel types for sailing yachts*

Calder Prize

The Calder Prize for the best paper published in the 2018 Transactions by an author under the age of 35 on the subject of small or high-speed craft is awarded to S Williams for his paper *Dynamic stability of foil-borne hydrofoil/SWATH with anhedral foil configuration*.

David Goodrich Prize

The David Goodrich Prize for the best paper presented at the 2018 Warships Conference was awarded to A Aitken for his paper *The Next Generation MCM Platform - Not Yet Full Autonomy*

Student Awards

Student Awards in recognition of their achievement were presented to students at 24 universities.

The Institution is grateful to the following organisations and companies for their support of the Awards:

BAE Systems
BMT Group
Bureau Verita
d'Amico Società di Navigazione

Greek Shipping Cooperative Committee
Keppel Shipyard
Lloyd's Register
Defence, Science & Technology Organisation

OBITUARIES

Sir Eric Yarrow Bt FRINA MBE DL

1920-2018

Honorary Vice President 1972-2018

RINA–Lloyd's Register Maritime Safety Award

The 2017 RINA – Lloyd's Register Maritime Safety Award was presented to Professor Jin Wang of the Department of Maritime and Mechanical Engineering at Liverpool John Moores University for his significant contribution over many years to the improvement of the safety of life at sea.

The 2017 RINA – Lloyd's Register Maritime Safety Award was also presented to ASC Shipbuilding for the work of its Emergency Response Group and the Electrical and Controls Team in developing integrated fire detection and broadcasting system to improve the safety of both the workforce and the ship during construction.

The Awards were announced and presented at the 2018 Annual Dinner

RINA – QinetiQ Maritime Innovation Award

The 2017 RINA–QinetiQ Maritime Innovation Award was awarded to GustoMSC BV for their Moon Pool design.

The Award was announced at the 2018 Annual Dinner

Eric Grant Yarrow was educated at Marlborough College and undertook a sandwich apprentice scheme studying engineering at Glasgow University during the winter months and serving as an apprentice with J G Weir Ltd during the summer. His studies at Glasgow were interrupted by the War and after a very short period as driver in the 'undistinguished rank of Acting Unpaid Lance Corporal' he was commissioned into the Royal Engineers with whom he served in India and Burma, taking part in both the retreat and the start of the advance in 1945. He completed his war service supervising mine clearance in Holland and was demobilised in the rank of Major having been appointed MBE.

After the war Sir Eric joined Yarrow & Company Limited and was a Director of the Company at the time he joined the Shipwrights' Company later becoming Managing Director from 1958-1967, Chairman from 1962-87 and President from 1985 until 1987. He was a highly respected businessman and Chairman who steered the company through a number of major changes in the industry including the formation of Upper Clyde Shipbuilders, a project he was convinced would not be successful "... and I was proved right." With Ministry of Defence help he managed to get Yarrow Shipbuilders out of UCS shortly before it went bust. Sir Eric retired from Yarrow at the age of sixty-five!

He was Chairman of Clydesdale Bank from 1985 to 1991, a Director of the Standard Life Insurance Company and a Director of National Australia Bank Limited. In 1970 he was appointed Deputy Lieutenant for Renfrewshire and, in 1972, Honorary Vice President of the Royal Institution of Naval Architects. Sir Eric played a very active role in a number of philanthropic projects, was Deacon of the Incorporation of Hammermen in 1961-62 and, among other appointments was a member of the Royal Society, on the Council of the Institute of Directors in London and Glasgow, the Council of the Royal Institution of Naval Architects, the Council of the Institution of Engineers and Shipbuilders in Scotland and a member of the General Committee of Lloyd's Register of Shipping.

MEMBERS DECEASED DURING THE YEAR

FRINA

R A Williams
G O Thomas
D J Freeman
J McLoughlin
E G Yarrow
K Dwinger

C W Whipp
R Clark
J H Peachey
B Boon
P J Usher
H M Allan

M G Osborne

MRINA

R K Kiss
A V C Jones
O Jean
T A Lipington
R G White
P Knoops
H Y P Kortekaas
D E Palmer
J B Wynne

B W Lambert
C W Anderson
A C Viner
M F Jordan
P McBride
L McMillan
P A Thrasher
K G Adamson
J A Morris

P Young

AssocRINA

A G Jackson

Dr Peter J Usher CBE DSc RCNC FREng

1926-2018

President 1993-1996

Peter Usher started his professional career with the Royal Corps of Naval Constructors in 1950. He left the RCNC in 1956 and joined industry as a Technical Director of the recently formed Vosper Thornycroft. This group was formed through the desire of Vospers to expand highly successful patrol boat projects into frigates and the resulting takeover of the ailing, but much larger, Thornycroft Company. Peter took on the development of a new, small, but very fast gas turbine frigate for the Imperial Iranian Navy. This development was crucial for the future of the company.

The second major project under his leadership was the design with Yarrow's of the Type 21 frigates for the Royal Navy. This was the first front line Royal Naval class to be designed outside the Royal Corps of Naval Constructors since the beginning of WWII.

Soon afterwards Peter relinquished leadership of the design department and moved to Woolston to take charge of overall ship production, and where he set out to achieve his objective of building ships with greater efficiency and the necessary reduction in man hours. This he successfully did using his tenacity, persuasiveness and great managerial expertise. In 1981 Peter became Managing Director of Vosper Thornycroft and led the company for the rest of the nationalised period, during which time the company remained profitable, somewhat unusual as part

of British Shipbuilders. He led the buy-out team which eventually won the competition to privatise the company.

Following his time as Managing Director, he became Chairman of the Company, and retired from that post in 1995 to become Honorary President.



Royal Institution of Naval Architects

FINANCIAL STATEMENTS FOR THE PERIOD ENDING 30 SEPTEMBER 2018

FINANCIAL REVIEW AND RESERVES POLICY

Income (Restricted and Unrestricted) in 2017/18 was £2.12m compared with £2.30m in 2016/17. Expenditure (Restricted and Unrestricted) in 2017/18 was £2.06m, compared to £2.15m in 2016/17.

Net income in 2017/18 before investment gains was £66k, compared with £145k in 2016/17. The operating surplus in the Unrestricted Fund in 2017/18 was £19k compared with an operating surplus of £63k in 2016/17. The operating surplus in the Restricted Fund in 2017/18 was £46k, compared with an operating surplus of £82k in 2016/17.

The total value of the Institution's funds (Unrestricted, Restricted and Endowment) at 30 Sep 2018 was £10.15m compared with £10.16m at 30 Sep 2017. The value of the Unrestricted Fund (investments, cash, and fixed assets) was £8.25m at 30 Sep 2018 compared with £8.23m at 30 Sep 2017. The value of Restricted Funds was £251k at 30 Sep 2018, compared with £247k at 30 Sep 2017. The value of Endowment Funds (investments) was £1.65m at 30 Sep 2018 compared with £1.68m at 30 Sep 2017. The total value of the Institution's investments was £4.45m at 30 Sep 2018 compared with £4.24m at 30 Sep 2017.

The operating surplus in the Unrestricted Fund in 2017/18 was £19k compared with an operating surplus of £63k in 2016/17. The operating surplus in the Restricted Fund in 2017/18 was £46k, compared with an operating surplus of £82k in 2016/17.

Investment policy and performance

In accordance with authority enabled by the Order of the Charity Commissioners for England and Wales, dated 1 Nov 2002 and issued under Section 26 of the Charities Act 1993, the Trustees have adopted a 'Total Return' policy with regard to the Endowment Funds.

The investment powers of the Board of Trustees are set out in the Royal Charter and By Laws, copies of which are available from the Chief Executive at RINA Headquarters. Under the terms of those powers, management of the investment portfolio has been delegated to PruM&G Investment Management Ltd.

The Board of Trustees routinely reviewed its investment policy and performance. No significant changes to the investment policy were made as a result of the reviews.

Reserves Policy

The charity's free reserves (unrestricted funds less designated funds and tangible fixed assets) stood at £2.82m as at 30 September 2018. The Board of Trustees' policy is to maintain minimum cash reserves at the level of 3 months/£250,000

forward operating costs, and to consider reserves in excess of this level for investment.

Restricted Funds

The Board of Trustees' policy is to use all dividend income from Restricted Funds to assist and enable the continuing academic and professional development of members. The Board has extended this policy to include both undergraduate and post graduate members.

Risk Management

Operational and financial risks facing the Institution are listed in the Risk Register which is routinely reviewed and revised by the Trustees. Policies and procedures have been established to mitigate any risks identified during these reviews. Compliance with these policies and procedures is monitored by routine Internal Audit and Self Assessment.

The principal risk is considered to be the negative impact of the depressed global maritime industry on the Institution's income from its conferences and publications, affecting the Institution's ability to maintain the current level of its activities and services to members. The Board routinely reviews cashflow, income and expenditure in both short and long term to manage financial risk.

Remuneration of key personnel

The remuneration of senior members of the Secretariat is reviewed and changes approved annually by the Trustees.

STATEMENT OF THE BOARD OF TRUSTEES' RESPONSIBILITIES

Law applicable to charities in England and Wales requires the Trustees to prepare financial statements for each financial year which give a true and fair view of the Institution's financial activities during the year and of its financial position at the end of the year. In preparing financial statements giving a true and fair view, the Board of Trustees should follow best practice and:

- select suitable accounting policies and apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- state whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on a going concern basis unless it is inappropriate to presume that the Institution will continue in operation.

The Board of Trustees is responsible for keeping accounting

records which disclose with reasonable accuracy the financial position of the Institution and which enable them to ascertain the financial position of the Institution and which enable them to ensure that the financial statements comply with applicable law. They are also responsible for safeguarding the assets of the Institution and hence for taking reasonable steps for the detection and prevention of fraud and other irregularities.

Annual Accounts

The accounts which follow are the full statutory accounts of the Institution and should be read in conjunction with the Annual Report of the Board of Trustees.

Auditors

haysmacintyre have expressed their willingness to continue in office as auditors and a resolution proposing their re-appointment will be submitted at the Annual General Meeting.

INDEPENDENT AUDITORS' REPORT TO THE BOARD OF THE ROYAL INSTITUTION OF NAVAL ARCHITECTS

Opinion

We have audited the financial statements of the Royal Institution of Naval Architects for the year ended 30 September 2018 which comprise the Statement of Financial Activities, the Balance Sheet, the Statement of Cash Flows and the notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102 *The Financial Reporting Standard applicable in the UK and Republic of Ireland* (United Kingdom Generally Accepted Accounting Practice).

In our opinion, the financial statements:

- give a true and fair view of the state of the charity's affairs as at 30 September 2018 and of the charity's net movement in funds for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Charities Act 2011.

Basis for opinion

We have been appointed as auditor under section 144 of the Charities Act 2011 and report in accordance with the Act and relevant regulations made or having effect thereunder. We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the charity in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have

obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of trustees for the financial statements

As explained more fully in the trustees' responsibilities statement set out on page 6, the trustees are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the charity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the charity or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

Conclusions relating to going concern

We have nothing to report in respect of the following matters in relation to which the ISAs (UK) require us to report to you where:

- the trustees' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the trustees have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the charity's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

Other information

The trustees are responsible for the other information. The other information comprises the information included in the Board of Trustees' Report. Our opinion on the financial statements does not cover the other information and, except to

the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Matters on which we are required to report by exception

We have nothing to report in respect of the following matters in relation to which the Charities (Accounts and Reports)

Regulations 2008 require us to report to you if, in our opinion:

- adequate accounting records have not been kept by the charity; or
- sufficient accounting records have not been kept; or
- the financial statements are not in agreement with the accounting records and returns; or
- we have not received all the information and explanations we require for our audit.

haysmacintyre
Statutory Auditors

SUMMARY STATEMENT OF FINANCIAL ACTIVITIES FOR THE YEAR ENDED 30 SEP 2018

	Unrestricted Funds £	Restricted Funds £	Endowment Funds £	Total 2018 £	Total 2017 £
Income and expenditure					
Income and endowments from:					
Charitable Activities					
Membership	847,296	-	-	847,296	817,038
Events	252,052	-	-	252,052	455,004
Publications	783,063	-	-	783,063	748,900
Donations and legacies	-	586	-	586	46,000
Investment income	148,896	91,560	-	240,456	229,364
Total income and endowments	<u>2,031,307</u>	<u>92,146</u>	<u>-</u>	<u>2,123,453</u>	<u>2,296,306</u>
Expenditure on:					
Charitable Activities					
Membership	623,601	44,098	-	667,699	631,713
Events	370,784	449	-	371,233	584,064
Publications	1,017,625	1,395	-	1,019,020	935,915
Total expenditure	<u>2,012,010</u>	<u>45,942</u>	<u>-</u>	<u>2,057,952</u>	<u>2,151,692</u>
Net income before investment gains/losses	19,297	46,204	-	65,501	144,614
Gain/(loss) on investment assets	(36,390)	-	(29,864)	(66,254)	208,159
Net income before transfers	<u>(17,093)</u>	<u>46,204</u>	<u>(29,864)</u>	<u>(753)</u>	<u>352,773</u>
Transfers between funds	42,000	(42,000)	-	-	-
Net movement in funds	<u>24,907</u>	<u>4,204</u>	<u>(29,864)</u>	<u>(753)</u>	<u>352,773</u>
Reconciliation of funds					
Total funds brought forward	<u>8,226,206</u>	<u>246,682</u>	<u>1,682,622</u>	<u>10,155,510</u>	<u>9,802,737</u>
Total funds carried forward	<u>£8,251,113</u>	<u>£250,886</u>	<u>£1,652,758</u>	<u>£10,154,757</u>	<u>£10,155,510</u>

All amounts relate to continuing activities.

BALANCE SHEET AS AT 30 SEPTEMBER 2018

	2018		2017	
	£	£	£	£
FIXED ASSETS				
Tangible assets		5,427,270		5,472,833
Investments		4,451,811		4,238,065
		<u>9,879,081</u>		<u>9,710,898</u>
CURRENT ASSETS				
Debtors	205,143		240,945	
Cash at bank and in hand	464,316		543,572	
	<u>669,459</u>		<u>784,517</u>	
CREDITORS: amounts falling due within one year	(393,783)		(339,905)	
NET CURRENT ASSETS		<u>275,676</u>		<u>444,612</u>
NET ASSETS		<u>£10,154,757</u>		<u>£10,155,510</u>
CHARITY FUNDS				
Unrestricted		8,251,113		8,226,206
Restricted		250,886		246,682
Endowment		1,652,758		1,682,622
		<u>£10,154,757</u>		<u>£10,155,510</u>

The financial statements were approved and authorised for issue by the Board of Trustees on 25 January 2018 and signed on their behalf by:

J Frier
Trustee

STATEMENT OF CASHFLOWS FOR THE YEAR ENDING 30 SEPTEMBER 2018

	2018 £	2018 £	2017 £	2017 £
Operating activities				
Net income before investment gains	65,501		144,614	
Depreciation	85,286		87,260	
Decrease/(increase) in debtors	35,802		(966)	
Increase/(decrease) in creditors	53,878		(31,628)	
	<hr/>		<hr/>	
Net cash from operating activities		240,467		199,280
Investing activities				
Purchase of tangible fixed assets	(39,723)		(57,141)	
Purchase of investments	(280,000)		(13,000)	
Proceeds from sale of investments	-		100,000	
	<hr/>		<hr/>	
Net cash from investing activities		(319,723)		29,859
Movement in cash and cash equivalents		<hr/>		<hr/>
		(79,256)		229,139
Cash and cash equivalents at 1 October 2017		543,572		314,433
		<hr/>		<hr/>
Cash and cash equivalents at 30 September 2018		£464,316		£543,572
		<hr/> <hr/>		<hr/> <hr/>
Cash and cash equivalents comprise				
Cash at bank		£464,316		£543,572
		<hr/> <hr/>		<hr/> <hr/>