

MAKING Waves



INFORMATION AND INSIGHT FROM THE INTERNATIONAL MARINE CONTRACTORS ASSOCIATION

ISSUE 88 • JANUARY 2019

Annual Seminar



All the highlights
from a successful event

NEWS

PAGE 4

New Team Members
join IMCA Secretariat

ANNUAL SEMINAR

PAGE 8

The Way Ahead

ANNUAL SEMINAR

PAGE 11

New Strategies in
Action

EVENTS

PAGE 18

Ethics and Compliance
Programme

In this issue

IMCA NEWS.....4-5

- New team members join the IMCA Secretariat
- Corporate Social Responsibility Project

MARINE.....6-7

- Freelance Competence e-Portfolio
- eCMID 2018 - growth and change
- Practitioner Accreditation Scheme

ANNUAL SEMINAR DAY 1.....8-12

- The Way Ahead
- IMCA Award Winners
- Industry Strategic Outlook
- IMCA's New Strategic Themes
- New Strategies in Action

ANNUAL SEMINAR DAY 2 (Marine).....13-15

- Debating Remote DP Trials
- Encouraging Professional Development
- Energy Efficient Initiatives by the Offshore Sector

ANNUAL SEMINAR DAY 2 (Diving).....16

- Diving - setting the scene
- IMO Diving Instruments
- Health, Fitness & Medical Issues

DIVING.....17

- Diving Supervisor Annual Update Programme

EVENTS.....18

- Ethics and Compliance Programme

FOCUS.....19

- Have ROVs come to the end of their tethers?

2019 CALENDAR.....20



MAKINGWaves
 Making Waves is published quarterly to promote knowledge of matters affecting the offshore, marine and underwater engineering industry.
 The views expressed on these pages are those of their respective authors and do not necessarily reflect the policies or positions of IMCA itself.
 Ideas for articles of potential interest to our membership are welcome - please send your contributions and ideas to makingwaves@imca-int.com

IMCA®
International Marine Contractors Association
 52 Grosvenor Gardens, London, SW1W 0AU
 Tel:+44 (0)20 7824 5520
www.imca-int.com
 CEO: **Allen Leatt**
 Head of Communications: **Achilleas Georgiou**
 Meet the full team at imca-int.com/secretariat

Welcome

from the IMCA CEO



Welcome to the January edition of Making Waves, which has a strong emphasis on our Annual Seminar held in The Hague on 28-29 November. This was the first large scale seminar since our 2015 Seminar in Abu Dhabi, and understandably we skipped the event during the worst of the industry's downturn. In its place we have held a series of technical seminars, which have proven to be extremely popular and we will continue this formula going forward. I am very pleased to report that our Seminar in The Hague was extremely successful, running at full capacity of 300 delegates over the two-day programme.

The first day was dedicated to highlighting the strategies being developed to cope with the downturn, and the development of new ways of oil companies and contractors working together to get projects off the drawing board and the industry back to work. The event was packed with industry leaders providing valuable insights to the challenges and opportunities ahead. On stage we had an impressive list of executives from BP, Shell, Equinor, Neptune Energy, Boston Consulting Group, and Bain & Company. In addition, a panel with Allseas, Subsea 7, and McDermott provided a forthright assessment of the changes taking place and the expectations of oil company contracting strategies.

Our *Total Technology Session* provided a great opportunity to see six companies present their business ideas in strictly controlled 10-minute time slots.

Speakers from outside our industry

provided excellent reviews of how other large industries have adapted to significant change. Andrew Dingee contrasted the standardisation strategies of the military aerospace and civilian airline industry with the oilfield industry; and Stephen Carver produced a highly colourful and entertaining finale of how businesses must constantly innovate to maintain their market position - with case studies of NASA and SpaceX.

The second day was split into two separate technical streams, one dedicated to our Marine Division, and the other to our Diving Division. Again, both sessions were packed with expert content from 20 presenters on stage orchestrating and leading the discussions.

Feedback from the delegates has been overwhelmingly positive by way of speakers, content, networking opportunities, and organisation. Given this success, we will re-introduce this Seminar event on a biennial basis, with the next in 2020 which, coincidentally, will be IMCA's 25th anniversary.

2018 was an extremely busy year for IMCA and we kept up the pressure for change with a number of important industry initiatives. This work of course requires funding, and we look forward to the support of our members again in 2019.

Strong governance systems are critical to trade associations, and in 2018 we introduced a three-stage ethics and compliance programme, comprising:

1. A Code of Practice for the Secretariat;
2. An Anti-Bribery and Corruption (ABC) e-learning program, which is free for use by all members on our website and targeted at small and medium size companies who may not have all the necessary training infrastructure in-house; and
3. A set of high level ethical principles and commitments incorporated in a Code of Conduct expected of our Members.

The Code was developed by a Workgroup of IMCA's Contracts and Insurance Committee, comprising ethics and compliance specialists from leading contractors. The Code sets out in clear, straightforward language the behaviours that IMCA members, and our stakeholders, should be able to expect of each of us.

2019 will see an equally high level of activity at IMCA and we wish all our Members the best of success ahead.

Allen Leatt
IMCA CEO

DIGEST

ALERTS

- Safety flashes 17-29/18 (63 incidents)
- DP bulletin 3-4/18 (8 events)

PUBLICATIONS

Revised

- Guidance on the transfer of personnel to and from offshore vessels and structures (IMCA LR 012)
- Common marine inspection document for small workboats (Marine inspection for small workboats) (IMCA S 004)
- International guidelines for the safe

operation of dynamically positioned offshore supply vessels (182 MSF)

- Risk assessment of cylinder internal examination periodicity
- Guidance on the IMCA eCMID System (IMCA M 167)

New

- Guidance on Health, Fitness and Medical Issues in Diving Operations (IMCA D 061)
- Guidance to Identify DP System Components and their Failure Modes (IMCA M 247)

BRIEFING

- 1 Consultation
- 6 Information Notes
- 1 Regulatory Notification
- 1 Regulatory Update
- 1 Security Bulletin



Catch up at any time online:
imca-int.com/digest

New team members join the IMCA Secretariat

The IMCA Secretariat has three new members: Margaret Fitzgerald, Andre Rose and Nigel Joseph.

Margaret joins IMCA as Head of Policy & Regulatory Affairs. She represents the Association on all regulatory matters and leads its involvement with the International Maritime Organization (IMO), where IMCA holds non-governmental observer status.

Margaret has over 20 years' experience in shipping. She previously worked for the IMO Secretariat, leading on the development of the International Maritime Dangerous Goods Code and related regulations on the carriage of hazardous chemicals and noxious and polluting substances, including the HNS Convention. She subsequently worked for a member of the International Association of Classification

Societies as a senior safety and environmental specialist, before qualifying as a lawyer with a leading international maritime law firm specialising in shipping and energy.

Andre is the newly appointed Technical Adviser responsible for Competence & Training, Remote Systems and ROV.

He has spent most of the last 18 years working in the ROV industry. This has included time as a Pilot/Technician, Superintendent, ROV Manager and Client Representative.

As well as being a trained ROV Operator and Technician, Andre has a Master's degree in IT, and is a member of the Institute of Leadership and Management and the Institute of Occupational Safety and Health.

Nigel joins IMCA as the Membership Services Co-ordinator responsible for administering the

sale of publications.

He previously worked for the Chartered Institute of Arbitrators (CI Arb), in their Member Services Team processing applications, creating interview panels for members wishing to become Fellows and Chartered Arbitrators, setting up a mentoring scheme for female arbitrators, and implementing a new CRM system.

Nigel's experience also includes working for a company that provided best practice guidance for C-Level executives; and in local and central government as an Events Co-ordinator and an Administrative Assistant/ Officer.



The IMCA Secretariat has three new members: Andre Rose, Margaret Fitzgerald, and Nigel Joseph.

NEW MEMBERS

View the full member directory at imca-int.com/members

IMCA is pleased to welcome the following new members

- Advacotec Ltd
- Bei Jing Jin Zhou Tuo Technology Development Limited Corporation
- Benmarine Offshore Services Ltd
- Blue Polygon Nigeria Limited
- Brave Oilfield Services Engineering Sdn Bhd
- Caracal Oil & Gas Services Ltd
- Caspian Drilling Petrol Sanayi A.S.
- China Classification Society Industrial Corp. (Guangzhou Branch)
- Commercial Dive Academy
- Commercial Diving Institute of Canada
- Def Maritime and Offshore Services
- DiveSafe International
- DiveSource Limited
- Dolphin Energy Ltd
- GMCG Guyana
- Ifactors Sdn Bhd
- Inkster Marine AS
- Instituto Superior De Ingenieria Inc. (I.S.I)
- International Diving Institute
- ISB Ship Management
- Marsol International Limited
- NVI, LLC
- OMV Exploration & Production GmbH
- Orion Engineering Ltd
- Petrobras - Petroleo Brasileiro S.A.
- PT Samudera Energi Tangguh
- Redtech Offshore Sdn Bhd
- Safe Marine Assurance
- Simwave BV
- Supagas Pty Ltd
- Suzhou DAANBOSI Hai Shi Ji Shu Fu Wu You Xian Gong Si (DYPOS Marine Services Ltd)
- Technical Royal Excellence Oil & Gas Consultancy
- Ultra Deep Subsea Pte Ltd
- UTM Consultants

Corporate Social Responsibility Project

Many of our Members contribute to local programmes promoting corporate social responsibility. Of course, in recent years these budgets came under serious pressure, but in our own small way, IMCA is happy to make our contribution to this movement.

Members will be well aware that IMCA's rich heritage benefits from our work in the commercial diving industry dating back to 1972. For over four decades we have set the industry standards for ever safer and ever more productive offshore diving operations.

A natural project for us to support is the work of the Historical Diving Society (HDS), which is a charity formed in 1990 by a group of enthusiasts whose aim is to preserve and protect diving heritage. Since then the Society has grown from its UK base into an international organisation with affiliated societies across the world.

Central to their work is the Diving Museum, and the leadership team has done an excellent job in developing an impressive museum based in a Napoleonic fort in Gosport, near Portsmouth. They have ambitious plans to develop the 160-year-old facility with the most modern museum display technology available, with the likes of virtual reality displays with a strong educational bias for schools and colleges. This will require investment, for which generous public money is available on the back of normal fund raising. IMCA is pleased to support this good work as a way of preserving an important part of our history and as a means of the public learning from our collective experience.

www.divingmuseum.co.uk



IMCA CEO Allen Leatt © being shown around the Museum by Mike O'Meara, Vice-Chairman of the HDS board of directors and diving industry legend.

2019 SUBSCRIPTIONS

The subscription invoices for 2019 were sent to all Members in late December, as normal.

In 2018 we introduced an upward revision of the subscription matrix, and this will continue, albeit at a slower pace in 2019. The Board's decision was based upon the experience of many years of static pricing which was clearly not sustainable. This is the typical cycle of a trade association, and the Board is resolved to maintain the level of reserves at an appropriate level. Through prudent management, IMCA is financially sound, runs an annual surplus and a healthy balance sheet, and this must be sustained.

Over the last three years you may well have seen many of the positive changes we have implemented, and this ambitious strategy must continue. We have:

- Realigned our cost base and implemented extensive operational efficiency improvements;
- Completely re-engineered our governance systems with a new constitutional structure and governance of the Board and our committees; all in-line with best trade association practice;
- Implemented a new legal structure consistent with best practice for trade associations;
- Implemented our export control policy, again in line with best practice;
- Conducted an extensive strategic review of our market position and determined new strategic themes for development;
- Completely updated our technical library of over 200 documents;
- Implemented terms of reference, annual objectives, KPIs, and scorecards for all our committees;
- Developed the IMCA quality management system to be accredited to ISO 9001;
- Worked with OCIMF to reduce

duplication in vessel assurance;

- Worked with IOGP to reduce duplication in diving assurance;
- Developed and launched the Shell Resilience Programme, free for use by all our Members via our website;
- For the first time, introduced a Code of Practice for the Secretariat and a Code of Conduct for IMCA Members;
- Worked with Transparency International to develop an Anti-Bribery and Corruption e-learning program, free for use by all our Members via our website;
- Introduced 15 new safety training videos and 25 safety cards in 10 languages;
- Developed our website to enable online purchasing of our publications and online collection of safety statistics;
- Been very active in the Jones Act legislation in the USA;
- Been very active in our regulatory work at the International Maritime Organization;
- Introduced our client engagement programme, which is becoming very effective in communicating, engaging, and influencing oil companies of our work;
- Deepened our Member engagement with over 100 events per year;
- Conducted 17 technical seminars in the last three years; and
- Re-introduced the IMCA Annual Seminar in 2018, with great success.

Going forward we want to do much more to improve the support to our Members, including more technical streams, oil company engagement, communications, and online services. This obviously requires funding for which the Board has the responsibility for determining the appropriate subscription levels. We very much ask the ongoing support of all our Members in 2019.

IMCA does not certify ROV competence

For clarity, Members should know that IMCA does not certify or accredit the competence of individuals working in the ROV industry.

Similarly, IMCA does not approve or endorse the content of ROV training courses provided by third parties. These training providers, who have used the IMCA logo on their certificates, have done so without IMCA's approval.

Freelance Competence e-Portfolio

Competence is: "The combination of training, skills, experience, knowledge and behaviour that a person has and the ability to apply these to perform a task safely and efficiently to a defined standard."

The need to demonstrate competence is increasingly common.

Many clients of IMCA Members are making it a condition for work; some quality assurance systems are making it obligatory; and regulators are requiring it. At work, people want to know that the person working alongside them has the right level of competence.

IMCA has developed a competence portfolio which allows freelance individuals to build their portfolios so as to demonstrate that they are competent in carrying out their tasks to a required standard.

The IMCA Freelance Competence e-portfolio provides a platform for both competence assurance and assessment. It acts as a self-assessment tool for an individual to benchmark themselves against. Having completed the self-assessment, the individual can focus on compiling evidence to identified competence gaps.

The e-portfolio with additional supporting material is available free of charge.

Download the e-portfolio at imca-int.com/eportfolio

Security Bulletin published

The third IMCA Security Bulletin was issued in January 2019.

The Bulletins are a quarterly update for Members and provide relevant information covering both cyber and traditional security. Bulletin 01/19 also contains recommendations from IMCA's Security Committee on industry recognised good practice guidelines.

Additionally, the International Organization for Standardization has formed a workgroup to develop what has been entitled a 'Standard Risk Assessment Cyber'. The draft standard has been shared with committee members. Andy Goldsmith will attend the first meeting on behalf of this committee on 7 March at IMO. IMCA's involvement will ensure that the standard does not introduce duplication or confusion to the industry.

Shared use of ROV sensors

IMCA's Offshore Survey and ROV committees have developed new guidelines for the Shared Use of Sensors for ROV DP and Survey Purposes (IMCA S 025). The document is intended to provide an overview of factors to consider when choosing and operating ROV-mounted positioning, surveying and imaging

sensors that may be used for more than one specific purpose.

Sharing sensors can improve efficiency and reduce costs. However, they can bring potential risks, both to the ROV and to the quality of survey data. Hence, there may be occasions when sensors cannot be shared.

This document considers the mitigations which may be required to share sensors safely. It covers how to ensure operational efficiency, some of the differences between ROV positioning and survey operations, and some of the main risks involved when sensors are shared.

Minimize SURF project costs, maximize efficiencies

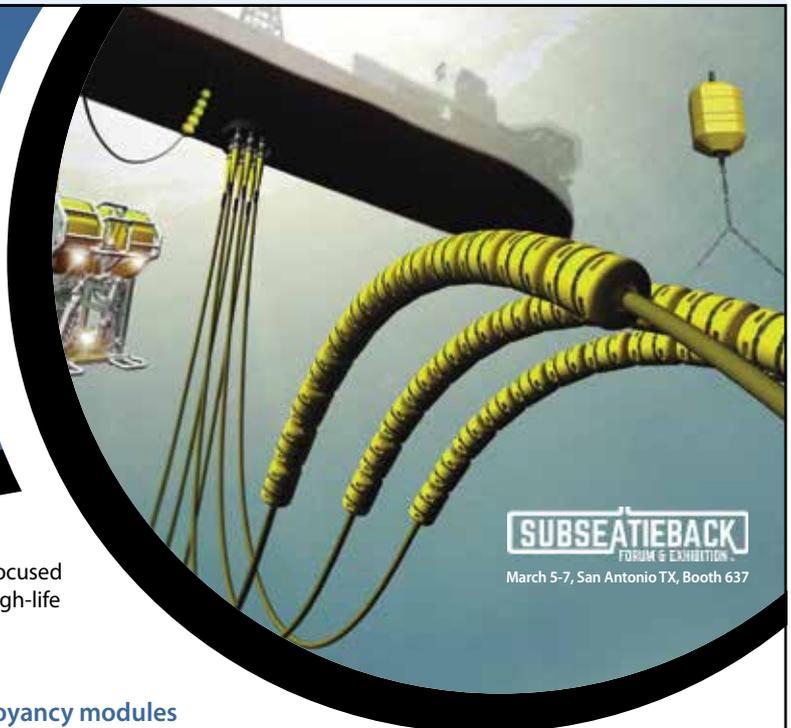
Balmoral Offshore Engineering's in-house *Innovation Team* is focused on improving and developing products that drive down through-life SURF project costs.

These are just some developed and proven examples:

- Unique rapid clamping system for distributed buoyancy modules
- Boltless bend restrictors that save 80% on standard installation times
- Duraguard™ adaptable cost-effective cable protection system
- Innovative insulation products
- Fully comprehensive in-house subsea test centre

With complete control of all processes, from engineering design to manufacturing and testing, we help minimize costs and maximize efficiencies.

Visit bit.ly/SURFproducts to find out more.



eCMID 2018 – growth and change

2018 was a year of significant growth and change for IMCA's eCMID system for vessel inspection. It provides a safety management system health check, with two inspection templates (eCMID and eMISW) available for offshore vessels and small workboats.

In 2018, the number of live inspection reports almost doubled, with over 1,200 reports now live in the system. Only online reports uploaded to the database are now recognised as valid by IMCA, as part of moves to ensure consistent quality which include a requirement for reports to be completed by Accredited Vessel Inspectors (AVIs).

Revised inspection formats

The eCMID and eMISW question sets were refreshed in October, following consultation with IMCA Members and the wider user community. The new versions (issue 11 and 4 respectively) reflect regulatory and technological change, as well as introducing new questions on cyber security, the Maritime Labour Convention and reactivation of DP vessels. Duplicate or low value questions were removed, to maintain the balance between covering critical safety elements and ensuring a concise format that can be covered in full during an inspection.

Insights into inspection findings

IMCA has analysed more than 2,000 reports completed with the previous eCMID/eMISW templates and published a summary of the frequent findings as a Marine Division information note and via the eCMID website. These can be useful for vessel operators and inspectors, as well as informing IMCA's committees as they prioritise future work.

While inspection outcomes were overwhelmingly positive, among the top eCMID findings were issues such as:

- Incomplete or unverified certification and other documentation onboard;
- Lack of documented procedures available for crews, in particular relating to lifting equipment and operations;
- Non-availability or awareness of safety procedures, including those relating to confined spaces and slips, trips and falls;
- Concerns in machinery spaces over defective systems intended to provide redundancy; and
- Insufficient pollution prevention arrangements.

Those findings appearing in eMISW reports were overwhelmingly related to the safety of personnel and the availability of safety procedures to the crew.

Practitioner Accreditation Scheme to improve DP trials

IMCA is launching a Dynamic Positioning (DP) Practitioner Accreditation Scheme. This will improve the consistency and conduct of DP trials, and set a minimum level of knowledge for DP practitioners.

Work on the scheme started in early 2018 when IMCA's Marine Division Management Committee appointed a workgroup of DP experts from Member companies chaired by Graeme Lorenson of Subsea 7 and Joey Fisher of M3 Marine as vice-chairman. The scheme is now ready and will be rolled out this year.

There are several objectives to the scheme, including providing assurance that DP practitioners attending vessels for trials and personnel conducting DP assurance duties are accredited to a minimum standard. By gaining accreditation, it will also assist practitioners to increase their knowledge base.

Two categories of personnel will be eligible

for accreditation:

- A DP Trials and Assurance Practitioner, i.e. an individual actively involved in producing and assessing the results of DP Failure Modes and Effects Analysis proving trials and DP annual trial programmes; and
- A company DP Authority, i.e. the responsible individual for a vessel operator or end charterer for managing DP trials and assurance processes.

To be eligible for accreditation, applicants require a minimum level of relevant certification, experience and knowledge. Following acceptance of the initial criteria, applicants will be required to sit a multiple-choice examination.

The application process opens on 1 May 2019.

Certification & Qualification Requirements

DP Trials & Assurance Practitioner

Minimum Certification requirements (current validation not required)

- Deck officer STCW Regulation II/2
- Engine officer STCW Regulation III/2
- Electrotechnical officer STCW Regulation III/6

or

- Non-seafarer – Technical degree/HNC/HND, or equivalent

And

- Formal quality control auditing qualification

or

- eCMID Accredited Vessel Inspector (AVI) with DP trials supplement

Company DP Authority

Minimum Certification requirements (current validation not required)

- Deck officer STCW Regulation II/2
- Engine officer STCW Regulation III/2
- Electrotechnical officer STCW Regulation III/6

or

- Non-seafarer – Technical degree/HNC/HND, or equivalent

System development

Upload fees were introduced in June to fund operation, maintenance and development. Despite the new charges, adoption of the system by new and existing vessel operators and clients has continued apace. Funds have already been directed to address user feedback, with new options for commencing short-notice inspections on vessels not yet added to the database and inspection history data now available for reaccreditation purposes. An ambitious development programme has been identified for 2019; improvements include the availability of the inspection app on non-Windows platforms as a top priority.

New user resources

Guidance on the IMCA eCMID system (IMCA M 167) has been rewritten as a complete guide to the system, IMCA policy and the inspection process. A new website has also been launched with information, news and a range of support tools. It includes clearer links between the database, help content and the inspector accreditation system. User guides have been updated and made available as task-focused web pages on topics such as registration, adding a vessel and preparing for an inspection. PDF downloads and video guides will shortly feature too. Feedback has been positive and IMCA will continue development as it seeks to improve the user experience.

Find out more at imcaecmid.com

WORKING TOGETHER: GETTING BACK TO BUSINESS -
OIL COMPANIES AND CONTRACTORS FINDING NEW WAYS OF WORKING

ANNUAL SEMINAR HEARS OF THE WAY AHEAD

Take leading representatives from the marine contracting industry. Add senior executives from major oil companies and expert opinion from renowned management consultants, and you have a dynamic line up for the opening of IMCA's Annual Seminar.

The sell-out two-day November event at The Hague, in The Netherlands, was attended by 300 people from across the offshore industry.

The Seminar was opened by IMCA President Iain Grainger. He spoke of current trends and challenges, of the need for cost control to continue and of the importance of both performance and efficiency; the balance of power between oil companies and contractors; and to be competitive against onshore shale. "Only the most robust projects can move forward", he said; and, central to the Seminar theme of 'Working Together', is "collaboration".

Speaking of the transformation within the industry, he highlighted changes within IMCA – that it has become leaner, fitter, and is moving forward towards its ambition to become the high-profile influencer and shaper of the marine energy sector.

IMCA's CEO Allen Leatt continued with the theme of ambition. He summarised the remarkable progress the Association has made over the past three years and looked forward to the impact of its new strategic themes – digitalisation, environmental sustainability and standardisation.

Allen also emphasised IMCA's commitment to safety, saying: "it is the golden thread running through everything that we do".

Allen Leatt presented IMCA's 'Strategy Snapshot' and its four key strategic themes:

- IMCA to continue the upgrade and stewardship of guidance and safety standards
- IMCA to be the 'convener' of the digital agenda in our industry
- IMCA to be the voice of environmental sustainability in our industry
- IMCA to be advocate of pragmatic standardisation solutions to reduce costs.



Iain Grainger, IMCA President and Chairman of the Board, opens the Annual Seminar

IMCA Award Winners

IMCA announced the winners of its Safety and Environmental Sustainability Awards at its Annual Seminar.

TechnipFMC won the Environmental Sustainability Award for the 'Elimination of employee generated single-use plastics'.

There were two winners of the Safety Award. MMA Offshore for its strategy and plans on 'Target 365: A perfect day every day'; and Subsea 7 for 'Driving IMCA's Resilience Awareness Programme videos'.



From L to R: Neil McDonald, Subsea 7; Stephen Birt, TechnipFMC; Darren Thomas, MMA Offshore

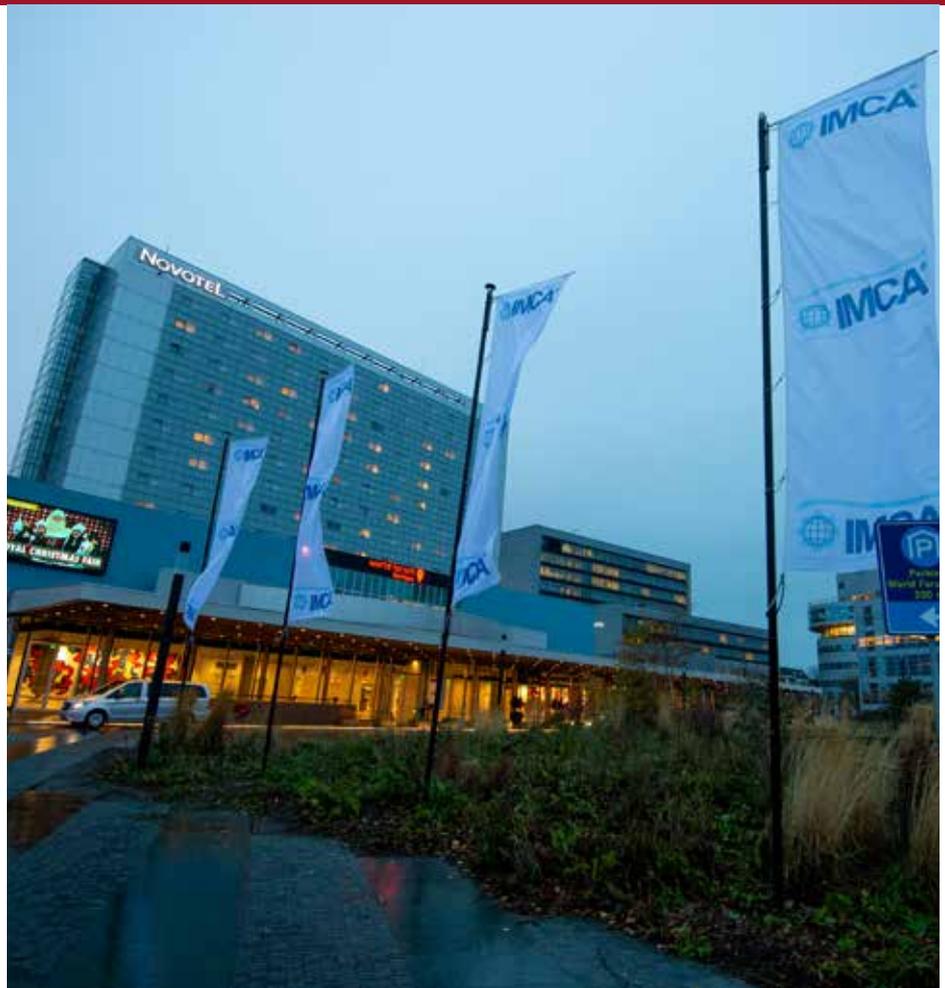
Industry Strategic Outlook

Consistent with Allen Leatt's strategic themes, Peter Parry of Bain & Company's Global Oil and Gas practice looked towards 2030 and said that this is a time of transition in the industry where both digital and sustainability were 'game changers' that would impact supply, demand, fuel and production mix.

On digital transformation, Peter put four questions to the Seminar's delegates:

- Digital strategy: How do you make progress without being certain of the end game?
- Business model: How do you rediscover the raw customer need, unconstrained by the current model?
- Enablers: Does your current data, technology, operating mode, and talent enable or disable progress?
- Orchestration: Are you moving beyond experimentation and scaling digital technologies across the enterprise?

Focusing on sustainability, Peter said that this was a 'cost' five years ago. However, this is now a 'need' with a business 'value'. By having a set ambition for sustainability, this leads to having green products and services, new technologies and efficiencies, and a green supply chain. This was a point he reiterated in his final take-away, saying "sustainability is the number one topic – cost becomes need, becomes value".



Working Together



Peter Parry

There have been structural changes at Shell, said Ian Silk, Shell's Vice-President for Conventional Oil & Gas Projects, in his address at the Seminar. He spoke of how the company had adjusted and the need for a vibrant marine contracting sector to reflect the outlook of lower oil prices and the energy transition.

Ian explained that Shell was open to innovation, digitalisation and for the need to work with the supply chain for sustainable and affordable solutions.



Ian Silk

IMCA'S NEW STRATEGIC THEMES

Standardisation of renewables

When implemented well, standardisation is a tool that will increase the safety and quality of operations, and, at the same time, decrease cost levels, said Harke Jan Meek of Seaway 7 in his address.

Speaking on the subject of 'Standardisation of Renewables', using the Beatrice offshore wind farm as a case-study, Harke pointed to requiring the commoditisation of a custom process and the development of tools to standardise operations and reduce cycle times. As he said, "Minutes matter. It is not the typical offshore oil and gas mindset."

Harke explained that there are more opportunities for the industry to standardise and reduce costs if we better align and join forces. He cited the development of more standard designs.

Two areas which he considered IMCA could play a role were in having consistent requirements in, for example, coating, and in the development of standard terms and conditions.

The digital oilfield

'Digital is still nascent in oil and gas, but it could cause significant disruption', was the heading on one of the slides from Aico Troeman of the Boston Consulting Group in his presentation on 'The Digital Oilfield: Innovation imperative for marine contractors'.

He went on to say that the challenge is that corporate behaviours are often at odds with innovation: that corporates are exceptionally good at running their own business, but this could mean they are exceptionally bad at disrupting them.

However, Aico said, the time is right for change, for innovation in the age of digitalisation. Disruption, he explained, typically originates from a combination of four sources – new technologies, new business models, new ways to engage customers, and new products and services. As corporations (as many IMCA members are) "you will own the next horizon of digital disruption"; because corporates have unique assets that give them an unfair advantage in the innovation game – cash, brand, assets, knowledge, customers, regulatory access, partnerships, intellectual property, market influence, and data.

The marine contracting industry will evolve but it is unclear how, he said, and that digital disruption will involve "a profound

redistribution of profits, leaving significant casualties. You need to move fast even if the future is unclear. Are you going to capture the digital margin that will emerge; or will you be the 'casualty'?"



Aico Troeman

Learning from the aviation industry

Andrew Dingee, President of ADEnterprises, is an accident investigator and incident reporting expert. He implemented changes to procedures that increased safety and efficiency for the world's largest airline. Andrew then successfully implemented aviation-style checklists and procedures into the oil and gas industry that reduced risk and increased efficiency. They saved hundreds of millions of dollars too.

Answering his own question, "What is standardisation?", Andrew said "It's a process that implements a standard on the consensus of different parties – regulatory, manufacturer, and, importantly, the end user." In the US Navy, it was by getting the end users to write the manual that saw the 'mishap record' reduce by 50% in the first year alone.

Andrew explained the role of Standard

Department is to:

- Achieve consistency in execution;
- Share expectations on how to conduct work;
- Improve the corporate learning curve;
- Reduce re-work due to human error;
- Increase proficiency; and
- Prepare for growth.



Andrew Dingee

Environmental Sustainability

All Equinor's marine contract awards ask questions about emissions, said Atle Reinseth, Vice President Project Development – Tie-back and Brownfield at Equinor, as the company drives forward with its aim of reaching zero emissions from vessels.

On any given day, between 20 and 40 vessels are at work for Equinor. The company has actively engaged suppliers to accelerate energy transition. This has resulted in a 25% reduction in CO₂ emissions since 2011 thanks to modernising the fleet, tools and equipment. It has also led to the formation of innovative partnerships; vessels increasingly being equipped with hybrid battery technology and the possibility of shore power connections – he cited *Viking Energy* the LNG hybrid battery powered PSV; new sailing patterns; and the use of LNG and LPG as fuel.

Atle confirmed that Equinor will actively shape its portfolio so that it is fit for the future, towards 2030 and beyond, and to deliver high value with a low carbon footprint.



Atle Reinseth

New Strategies In Action

Complementary and highly memorable presentations by Mark Richardson and Stephen Carver on new strategies and ways of doing business ended the first day of the Annual Seminar.

Mark, Vice President for Projects at Neptune Energy, spoke of a 'Paradigm shift or failure to learn'. He described paradigm shift as "A time when the usual and accepted way of doing or thinking about something changes completely". "Think flat earth to globe," he said. That means "you have to think differently, (and) work together by changing the mindset".

Focusing on the sustainability of a mature basin, Mark spoke of the response of independent operators in a changing world with its volatility, uncertainty and complexity, and how they respond by thinking and working differently. This comes from a leadership that provides a cultural shift.

The theme of new strategies and doing things differently was continued by Stephen Carver of ASL Consultants in his presentation on 'Adapt or move over'.

Stephen brought a new dimension to the day's proceedings. He spoke about "space the final frontier" and that 'adapt or move over' does not mean "the strongest of the species survives, nor

the most intelligent – but the most responsive and adaptable to change".

Speaking on the role of NASA in the space race, Stephen explained that it had failed to adapt and became a federal bureaucracy beset by competing agendas. After the Challenger and Colombia accidents (in 1986 and 2003 respectively), it began its retreat from the inherent risks of manned space exploration.

The paradigm shift that took place was with Elon Musk of SpaceX who determined that he wanted "To open up space for humanity, and in order to do that, space must be affordable". That means standardisation, low cost and reusability.

The mantle has also been taken up by Jeff Bezos of Amazon and Blue Origin, the space flight company. He believes in a future where millions of people are living and working in space to tap its unlimited resources and energy and thus preserve Earth for our grandchildren's grandchildren.

Quoting Jeff Bezos, Stephen said, "What's really dangerous is not to adapt and evolve".

To the 300 delegates at the Annual Seminar, Stephen ended the day saying: "Trust your intuition, empower your people, adapt and thrive, have fun."



Mark Richardson



Stephen Carver

Quickfire Totally Technology Session



The Quickfire 'Totally Technology' session has been a regular feature at IMCA Annual Seminars. This year, there were presentations from:

- Airbourne Oil & Gas: 'Simplifying Subsea Tie-in with Fast & Flexible TCP Jumpers'
- Buccaneer Delft: supporting young technical companies in the offshore industry
- Dockstr: procurement and the circular economy
- DSM Dyneema: synthetic chains
- Wärtsilä Guidance Marine: 'SceneScan – A target-less future in Dynamic Positioning'
- Fugro demonstrated QuickVision

New Strategies for a win-win future



A line up of senior executives from contractors and oil companies grasped some of the major issues in the industry.

The panel comprised: Edward Heerema, President of the Allseas Group; Gerry McGurk, VP Projects, BP; Ian Silk, VP Conventional Oil & Gas, Shell; John Evans, Chief Operating Officer, Subsea 7; and Scott Munro, Senior Vice President and Corporate Development Officer, McDermott; with questions posed by Edwin Lampert, Head of Content, Riviera Maritime Media.

Annual Seminar Gets Technical

Day Two of IMCA's Annual Seminar focused on marine and diving. Two parallel technical sessions were run on these key areas of IMCA's work. Delegates looked at, and discussed, topical issues that will help to formulate IMCA's future work programme.

Debating Remote DP Trials

In an all-embracing session on Dynamic Positioning (DP), eminent practitioners were brought together to debate remote DP trials.

The purpose of the session was to get a better understanding of:

- The safety, efficiency and training aspects associated with remote DP trials;
- The requirements of stakeholders (i.e. vessel operators, clients, suppliers, and classification societies);
- Whether the current version of IMCA's *Guidance for Developing and Conducting DP Annual Trials Programmes* (M 190), covers the requirements; and
- What recommendations IMCA can make to industry?

For Peter Solvang of DP & Marine Assurance, incremental DP testing is the logical, safe and cost-effective way forward. He said that more in-depth guidance is needed from IMCA to preserve the quality, and for an industry-wide understanding of how to perform remote trials.

Joe Farrell Dillon of Global Maritime highlighted the challenges facing a ship's staff doing remote DP trials:

- Lack of detailed knowledge of shipboard systems and potential failure modes;
- Difficulty of finding fault with a vessel for which they are responsible; and

- Implication on continued employment if an 'A' recommendation is identified and documented.

Global Maritime, he said, supports enhanced involvement of the ship's crew in the DP trials process. They are currently working with a software vendor to improve the documentation of regular testing as part of trials to reduce the time taken for annual trials. However, currently, they do not believe that current technology provides sufficient reporting and audit capability.

The economic perspective for incremental or remote trials was highlighted by Martin Jakobsen of Maersk Supply Service. Maersk introduced remote incremental trials to a selection of its fleet in 2017. However, this was based on an acceptance of this type of testing by clients, and there was still a high percentage of the fleet conducting attended annual DP trials to ensure the vessels remain suitable for all clients. Martin also called for industry guidance.

TechnipFMC run annual attended DP trials for their vessels. Pawel Noskowicz, considered the methodology, and gave his views on the main concerns of remote DP trials:

- Lack of industry standard;
- Client expectations; and
- Operational concerns.

His list of 'Pros' was shorter than his 'Cons'

but demonstrated the benefit of being able to carry out trials during idle or waiting periods (e.g. waiting on weather); acknowledged they could be planned and rolled out in 12 months; saw there was no need for a DP auditor to attend (with consequent cost savings); and could see that the trials are time effective when tests are conducted as a part of periodic maintenance. Like Martin Jakobsen, amongst his 'Cons' he highlighted the lack of industry standards.

Pawel went on to say: "We are looking forward to the outcome of the DP trials practitioner accreditation scheme, that will provide consistency within the industry."

The panel and audience discussion revealed a rich diversity of views. Opinion was split whether remote DP trials covered the practice of using technology to monitor equipment performance or whether it referred to ships' crews performing tests onboard and reporting back to a third party ashore. It was obvious that the guidance contained in IMCA M 190 was being interpreted differently and the audience requested some clarity. IMCA will therefore review what is meant by remote DP trials and provide guidance on when it might be appropriate to use these methods and some cautionary notes on when it might not be appropriate.



In discussion in the Marine Session at IMCA's Annual Seminar

Encouraging Professional Development

Few, if any, would argue against Continuous Professional Development (CPD). The matter put to delegates in the Marine Session was how to encourage seafarers to participate in CPD.

CPD, delegates were told, is the systematic maintenance, improvement and broadening of knowledge, understanding, person qualities and skills throughout the individual's working life.

Professor John Chudley of IMarEST spoke about the different forms CPD can take and that "A planned approach to CPD allows an individual to put themselves in charge of their own career development and work-related ambitions. As more people become professionally qualified with similar qualifications, CPD becomes more important as a means of separating yourself from the pack."

This will become imperative. John explained that in January 2019 recording CPD will be mandatory for Engineering Council registrants and that by January 2020, Professional Engineering Institutes, like IMarEST, will remove registrants who persistently do not respond to, or engage with, requests for CPD records.

Steve Benzie, Technical Training Manager at i-Tech⁷ and Chairman of IMCA's Competence & Training Committee, spoke about i-Tech⁷'s online App which provides their offshore workforce access to CPD materials.

Following the presentations, delegates participated in a workshop to identify how IMCA could assist individuals within the industry to participate in CPD. It is anticipated that the IMCA Competence & Training (C&T) Committee would work with the divisional committees to encourage CPD for individuals in all member companies. To assist, the ideas collected during the workshop would be shared with the C&T Committee, and discussed at the next Marine Division Management Committee.

Energy Efficiency Initiatives by the Offshore Sector

Peter McCombie of TechnipFMC and Chairman of IMCA's Marine Policy and Regulatory Affairs Committee opened the topic by saying that "One of the key issues for the International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC) is the further development of regulations for the prevention of air pollution from ships".

IMO deliberations

The MEPC continues to prioritise the development of regulations to control airborne emissions from ships, primarily from sulphur oxides (SOx), nitrogen oxides (NOx), ozone depleting substances (ODS) and volatile organic compounds (VOCs), as they contribute to air pollution. Increasingly, there is also focus on black carbon and Greenhouse Gas (GHG) emissions (primarily CO₂).

Peter highlighted international efforts which have resulted in the reduction in the sulphur content of fuel over the period 2012 to 2020; and outlined the various options available to shipowners to comply with the sulphur cap limit of 0.5%, which will come into force on 1 January 2020.

"A year after the SOx cap was adopted, the industry is still undecided about the compliance options," he explained. Adding: "It is clear from discussions within the industry that there is not a single strategy which will work for everyone and that companies will need to take a strategic decision as to which approach will work best for them."

At its 70th session, IMO's MEPC agreed a roadmap to develop a comprehensive strategy to reduce GHG emissions from shipping. The roadmap defines a timeline through to 2023 when a revised IMO strategy will be adopted. Peter explained IMO's strategy for GHG emissions control (which is new from 2019). He said the issues of most concern for IMCA and its members are:

- Once the data collection process is finished, it must be analysed so as to determine how energy efficient a ship is. The metric (proxy) proposed to be the most appropriate measure of a ship's energy efficiency is 'transport work', i.e. distance travelled, and fuel consumed against cargo and/or people carried.
- IMCA has stated at IMO that the offshore industry should not be judged against this metric because offshore vessels do not travel great distances yet consume a lot of fuel during their activities, e.g. whilst engaging their DP systems.
- A suitable proxy for measuring the energy efficiency of offshore vessels now needs to be agreed and an appropriate proposal submitted to IMO.



Port infrastructure and energy efficiency

The Port of Rotterdam is a front runner in energy transition, delegates heard from Ankie Janssen, the Port's Senior Business Manager.

She provided an insight into the transition pathways for transport to, from and in the Port of Rotterdam; and shared the Port's ambition to develop as the production, logistic and user centre for alternative transport fuels. Ankie spoke about the timeline and opportunities for the Bio-LNG hub and then moved on to other opportunities such as the modular battery-concept for the International Warehousing and Transport and energy markets, shore-power for shipping, and the low carbon Tradelane.

The idea behind Tradelane is to show how far you can decarbonise sea transport using current smart technologies. These could be a combination of low carbon fuels (biofuels) and efficiency measures (planning, weather routing, kites, drag reduction coating).

The Port is also evaluating incentives for cleaner ships and fuels such as the environmental Ship Index (ESI) and sailing on LNG. It is also considering:

- A budget of €5 million in four years to stimulate new projects for climate neutral shipping;
- New procurement rules including climate considerations; and
- CO₂ differentiated port dues.

IMCA Member Initiatives

Saipem

"We strive for improved energy efficiency across all our offshore operations," is how Pierluigi Nunzi explained the concept of Saipem's eco Operations (SeO).

The company's E&C Offshore Division agreed a new environmental target in 2018: to reduce its GHG emissions by 2% to 5% compared to the previous year's KPIs, and thus ensure efficient energy management.

The SeO campaign shows that every action by members of the 34,000-strong Saipem workforce, however small, helps the company to become a 'force for nature' and that all employees are being taken on a 'What can we save?' journey.

Further developments are planned. Each vessel will complete a periodic SeO table in the knowledge that just one vessel can save some 10,000 tons of CO₂ each year.

"When a company as big as Saipem takes small actions, these can have a huge cumulative effect across the world," said Pierluigi Nunzi.

Louis Dreyfus Armateurs

Alban Billaud of Louis Dreyfus Armateurs spoke about the new hybrid offshore wind farm maintenance vessel *Wind of Change*. Propulsion is diesel electric. The 760 cubic metre fuel tank gives the vessel a 5,300 mile range at 10 knots

or 30 days operating in DP mode. He spoke too of a new generation of power electronics, and their continuously evolving energy storage technology.

Heerema Offshore Contractors

The *Sleipnir*, the world's largest and most sustainable heavy lift vessel, featuring the first dual-fuel engines suitable for DP/crane operations, and of its use of LNG fuel and shore power, was the subject of Spike Schuurmans of Heerema Offshore Contractors' presentation.

He explained that *Sleipnir* can fulfil the owner's vision to be the front runner in green vessel operations as emission requirements become ever more stringent.

The session ended with a panel discussion that, combined with the presentations, provided IMCA with plenty of examples of energy efficiency initiatives instigated by the offshore sector. This information will form the basis of an information note to industry and be used in a submission on behalf of members to IMO MEPC 74.



Diving - setting the scene

Diving specialists addressed three burning issues during the day-long Diving Technical Session. The IMO Diving Instruments; Health Fitness and Medical Issues in Diving Operations; and Competence for Dive Team Members. Steve Sheppard, Diving Manager, Helix Energy Solutions Group and Chairman of the IMCA Diving Division Management Committee chaired the day of stimulating presentations and discussions.



Steve Sheppard, Moderator at the Diving Technical Session

IMO Diving Instruments

Bryan McGlinchy, IMCA's Diving Manager, opened the session by giving an overview of the IMO Diving Instruments, the scheduled reviews, and implications for industry.

The *IMO Code for Safety for Diving Systems* issued in November 1995 and *Guidelines and specifications for hyperbaric evacuation systems* issued in November 1991 are non-mandatory. Neither have been revised since. The revisions, Bryan said, aim to reflect the experience and knowledge gained by industry over the past 20+ years; thus, bringing the Instruments into harmony with current industry good practice.

"As the IMO Diving Instruments are non-mandatory they are not universally adopted and implemented," said Bryan. "To level the playing field the IMO Diving Instruments must be made mandatory. There is no point in revising an Instrument that will not be widely used."

When a joint IMCA and IOGP proposal to re-evaluate and revise the Diving Instruments was considered by IMO's Maritime Safety Committee on 18 May 2018 it received overwhelming support. Work is scheduled to begin at IMO in 2020 for completion in 2021.

In a poll conducted at the session, delegates overwhelming said that IMCA should strive to make the revised IMO Code and Guidelines Mandatory Instruments under the International Convention for the Safety of Life at Sea (SOLAS).

DNV GL's Rob Rostron took the theme forward by considering the current difficulties in achieving an international baseline under the existing code and the codes often unseen role in providing alternative solutions toward other IMO requirements (e.g. SOLAS).

Clarifying these alternative solutions, which are already in use within the industry, will be a focal point going forward to provide better regulatory predictability.

A new code is also an opportunity for the industry to set where the new baseline should be. Which parts of current guidance could be moved to the code? What other areas can be improved? What are the limitations?

Some possibilities were suggested, and with

strong audience engagement there was useful feedback on how to go forward.

Continuing with the IMO Diving Instruments, Mike Jessop of Cape Diving considered the changes that should be made to modernise and improve Hyperbaric Evacuation Systems. Mike outlined the technical part of the IMO Guidelines and summarised the major differences.

In the presentation, several questions were posed to the audience allowing them to engage in discussions on the relevance of the current IMO direction. In general, the audience supported change to be more in-line with the current industry practices of IMCA members.

Some of the responses were divided. These provided an important perspective and a more detailed understanding of the issues needing to be progressed before further changes are recommended.

The results will be used to establish a framework of changes that need to be progressed to modernise and ensure IMO remains relevant to our industry.

Health, Fitness & Medical Issues

"Diving is a safety critical job regardless of depth," Andy Butler of TechnipFMC reminded the delegates. Moreover, he said: "There is no lower or upper age limit for medical fitness to dive. However, a diver must retain the physical and functional capacity to undertake work underwater. And as noted in the UK HSE guidelines, this will normally require greater than average fitness as age increases."

Andy built on Phil Bryson's earlier presentation which had underlined the importance of cardiovascular fitness when diving.

He informed delegates that TechnipFMC has completed 67 extended medicals on divers ranging in age from 30 to 63 years.

As a result, in addition to holding a valid certificate of medical fitness to dive issued by a competent medical examiner of divers, the company is proposing to introduce requirements

for all divers to undergo the following on an annual basis:

1. GP confirmation of medical history;
2. Blood tests including:
 - Full blood count: haemoglobin, white cell and platelet;
 - Biochemistry: electrolytes, kidney function, liver function, blood glucose, cholesterol;
3. Direct uptake VO₂ max fitness assessment with a minimum pass rate of 40 ml/kg/min at a safe age-predicted maximum heart rate; and
4. Drugs of abuse screening.

The process will include consultation with a delegation from the diving workforce, and with the relevant union representatives, to ensure all parties are afforded an opportunity to voice their opinions and concerns, and work together to achieve the objectives.

Øyvind Loennechen, also of TechnipFMC, concentrated on direct and indirect measurement of VO₂ maximum in divers for physical fitness assessment. Importantly, he covered the history of mutual recognition by North Sea states for divers' medical certificates, why there is a need for improved guidance on VO₂ max limits, and he noted that there is currently no consistency in physical fitness requirements amongst regulators across the North Sea.

Government inconsistencies regarding health and fitness requirements for annual diving medicals, and variations in the performance of annual commercial diving medicals by medical examiners of divers, are both an increasing industry concern. Diver medical shopping, and the concealment of diver health and medical issues, can seriously affect the employer-employee relationship and trust, especially if the diving contractor is forced to implement additional health screening. This can easily be avoided by using consistent VO₂ max requirements amongst North Sea states as well as improved diver health examination requirements, as described in the recently issued IMCA D061: *Guidance on health, fitness and medical issues in diving operations*.

Diving Supervisor Annual Update Programme

IMCA is to introduce an annual update requirement for diving supervisors by the end of 2020. This follows feedback from clients and contractors that there are diving supervisors who fail to keep their knowledge and skills updated.

Since the scheme was first introduced in 1988, there have been no requirements for diving supervisors to maintain their knowledge and skills, or to keep up to date with changes in industry diving practices. This is contrary to safety critical personnel in other sectors, for example, marine and aviation, where they are obliged to update or requalify on a regular basis.

The annual update will consist of four parts. The content of each part will be decided by IMCA's Diving Division Management Committee, but the intention is to include material on newly issued IMCA guidance, information notes, and on lessons learned from recent relevant safety flashes, as well as a review through time of all IMCA safety related diving guidance.

Diving supervisors will have to complete and pass self-assessment questions set for each quarter of the year before they can progress to the next. Upon completion of the four updates a supervisor will be deemed to be 'current' for the following work year. A list of current supervisor certificate numbers will be published on an annual basis on the IMCA website.

Any supervisor failing to complete the update within the calendar year will not be listed as

current for the following work year on the IMCA webpage.

The scheme will be made available on tablet, mobile phone, and computer. Each diving supervisor who signs up to the scheme will be issued with unique login details.

An additional benefit of this scheme is that it will allow IMCA to speak directly to all active supervisors should an issue of critical importance need to be delivered to them; for example, an industry safety alert for a specific item of equipment.

Work on the annual update programme has already begun. It is anticipated that the software development and trials will be completed by the end of 2019, with the system going live next year.

This fundamental shift in practice will greatly benefit the offshore diving industry. It will be seen by all stakeholders as an excellent means of helping diving supervisors to maintain their technical knowledge, keep up-to-date with IMCA's latest guidance and generally stay abreast of the latest industry developments.

Despite the introduction of the annual update requirements by IMCA, the responsibility for appointing a competent diving supervisor will remain with the diving contractor. It is for the contractor to ensure that the appointed supervisor is qualified and competent to undertake the responsibilities of such a safety-critical role. The new scheme should help contractors select

able and enthusiastic diving supervisors for their projects.

In due course the annual update programme will be linked to the diving supervisor job function in IMCA C 003 *Guidance on Competence Assurance and Assessment - Diving Division*.

Launch of revised Life Support Technician Exam

The revised IMCA Life Support Technician (LST) examination went live on 1 January 2019.

The exam consists of three sections covering:

- Physics (20 questions);
- Physiology (20 questions); and
- Chamber Operations (40 questions).

The exam's content comes from a database with more than 400 questions; hence, no two exams will be the same.

The revised LST exam is part of the ongoing revision of exams by IMCA.

Work is well under way to revise the Bell Diving Supervisor examination.



IMCA's Peter Sieniewicz, Technical Adviser – Diving, explaining the diving supervisor annual update programme at the Annual Seminar.

Ethics and Compliance Programme

Following its successful Contracts and Insurance Seminar in September 2018, IMCA moved swiftly to finalise by year end a Code of Conduct for IMCA Members and an e-learning program called *Doing Business Without Bribery* developed by Transparency International. These followed the Code of Practice developed specifically for the IMCA Secretariat in early 2018.

The Code of Conduct establishes the core ethics and compliance principles to which its Members subscribe. At the Seminar in September, Andrew Hayward, Subsea 7's Group Head of Compliance & Ethics, said: "If you deal with each and any IMCA Member, you should know what you can count on. All of us are committed to upholding and, as far as possible, to encouraging our supply chain to uphold, certain universal standards of ethical business practice."

The *Doing Business Without Bribery* e-learning module announced in November, is to train, explain, and encourage anti-bribery and

corruption best practice. Intended particularly for IMCA Member organisations that do not have all the compliance training content and systems in-house. The IMCA-branded version is free to all IMCA Member companies.

"The three-stage programme," said IMCA CEO Allen Leatt, "supports the Association's mission of 'Improving Performance in the Marine Contracting Industry', and it is only right for IMCA to be taking this leadership role. Our goal is that oil companies should be confident that when they deal with an IMCA Member, they know what they can count on from an ethics and compliance perspective."

IMCA's next Contracts and Insurance Seminar will take place on 2 October 2019 at:
Royal Academy of Engineering,
Prince Philip House,
3 Carlton House,
London,
SW1Y 5DG.
Look out for further details and how to register.



Andrew Hayward speaking at the Contracts and Insurance Seminar in 2018

Renewable Energy Seminar

The Marine Renewable Energy Committee is in the early stages of planning a Renewable Energy Seminar to be held in Amsterdam on 25 September 2019. The seminar will consist of three sessions covering topical renewable energy developments and issues:

1. Achieving harmonisation of training and certification;
2. Safety initiatives – Openness is the key to safe and efficient operations; and
3. Future trends in the marine renewable energy sector.



South America regional meeting Brazil 2018

Regional Meetings

Europe & Africa

IMCA's Europe & Africa Committee is keen to make use of the expertise of the members that sit on IMCA's core and division committees. To support this, at its next regional meeting, under the theme of 'What IMCA can do for you?', there will be three major areas of presentation and discussion.

1. Debrief on the IMCA Annual Seminar, including the marine and diving technical sessions;
2. 'Encouraging engagement' – a presentation on how IMCA can best engage with its members and their workforce; and
3. The work of the different IMCA committees.

The next Europe & Africa regional meeting will be on 20 February 2019, in Antwerp, Belgium.

South America

There was a full agenda including presentations on Dynamic Positioning (DP) and the management of training, at the South America regional meeting in October, held in Rio de Janeiro, Brazil.

At the well-attended meeting chaired by John Chatten of Fugro, there were delegates from vessel owners, diving and training establishments, consultancies, and client companies. They were joined by representatives from the Brazilian Navy Directory of Ports and Coasts, which the regional committee is keen to work closely with for the benefit of the local offshore industry.

Talita Scarcela, Training Instructor at Maersk Training, gave a useful insight into the management of training for anchoring and towing operations.

DP was picked-up by Captain Andy Goldsmith, IMCA Technical Adviser - Marine. He focused on changes made to *Guidelines for the training and experience of key DP personnel* (IMCA M 117) since it was last revised in 2016.

Simone Uribe, an Instructor at Kongsberg Maritime, followed with a presentation in Portuguese on the close links between the training offered by Kongsberg and the requirements of IMCA M 117. She observed that certification was not enough on its own and pointed towards the benefits of Continuous Professional Development for all key DP personnel.

Following the success of this event, the Committee decided that future regional meetings would be held in Rio de Janeiro. The next one is planned for Thursday 14 March 2019.

Have ROVs come to the end of their tethers?

Today's technology is advancing faster than at any time in history. Data storage, handling and processing power are challenging and changing every area of our lives. Autonomy and Artificial Intelligence (AI) are no longer just possibilities they are certainties. Self-driving cars, autonomous ships, and single passenger aerial drones will soon be with us. Personal and commercial droids carrying out dangerous or laborious tasks, usually requiring years of training, learning skills and achieving competence by humans, will be commonplace within a very short time scale. The technology is already available and will impact all areas of the offshore industry and how we work; but, how will it change ROVs?

Since the appearance of tethered ROVs in the early 1950s, such as Rebikoff's 'Poodle' and the Royal Navy's 'Cutlet', used for test weapon retrieval, the basic architecture of the ROV has changed little. While there have been major advances in component technology, improvements in materials, more reliable thrusters, better electrical, control and navigation systems, in a vast array of tooling and sensor systems and the addition of a Tether Management System (TMS), essentially, the design has remained the same and they are still tether dependent.

The tether, while currently necessary (certainly on work class systems), is the source of many disadvantages, as they are:

- Very costly;
- Require great care and management;
- Delicate and easily damaged;
- Time consuming to repair or change;
- Difficult to store and move;
- Able to limit the range of the ROV (without vessel moves);
- Easily snagged on subsea assets or in vessel thrusters;
- Capable of making the ROV difficult to control; and
- Subject to tide, wind and current.

Do we need a tether?

Currently, we need the tether to carry sufficient electrical power to the Hydraulic Power Unit (HPU) to drive a work class ROV's power and tooling requirements.

In addition to providing electrical power, the

IMCA's Technical Adviser for Remote Systems and ROVs, Andre Rose, looks at the changes in ROVs over the last 50 years and considers what may be ahead.

tether also transmits and receives control and sensor data between the surface and the vehicle to allow real time control of the ROV, tooling and sensors.

Advances in battery technology, data processing and storage allow Autonomous Underwater Vehicles (AUVs) to operate without a tether; some mini and micro ROVs use rechargeable batteries for power (although they still require a tether for control and the use of video and data handling).

It is easy to see why the idea of a tether-less ROV is so attractive to operators and clients alike.

Where we are heading?

With businesses under pressure to become safer, more efficient and cost effective, employing new technology to remove humans from potential danger, reduce costs and improve efficiency ticks all the boxes.

Resident ROV systems

A resident ROV system lives at the work site and is deployed as required. Although relatively new, several systems are already installed and being either tested or developed further. It is housed in a subsea docking station, like a TMS, on the seabed or as part of a structure. The docking station is supplied with power and data via an umbilical from the surface. For some lighter tasks, inspection, survey and valve operation and testing, some ROV systems act more like AUVs; with no tether and use re-chargeable batteries, they are pre-programmed for their tasks and return to the subsea docking station to recharge, upload and

download data. A resident ROV system offers an opportunity to locate the operator onshore in a control room, like military aerial drones, and control the ROV via satellite, radio and umbilical data links with the docking station.

Underwater Optical Wireless Communication (UOWC)

Battery technology is rapidly advancing and will continue to contribute to the demise of the tether but currently the largest limiting factor is the ability to accurately transmit large amounts of data through the water. While limited data can be transmitted underwater on low frequencies (Sea King Sonar at 325 kHz around 300m), transmitting large amounts is problematic due to latency and scatter in seawater. A development currently being advanced is Free Space Optical (FSO) systems. These use lasers in the blue-green optical frequency band region and can transmit megabits per second of data over a hundred metres underwater.

FSO technology offers the potential for real time, direct wireless channels to communicate control and sensor data with the ROV or, via an array of seabed and midwater transceivers to allow the ROV to self-navigate and transmit data to the control station.

Future development of battery technology and UOWC systems will eventually sever the tether but, for the immediate future, work class ROVs will be kept on a leash.



ROV and the Tether Management System. Credit: DeepOcean

EMPOWERING



SAAB SEA EYE
THE FUTURE IS ELECTRIC

2019 CALENDAR

February

- 5 **IMCA Competence & Training Seminar Aberdeen, UK**
- 5 Diving Division Committee
- 6 Competence & Training Committee
- 12 North America region
- 20 HSSE Committee
- 20 Europe & Africa region
- 21 Lifting & Rigging Committee
- 26 Middle East & India region
- 26 Marine Policy & Regulatory Affairs Committee
- 27 Marine Division Committee

March

- 14 South America region
- 21 Asia-Pacific region

April

- 16 ROV Committee
- 17 Offshore Survey Management

May

- 1 Diving Division Committee
- 8 Competence & Training Committee
- 21 HSSE Committee
- 22 Marine Division Committee
- 23 Lifting & Rigging Committee

June

- 11 Middle East & India region
- 12 Asia-Pacific region
- 25 Offshore Survey Committee
- 26 ROV Committee

August

- 7 Competence & Training Committee
- 21 HSSE Committee
- 28 Lifting & Rigging Committee

September

- 4 Marine Division Committee
- 4 Diving Division Committee
- 11 Asia-Pacific region
- 24 Middle-East & India region
- 24 **IMCA Lifting & Rigging Seminar Amsterdam, The Netherlands**
- 25 **IMCA Renewable Energy Seminar Amsterdam, The Netherlands**

October

- 1 ROV Committee
- 2 **IMCA Contracts & Insurance Seminar, London, UK**
- 15 North America region
- 28 South America region

November

- 2 Offshore Survey Committee
- 6 Competence & Training Committee
- 12 Europe & Africa region
- 13 14 **NUI 2019 - Bergen, Norway**
- 27 Asia-Pacific region
- 27 Lifting & Rigging Committee

December

- 3 Middle East & India
- 4 Diving Division Committee
- 11 Marine Division Committee
- IMCA events**
- IMCA Committee meetings**

Dates are subject to change

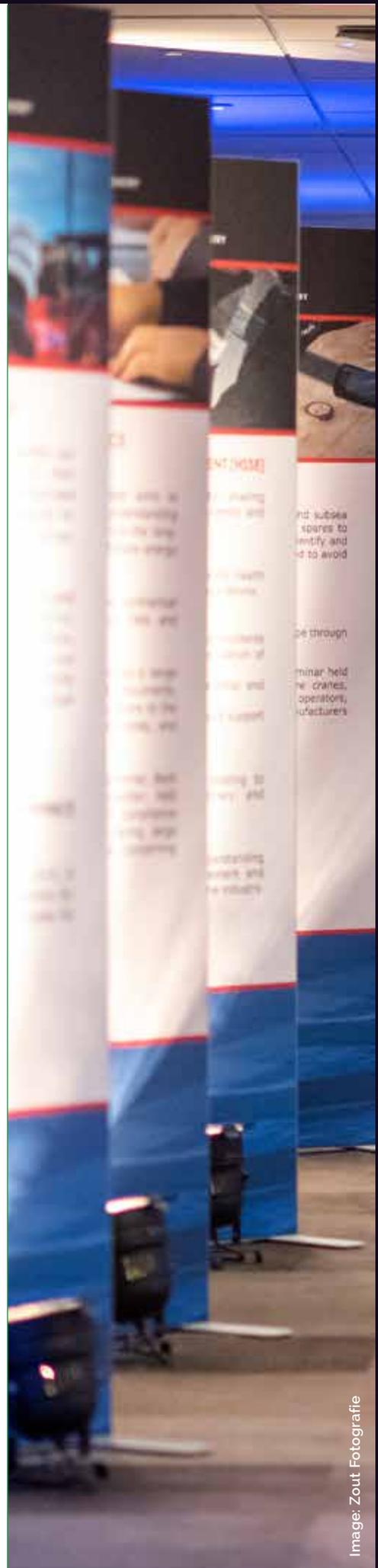


Image: Zout Fotografie

For the latest calendar, go to:
imca-int.com/events