TANKEROperator

MARCH 2011

www.tankeroperator.com

Features:

- Off to Stamford
- Outsourcing can save money
- Ballast water system maze
- Hull condition assessment
- IPTA looks at ESPH

Incorporating:
The TANKEROperator
Annual Shipping
Review

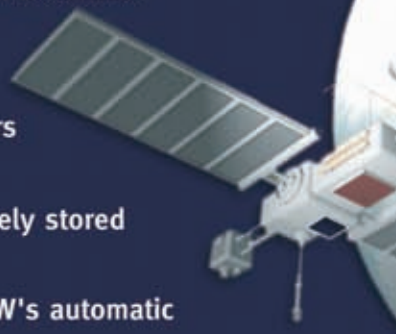
ClearView

Take control of MARPOL violation risks & penalties

Penalties for overboard pollution and errors in the Oil Record Book now run at unprecedented levels

Why risk large fines and custodial sentences for officers - There is an answer

ClearView can easily be fitted to any vessel. Crew get clear onboard display and remote operators can access the entire waste management history. Critical alerts are immediately relayed via satellite comms.



- Get - complete peace of mind
- Get - critical pollution warnings delivered to the operators desk as they occur
- Get - Oil Record Book data created electronically inviolately stored to protect and support operations
- Get - "CANNOT POLLUTE" green credential by CLEARVIEW's automatic "GEOFENCE" of overboard discharge operations
- Get - a USCG accepted "Environmental Compliance Plan"
- Get - protection from heavy penalties for commonplace accidents and crew errors

Seatrade AWARDS 2010
Winner of Innovation in Ship Operations Award

Let Clearview help you to meet your pollution strategy targets and environmental policy

Advanced Tank Gauging Systems

PSM's latest generation of tank level transmitters feature inbuilt intelligence and digital multi-drop communications to provide a higher level of performance with a lower cost of installation and ownership

- Cable requirements and costs reduced by up to 70%
- Remote configuration / commissioning
- Simple I.S. installation with one safety barrier for multiple transmitters
- Comprehensive central display with outputs to other shipboard alarm or loading systems

Both radar and hydrostatic technologies for all cargo, ballast and service tanks

30 years experience in marine level systems

PSM Instrumentation Limited
Burrell Road Haywards Heath W Sussex RH16 1TW UK
T +44 (0) 1444 410040 F +44 (0) 1444 410121
W www.psm-sensors.co.uk
E sales@psm-sensors.co.uk

PSM

Contents

ANNUAL REVIEW

Front cover photo

Maran Tanker's Management's (MTM) Suezmax ***Maran Penelope.*** *MTM operates 12 Suezmaxes, as well as 16 VLCCs and eight Aframaxes. The company is part of the Angelicoussis group and has been steadily climbing the rankings. Photo credit- MTM.*

Piracy - the big debate

While events in the Middle East and North Africa are of immediate concern, the more long term worry for the shipping industry is the escalating problem of piracy.

On pages XVIII to XVI of the Annual Review, we have published some of the shipping industry's latest moves to counteract this growing menace.

Following on from the various statements issued that were highlighted in *TANKEROperator's* report, a meeting took place at the IMO on 17th February between IMO secretary general Efthimios Mitropoulos and industry and seafarer representatives.

All reiterated the need for urgent and co-ordinated action from governments, the shipping industry and the maritime community to address the escalating crisis of kidnap and ransom of seafarers off the coast of Somalia, in the Gulf of Aden, in the Arabian Sea and in the western Indian Ocean.

Representatives of the Round Table of international shipping associations (BIMCO, ICS, INTERCARGO and INTERTANKO), OCIMF and ITF agreed that the situation off the coast of Somalia is nearing crisis point with escalating levels of violence, increased risk to seafarers' lives and significant disruption to global trade and the world economy.

The meeting agreed on the need for compliance with the IMO guidance and best management practices; the need for improved co-operation, communication with, and deployment of, naval forces operating in the area; and the need for more proactive measures to avoid ships becoming victim to the hijackers.

Armed personnel

In noting the reported use of armed personnel by some shipowners in response to the growing threat of piracy attacks, the meeting maintained the position recommended by IMO (namely, that this should be decided by the shipping companies concerned in consultation with the flag state – see page XX11) and, although recognising that some shipping companies felt compelled to employ such personnel, reiterated the need to ensure that the recommended preventive, evasive and defensive measures, including reporting, are effectively implemented.

Mitropoulos reported on his efforts to encourage increased provision of support to naval and military activities in the region and again called upon governments and states, including littoral states, to recognise the scale of the issue and its potential impacts and to deploy further military assets accordingly.

The secretary general highlighted the requirement for financial support for both the IMO Djibouti Code Trust Fund and International Contact Group trust funds to enable the establishment of information-sharing centres and training for experts in the region and the ongoing development of an international infrastructure for the prosecution of captured pirates.

What will be her future in 20 year's time?

As one of the key objectives of the 2011 IMO theme is to provide care, during the post traumatic period, for those attacked, or hijacked by pirates and for their families, the meeting welcomed information on the work being undertaken by a group of industry organisations in response to this problem.

Is severe retribution the answer? Probably in the short term, but not in the long term, as education, or lack of it, will finally solve the problem.

Statistics and more statistics

We have seen quite a bit of movement in *TANKEROperator's* Top 30 owners and operators listings for 2010 (see page V).

Despite the single hull cull, most fleets have expanded on the back of newbuilding deliveries and worryingly for the bears in our industry, they will continue to do so. Even given a certain amount of slippage, we are seeing a huge amount of tonnage being delivered each year in most size ranges.

How far will the Chinese go up the listing in the next few years? Will there be much consolidation? Will some fall over the edge of the cliff? Only time alone will tell. But as long as events in the Middle East and North Africa hot up, the price of crude will rise.

Some of the choke points are already affected by piracy, but fortunately, the Suez Canal and Strait of Hormuz are not. However, if Iran and Saudi Arabia experience civil unrest, these choke points could quickly be closed, especially Hormuz.

It just goes to prove that we still have to contend with a politically inspired delicate balancing act, first seen during the closure of the Suez Canal in the 1960s and 1970s, followed by the Iraq/Iran war in the 1980s.

What will happen during the 25 years life of the newbuildings is anybody's guess. TO

TANKEROperator

Vol 10 No 4
Tanker Operator Magazine Ltd
2nd Floor, 8 Baltic Street East
London EC1Y 0UP, UK
www.tankeroperator.com

PUBLISHER/EVENTS/ SUBSCRIPTIONS
Karl Jeffery
Tel: +44 (0)20 7017 3405
jeffery@thedigitalship.com

EDITOR
Ian Cochran
Tel: +44 (0)20 7017 3403
cochran@tankeroperator.com

ADVERTISING SALES
Melissa Skinner
Only Media Ltd
Tel: +44 (0)20 8950 3323
mskinner@tankeroperator.com

SUBSCRIPTION
1 year (8 issues)
$220 / €160 / £150
2 years (16 issues)
$330 / €240 / £225
Subscription hotline:
Tel: +44 (0)20 7017 3405
Fax: +44 (0)20 7251 9179
Email:
jeffery@thedigitalship.com

PRODUCTION
Vivian Chee
Tel: +44 (0)20 8995 5540
chee@btconnect.com

Printed by ALYA SP. z o.o.
ul. Bukowa 11
41-700 Ruda Śląska;
Poland

ABC

From ship to shore, **simplicity is the key to success.**

20 years experience. 1 simple solution.

- Type Approved PMS
- Minimal Training Required
- Rapid Technical Support Service
- No 'Per Seat' or any Annual License Fees
- Global Customer Base from VLCC's to Workboats
- Complete Package or Single Modular Components available
- PMS, Stock, Procurement, Dry Dock, Safety & Document Management Solutions

Visit **www.marinesoftware.co.uk**
or email **info@marinesoftware.co.uk**

MARINE SOFTWARE LIMITED

High cost of bunkers impacts on earnings

In the weak market seen at the beginning of February, bunker prices were a critical factor for tanker earnings.

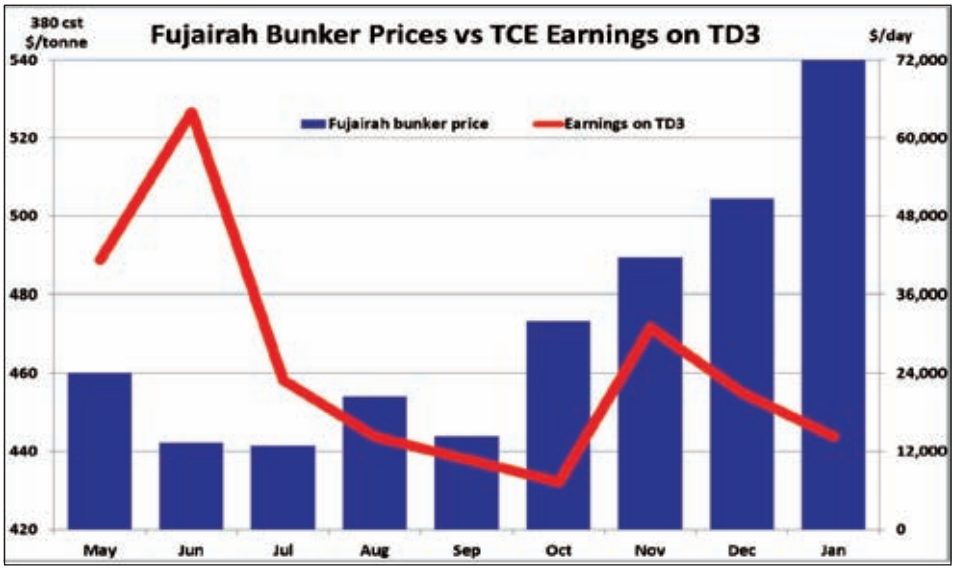
The continuing rising fuel costs can once again undermine the ability of shipowners to breakeven on their operating expenses, warned Gibson Research.

In the last few months, bunker prices have risen sharply, with the upwards pressure on oil prices. Since September 2010, the average monthly price of 380 cst fuel oil in Fujairah has increased by $96 per tonne (+22%), reaching $540 per tonne in January 2011 and has since climbed still further to $623 per tonne by the second week of February.

While volatility helps oil traders, shipowners have to battle another drop in revenues. The average TCE earnings on the benchmark VLCC route TD3 (ME Gulf – Japan) have dropped from their seasonal high of $31,000 per day in November to $14,000 per day in January and only $9,500 per day at the beginning of February.

In a stronger market, the relative weight of an additional $100per tonne in bunker costs would be significant, but not dramatic. However, in a situation when tankers are hardly covering their operating costs, this is a painful situation.

As to a rule of thumb, for every $15 per tonne increase in bunker prices; VLCC owners operating on TD3 require an extra WS point to cover these costs. With the latest Fujairah 380 cst bunker price passing the $610 per tonne mark, this would mean that as much as WS 40 points of the VLCC freight rate goes on paying for the fuel.



Considering that the current spot rate on TD3 balances at WS 49, Gibson said that there was not much room left for profit. When this article was written at the beginning of February, TCE earnings were below the average VLCC operating costs of around $11,000 per day, which put another way, this means that shipowners pay for the pleasure of transporting charterer's cargoes.

Similar scenario

This scenario is similar for other tanker size groups. TCE earnings for both Suezmaxes and Aframaxes were way below their operating costs. Ever rising bunker prices are one of the reasons that pushed both markets over the edge. This is another indication of unique challenges that tanker owners will face in 2011.

However, the major concern is still the over abundant supply of new tonnage. With the crude tanker fleet expected to grow quicker than global oil demand this year, the downwards pressure on the freight rates could be maintained. At the same time the rising bunker prices, which accompany the world economic recovery and political risk, will be another burden to owners.

Slow steaming is possible, but is only a part solution. After this owners are in a dilemma. The first option would be to continue running vessels at a loss, but be ready for any rebound in the market. An alternative would be to idle their fleet, therefore risking approvals, knowledge and momentum in the market; thus, they are between a rock and a hard place, Gibson concluded. TO

Delivery slippage overplayed

Industry concerns over the glut of newbuilding deliveries last year may have been overplayed as the three major shipping market segments - drybulk, container and tanker - avoided significant oversupply, according to figures released by Braemar Seascope.

The London-based shipbroker compared the orderbook at the end of 2009 with the full-year delivery statistics for 2010. The gap between what was anticipated to deliver and what actually delivered offers an insight into the development of the shipbuilding and freight markets.

The difference between the orderbook schedule and actuality in 2010 was a function of technical underperformance at certain shipyards and the fall-out of the credit crunch. Some orders were cancelled while, in many cases, shipowners renegotiated delivery dates.

Braemar Seascope expected crude oil and oil products tanker deliveries to total nearly 400 ships last year, aggregating 51 mill dwt. In the event, 290 ships were delivered, totalling 37 mill dwt, representing a shortfall of 27%.

The largest shortfall among crude tankers was in the Suezmax segment, where 36 out of an expected 57 ships were delivered, a shortfall of 37%. In the smaller size, only nine out of the 22 Handysize tankers destined for international trading were actually delivered last year. According to Braemar Seascope's Mark Williams, these figures excluded Chinese-built ships intended for domestic trades.

This year, almost 80 VLCC deliveries are scheduled, but after a 26% shortfall in 2010 deliveries, this sector might escape the worst effects of oversupply if demand continues to hold up in the face of $90+ per barrel oil. Braemar Seascope anticipated that not all the 60 Suezmaxes that are due for delivery in 2011 will enter the market on time, helping to constrain the oversupply in this particular sector of the market. ■

KVH

KVH® INDUSTRIES MINI-VSAT BROADBAND℠

What broadband at sea was meant to be℠ – TracPhone® V7.

Dramatically cut your airtime costs and improve your ship's operations with **KVH's mini-VSAT Broadband**℠ – the most affordable service for broadband Internet, e-mail, and telephone!

An end-to-end communications solution with a compact 60 cm antenna and a fully integrated control unit and modem.

Fast, low-cost Internet at sea –
Rely on broadband Internet with speeds as fast as 2 Mbps down and 512 Kbps up while saving 85% or more vs. other solutions.

Crystal-clear telephone calls –
Make calls whenever and wherever you want using either of the two lines of integrated voice service optimised for maritime customers or KVH's crew calling solution.

Easy to install and setup –
ViaSat's exclusive ArcLight® spread spectrum technology enables a small 60 cm antenna with dramatically superior performance, easy installation and activation in as little as 1 day!

Integrated network management –
KVH's powerful CommBox™ offers an optional suite of business-critical tools, including least-cost routing, web acceleration, and remote IT access.

"We've maintained our communications costs from two years ago, but have now added the capability of being online, which is a benefit to both the technical organization and operations."

- Mr. Kurt Rye Damkjær, Managing Director, Nordic Tankers Marine A/S

Watch the testimonial: **www.kvh.com/nordictanker**

Find out how KVH TracPhone V7 can change your business at:

www.kvh.com/tanker

QUALITY CERTIFIED SYSTEM ISO 9001

NMEA 2010 INDUSTRY AWARD – TRACPHONE V7 MARINE COMMUNICATIONS

KVH Europe A/S • Kokkedal Industripark 2B • 2980 Kokkedal • Denmark
Tel: +45 45 160 180 • Fax: +45 45 160 181 • E-mail: info@kvh.dk

©2010-2011 KVH Industries, Inc. KVH, TracPhone, CommBox, and the unique light-colored dome with dark contrasting baseplate are trademarks of KVH Industries, Inc. 11_KE_V7miniVSAT_Comm_Nordic_TankerOp
"What Broadband at sea was meant to be" and "mini-VSAT Broadband" are service marks of KVH Industries, Inc.
ArcLight is a registered trademark of ViaSat, Inc.; all other trademarks are the property of their respective companies. Patents Pending.

Report writing for marine surveyors

Report Writing for Marine Surveyors* **is a valuable addition to the body of information available to marine surveyors.**

Written by Mike Wall, a vastly experienced marine surveyor and lecturer in maritime studies, this 340-page book should help fill a big gap in the information needs of marine surveyors, old and new, around the world.

The new book is crammed full of diagrams and charts, which are designed to illustrate every aspect of the marine surveying process likely to be encountered. Different types of report format – covering many of the types of report which the surveyor may be requested to complete – are included in the appendices as templates which may be used by new surveyors.

Report Writing for Marine Surveyors includes specific sections on discovery, evidence, protocols, terms and conditions of service, insurance, limiting liability and copyright issues. In preparing for a report, the surveyor also learns about interviewing skills, together with when to report facts and when to offer opinions.

This book should be of particular value to new entrants to the industry for whom writing detailed, accurate and concise survey reports is an essential job requirement.

Author Mike Wall said; "I believe that every marine surveyor, whatever his or her age or level of experience, will find the advice, guidelines and practical examples supplied in this handy-sized book very helpful".

Capt Barry Thompson FNI Hon IIMS (writer of the foreword) commented: "While it is necessary for surveyors to possess sound technical knowledge it is certain that without an ability to adequately convey their findings in the reports, and sometimes also opinions, they will never become competent and respected surveyors"

Llewellyn Bankes-Hughes, publisher, Petrospot added: "Mike Wall is a rare example of a hard-working individual who has put in the effort to succeed in every job he has chosen while gladly passing on his deep knowledge and experience to others".

During his long service to the maritime industry, Wall has been a chief engineer, a student, a lecturer, a marine surveyor and a successful author, and has accumulated a vast amount of experience in most areas of shipping.

He was born in Liverpool and joined Cunard Line as a marine engineer apprentice at the age of 17, eventually reaching the rank of Chief Engineer with service on board many types of vessel. He obtained a First Class marine engineer's certificate of competency, a BSc in Nautical Studies and an MSc in Shipping and Maritime Studies.

He spent eight years as a lecturer in maritime studies, culminating in five years as Senior Lecturer at Warsash College of Maritime Studies in Southampton, England. Since leaving full time education, he has continued to be a visiting lecturer around the world and regularly carries out training seminars for various shipping organisations.

He has also accumulated 25 years of experience in hull, machinery, cargo and condition surveys in the US, New Zealand, Fiji and Southeast Asia, most of it as managing director and principal consultant for Kiwi Marine Consultants in Hong Kong. Here, he provided a wide range of marine consultancy and surveying services to P&I clubs, shipowners, shipmanagers, underwriters, admiralty lawyers and other principals. He is also a qualified Mediator, being registered both in the UK and Hong Kong.

Wall is a regular contributor of technical shipping articles to various maritime publications and is editor of FLASHLIGHT, a monthly electronic newsletter distributed to over 4,000 marine surveyors. ■

By Mike Wall, BSc, MSc, FIMarEST, CMarTech, MIIMS, NAMS-CMS, AFNI, QDR, First Edition 2011, Published by Petrospot Limited, PP 320 + 22 prelims. Price £75/€90/$125 plus postage and package. www.petrospot.com/books Also available as an eBook via Witherby Seamanship International.

Piracy - IUMI speaks out

The International Union of Marine Insurance (IUMI) has welcomed the announcement by the International Chamber of Shipping (ICS) that it is now taking a more neutral position on the use of private armed security personnel on board ships to protect them from pirates (see Annual review, page XVI).

This is precisely the stance adopted by IUMI, which announced in January that it was up to individual insurers whether to provide cover for ships and operators if private armed guards were employed on board.

Ole Wikborg, the Oslo-based president of IUMI, said: "We anticipate that more industry organisations will go down this route as the problem escalates. Frustrated by the weak resolve on the part of governments and international agencies to take effective action to stop the piracy juggernaut in the Gulf of Aden and the Indian Ocean, the shipping industry is now reaching a point where it must take decisive – and, if necessary, deadly – action at sea to end this huge and dangerous business.

"At a time when the industry is struggling against weak freight markets and other adverse factors such as sanctions, it cannot afford to bleed more money from pirate activity, nor to see an increasing number of vessels and their cargoes captured. That goes for insurers too.

"Above all else, the fact that more than 700 seafarers are being held hostage, many for very long periods, and that attacks on ships are becoming more violent, must surely tip the scales in many cases where shipowners have to make painful decisions." ■

Two Jones Act tankers to be built

The Aker Philadelphia Shipyard has announced that the Commonwealth of Pennsylvania has agreed to fund the purchase of certain APSI assets worth $42 mill to finance the construction of the two remaining Jones Act tankers (see page 12).

The vessels would be the 17th and 18th vessels constructed at the yard. The Commonwealth's approval makes effective an agreement between APSI and the Philadelphia Shipyard Development Corporation (PSDC), announced 2nd January, to actively seek two new orders.

To further support continuing operations of APSI, the Philadelphia Metal Trades Council, which represents 11 unions at the shipyard, ratified a new collective bargaining agreement on 18th January, 2011. This new labour contract will extend until 31st January, 2015.

APSI has already begun preliminary production activities on the first vessel and the company anticipates the acceleration of those activities in the coming weeks pending closing of transactions made from the sale. ■

Safety is...

...keeping our equipment in top working order.

Safety
It's Not Silent

Crowley vessel crews know having the best tugs in the business doesn't mean a thing if they're not reliable and safe. That's why they take so much pride in maintaining their boats. To ensure the safest transit for your vessels in the harbors of San Diego, Los Angeles/Long Beach, San Francisco Bay Area, Tacoma, Seattle, North Puget Sound and Prince William Sound/Valdez, Alaska, call Crowley at 800-248-8632 or visit **www.crowley.com**.

www.crowley.com

CROWLEY®
People Who Know®

Liner Shipping • Worldwide Logistics • Petroleum & Chemical Transportation • Alaska Fuel Sales & Distribution • Energy Support • Project Management • Ship Assist & Escort • Ship Management • Ocean Towing & Transportation • Salvage & Emergency Response

Seagull spreads its wings

Pioneers of 3D animated marine safety videos, Karishma Consultancy Services (KARCO) of India, has signed an agreement with Seagull.

This allows Seagull to distribute the KARCO videos throughout its network.

In three years, KARCO has made inroads in to the marine safety videos market by offering innovative solutions, for example, company specific, ship specific videos and the recreation of marine accidents.

The videos can be acquired directly from KARCO on outright purchase basis, or taken on an annual lease from Seagull, thus offering multiple options to the clients.

In another move, electronic navigation specialist MARIS and Seagull have reached an agreement to develop a comprehensive product-specific computer-based training ECDIS module.

Approved by a number of flag states, Seagull's existing ECDIS on board training course includes training in the use of ECDIS, chart projections, chart accuracy, chart types, chart datum, chart updating, sensor inputs and control, alarm and warning strategies, Radar and ARPA information on ECDIS, and route planning.

Under the agreement, Seagull will re-design the MARIS ECDIS900 Application Trainer to be included in the Seagull library of CBT-modules as 'Product Specific Training' to meet latest revisions to STCW, working on Seagull's existing CBT-based training administrator.

Seagull managing director Roger Ringstad said that the need for product-specific ECDIS training was becoming clear. "Used by qualified navigators these systems increase the safety of navigation. However in the hands of unqualified operators they may contribute to misunderstandings and even accidents. Understanding the philosophy, limitations and features of ECDIS is a must."

"ECDIS on board training was both effective and cost saving", he said, "since the seafarer was already in situ and did not incur any travel or accommodation expenses. At the same time, the candidate would be trained in the use of the specific ECDIS system and equipment configuration on board.

Shore-based ECDIS facilities can hardly offer the type of product-specific training that key flag states are increasingly seeking, because there are too many different ECDIS makers and an unlimited number of software versions and system configurations.

ECDIS training has reached a crossroads and shipowners need to be ready for compulsory ECDIS. We are preparing to take our generic ECDIS training package forward so that it can be product-specific, in order to speed up the ability of shipowners to meet what will become statutory obligations," he concluded.

MARIS deputy CEO (corporate) Steinar Gundersen said: "As has been the case in other forms of training for some time, the future of ECDIS training is on board ship. As the first in the world to offer product-specific ECDIS training through Seagull, we will meet the IMO model course 1.27 and be certified to replace less efficient training ashore."

Seagull has more than 7,000 vessels under subscription. From now, the MARIS ECDIS900 CBT module will be available as part of software released by Seagull, as well as being physically delivered and supported technically by Seagull. ■

Sea Asia 2011 to spotlight *'The Asian Voice in World Shipping'*

Over 12,000 maritime professionals and decision-makers are expected to congregate in Singapore for Sea Asia, to be held between 12th and 14th April.

Among those attending are Japanese shipowners and maritime professionals and other Asian nations, as well as Europe and other areas.

In January, Sea Asia's organisers held a briefing in Tokyo hosted by Seatrade and the Singapore Maritime Foundation (SMF). It was led by Christopher Hayman, chairman of Seatrade together with Koji Miyahara, chairman of Nippon Yusen Kabushiki Kaisha (NYK Line) and president of the Japanese Shipowners' Association.

Other speakers at the briefing were Noboru Ueda, chairman and president of ClassNK and chairman of IACS and Erik Gundersen Papp, senior vice president and senior advisor, shipping, offshore & logistics, DnB NOR Bank, Singapore Branch. DnB NOR is one of the world's leading ship finance banks and also one of the Sea Asia's principal sponsors.

ClassNK's Ueda will be delivering the opening remarks for the 'Technical Day', which is one of the parallel sessions to be held on the second day of Sea Asia's conference (13th April).

At the briefing, Ueda said that as far as the Asian voice in world shipping was concerned, it was the IACS' membership's role to provide active technical contributions and technical leadership to the global maritime community, including IMO and to ensure that IACS decisions and agreements reflected the needs and opinions of the entire maritime industry, including those of Asia.

Other industry leaders lined up to speak at the Sea Asia conference include Kenichi Kuroya, president & CEO, Kawasaki Kisen Kaisha (K Line), SS Teo, managing diector of Pacific International Lines (PIL) and president of the Singapore Shipping Association (SSA), Yudhishthir Khatau, vice chairman and MD of India's Varun Shipping, also president designate of BIMCO; Philip Clausius, president and CEO of FSL Trust Management; Akira Akiyama, division vice president engineering, Pacific division, ABS; Remi Eriksen, COO & head of division Asia, Pacific & Middle East, DNV; Roger Roue, principal technical advisor of SIGTTO; Andreas Sohmen-Pao, group CEO of BW Maritime and CH Tong, CEO of Keppel Offshore & Marine.

As of January, more than 85% of the exhibition space had already been booked from almost 40 countries and the organisers confidently expect to surpass the numbers of the last Sea Asia, when over 10,000 executives from 62 countries came for the three-day event.

Sea Asia 2011 is principally sponsored by DnB NOR Bank, Executive Ship Management, Lloyd's Register, NOL Group and RightShip. Other sponsors include ABB, ABS, Nippon Kaiji Kyokai (ClassNK), DNV, DVB Bank, GAC, HMS Far East, Ince & Co, Jurong Port, Keppel Offshore & Marine, MTM Ship Management, Panama Maritime Authority, Pacific International Lines (PIL), PSA, Sembcorp Marine, ShipServ, Standard Chartered Bank, The Standard P&I Club, Tiger Oil Marine and V Ships. ■

The 'Great and the Good' head for Connecticut

Despite the rather depressed state of the shipping industry, the 26th Connecticut Maritime Association's (CMA) exhibition and conference - Shipping 2011 - shows no sign of winding down.

Indeed, the organisers are expecting the usual 2,300 plus people to come through the doors as delegates, speakers, sponsors, exhibitors and visitors who will arrive at Stamford, Connecticut from 50 countries.

Such is its pulling power that virtually all the key industry 'movers and shakers' will be there rubbing shoulders with other shipping folk who are keen to learn about the future of their industry in these rather austere times with many regulations looming on the horizon.

These new rules and regulations will no doubt mean that vessel operating costs will rise at a time of poor returns, especially in the tanker sector where rock bottom rates are the order of the day.

Added to this are the higher bunker costs that will have to be absorbed by operators, including charterers, and the drive towards lower emissions through national legislation, such as ECAs, and greater vessel operating efficiency, all of which will cost a lot of money to implement. Of course the increasing piracy threat is never far away from vessel operators' thoughts.

So there is plenty to debate and plenty of people 'doing the debating'. The whole show kicks off on Monday 21st March with a WISTA lunch and ends late on Wednesday evening 23rd March with what to most people is the highlight - the Commodore Gala Dinner.

Industry update

The first conference session on Monday afternoon sets the tone by describing the current state of the industry. This debate will be led by Robert Lorenz-Meyer, BIMCO president and board member of Ernst Russ with a little help from Intertanko chairman and Teekay luminary Graham Westgarth, Intercargo chairman Nicholas Pappadakis, ISF chairman Spyros Polemis, ClassNK boss and IACS chairman Noboru Ueda and Alastair Evitt, president InterManager and managing director of Meridian Marine Management.

On Tuesday morning, the main conference looks at our ever changing world under the watchful eye of Dagfinn Lunde of DVB Bank. Helping him will be Marsoft's Arlie Sterling, Clarkson's research guru Martin Stopford and Dahlman Rose's Omar Nokta.

Also joining in the debate will be True North Chartering's Jerry Lichtblau, Heidmar's Ben Ognibene, Navios Corp's Ted Petrone, Clipper Bulk's Bo Westergaard and Braemar Seascope's Mark Williams.

Following this will be a discussion on the current 'Economic value of a ship' with panellists Jens Ahlers of Bernhard Schulte Shipmanagement and *Tanker Operator* contributor Basil Karatzas of Compass Maritime Services.

The afternoon will be devoted to the breakout sessions of which there are two. The first examines ships and shipbuilding in terms of constraints in vessel size. This session will be led by DNV's Tor Svensen, the Panama Canal Authority's Rodolfo Sabonge, NYK's Brett Kats, American Feeder Lines' Tobias Konig and Dr Kong-Gyun Oh of the Korean Register of Shipping.

Anti-piracy issues

The second looks at people, piracy, practices and priorities and will be led by Douglas Stevenson, director Center for Seafarers' Rights, Seamen's Church Institute. The piracy debate will include panellists Roberto Giorgi of V Ships, Peter Hinchcliffe of the ICS, Admiral Kevin Cook of the US Coast Guard and Clay Maitland wearing his IRI and NAMEPA hats. The People debate will be led by Robin Phillips of the Bahamas Maritime Authority and Brian Ingpen of the Lawhill Maritime Centre, South Africa.

Crowds are expected to flock through the doors of the Stamford Hilton again this year.

In the evening, the now annual Job Fair gets underway. This is a fairly new initiative put together to create a forum to benefit companies looking to recruit and jobseekers alike. There will be table top displays run by companies looking for new talent.

On Wednesday, the first morning breakout session will look at new energy opportunities led by Dave Bragdon of the NYC Mayor's Office of Operations, Robert Kunkel of Alternative Marine Technologies, Christopher Smith of the US Department of Energy, Kathryn Phillips of the Environmental Defence Fund and Tom Boardley of Lloyd's Register.

LNG will also be discussed with North Star Maritime's Admiral North, Jeffrey Lantz of the USCG, Wärtsilä's Giulio Tirelli and Bureau Veritas' Bernard Anne.

The second sessions takes in charterparty disputes and solutions, which will be presented by the Society of Maritime Arbitrators. The theme is 'knowing before chartering' thus avoiding costly disputes.

During the afternoon, breakout session one looks at wind farms and the opportunities for the maritime opportunities, led by GL's Dr Hermann Klein. Breakout session two is devoted to legal issues, especially Admiralty Law. This session will be moderated by Peter Drakos.

For some, the highlight of the whole three days takes place Wednesday evening in the shape of the Commodore Gala Dinner and the Commodore Award. This year's recipient will be Navios Group's chairman and CEO Angeliki Frangou who will receive the coveted hat from Philippe Louis-Drefyus, the 2010 Commodore.

Coinciding with the conference will be the exhibition containing displays from over 100 exhibitors. The space is already sold out, although special promotional seminars can still be arranged. TO

INTERNATIONAL REGISTRIES, INC.
The Marshall Islands Maritime and Corporate Administrator

TEL: +1 703 620 4880
MARITIME@REGISTER-IRI.COM

THE MARSHALL ISLANDS REGISTRY

For a full list of offices, please visit:
WWW.REGISTER-IRI.COM

OSG cadet scheme explained

In order to meet its crewing needs, leading US tanker owner OSG continually adjusts its international cadet development programme, focusing on training and mentoring future OSG seafarers to help ensure the vessels are manned by competent crew*.

While it may take only a year or two to construct a new vessel, it takes as many as eight years to produce a competent seafarer. Trainee officers and engineers need from three to five years to qualify for the junior ranks and up to eight years to reach a senior level in the international fleet, OSG said.

OSG's international cadet programme has been in place since 1994. The programme was expanded in 2001 to take in an average of 40 cadets each year. The company said that it scouts the best maritime schools in the Philippines and more recently China, to identify young men and women with the potential to one day become an officer on board an OSG-managed vessel. Since its inception, this effort has produced 36 senior level officers and 330 junior level officers across the international fleet.

To begin with, OSG applies rigorous selection procedures including psychological assessments, general knowledge ability tests and panel interviews to select cadets. To be accepted into the programme, candidates not only have to pass these tests but also display initiative and ambition during the interview.

Under the programme, Philippine cadets spent two years in maritime school, one year on board and then returned to school for a final year of formal education, with many expenses underwritten by OSG.

Changes in the programme are aimed at reducing OSG's financial outlay for individuals and to cultivate more fully prepared and competent young seafarers by shifting sea experience to post-graduation. Upon completion of the cadet's third year of school and pre-sea training, the cadet will complete a one-year on board programme, followed by license examination.

While OSG's management system clearly defines the role of the shipboard management team as it relates to cadet training and mentoring, increased emphasis will be placed on the cadet and his or her own self-motivation toward attaining officer status.

US cadet programme is managed and directed by the country's leading maritime academies. With its expanding fleet, the OSG US flag cadet programme is a coveted assignment, the company claimed. OSG accepted 28 cadets in 2010 from five academies. Each cadet is required to complete a sea project dictated by the school. On board training is managed by the vessel's master and chief mate.

To enhance cargo handling training, OSG has installed a state-of-the-art liquid cargo handling simulator at its training centre in Manila.

The simulator provides tanker personnel responsible for cargo handling operations hands-on training in efficient, safe transfer of petroleum products and use of auxiliary equipment. The simulator has been developed to meet the specific and extensive requirements of STCW training and IMO model courses, the company explained.

It is also compliant with OCIMF's recommendations for oil tanker manifolds and associated equipment.

The simulator can replicate the operational processes of cargo, ballast and auxiliary systems with either an integrated system (terminal and vessel) or standalone (terminal or vessel). The integration of the two systems results in the added benefit of complete team training in the processes of cargo transfer and ballast water management. The system also includes tools to collect information useful in conducting performance assessments.

The liquid cargo handling simulator provides standard training for officers serving on all vessel types with respect to control of the vessel's ballast system, trim, stability and stress and prevention of oil pollution from the vessel.

Specialised training is also available for tanker personnel in charge of cargo handling operations in the areas of general arrangement of the tanker and its systems, maintenance of tanker systems and proficiency in technological operations. TO

**This article was taken from extracts appearing in OSG Signal, the company's in-house newsletter.*

The forward end blocks of OSG's first VLCC to be constructed in China, which will be named Overseas McKinley when launched at DSIC Dalian Shipyard.

'The OSG US flag cadet programme is a coveted assignment.'

US tanker building in death throes?

US shipbuilding has taken a turn for the worse, illustrated by noises coming out of Philadelphia and tanker parts being put up for auction.

A yard, which could be teetering on the brink of closing is Aker Philadelphia Shipyard (ASPI). It was originally set up to construct Jones Act tankers and containerships.

The problem is that the yard is coming to the end of a contract to build 12 Jones Act tankers for American Shipping Co and Overseas Shipholding Group.

The last two newbuilds in the series - hulls 015-016 - are in various stages of completion, while the 10th vessel in the series – *Overseas Anacortes* - was handed over on 31st August 2010.

In February, APSI announced that the Commonwealth of Pennsylvania had agreed to partner with the yard and to und the purchase of certain fixed assets from the company for $42 mill. APSI said that it intended to use the funds, together with a combination of construction period financing to be arranged with private lenders and its own available funds, to finance the building of hulls 017 and 018. This approval makes effective the tentative agreement between APSI and the Philadelphia Shipyard Development Corp (PSDC). These transactions are expected to close this month.

To further support continuing operations at APSI, the Philadelphia Metal Trades Council, which represents 11 unions at the yard, ratified a new collective bargaining agreement on 18th January, which extends to 31st January 2013. As a result, APSI said that it expected to accelerate production activities on hull 017.

The final three tankers in the series were renegotiated in 4Q09 at a reduced rate. This and the fact that production had slowed as the building of the 12-ship series was coming to an end meant that revenues suffered last year.

A fall in the value of the US dollar against the Norwegian kroner also affected revenue in a more positive vein as cash deposits were held in NOK.

APSI said in the third quarter of last year that the challenging US economy continued to delay the decision making process for newbuilds and created difficulties regarding the financing of newbuild projects.

The yard said that it had made prior commitments, such as long lead items for hulls 017-020 as tankers, enabling rapid start-up as conditions permit. If hulls 017-018 are not built, whether on the back of a firm order, or on speculation, it is estimated that the company would incur expenses in excess of $25 mill.

Expenses threat

APSI admitted that if the shipyard was unable to build additional vessels beyond the current 12-ship series, then the company would incur significant additional expenses. In addition, because multiple vessels are in production at any one time, lack of a continued firm backlog has and will continue to cause operational inefficiencies for completion of the remaining vessels in the current series.

If APSI is unable to expand its current backlog, as mentioned it would be challenging to continue as a going concern after delivery of NB 016.

The overall market risk is related to the Jones Act, but market commentators believed that significant changes to the legislation were unlikely. APSI is also exposed to normal market risk related to imbalance between vessel supply and demand and the associated reduction in newbuild projects.

APSI said that it faced risks related to construction of the vessels. The risks related to vessel construction are primarily the shipyard's ability to meet anticipated learning curves and throughput, as well as the availability of skilled workers and the risk of failing to maintain stable supplier networks and sub-contractors.

The yard's activities also expose it to a variety of financial risks, including price risk due to material escalation, currency risk, interest rate risk, credit risk and liquidity risk. The activities also expose it to counterparty risk.

APSI's construction financing has certain cross-defaults to AMSC's take-out financing for hulls 016 and OSG's obligation to purchase hull 015.

In addition, APSI's construction financing and capital expenditure financing contain defaults triggered by an AMSC insolvency event.

Meanwhile, more than $200 mill worth of parts for two unfinished tankers, much of it being stored at BAE Systems Southeast's Mobile River shipyard, were due to be auctioned as *TANKEROperator* Magazine went to press.

Stored at Mobile is about 8,000 tonnes of steel plate, partially fabricated ship modules, cranes, engine parts, lifeboats and other pieces of equipment.

A joint venture between Hilco Industrial LLC, Myron Bowling Auctioneers, Maynards Industries and PPL Group purchased the parts out of the bankruptcy of AHL Shipping Co, which was building the vessels. The yard went into liquidation last year.

Bidders will be able to take part in the auction either at the shipyard, or online via a live webcast.

The background to this rather unusual sale is that in 2007, AHL Shipping signed a $124 mill contract with Atlantic Marine to build three 350,000 barrel capacity tankers. They were to be chartered to Shell Trading.

They were designed to be built in modular sections. Shipyards in Louisiana, Texas, Florida and Canada were going to fabricate the components with Atlantic building the hulls and assembling the modules.

The deal collapsed in December 2009 with AHL blaming Atlantic for cost overruns, while Atlantic claimed that AHL failed to meet deadlines, constantly interfered with construction schedules and didn't provide the leadership necessary for the multi-shipyard scheme to work, according to press reports.

One ship, which was 90% complete when work stopped, was sold in January for $12.65 mill via a New Orleans-based bankruptcy court, according to a website run by the purchaser, Mid-Ocean Tanker Company of South Norwalk, Conn.

The other two ships are still far from completion and were purchased by the Hilco-led joint venture. Hilco said in a statement that the assets were valued at more than $200 mill in 2009.

Atlantic Marine, which is owned by New York-based JF Lehman, sold the Mobile River shipyard and other assets to London-based BAE Systems last year, but the components remained at the shipyard.

In addition to the assets in Mobile, parts are also located in Louisiana, Texas, Mississippi and Florida. TO

Welcome to Donsö Tanker Meet!

Donsö will be the place to be on June 21-22 2011 if you are working with/supplying tanker shipping in any way.

This two-day event offers the face to face meetings of your choice, seminars, all focusing on tanker shipping and a full-scale exhibition.

Confirmed Seminars

Energy consumtion reduction by DNV - Future fuels and emissions by MAN Diesel & Turbo
ECDIS prepare your crew by Transas - Apollo root cause analysis by Maritrain
Energy efficient design index by Lloyds Register - Regulatory developments by Bureau Veritas
Pooling with the customer by Stena Bulk - Future of the tanker fleet by Tor Vergeland
Tanker Management and Self Assessment (TMSA) by Ian Hunter, MBE, Hudson Systems

More about Donsö Tanker Meet at
www.shipgaz.com/donsotankermeet

or contact:
Lars Adrians, Shipgaz
Phone +46 31-712 17 73
lars@shipgaz.com

DONSÖ TANKER MEET
2011 21–22 JUNE DONSÖHALLEN

Several supporting shipping companies will be attending in 2011, so far the following:

BROSTRÖM
Stena Bulk
REDERI AB VERITAS TANKERS
Swedia SHIPPING
DONSÖ
Tärntank Rederi AB
KILTANK REDERI AB
Donsötank
Rederi AB Älvtank
NOS
LAURIN MARITIME
BRP
CONCORDIA MARITIME
OljOla
Topoil
Sirius Rederi
FURETANK REDERI AB
STENA OIL
REDERI AB GOTLAND
THUNBOLAGET
MARINVEST
CREW CHART
DÜZGIT

Noah starts off on a firm footing

Despite the downturn there always seems to be room for another shipmanagement company as there are still private investors worldwide willing to look at the shipping sector.

For the larger shipping concerns, there is always the question, "do we outsource, or technically manage in-house?" Some companies compromise by outsourcing only a part of their operating needs, such as crewing.

The problem with starting a third party shipmanagement company is the buying in of expertise in the shape of senior superintendents and technical managers. For example one such newcomer – Noah Ship Management – recently told *TANKEROperator* that it takes a million dollars to start such as company.

Noah was formed by two senior shipmanagement executives – Svein Eloff Pedersen and Thomas Chako Arakal. Both have had many years experience in running third party shipmanagement concerns and decided to go it alone, setting up shop in Dubai last year.

They arrived "with nothing" in October 2009 and gained a license to trade in May, 2010, opening up shop in the middle of July. The following month, the pair took on their first vessel and have since looked after up to seven vessels.

Today, the number of vessels managed is six tankers – three Suezmaxes and three MRs – three each on behalf of a local investor and a Maltese investor. Three are operating along the Omani coast on charter to oil majors.

Pedersen told *TANKEROperator* that Noah had budgeted for 15 vessels by the end of this year, but could cope with up to 25 with the current staff of 12 persons. Pedersen said that with a target of 35 vessels, Noah could still retain 100% control of the daily vessel operations.

He said that with a remuneration of $150,000 per vessel per year, this would cover the company's operating costs. There is also a training budget of about $30,000-$35,000 per vessel. The vessels' senior officers visit and work in the Dubai office to learn about Noah's systems.

Full management is offered and the company has co-operation agreements with Bibby, Jebsens Manila and CF Sharp for seafarer recruitment.

Noah also offers sale and purchase inspections and at the time of writing was inspecting two vessels in Jebel Ali and another two in India on behalf of potential purchasers. Pedersen said that his team was also working with a Scandinavian group looking to operate in the Middle East Gulf (MEG) region.

Pedersen explained that he was marketing the company to interests in the UAE and elsewhere in the MEG and would also consider joint ventures with Middle East-based owners. He said that it was easy to hire qualified labour in the area, which once employed, tended to remain with a company.

He gave an example of the daily operating cost split of a hypothetical MR. In total the daily operating cost came to $6,642 per day of which, the payroll accounted for $3,570 per day. The vessel's crew is made up of Indian and Filipino seafarers.

With an annual inventory of $1 mill per ship per annum, Pedersen said that Noah

Noah senior management - Svein Eloff Pedersen, CEO

Pedersen was formerly president of EMS Ship Management and has held several senior positions in the shipmanagement industry, including managing director of Thome Ship Management and Barber Ship Management. He has also served as vice president of ITM.

He is an active member of InterManager, being on the organisation's KPI committee.

The managing director is **Thomas Chacko Arakal.**

Arakal was a founder member of ITM, spending the last eight years at vice president. He has also gained experience with Barber and V Ships.

Both have had more than 30 years experience in the maritime sector. ■

Item	Annual ($)	Daily ($)
Payroll	1,303,026	3,570
Repairs & Maintenance	308,000	844
Insurance	200,700	550
Management fee	150,000	411
Stores	148,000	405
Lube oil	142,900	392
Miscellaneous	74,000	203
Provisions	68,500	188
Radio/Telecoms	29,000	79
Totals	**2,324,126**	**6,642**

Annual and daily MR operating costs in descending order of value

could save 5% for an MR and up to 15% for a Suezmax using the company's own systems, both installed in the office and on board ship.

Thus 5% of $1 mill equals $50,000 and a fleet of 20 vessels would produce a saving of $1 mill. At 15%, the savings would be in the region of $150,000 per vessel, or $3 mill for 20 vessels.

A fuel consumption of 50 tonnes per day would mean a daily cost of $27,000 at $550 per tonne. Given 250 steaming days per year, the total annual fuel cost comes to $6.9 mill.

Functions, such as passage planning, including weather routing, engine tuning, regular hull conditioning and propeller polishing, will make a difference to the operating costs.

Pedersen said that with proper systems in place, savings of between 2% and 5% are possible, or $138,000- $345,000 per year per vessel. Again given 20 vessels, this equates to $2.9 mill at 2% and $6.9 mill at 5%.

If all 80,000 vessels known to be trading worldwide were to save 2%, this would result in savings of $40 mill per day at an average fuel consumption rate of 25 tonnes per day per vessel.

Each vessel in Noah's managed fleet is expected to produce a daily report, which is received from each ship at noon. This gives details of the vessel's performance for the previous 24 hours allowing the superintendents to benchmark a vessel's operating procedures.

Noah has been audited by DNV for the various ISO certificates and expects to go to the oil majors in the Spring of this year for the TMSA audit.

Pedersen thought that the only major rival to Noah offering third party shipmanagement in the Dubai region was ITM, now part of V Ships. TO

Using AIS data to improve tanker management, security

AIS-based vessel-tracking solutions that monitor and manage tanker and workboat activities can significantly improve a wide variety of maritime processes*.

Fully integrating AIS-based data (ie data derived from the VHF Automatic Identification System transponder) into daily operations generates better visibility, which leads to better business decisions in a variety of areas.

AIS-based vessel-tracking services that simply create 'points on a map' are insufficient for comprehensive operational management and business intelligence initiatives. It is important for vessel owners and operators to choose a solution that enables them to view, synthesize, analyse and make decisions based on both real-time and historical information about any AIS-enabled vessel in any region of interest.

AIS has been used for collision avoidance for many years. Since 2005, the IMO has required that all large commercial vessels be required to transmit their ship identifiers and locations through standard AIS transponders. AIS transmits more than 50 mill vessel location reports daily from the tens of thousands of merchant ships that carry AIS Class 'A' equipment, worldwide.

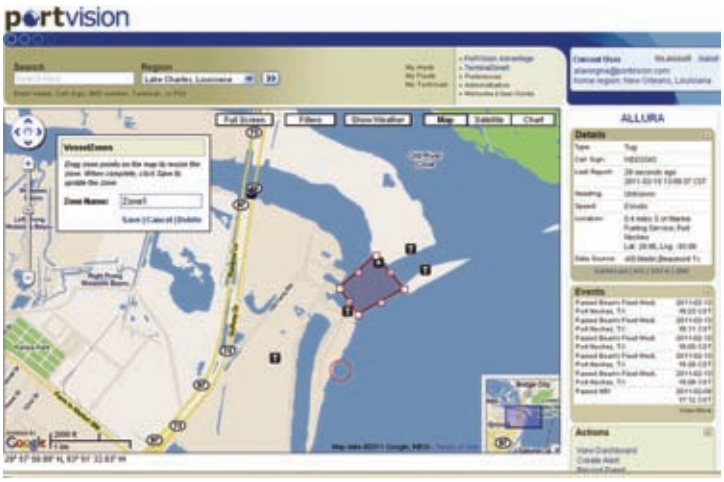
This information is only useful, however, if it is relevant and organized in such a way that it can drive comprehensive analysis and improve decision-making. This requires a system capable of consolidating all information into a single command-and-control display, including vessel data as well as real-time weather conditions and distance calculations.

With everything accessible from one screen, users can streamline all of the many interrelated tasks associated with monitoring vessel locations and in-transit traffic conditions. They can know precisely when a ship arrives at a berth, or sea buoy, or the status of pilots or harbour tugs. Efficiently monitoring AIS-based vessel transit details can significantly improve contract accountability related to the speed, fuel consumption and transit routes of vessels.

A variety of AIS-based tracking functions can easily be automated. Systems can be set up to automatically time stamp information about arrivals, departures and other vessel events. Efficiency and productivity are further enhanced by defining customised filters, views and fleets and enabling users to receive and share email and text-message alerts about fleet movements.

For example, the PortVision service (www.portvision.com) enables user-defined VesselZones™ to be created, simplifying vessel viewing, tracking and alerts, while streamlining and enhancing incident response when required. The system can be configured to highlight only specific vessels of interest, or to view all AIS-enabled vessels. It is also possible to create user-defined lists to track multiple fleets of any size, including chartered vessels, workboats, tugs, and barges and to have the system alert users when vessels move in or out of user-defined VesselZones. Finally, the system can also be used to display current status of all selected in-bound vessels,

The system can be configured to highlight only specific vessels of interest, or to view all AIS-enabled vessels.



Creating VesselPort visionZones for notification of arrival.

VesselZone in PortVision to alert user vessel is arriving.

calculate distances between selected points and estimate vessel arrival times.

Historical data

It is also important to consider the value of historical data when deploying an AIS-based business intelligence system. Combining both real-time and historical AIS data in a single tracking solution significantly increases the transparency of all waterway activities. This leads to better efficiency, reduced costs, and increased safety and security. The inclusion of historical data enables users to maximise the efficiency of contracted vessels and optimise resource planning while enhancing best practices. Historical information also can also be used to verify demurrage claims and reduce the time required to produce necessary documentation for supporting or disputing demurrage claims. Individual customers have documented more than $1 mill in annual savings through the use of these features.

Tapping into the value of historical AIS data requires a comprehensive database. The PortVision service currently captures over 40 mill vessel location reports daily and loads this information into a 15-bill-record database. This information is then made available to subscribers, who can play back scenarios and generate reports as required.

For even better visibility, small satellite tracking units can be used to acquire tracking information about unmanned barges, buoys

SEPIA
E
S
The South of England Protection and Indemnity Association (Bermuda) Limited
Hamilton, Bermuda
For further information regarding this alternative P&I club please contact:
The South of England Services GmbH
ExecuJet Aviation Centre
Bimenzältenstrasse 75, CH-8058
Zurich Airport, Switzerland
Tel +41 (0) 433 88 34 88
Fax +41 (0) 433 88 34 89
Email ships@soem-pandi.com
Website www.sepia-pandi.com

and other high-value assets, which can then be combined with AIS vessel data to provide a more complete picture of vessel activities at sea, as well as other traffic including unmanned barges and incident response equipment.

This aggregate information can be used for a variety of purposes, including validating ETAs, optimising resource usage, improving market intelligence pertaining to tanker and barge availability and defending against incident damage claims in federal courts. AIS vessel-tracking intelligence is increasingly used as evidence in cases involving groundings, commercial disputes, collisions, allisions and other claims.

AIS-based business intelligence systems can, and should, incorporate other data, as well. Users can add documents and other information for each vessel call. For instance, a user might wish to attach a cargo manifest, or photographs of loaded cargo to one of the tankers that is being monitored. With a single click of a button, it is possible to quickly access detailed information, current location and/or estimated ETA, plus all historical data, supplementary information, and animated playback sequences for any selected vessels and events.

Even as tanker owners and operators have adopted AIS data to improve business operations, the government is now using it to protect tanker operation as part of initiatives to ensure the security of the maritime domain. Tankers are particularly vulnerable to security threats, primarily because they tend to move very large volumes of oil and gas through a small number of choke points. They are also at risk when entering or leaving port and during periods when they are moored. The US must protect tankers and all lawful private and public maritime activities against security threats from many sources, and a powerful tool in this quest is the gathering and analysis of maritime domain awareness (MDA) intelligence including AIS information.

In May 2010, the Department of Defense Executive Agent for Maritime Domain Awareness (DoD EAMDA) announced that it would begin integrating a suite of capabilities to enable the sharing of non-classified information, including AIS data, in support of building partnership capacities and theatre security co-operation.

EAMDA said these are critical elements to help ensure effective MDA and safeguard maritime security. AIS intelligence enhances MDA initiatives by enabling users to focus on specific regions of concern and to more closely monitor for specific, anomalous behaviour that might be indicative of an emerging threat situation. In the aftermath of a security breach, historical playback capabilities can be used to analyse the situation, modify MDA initiatives and identify best practices for pre-empting and/or mitigating threats.

AIS-based vessel tracking will continue to evolve in functionality and usefulness well beyond the original purpose of collision avoidance. What started as a regulatory collision-avoidance requirement is now enabling tanker owners and operators to drive new efficiencies and business opportunities. By combining real-time visualisation and historical information with comprehensive management tools, the latest AIS-based vessel-tracking systems can be used for logistics support, scheduling, voyage management, market intelligence, chartering support, and safety and security initiatives. TO

This article was written by Dean Rosenberg, CEO, PortVision.

Outsourcing supplies; improving performance and profits

In challenging commercial times, when efficiency is at a premium, shipowners and operators need to focus on their day-to-day operations to deliver for their customers and as a means of remaining competitive*.

High fuel prices, as well as environmental compliance, have undoubtedly placed tremendous pressures on many companies who are looking to survive and seize the opportunities of the new, post-recession world order. Having the time and energy to concentrate on their core business is paramount to achieving this.

To facilitate this, outsourcing is increasingly being viewed by many in the shipping industry as a progressive approach to conducting business; the basic principal being that non-core areas of operations are managed by an external organisation, allowing the company to focus on delivering the mainstay of their business and concentrate on their customers. And while the financial benefit to the bottom line is undoubtedly vital to the take-up of any new business model, the additional positive influences that outsourcing can have go beyond the balance sheet.

Although a relatively novel concept for shipping, outsourcing has proven to be successful for many land-based industries, with organisations reporting efficiencies across the board as they look to develop business performance improvement initiatives. Benefits range from streamlining day-to-day operations and cost savings to improving the quality of products and services, as well as industry-wide best practice and standards as a welcome by-product.

Within shipping, one of the areas demonstrating uptake and showing the most potential for outsourcing is ship supplies. Representing between 3% and 5% of a vessel's operating costs, the supply chain for supplies, which covers everything from mop heads and washing-up liquid to all food and consumables, is highly complex and requires tremendous internal resource and infrastructure particularly for global shipping companies that have vessels all over the world.

Crew benefit

The 'end customer' is also one of the most important assets within shipping – the crew. A healthy and happy crew is central to the smooth running of a vessel; their wellbeing is vital, and for many seafarers, who are away from their families for lengthy periods, meal times are an incredibly important part of their day.

Outsourcing the procurement and delivery of supplies to an expert takes this headache away and also improves the consistency and quality of product and service to both the ship owner/operator and the crews of the vessels that they run.

To drive these new methods of working, the ship supply industry has changed dramatically over the past few years. It is also a good example of how shipping, in general, is continuing to professionalise. Ship supply is a fragmented market with many local companies competing against a handful of global operators, like Wrist Ship Supply. The economic downturn caused significant consolidation as smaller operators struggled to compete. Many also fell victim to shipowners and operators wanting to work with one global supplier (rather than multiple companies in every port) that can provide an end-to-end supply and logistics solution - a move that made sense during turbulent economic times and has acted as a catalyst for the delivery of an outsourced model.

Robert Kledal, m/d, Wrist Ship Supply.

Global suppliers have also invested heavily in new technologies such as enterprise resource planning systems that can manage the total procurement, storage and delivery of supplies for a customer's entire fleet. Their purchasing strength ensures that the highest quality products can be consistently procured at the best possible price and standardised. Technology also allows for real transparency and analysis of procurement habits, providing critical intelligence to shipping companies of what they are purchasing, where and the total cost. It also allows for supplies to be tailored to individual vessels, depending on the crew's requirements and what they want to consume

Outsourcing can improve profitability and performance.

as part of religious needs, dietary requirements, or indeed a company's fair-trade or corporate social responsibility policies.

These developments have provided the platform for outsourcing. The recognition by shipowners and operators that their supplies can be procured more efficiently, at a reduced cost and for a better quality and service to their crews, is combined with the technology and global infrastructure to deliver it. Clearly an intense level of trust between the shipowner/operator and the ship supply company must support this. It must be based on partnership and a fundamental understanding on the part of the supplier of its customer's business strategy and entire operations. It requires an attitude change, which is being driven by the clear financial, performance and social benefits.

The adoption of outsourcing demonstrates the strides that the shipping industry is making in embracing change as a means of positive progression. The industry is under constant pressure to innovate and to find new ways of working as a means of driving efficiencies and sustainably improving its commercial status within the global economy.

Creating the time for ship operators and owners to concentrate on developing their core operations and delivering for their customers is key to achieving this. Outsourcing can deliver this time, it can improve profitability, it can improve performance, and when it comes to supplies, it can make for a far happier and effective crew, which is a priceless commodity. TO

This article was written by Robert Steen Kledal, managing director, Wrist Ship Supply

Jeppesen OnBoard means a weather information service that integrates completely with our charting solutions

WEATHER SERVICES & ROUTING

Route your ship away from troubled waters

As a subscriber to Jeppesen's weather services, you have total oversight in a single glance: the latest charts and updates, accurate weather information and even piracy reports. With better decision-making tools, shipping companies can choose the optimal route, reducing cargo damage, transit times, stress and even the likelihood of encountering pirates.

Combining updated charts, weather and piracy data gives officers and managers more peace of mind.

JEPPESEN ON·BOARD

e-Navigation, so simple

Jeppesen, Tel. + 47 51 46 47 00, www.jeppesen.com/marine

Finding the best suppliers

Maritime and offshore e-marketplace ShipServ has developed tools to help marine purchasers learn more about suppliers.

A purchaser looking for spare parts for products from a certain manufacturer will soon be able to see if the supplier has been verified by that manufacturer and is authorised to sell genuine spare parts.

The purchaser can already see which other marine purchasers that supplier has transacted with recently, either the full name of the purchasing company, or the name in general terms (such as 'a ship management company in Germany'). He or she can also see reviews from other purchasers who have actually transacted with that supplier.

This should help improve confidence in electronic commerce – a lack of trust between trading partners is usually one of the biggest obstacles to online trading - if a buyer is asked to transact with a supplier they don't know at all, just on the basis of a low quote.

"We're building mechanisms where trustworthy suppliers can float to the top," explained ShipServ CEO Paul Østergaard.

Marine purchasers often have to find new suppliers, to provide a new product in a new port and don't have time to investigate them fully. This service should speed the process up, ShipServ claimed.

Volume increase

The total volume of supplies traded over ShipServ during 2010 was worth $1.7 bill, with 4 mill transactions (which included requests for quotation, purchase orders and order confirmations), a 31% increase compared to 2009. ShipServ currently has 155 shipowners and 36,000 suppliers on the system.

New shipowners signing up with the company in 2010 included ABCmaritime, Alpha Shipmanagement, BW Gas, Chellaram Shipping, Mowinckel Ship Management, OSM Ship Management, Pacific Basin, Reederei F Laeisz, SeaCor Dubai, Tai Chong Cheang Steamship, Tolani Shipping and Wah Kwong.

Shipowners connected to the network put on average 80% of all of their shipboard purchasing requirements through the network.

Who are the customers?

ShipServ has developed a rating measure called TradeRank to help buyers find new suppliers they could trust, as well as help suppliers promote themselves. Buyers evaluating new suppliers can quickly see the popularity of the suppliers based on TradeRank's 5-star grading system, helping them to make better informed decisions. The same buyers can also see customer reviews of that supplier and their trading history.

Every supplier in the ShipServ pages supplier directory has an indication of its trading history based on how much they actually trade via ShipServ, the size of the orders and how many different buyers work with that supplier. Also reflected is the supplier's ratio of orders won to 'requests for quote' (RFQs).

So, for example, if you are considering using a new Chinese supplier, "…if you see the Chinese supplier is trading with 10 companies in Western Europe, that is telling you something," said ShipServ's SVP product management Stuart May.

Without tools like this, a top quality supplier in a large market like China can be buried – but on pages, "….the quality will be exposed," added Østergaard. The information is fully verified, because it is based on trades, which have actually been conducted over ShipServ's platform.

Ratings and reviews

After a trade is completed, shipping company purchasing managers are given an opportunity to score the supplier (from 1 to 5 stars), on the

Seagull
SAFETY THROUGH KNOWLEDGE
We provide the tools and innovative solutions for your company's training needs, with excellence in customer service.

www.seagull.no

basis of delivered as described; on time; and customer service. Only companies, which have actually transacted with the supplier on TradeNet, are able to provide reviews. The buyer can also provide textual information.

In a survey, 40% of suppliers on TradeNet said that they thought online reviews would be a good thing, and 75% of buyers said they would pick a supplier that had better reviews.

"Many review systems are at best marginally useful because you don't know who wrote them," said Østergaard.

ShipServ's advice to suppliers is that they shouldn't worry about getting one or two bad reviews - since everybody has mishaps – and having genuine feedback can actually increase their credibility. The important thing is that most reviews are positive.

Brand verification

The brand verification tool simply means that if a ship supplier claims on its profile page to be an authorised agent of a brand owner, such as Wärtsilä, then the brand owner is asked to verify this.

The purchasing manager can see all the brands, which a ship supplier claims to be an agent for, and whether the brand owner has agreed that they are. If a ship supplier falsely claims to be an authorised agent of a brand, then the brand owner is able to request that the claim is removed from the ship supplier's profile page.

The tool has proved very popular with brand owners so far. "We haven't met a brand owner that didn't want to take control of their brand," Østergaard said.

Wärtsilä has been one of the first companies to take advantage of the brand verification and it immediately discovered many suppliers incorrectly claiming to be authorised Wärtsilä distributors. The company was able to remove these claims from its ShipServ pages profile pages, said Wärtsilä e-solutions consultant Tuomo Livonen.

Many brands

Wärtsilä manages 20 different brands, including companies which it has acquired and this tool makes it much easier to manage them, rather than have to resort to lawyer's letters every time it wants to stop a supplier falsely using a Wärtsilä brand. Wärtsilä transacts 'tens of millions of Euros' over ShipServ TradeNet every year, Livonen explained.

The company started using ShipServ pages as a supplier, significantly expanding its presence on the directory in December 2010. "In the beginning we were a bit sceptical, but our first impressions are positive," he said. "We can see we have buyers looking at our services."

Wärtsilä is very well known as a supplier of engines, but it also provides many other services worldwide to the marine and offshore industry, which are not so well known. ShipServ pages provides an opportunity to advertise those as well, the company said.

Steven Alexander, International Marine Purchasing Association (IMPA) COO, planned to use the brand verification tool so he can stop suppliers falsely claiming to be IMPA members.

IMPA provides a level of policing over its members, for example suspending suppliers from the organisation if they use a manufacturers' brand without authorisation. "What we're going to do is use this to manage the IMPA brand, which is fantastic," he explained.

Merseyside Ship Stores

Merseyside Ship Stores, one of the largest suppliers to UK vessels currently takes around 30% of its orders through ShipServ, said director of sales Ulfar Norddahl.

Some 80% of all the company's enquiries are converted into orders, he said, despite the fact that most purchasing managers send requests for quotes to three different suppliers.

The company aims to be a top quality supplier, providing only top quality products and ShipServ's reviews and ratings provide an objective means to telling this to the market, he said.

"Good clean business is what we're promoting, and ShipServ is the best way for shipowners to have good clean business. It's a guarantee that you're dealing with good people," he said. TO

Chauncy Maples challenge

ShipServ is involved in a charity challenge to provide parts and services to the vessel *Chauncy Maples*, which is being reconditioned to serve as a hospital on Lake Malawi, a 560 km long lake located between Malawi, Mozambique, and Tanzania, on the East Africa Great Rift Valley.

The renovation project is being run by UK-based P&I Club manager Thomas Miller, which is a shareholder in ShipServ.

Thomas Miller is looking for £3 mill in total to renovate the vessel and fund its operations, and it has already raised £1 mill, including funding from the Malawi Government, which should ensure its support of the scheme.

The vessel has a very interesting history. It was built in the UK in 1898, designed by Henry Brunel, son of Isambard Kingdom Brunel, in memory of Chauncy Maples, an Anglican missionary who set up clinics and schools for released slaves in Zanzibar and drowned in 1895 when his vessel capsized on Lake Malawi.

From Glasgow, the vessel was disassembled into 3,481 parts and shipped to Mozambique, for transportation to Lake Malawi. Because the river from the coast to the lake is only part navigable, the vessel had to be carried part of the way by land, by 450 Ngoni tribesmen.

From 1901 to 1953 the vessel served as a missionary school, emergency refuge from Arab slave traders and a hospital ship, also serving during the First World War as a troop carrier and gunboat. The vessel subsequently served as a ferry (until 1992) then as a bar.

The hull of the vessel is still sound as it is lying in a freshwater lake (only salt water corrodes). The renovation project aims to replace the entire superstructure with a new aluminum one.

Once renovated, the vessel will serve as a hospital ship, making a monthly rotation of the lake and visiting villages where people currently have to paddle 50 miles through waters full of crocodiles and hippos to see a doctor. It will help patients with AIDS and Malaria and aim to help reduce infant mortalities. ■

For further information see www.chauncymaples.org

Safety and quality – every time

Charter from us and you charter from a company with 140 years experience within shipping. We are committed to working with safety, quality, and environmental thinking and it shows. Our vetting and PSC performance is significantly better than the industry average, enhancing our reputation as one of the most careful shipping companies in the business.

We manage more than 40 modern LR1, MR and Handysize tankers, of which 15 are owned by ourselves. And we continuously seek to increase the number of owned vessels. That way we keep full control, so you get quality you can count on. All of our vessels are operated by Norient Product Pool. Visit www.norientpool.com and charter from us today.

24•7 seas

NORDEN

ds-norden.com

ECDIS capabilities and limitations (Part II)

This is the second part of an article written by Mal Instone* of ECDIS Ltd.
The first part appeared on page 36 of the January/February issue of *TANKEROperator.*

Some ECDIS route planning tips:

1. Screen into 'large' or 'planning' screen format.
2. Orientate the chart to show the beginning and end of the route to get a 'big handful' feel for the route.
3. Create a blank canvas by hiding all old routes, constructs etc.
4. Begin with waypoint plotting in the general area of the start and end of the route.
5. Select either Rhumb Line or Great Circle route etc.
6. Zoom in to a more appropriate scale to modify the start and finish waypoints and 'massage' waypoints to account for TSS Etc.
7. Ensure that you have adequate XTD for the various legs of your route to take into account the nature of the environment and expected possible deviations, lateral separation from the route and collision avoidance.
8. Check Zones of Confidence (ZOC) or Source Data Diagrams and amend the route or highlight as necessary.
9. Set Safety Depth and Safety Contour values.
10. Conduct a system check of the route at an appropriate XTD to allow for deviations, collision avoidance etc.
11. Once all alarms have been checked and verified, check the route in its entirety on 1:1 scale by manually scrolling along it.
12. Add relevant additional information and manual corrections.
13. Double check distance/ETD/ETA and tidal constraints.
14. Protect the route as necessary and save a back up.
15. If updates are installed prior to sailing or during the execution of the route, ensure that the route is checked again, as updates may affect it.

3) Execution & monitoring – interpretation & cross-check

a. Configuration: It is essential that the system is set up correctly prior to executing the route or important information will not be displayed. This relates to settings for display, data for the vessel itself and the configuration of alarms on systems that allow it.

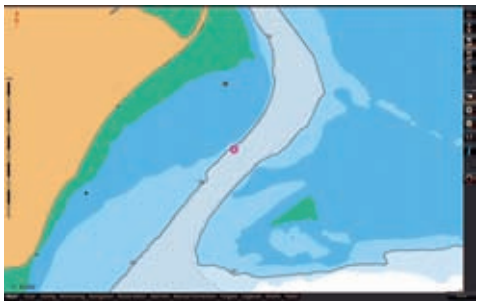
For display purposes, the amount of information must be configured prior to executing the route and for this purpose three types alarms display must be available for use with ENCs; S52 base, standard and all other.

The 'Base' display (bottom left screenshot) provides a minimal amount of information and represents data that cannot be removed from the display. As such, the base display does not provide enough information for safe navigation. The 'Standard' display (centre screenshot) incorporates the base display plus additional features to provide a more appropriate display for safe navigation (of note it does not include soundings).

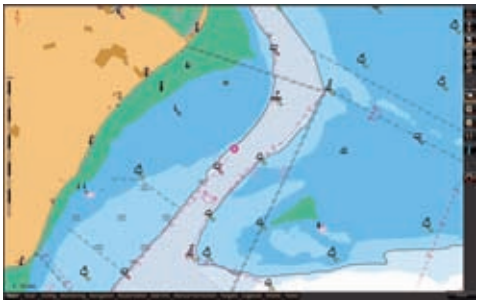
The 'All Other' display (bottom right screenshot) presents all layers of data and I would suggest that this provides too much information for effective navigation. This is because the volume of data shown clutters the display making it difficult to see safety critical information. Therefore, most manufacturers provide an extra display category, normally called 'custom' that allows the operator to configure their display to incorporate information between base and all other.

Some systems also allow the saving of such displays so that the operator can customise displays for all environments such as pilotage, coastal, open ocean, anchoring etc, selecting them as and when required. However, due to the sheer volume of settings and configuration that is possible, it is recommended that check-off cards be produced to cover all environments. Remember, too much information is as dangerous as too little!

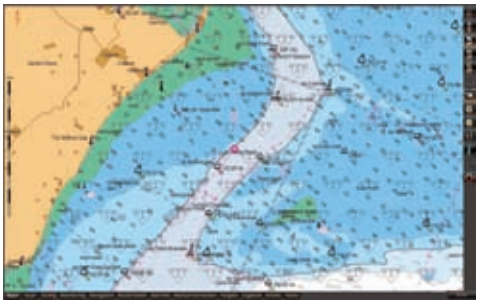
b. SCAMIN: The system auto-filter means that unless you are navigating on the best scale chart, you will not see all the information available for display. Therefore, when zooming out the system will automatically de-select certain features from display such as soundings, lights and topographical detail. The only way to ensure that your display is not affected by SCAMIN is to always ensure you are navigating on the best scale chart! It is therefore essential that the operator knows how to select the best scale chart on their system.



Base display.

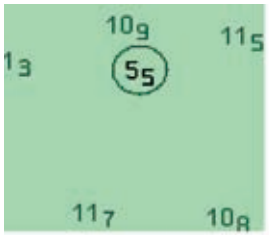


Standard display.



'All other' display.

Wreck - Dangerous wreck / Obstruction - Depth unknown / Rock - Underwater, awash rock Could be depth unknown or value of sounding known - only when interrogated. Separates to depth contour.



Sounding 5.5, reported, unreliable / therefore will not show up with safety contour.

c. New symbology: ENCs have brought new symbols that must be learnt and understood, like the two featured above.

d. Fixing: The ECDIS system tirelessly fixes and records ship position based upon the primary fixing system (GPS or DGPS), while searching the track ahead for risky or even dangerous conditions such as traffic separations schemes, charted wrecks and shoal patches. The system is also capable of loading charts automatically as you execute your passage, based upon ship position. Additionally, ECDIS also offers high levels of confidence by fusing different fixing modes (GPS/visual/RIO) into one display. Manual fixing functionality is also provided, although some systems provide more functionality in this regard than others.

e. Precise navigation: If the positional information is accurate, the system can be used to give valuable information about a ship's position when turning in confined conditions. Some manufacturers have developed precise navigation tools such as the docking mode function that allows detailed information on the forces at work on the vessel to be viewed in a separate panel.

Furthermore, functions, such as the predictor, can also be used to predict the future position of the ship based upon real-time influences on the vessel such as wind, tidal stream, acceleration and deceleration

Jeppesen OnBoard offers users ease and flexibility when it comes to the licensing and updating of ENCs

CHARTS & PUBLICATIONS

When you go for ENC, go for the best ENC service

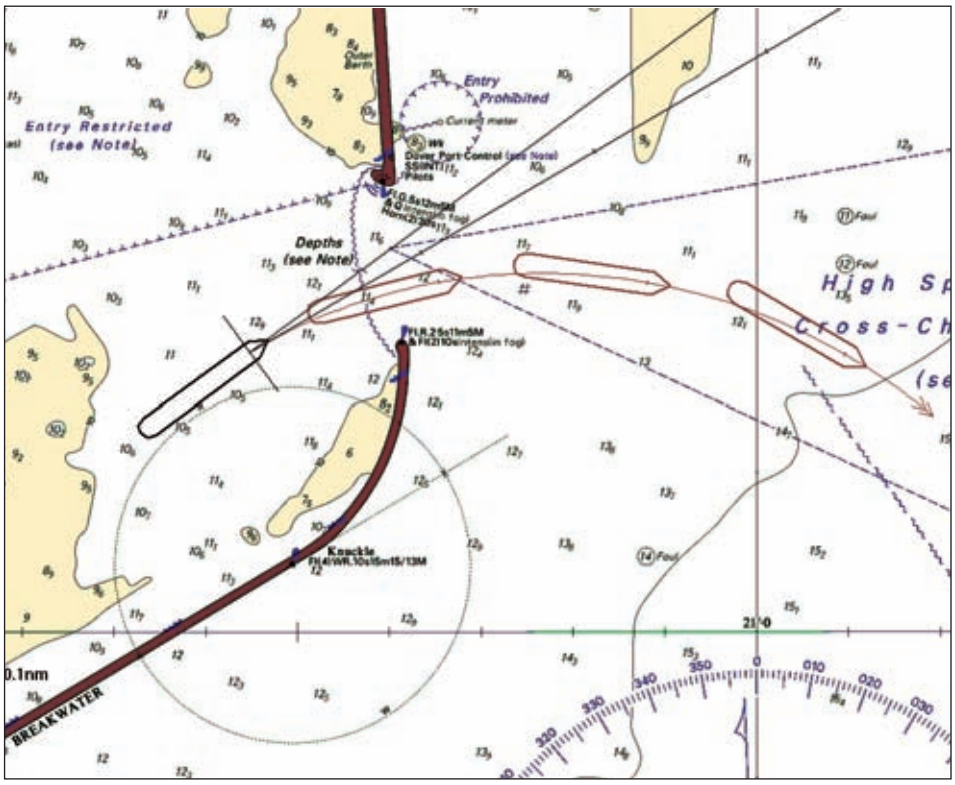
Jeppesen OnBoard means that you have a global chart database installed inside your ECDIS and you can license and use your ENCs in a matter of minutes. Easy "pay-as-you-go" licensing makes ordering and cost control simple. Online updating gives navigators the latest chart editions and corrections onboard. The result: confidence and safety on the vessel and in the ship owner's office.

ENCs from Jeppesen fulfill the chart requirements for mandatory ECDIS. With years of experience supplying navigational services to customers worldwide, we ensure that your ships are up-to-date, without error or delay.

JEPPESEN ON·BOARD

e-Navigation, so simple

Jeppesen, Tel. + 47 51 46 47 00, www.jeppesen.com/marine



Functions, such as Predictor can be used.

and hydro-dynamic data (see screenshot above). When used correctly, both are excellent tools to reassure the operator of what is being seen out of the window "…..this looks a bit tight, we need to put more wheel on – ECDIS concurs..."

4) Chart installation & updating

The days of updating and correcting charts in the charthouse are numbered, but do not ditch those tracings just yet. In my experience the one component of ECDIS that is guaranteed to ruin your day is the inability to update your system or install charts. Remember, it takes time and system knowledge to complete installation and updating effectively.

It is worthwhile timing how long it takes your system to conduct a small and large update so that you are aware of the timescales involved. Remember, after updating the system you will need to check your route again to check for new dangers. Ensure that you are getting your weekly permit updates and that they are updated prior to any charts. Furthermore, be extremely careful when using USB sticks and CDs to transfer information between systems and computers as ECDIS systems lack virus protection.

It is recommended therefore that the transfer of information between systems only occurs within the LAN and that any USBs or CDs are virus checked prior to being used. It is also prudent to back-up your system regularly. This undoubtedly needs to be carefully controlled in ship's procedures.

If you are considering linking your ECDIS to the internet for chart updating purposes, consider the following:

1. Do you need to? Do you have an adequate feed of information from navaids such as NAVTEX and a system in place to plot it on the ECDIS? If so, do you require such a connection?
2. How effective is the anti-virus firewall? If operating ECDIS and a virus prevents the ship from sailing (or worst case causes an accident) the decision to link to the internet will soon be questioned.
3. Will the system cease safety monitoring for the period it is updating?
4. What is the cost of updating via internet connection?
5. Will the system automatically highlight new updates so the operator can view their relevance relative to the planned route?

Legal implications

Legally, in order to navigate using ECDIS as the primary means of navigation, that is to say 'go paperless', then the following must be achieved (flag state dependent):

1. ENC coverage for the entire route (ENC=official data).
2. Equipment must be in accordance with IMO Resolution A817(19) (performance standards). If it is not, then the equipment is an ECS and is not legally compliant.
3. Training must be adequate. At present that means conducting a flag state approved five-day IMO 1.27 ECDIS course, and a type specific course on the equipment to be used at sea. The use of CBT alone is not sufficient.

Always consult your flag state for clarification and be aware of legal anomalies, such as flags that do not recognise RCDS mode, or flags that require a risk assessment for example.

Summary

ECDIS systems are designed and built by engineers. This is not a derogatory statement, but it is my opinion that more current mariner knowledge is required in order to provide the mariner with a better, more user friendly product.

The systems contain far more functionality than is needed and are not yet as ergonomic and user friendly as they could be. Moreover, inadequate training is responsible for a large number of collisions and groundings as operators are over-reliant on ECDIS and simply do not understand the shortfalls of such systems. However, ECDIS systems are a revolution and do go a long way in making navigation safer and easier, but only if:

- The operator uses the system correctly.
- The operator configures the system correctly.
- The operator understands the capabilities and limitations of the system in use.
- The operator is not over-reliant on GPS, or on the ECDIS system.
- The operator utilises spare capacity by looking out the window and assessing the integrity of navigation aids and equipment.
- The operator manages and supervises the system adequately.

Like it or not, ECDIS is coming and for most deck officers it is a case of embrace it or risk becoming irrelevant on the bridge of a ship. For both types of mariner I recommend confronting the problem head on by conducting approved training and learning as much as possible about these systems. It is cringe worthy but true - train hard, navigate easy! TO

**Mal Instone is director of operations & standards, ECDIS Ltd.*

***Screenshots courtesy of Transas and Kelvin Hughes.*

Slip stream ballast water treatment approach

For shipowners and managers picking their way through a maze of complex new legislation, unfamiliar technologies and competing claims from manufacturers, this can be a serious undertaking*.

While electrolytic ballast water disinfection systems share the same basic chemistry for electrolysing seawater, commercially available electrolytic disinfection technologies differ significantly. Understanding the technical and commercial performance criteria of the various electrolytic ballast water treatment technologies is critical to the equipment selection process and in ensuring that a proven, effective and reliable technology is selected to meet regulatory requirements.

In addition to selecting a ballast water treatment solution able to meet regulatory requirements, it is also important to adopt a technology with proven efficacy and most suited for application-specific requirements, such as ballast water flow rate and hazardous rating requirements.

Slip stream approach benefits

Installation flexibility of an electrolytic ballast water treatment design is determined by its placement in-line with the main ballast system, or its ability to treat a portion of the ballast water volume to achieve discharge standards.

Electrolytic ballast water treatment systems typically pass the entire ballast stream through the electrolytic cells. The BALPURE® ballast water treatment system from Severn Trent De Nora is unique in that it diverts a small side stream from the main ballast line. A slip stream approach allows the unit itself to make use of available existing locations remote from the main ballast line and gives the naval architect, marine engineer, or yard flexibility over how the unit is located on board the vessel.

Rather than treat the whole volume of ballast water, a slip stream approach feeds a percentage of total volume into the electrolytic system to generate a disinfectant within the electrolysers. The BALPURE system feeds approximately one percent of the total ballast water volume and generates a disinfection solution on site with electricity and available seawater. The disinfectants are then reintroduced to the main ballast flow downstream of the pumps. These active compounds, by now diluted 100 times to a very low concentration, actively protect against regrowth in the tanks during the vessel's passage and are neutralised back to their original state on discharge.

Another major advantage of the slip stream approach is on vessels fitted with pump rooms. For example, the ballast water treatment unit can be installed in the engine room, or in other available spaces. This capability avoids taking up precious space in the pump room, negating expensive modifications and removing the need for the unit to meet the complex and expensive ATEX rules governing hazardous cargo areas. The only component of the system that is required for placement in the ballast line is the self-cleaning filter (ATEX rated if required).

This slip stream design also means that multiple remote tanks, or circuits can be dosed simultaneously, such as the aft peak tank which, often being on a separate circuit can otherwise require its own ballast water treatment system to meet IMO rules.

Power requirements

Power requirements of ballast water treatment systems have concerned the shipping industry from the onset of regulatory discussions. The slip stream treatment approach, coupled with only having to treat during the uptake of the ballasting cycle allows a ballast water treatment system to offer significantly reduced power requirements compared to competitive technologies– ensuring low operational costs.

A typical BALPURE installation capable of treating 5,000 cu m per hour of ballast water, even under harsh operating conditions of low temperature and salinity, will draw under 300 kW. If higher than typical concentrations of chlorine residual are required for dosing, the power draw will increase minimally.

Bill Burroughs.

Maintenance too has been kept to a minimum with few wear parts and 100% redundancy on most critical components. The routine maintenance schedule calls for only two man hours per month, even on the largest unit and is made simpler because the unit is not installed in the main ballast line.

Flexible and remote installation

While most electrolytic ballast water treatment systems use a skid-mounted modular design to achieve a small footprint, a sub-assembly component design can allow for more flexible

installation when coupled with a slip stream treatment approach.

Several sub-assemblies that together make up a unit can in turn be remotely mounted from each other, including on multiple decks – allowing small available spaces to be used in the engine room or other locations. This sub-assembly component design makes for much simpler loading of the ballast water treatment system components into the vessel in the yard, at the dockside, or even at sea in preparation for installation and commissioning.

In the first quarter of 2008, a BALPURE ballast water treatment system was installed for testing on SeaRiver Maritime's S/R *American Progress*, a 46,000 dwt, double-hull product tanker. The double-hull vessel has 14 cargo tanks and two slop tanks with a total ballast capacity of 19,000 cu m. The ballast is handled by two ballast pumps, each rated at 975 cu m per hour.

For this installation, the BALPURE system was separated into six components and installed down a hatch of less than 1.5 m x 1.5 m. Components were fitted into existing spaces spread over three decks, eliminating the requirement to relocate other equipment.

The operating and capital cost savings resulting from scaling up a BALPURE ballast water treatment system can be significant. The BALPURE system is unusual in not scaling up – in size or in price - with increasing ballast water flow rates. This is especially so when compared to other ballast water treatment systems where installation in the pump room is required and the base model design is simply replicated in order to treat increased flow rates. This approach leads to an inefficient use of space, increased costs and system complexity.

Electrolytic disinfection and tank coatings

Effective corrosion control in ballast water tanks is one of the most important features in determining a ship's effective lifespan. When evaluating a ballast water treatment system, shipbuilders and owners should also review the effect the system will have on the overall vessel and if there is a potential for impact on corrosion-protecting coatings in the ballast tanks. Third-party corrosion testing against the IMO MEPC 59/2/16 recommendations is a must for every viable ballast water treatment system.

A corrosion testing programme undertaken by GL Noble Denton for the BALPURE system was successfully completed. The testing proved the BALPURE system had no effect on coated steel, naval bronze and Cu-Ni alloys. Testing proved an insignificant effect on bare steel – so small that the acceleration of corrosion due to the presence of free chlorine had minimal practical implications in ballast tanks. Therefore, the BALPURE ballast water treatment system will not impact the life expectancy of a ship.

All systems are not equal

A slip stream electrolytic disinfection system is among the safest, most cost-effective ballast water treatment technology available to prevent the transfer of non-indigenous species. Evaluating the BALPURE electrolytic disinfection system will enable shipowners and managers to eliminate the headache of navigating the maze of ballast water legislation and competing claims from manufacturers. TO

**This article was written by Bill Burroughs, BALPURE project manager, Severn Trent De Nora.*

BALPURE® ballast water treatment system was installed for testing on SeaRiver Maritime's *S/R American Progress*, a 46,000 dwt, double-hull product tanker.

HILANDERS

Onboard safety

Worldwide security

PureBallast 2.0 EX gives you more

You who work with potentially explosive onboard environments will also be required to perform ballast water treatment. PureBallast 2.0 EX is a safe and proven treatment system, designed for Zone 1 hazards and built with our award-winning PureBallast technology.
As part of our second generation of PureBallast systems, PureBallast 2.0 EX features a wide range of advances, including reduced power consumption and more responsive control.

By choosing PureBallast 2.0 EX, you make yet another safe choice – the world's most experienced supplier in ballast water treatment. Behind PureBallast 2.0 EX are thousands of hours of experience, logged both with shipyards and out at sea.
In addition, you select a global working partner. With a far-reaching organization and a worldwide network of harbour support, Alfa Laval can provide the parts, service and true peace of mind you need.

ALFA LAVAL

www.alfalaval.com/pureballast

BWT retrofit service now available

Marine engineering concern Goltens has started to offer ballast water treatment systems retrofit services.

President Paul Friedberg said that he thought the ballast water treatment system market would be worth around $10 mill in about five years.

He explained that the company offers a retrofit package, including the total engineering, co-ordination and planning.

Goltens has undertaken three retrofits thus far in Rotterdam. The company will also offer retrofit services in Shanghai and Singapore.

Friedberg said that the company would not sign agreements with OEMs as its policy is to remain totally independent.

A separate company was formed in the Netherlands at the beginning of this year called Goltens Green Technology. It is based at Groningen.

The main focus in 2011 for this branch will be ballast water treatment installations, Goltens said. The aim of the new company is to play a leading role in helping shipowners to find their way through the labyrinth of regulations, suppliers and technical obstacles.

As mentioned, the company does not produce its own treatment installation, as it offers completely independent advice, thus serving customers with an open-mind by not being prejudiced. Suppliers are partial: they will say that their system is the best the market has to offer, Goltens said.

Choosing the best system is not an easy matter, as each vessel has different requirements for its ballast water system. The speed of ballasting or de-ballasting may be crucial, power supply may be very limited, some vessels will need intrinsically safe equipment and so on.

Goltens will carry out surveys on board in order to establish available space and the possibilities to marry up to the existing piping. Either 3D-laser scanning, or manual measuring can be used to look at the existing situation and process this information in 3D-Cad models.

By using this method, the new equipment plus its piping can be efficiently fitted. Following the fitting, production drawings are produced and the piping is prefabricated, so that the actual installation work takes the shortest possible time.

Within the Goltens group, consisting of 22 stations strategically located in ports worldwide, the company claims to be very experienced in minimising vessel downtime.

As for Goltens Dubai operation, Friedberg said that he expected to move to a $15 mill purpose-built repair workshop and office complex at Dubai Maritime City in about 12 months.

Goltens is to concentrate in three core areas – in-situ machinery repairs, diesel engine repairs in the workshop and green technology equipment fitting and servicing and would be targeting the oil and gas market, in addition to the company's more traditional marine business. ■

USCG about to finalise BWTS rules

It may be prudent to take into consideration either the fitting of ballast treatment plant for newbuilds, or at least ensure space is provided to quickly fit such equipment if the need suddenly arises.

According to Dubai-based Carmania, the US Coast Guard recently made the decision to finalise its rules on ballast water management, which is to come into force on 1st April 2011.

The wording of the ruling is expected to be similar to that of the IMO convention on the subject – with one important difference!

It would appear that the wording will be finalised to the effect that ships delivered from January 2012 must be fitted with BWTS, Carmania warned.

This will obviously affect any vessel intending to trade into the US. It is thought that the USCG action is an attempt to thwart individual states, such as California and New York, from implementing their own legislation on the issue.

California's proposal on ballast water management is about 100 times more severe than that proposed in the IMO convention and there is no equipment yet developed which could meet, or even come near to meeting the state's proposed criteria, Carmania said.

The IMO convention is still to be ratified and come into force and there is a great deal of uncertainty about when this will happen.

New York stance

In a recent letter, the New York State Department of Environmental Conservation gave its answer to a request for an extension to the implementation date for Condition 2 of New York's Clean Water Act 401 Water Quality Certificate (WQC) to the Environmental Protection Agency's (EPA) Vessel General Permit (VGP).

The letter said 'After a review of the request for extension filed under your name, the department has determined that the information you provided demonstrated that:-

1) There is a shortage in supply of the technology necessary to meet the limits set forth in the certificate, or a vessel-specific engineering constraint, or other factor related to the availability and installation of technology beyond the vessel owner/operator's control, that delays the technology being available and installed in time to comply with this standard.
2) The unavailability of supply or installation constraint is the only reason the 1st January 2012 date cannot be met.
3) The vessel has exhausted all other options to comply with this standard. The department has also determined that ballast water treatment technology capable of meeting the discharge criteria in Condition 2 of WQC has been developed as further explained in an addendum attached to this letter.

Furthermore, the department has determined that ballast water treatment technology continues to advance rapidly (as summarised in reports issued by Lloyd's Register and others and illustrated by test results released by vendors, such as Ecochlor) and that the extension offered herein will provide adequate time for the installation of a ballast water treatment system on your vessel(s) to meet New York's water quality standards.' ■

> "California's proposal on ballast water management is about 100 times more severe than that proposed in the IMO convention and there is no equipment yet developed which could meet...the state's proposed criteria"

Live long and prosper!

A shipowner's principle operational aim is to minimise the amount of time a vessel is out of service while scheduling repairs at an optimum moment, neither to soon when maintenance maybe unnecessary nor too late when deterioration may have lead to additional expensive damage.

To date the ability to accurately predict the deterioration of a ship's hull, its structure, coating and components, at a given point in time has largely been a matter of sophisticated guesswork. Getting maintenance timing wrong and incurring the associated costs from time to time, has been considered part of the territory of operating a fleet of ships.

Ben Hodgson, project manager at BMT, describes how the part EU-funded FLAGSHIP-HCA hull condition assessment (see *TANKEROperator*, January/February, page 47) project has successfully developed a system for extending the life of the existing fleet of tankers and bulk carriers by up to five years, with a 10% to 20% reduction in service repair costs throughout their life-cycle.

Traditionally, the process of inspection and surveying of ships has been based upon the class rules, which define what must be inspected, combined with the knowledge and experience of the individual surveyor. The system has worked extremely well for many years but the information obtained from each inspection does not tend to be used for anything more than assessing a ships current condition, its compliance with class rules and suitability to put to sea at the time of the inspection. In essence, each inspection is a snapshot of a vessel's condition which provides little feedback as to possible issues in the future.

FLAGSHIP's HCA sub-project has developed a framework and methodology designed to encourage the recording of survey data in a way that can be utilised to focus future inspections and extend the service life of vessels. By encouraging a more structured and uniform approach to capturing, recording and sharing data from structural inspections, FLAGSHIP-HCA provides a framework within which elements of a surveyor's specialist knowledge and experience can be captured and utilised far more effectively than at present.

FLAGSHIP is a consortium of more than 40 European maritime organisations taking part in a part EU-funded project which is focused on improving the safety, environmental friendliness and competitiveness of European maritime transport. The project was designed to further increase the capacity and reliability of freight and passenger services and to further reduce the impact from accidents and emissions. The emphasis of the overall FLAGSHIP project is focused on on board systems and procedures, shipmanagement systems on shore, the impact of new technology on present shipowner- and operator organisations, effective and efficient communication interfaces and the impact of standards and regulations.

The project was led by the UK's BMT group and was supported, delivered and trialled in conjunction with MARINTEK of Norway; Bureau Veritas and Sirehna of France, Germanischer Lloyd and PORTLINE - Transportes Marítimos Internacionais, of Portugal

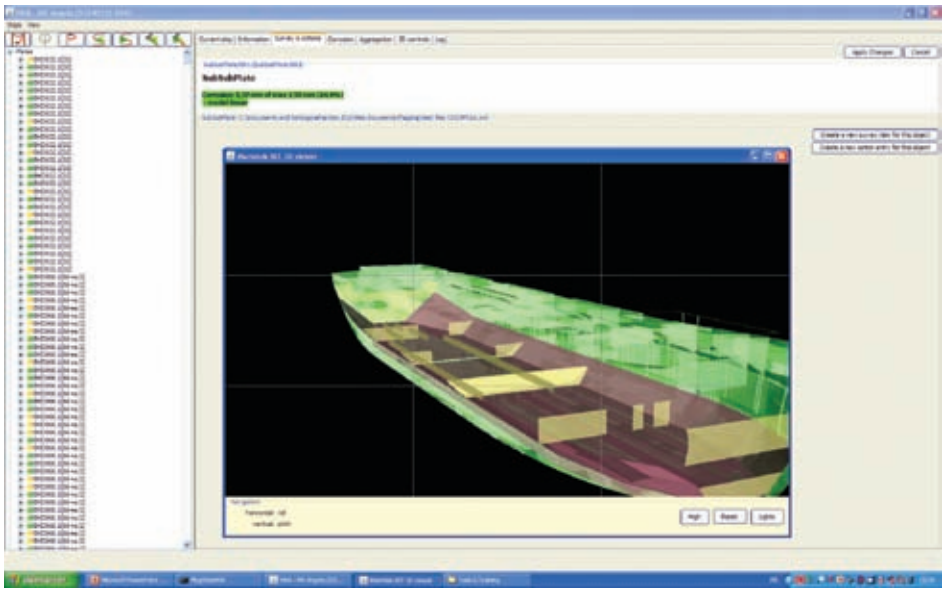
In order to provide a baseline for all the survey data, the HCA team developed a methodology utilising a digital model of the ship's structural elements, sourced either from the vessel's original construction drawings, or a computer aided design (CAD) 3D model.

To ensure that the research was aligned with technology that is already available, the project used a piece of software from sub-project partner GL called Pegasus. As proof of concept and to ensure that the research was suitably grounded and applicable to real world shipping, the FLAGSHIP-HCA team was given access to the 52,500 dwt bulk carrier *Angela* managed by PORTLINE -Transportes Marítimos Internacionais SA and belonging to Portline's group. The plans of the vessel were used to create the first 3D model and while she was in drydock, real maintenance and survey data used to provide a baseline, apply the theory and demonstrate that FLAGSHIP-HCA's work was suitable and appropriate for the industry.

To allow the surveyor to interact with the 3D digital model, FLAGSHIP-HCA developed a software package called the Survey Advisor Tool (SAT). This allows the user to upload the 3D digital model of the individual vessel under inspection. SAT provides a user friendly interface displaying 3D drawings of the vessel with the option to select individual elements that have been identified for inspection.

Structural elements, particular compartments, or individual plates can be selected and added to a survey plan with comment and notation. Once the surveyor has defined the scope of the survey he can send the annotated survey plan electronically to any interested parties.

The shipowner has access to a hull health



Sub plate screen shot of the bulk carrier.

assessment (HHA) tool with the same 3D interface as the SAT tool and with similar functionality. The HHA tool also allows the onshore and on board crew to collect their own observations and information about repairs. It can visualise the surveyors' planned inspections to verify or suggest changes to the upcoming survey to best cover hull elements that the owner has reasons to prioritise.

Furthermore, as the same HHA tool can reside both on board and onshore, the setup allows efficient and unambiguous exchanges of hull related information between all parties: Owner, crew, surveyor and possibly others. In order to ensure ease of exchange of compatible information between the parties, the team used a special file format called hull condition model (HCM) standard. Each individual HCM file contains the 3D model of the ship and all the attached data used for condition assessment (coating condition, steel thicknesses, etc) This form of electronic communication is not only fast but allows all interested parties to use their experience and provide input to the process in a way that adds value and is easily and accurately facilitated.

Armed with an up to date survey plan, the surveyor is able to undertake his work paying particular attention to issues that have been raised by the owner, or class society. Once the survey is completed then the detailed results can be input into SAT with reference to the condition of the various elements based on the surveyor's visual assessment. Details such as peeling paint, more severe coating degradation, or corrosion of the base metal itself can be recorded for future reference, or action.

Following the first SAT-enabled survey, the owners, class societies and any other interested parties will have access to a detailed survey, recorded digitally as an HCM file and viewable as an extremely accessible 3D model. In this first iteration of the process, the data can be used to identify any maintenance that is required in the same way as a traditional inspection. Subsequent replacement, repainting, or recoating will be recorded via the SAT to ensure an up to date record of the condition of the vessel. Furthermore, any corrosion of the base metal that does not warrant immediate repair, or replacement can be monitored as a separate task by using the SAT to record the residual thickness of the steel and the degree of corrosion.

Using the survey information, including the initial level of corrosion, whether the paint or coating is intact and whether any maintenance has been performed, the FLAGSHIP-HCA software applies a mathematical model, which predicts the rate at which a particular element will corrode based upon the sort of environmental conditions it's exposed to. This will relate to the boundary conditions where the plate is located, for example a ballast tank with fresh/salt water interface, or a fuel tank.

By applying the model to a whole vessel, it is possible to identify which elements should be most closely inspected during the next survey. Furthermore, as more data becomes available, as subsequent surveys are completed, it will be possible to fine tune the corrosion model. This will mean that the lifespan of a particular element can be accurately estimated and ensure that repair and maintenance is carried out at the most appropriate time.

This enhanced asset control would be particularly beneficial during the current economic uncertainty when shipping margins are under so much pressure and it is imperative to keep vessels working while minimising time undergoing repair and maintenance. With a robust estimate of corrosion available, surveys and inspections could be focused on areas that are likely to be problematic. Surveys and maintenance could be carried out far more efficiently minimising downtime. In addition, the working life of a vessel could be extended by utilising the enhanced ability to monitor and manage the condition of its structural elements. With access to projected rates of corrosion, shipowners and operators could manage and extend the working lives of their assets far more effectively.

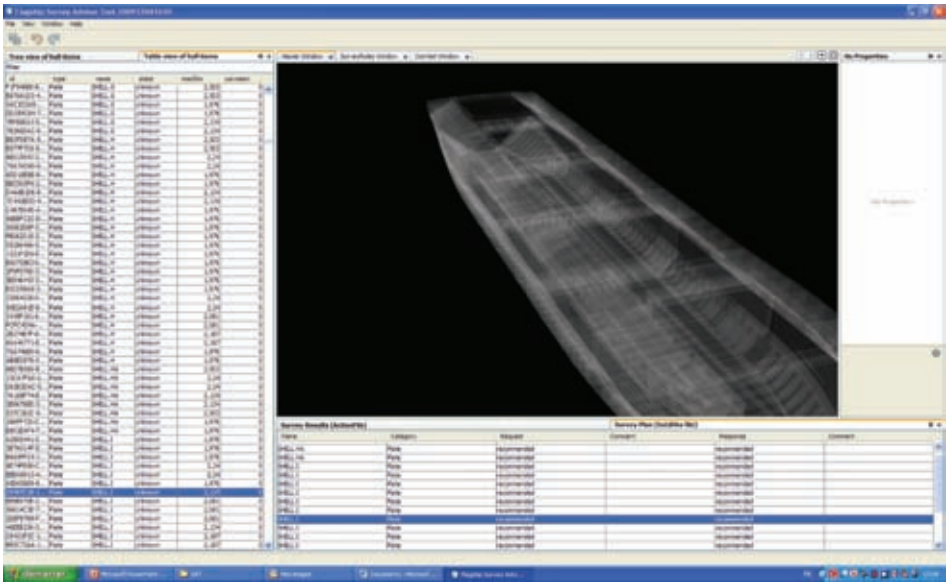
The iterative process proposed by FLAGSHIP-HCA becomes more powerful the more data that is fed into it. The loop gets its power and value not from any individual element but from the fact that it is capturing a large amount of good quality data in a way that can be easy accessed to help improve the corrosion prediction model.

Another service that the system can provide is that the HCM format makes it simple to share information about specific ship types. A shipowner, or operator could use the system to compare survey results from fleet of multiple ships of the same type in order to identify specific corrosion hotspots. Similarly, class societies could obtain large amounts of corrosion data from every ship, which is under their jurisdiction and use this information to refine class rules and guidelines.

One of the benefits of research projects like FLAGSHIP-HCA is that companies have the opportunity to work together and produce a result that is greater than the sum of the parts.

Sirehna and BV collaborated in just such a way to develop the corrosion models that are such a key part of the project's work. BV provided its experience in the qualitative factors that effected corrosion, including splashing, or complete immersion in seawater and the effects of abrasion in cargo compartments. By identifying, clustering and categorising various ship elements into groups that have similar corrosion characteristics it allowed Sirehna to program the most accurate and effective corrosion models using existing theoretical data.

With the caveat that FLAGSHIP-HCA is a research project, the outcomes are extremely positive and have the potential for commercial exploitation. While there would be an initial set-up cost in purchasing commercially developed software and importing the initial 3D model, the benefits in terms of preventative maintenance and extension of asset life would certainly deliver return on investment. TO



Screen shot of the Surveyor Advisor Tool (SAT).

APC Sees a Positive 2011 unfolding

According to Donald Keehan, chairman of Advanced Polymer Coatings (APC), the company is seeing a surge in business activity for 2011 in the newbuilding sector, as well as new interest emerging from the re-coating market.

Keehan explained that he expects about 60 chemical tankers will be coated in 2011 with the high-performance MarineLine® 784 system. This includes 30 newbuilds in Turkey, and 30 more newbuilds in the Asian shipyards of South Korea and China.

More shipowners are turning to MarineLine® 784 as the preferred lining, due to the excellent flexibility it provides the shipowner/charterer in handling a wide range of chemical cargoes, including methanol, acetic and other acids, and caustics.

Even shipowners who mostly use stainless steel tank systems are picking up vessels that are already lined with MarineLine® 784 coating in order to complement their fleets. They are chartering these vessels to see how they perform with the coating in broad range of chemical cargoes to add versatility to their fleets.

Re-coating market

Keehan pointed out that the re-coating market is also generating a lot of interest for APC. Last year, the company instituted a new pricing structure for MarineLine® 784 to make it virtually cost comparable to conventional phenolic epoxies.

This is allowing shipowners, especially those in the product tanker market, to obtain a better performing and more versatile tank coating, while staying cost competitive. "We have taken a very aggressive stance on pricing in order to provide a very high return on investment to the shipowner," Keehan claimed.

APC said that the timing is perfect for this price move as shipowners are retrofitting and refurbishing older product tankers to now carry newer types of cargoes such as biofuels, a particular sector growing at an estimated 15% per annum.

However, shipowners are concerned about carrying biofuels due to the corrosive nature of the cargoes and their detrimental effect and breakdown of conventional tank coatings.

Newbuildings and re-coatings' surge seen this year.

MarineLine®'s unique corrosion-resistant coating is an ideal answer, the company said.

Other increasingly specified product tanker cargoes include the range of CPPs, PFADs, and methanol, all which can be carried in tanks coated with MarineLine® 784. ■

MIRACLE Tank Cleaning Guide

provides tank cleaning guidance and detailed information for about 7000 Annex I and II cargoes.

MIRACLE contains physical/chemical properties, adjacent cargo coating and FOSFA-compatibility check, IBC requirements, emergency response info and compatible Draeger tubes.

Some 200 customers, having MIRACLE in use on more than 1000 ships report **less tank rejections, decreased cleaning time** and **cost reduction** as a benefit.

MIRACLE is available as

- **Book** with **annual updates** (DIN A4 1000 pages)
- **CD** with **annual updates** (local installation)
- **Online continuously updated** (web-based access)

For more informations please visit or contact
www.chemserve-marine.com
info@chemserve-marine.com

ChemServe GmbH
Hubertuskamp 8
D - 21521 Dassendorf
phone +49 4135 - 808630
fax +49 4135 - 808631
info@chemserve-marine.com
www.chemserve-marine.com

Free Trial
https://miracle.chemserve.eu
• click on „Register“
• create your account
• activation code: top9

MIRACLE as Book
anytime and anywhere

MIRACLE as CD
runs without internet

MIRACLE Online
no installation necessary

Vetting and HSE Monitoring Tool

Repository for all shipboard inspections and events. Integrated follow up system.
Automatic import of vetting inspection reports.

CDI
SIRE
Terminal Inspections

Fleet Reports
Near Miss Reports
Management Reports

Test our free 3D demo
www.chemserve-marine.com/3d

Port State Control
Flag State Inspections
Class Inspections

Repetitive Questions
Most Frequent Deficiencies
Marine Injury Report acc OCIMF

3D
DEFECTS DEFICIENCIES DATABASE

Ship Visit Reports
Internal Audits
Navi Audits
TMSA

Overdue Items Report
Oil Major Reports
Ship Reports

Marine Injury Reports
Vessel/Cargo Damages
Machinery Damages
Environmental Incidents
Near Misses
Non Conformities

ChemServe GmbH
Hubertuskamp 8
D - 21521 Dassendorf
phone +49 4135 - 808630
fax +49 4135 - 808631
info@chemserve-marine.com
www.chemserve-marine.com

Vetting Status Report

BLG 15 – report of the ESPH working group

The Evaluation of Safety and Pollution Hazards (ESPH) working group met between 7th and 11th February during the 15th session of the IMO's BLG sub-committee, with the IPTA secretariat in attendance*.

Issues of interest to the parcel tanker sector are summarised below by the International Parcel Tankers' Association (IPTA).

Some amendments were made to the draft guidelines for the carriage of blends of petroleum oil and biofuels, which had been agreed at ESPH 16 in October 2010.

1) The Finnish product renewable diesel was added to the list of products in the definition of biofuels, under the name in which it appears in List 1 of the MEPC.2/Circ, ie Alkanes (C10-C26) linear and branched. It should be noted that in future there will be two entries for this product, one covering the low flash product and one covering the product where the flash point is greater than 60 deg C. Additional generic carriage requirements were developed to cover blends of these products with petroleum diesel or gasoil.
2) It was agreed that in order to accommodate any biofuels that may be developed in the future an additional Annex will be added to the MEPC.2/Circ. listing biofuels that fall under the scope of the guidelines.
3) The generic carriage requirements relating to blends of diesel and FAME or vegetable oil were amended to include gasoil as another possible blending component.
4) The provision that allows for residues of blends carried under the provisions of MARPOL Annex I to be pumped ashore where the vessel's ODME has not been approved for the blend in question was amended to include a cut-off date of 1st January 2016. In other words, after this date the equipment must be certified in order for these blends to be carried.

The association said that it urged members to get in touch with their equipment manufacturers in order to assure that the necessary approvals/certification are obtained. The guidelines still have to be formally adopted by the Maritime Safety Committee (MSC) and Marine Environment Protection Committee (MEPC).

IPTA pointed out that the current situation, where there are multiple tripartite entries within Lists 2 and 3 of the MEPC.2/Circ. for biofuel blends from different producers, is extremely confusing for industry and complicates the certification process.

The association suggested that it would therefore be beneficial to apply the provisions of the guidelines as soon as possible. With no support forthcoming for this suggestion, however, it was decided that the interim guidance should be extended until 1st September this year.

"As members are aware, under the interim guidance the cut-off point for the biofuel element in a blend carried under MARPOL Annex I is 15% and blends with a higher percentage of biofuel have to be carried under MARPOL Annex II under one or other of the entries in List 2 or List 3 of the MEPC.2 /Circ.or a new tripartite agreement", IPTA said.

The generic carriage requirements in the guidelines for shipment of blends under MARPOL Annex II will be included in List 1 of the next edition of the MEPC.2/Circ. (to be issued in December this year) and will also appear on the IMO website once agreed by the parent committees.

The latest draft of the Guidelines can be found at Appendix 1.

IBC Code chapters 17 and 18

As previously advised, it has been pointed out that the IBC Code currently operates under what is effectively a dual standard, with products included in the last few years evaluated under stricter safety criteria than those included in earlier years.

The last session of the ESPH Group had been advised that if all the products in the code were re-evaluated according to the current criteria around 18% would be affected, with the majority requiring stricter carriage requirements, primarily a higher ship type and/or more stringent tank type requirements (ie independent tanks).

A document had been submitted to this session showing a representative sample of 10 products and how they would be affected if re-evaluated according the current criteria and which particular criteria would trigger those requirements. This demonstrated that it is the rating for dermal toxicity that triggers the enhanced ship type and tank type requirements.

While some member states are of the opinion that carriage requirements should be updated to take into account such safety hazards, IPTA questioned whether an enhanced ship type or tank type is the appropriate measure to deal with a hazard that exists only when the product comes into contact with skin.

The next intersessional meeting of the ESPH Group (in October this year) will look into this issue further and in particular consider whether it is necessary to revisit the criteria for assigning carriage requirements, or simply amend carriage requirements according to the current criteria.

It should be noted that under IMO procedures if any amendments to carriage requirements were to be agreed, the earliest date that they could become effective is 2018, and given the amount of work that would be necessary the date is more likely to be 2022.

Missing product data

Members will recall the discussions some time ago on the testing of PV valves for products with a low MESG and the need for some point of reference on the MESG of products. It was decided at that time that for these purposes reference should be made to

column i of chapter 17 of the IBC Code since the electrical apparatus group in i" is decided by reference to the product's MESG.

IPTA pointed out at that time that more than half the products in the code have no information in column i of chapter 17 and a circular was subsequently issued listing these products and asking for information to be provided.

Information has now been provided on a number of these cargoes and amended carriage requirements will be included in the next edition of the IBC Code (due for mid-2014).

Some 38 products are still missing this information, however, and it has been suggested that if the necessary information is not provided by the time of the ESPH meeting in October, these products should either be deleted from the code, or a default set of stringent requirements applied to them.

The products in question are listed in Appendix 2 and IPTA suggested that members who carry any of the products listed contact their shippers and urge them to provide the necessary information to the IMO.

Cleaning additives

Some 86 cleaning additives were evaluated and found to meet the assessment criteria. These products are listed in Appendix 3 and will be added to Annex 10 of the next edition of the MEPC.2/Circ.

In addition, five trade named mixtures with safety hazards were evaluated and carriage requirements assigned. These can be found in Appendix 4. TO

**Reproduced from a report written by the International Parcel Tankers' Association (IPTA).*

Appendix 1

Draft guildelines for the carriage of blends of petroleum oil and bio-fuels

1 APPLICATION

1.1 These guidelines apply to ships when carrying in bulk blends of Petroleum Oil and Bio-Fuels subject to Annex I and Annex II of MARPOL, respectively.

2 SCOPE

2.1 These Guidelines have been developed to clarify how bio-fuels subject to Annex II of MARPOL, when blended with petroleum oils, subject to Annex I of MARPOL, can be shipped in bulk.

3 DEFINITIONS

For the purpose of these guidelines:

3.1 *Bio-fuels* are ethyl alcohol, fatty acid methyl esters (FAME), vegetable oils (triglycerides) and alkanes (C10-C26), linear and branched with a flashpoint of either 60°C or less or more than 60°C, as identified in chapters 17 and 18 of the IBC Code or the MEPC.2/Circular/tripartite agreements. Following the distribution of these guidelines, further bio-fuels identified as falling under the scope of the guidelines, will be recorded in annex 11 of the MEPC.2/Circular which deals with bio-fuel /petroleum oil blends.

3.2 *Bio-fuel blends* are mixtures resulting from the blending of those products identified at 3.1 above with a petroleum oil.

4 CARRIAGE OF BIO-FUEL BLENDS

The carriage provision for bio-fuel blends is based on the volumetric composition of the blends as follows:

4.1 Bio-fuel blends containing 75% or more of petroleum oil

4.1.1 When containing 75% or more of petroleum oil, the bio-fuel blend is subject to Annex I of MARPOL.

4.1.2 When carrying such bio-fuel blends, Oil Discharge Monitoring Equipment (ODME – see resolution MEPC.108(49)) shall be in compliance with regulation 31 of Annex I of MARPOL and should be approved for the mixture being transported.

4.1.3 Until 1 January 2016 bio-fuel blends may be carried when the ship's ODME is not in compliance with paragraph 4.1.2 above provided that tank residues and all tank washings are pumped ashore.

4.1.4 When considering the deck fire-fighting system requirements of SOLAS chapter II-2, regulations 1.6.1 and 1.6.2, when carrying bio-fuel blends containing ethyl alcohol then alcohol resistant foams should be used.

4.2 Bio-fuel blends containing more than 1% but less than 75% of petroleum oil 4.2.1 When containing more than 1% but less than 75% of petroleum oil, the bio-fuel blends are subject to Annex II of MARPOL and should be carried under the following conditions (See table below):

4.2.2 With respect to new bio-fuels identified as falling under the scope of these guidelines, carriage requirements for specific bio-fuel/petroleum oil blends to be shipped as MARPOL Annex II cargoes will be incorporated into List 1 of the MEPC.2/Circular as appropriate.

4.3 Bio-fuel blends containing 1% or less petroleum oil

4.3.1 When containing 1% or less of petroleum oil, the bio-fuel blends are subject to Annex II of MARPOL.

5 BLENDING OF PETROLEUM OIL AND BIO-FUEL ON BOARD

5.1 Blending on board describes the mixing of two products resulting in one single product (a blended mixture) and reflects only physical

a	c	d	e	f	g	h	i'	i"	i"'	j	k	l	n	o
Bio-fuel blends of Diesel/gas oil and FAME (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and Vegetable oil (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	T3	IIA	No	C	F-T	AC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and Alkanes (C10-C26), linear and branched with a flashpoint > 60˚C (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and Alkanes (C10-C26), linear and branched with a flashpoint ≤ 60˚C (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	T3	IIA	No	C	F-T	ABC	No	15.12, 15.17, 15.19.6

mixing as distinct from any chemical processing. Such mixing operations should only be undertaken whilst the ship is within port limits.

5.2 The physical blending on board of petroleum oil and bio-fuels during a sea voyage to create new products is prohibited as indicated in MSC-MEPC.2/Circ.8 Prohibition of Blending MARPOL Cargoes on Board During the Sea Voyage.

6 CERTIFICATION REQUIREMENTS

6.1 The certification for the bio-fuel blend to be shipped should be in compliance with Annex I or Annex II of MARPOL, as appropriate. ■

Appendix 2

Product name	i' (Temp. class)	i" (App. group)	i"' (Flash-point)
Alkyl acrylate-vinylpyridine copolymer in toluene			
Alkyl (C3-C4) benzenes		IIA	
Alkyl(C8-C9) phenylamine in aromatic solvents			
Ammonium sulphide solution (45% or less)			
Aviation alkylates (C8 paraffins and iso-paraffinsBPT 95-120º)		IIA	
Butylbenzene (all isomers)		IIA	
m-Chlorotoluene		IIA	
Chlorotoluenes (mixed isomers)		IIA	
Cycloheptane		IIA	
Cyclohexyl acetate		IIA	
1,6-Dichlorohexane		IIA	
1,1-Dichloropropane		IIA	
Diisobutylamine		IIB	
N,N-Dimethylcyclohexylamine	T3		No
Ethyl butyrate		IIA	
Ethylcyclohexane		IIA	
Ethyl toluene		IIA	
Heptene (all isomers)		IIA	
Hexamethyleneimine		IIB	
Isobutyl formate		IIA	
Isopropylcyclohexane		IIA	
Liquid chemical wastes			
Methylbutenol		IIA	
Methylbutynol		IIB	
Methyl butyrate		IIA	
Methylcyclopentadiene dimer			
Nitropropane(60%)/Nitroethane (40%) mixture		IIB	
Nonane (all isomers)		IIA	
Octyl aldehydes			No
alpha-Olefins(C6-C18) mixtures		IIA	
Paraldehyde-ammonia reaction product			
n-Pentyl propionate		IIA	
beta-Pinene			
Polyalkyl (C18-C22)acrylate in Xylene			
Polyolefinamine in alkyl(C2-C4)benzenes			
Polyolefinamine in aromatic solvent			
Polysiloxane			
Sodium hydrosulphide/Ammonium sulphide solution			

digital gauging

Honeywell Tanksystem introduces the world's first portable, digital, automatic, topping-off monitoring system.

The HERMetic TOMSYS is a portable, digital, automatic, gas tight, level monitoring system, designed to continuously and automatically monitor the cargo tank liquid level during topping-off procedures. The unit accurately monitors the liquid level over the last upper three meters.
By increasing safety and efficiency, Honeywell Tanksystem helps customers improve business performance.

Honeywell

For more information: www.tanksystem.com
Tel. +41 26 919 15 00
E-mail: tanksystem@honeywell.com

© 2011 Honeywell International, Inc. All rights reserved

Appendix 3

Cargo tank cleaning additives evaluated and found to meet the requirements of regulation 13.5.2 of Annex II of MARPOL[1]

Name of cleaning additive	Name of manufacturer	Reporting country
ACE 4020 Multi Purpose Detergent, T-Pol	ACE Chemicals International Pte. Ltd	SGP
ACE 7012 Oil & Grease Remover	ACE Chemicals International Pte. Ltd	SGP
ACE 9005 Heavy Duty Alkaline Cleaner	ACE Chemicals International Pte. Ltd	SGP
ACE 9007 Heavy Duty Tank Cleaner A	ACE Chemicals International Pte. Ltd	SGP
ACE 9011 Heavy Duty Cleaner	ACE Chemicals International Pte. Ltd	SGP
ACE 9020 Liquid Rig Wash	ACE Chemicals International Pte. Ltd	SGP
ACE 9026 Hydrocarbon Remover	ACE Chemicals International Pte. Ltd	SGP
ACE 9027 Sodium Hypochlorite 12% Solution	ACE Chemicals International Pte. Ltd	SGP
FALCHEM Bleach Substitute	Enerchem (S) Pte. Ltd	SGP
FALCHEM Buffer Clean, Tank Cleaner	Enerchem (S) Pte. Ltd	SGP
FALCHEM Enerpol, Multi Purpose Detergent	Enerchem (S) Pte. Ltd	SGP
Chemtec-HCK	CHEMTEC Chemicals GmbH	DEU
Coaltar Remover	WVT Industries N.V.	BEL
HD Tank Cleaner	WVT Industries N.V. BEL	
Steam Cleaner 155	WVT Industries N.V.	BEL
Tank Cleaning Cat	WVT Industries N.V.	BEL
Chemalyt 146	Henkel Belgium N.V.	BEL
NA marine	Henkel Belgium N.V.	BEL
Carbin Cleaner	Shanghai Whitecat Special Chem. Co.Ltd.	CHN
MARISOL GD	Maritech Marine Technologies AB	SWE
MARISOL LC	Maritech Marine Technologies AB	SWE
MARISOL RW	Maritech Marine Technologies AB	SWE
MARISOL TC	Maritech Marine Technologies AB	SWE
MAC Alkid	MASTEC Co. Ltd	JPN
MAC Dual Clean	MASTEC Co. Ltd	JPN
MAC HC-10	MASTEC Co. Ltd	JPN
MAC HC-100	MASTEC Co. Ltd	JPN
MAC HD	MASTEC Co. Ltd	JPN
MAC Prime	MASTEC Co. Ltd	JPN
MAC Safety Alkid	MASTEC Co. Ltd	JPN
MAC Susbright	MASTEC Co. Ltd	JPN
Careclean Passivation Liquid	Marine Care cleaning additives	NLD
Careclean PL-Con	Marine Care cleaning additives	NLD
Green Care HC	Marine Care cleaning additives	NLD
GreenCare Synergy	Marine Care cleaning additives	NLD
Neutral HCF	Star marine Chemicals B.V.	NLD
GP Degreaser	VECOM	NLD
Latex Remover	VECOM	NLD
Multi Cleaner	VECOM	NLD
Resin Stripper	VECOM	NLD
Seaclean Voyage	VECOM	NLD
Steamclean Extra	VECOM	NLD
Tankclean HCF	VECOM	NLD

Name of cleaning additive	Name of manufacturer	Reporting country
Aquamarine Aquawash T1080A	Aquamarine Chemicals	GBR
Aquamarine Caustic-Free Cleaner	Aquamarine Chemicals	GBR
Aquamarine Natural Zest T1335A	Aquamarine Chemicals	GBR
Aquamarine Neutral HCF	Aquamarine Chemicals	GBR
Aquamarine Rustremover	Aquamarine Chemicals	GBR
Aquamarine Strong Alkaline Cleaner T1108A	Aquamarine Chemicals	GBR
Aquamarine Tank Cleaner HD	Aquamarine Chemicals	GBR
Alclean	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Alclean Safe	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Alcleaner PBC	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Green Enviro	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
MITE	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Natural	Endustrieyel Kimya Sansayi Ltd. STI	TUR
Natural HCF	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Ready	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Rem-25	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Tank Shine	AYT Endustrieyel Kimya Sansayi Ltd. STI	TUR
Teco Caustic	Teco Chemicals AS – Norway	NOR
Teco Potassium (Potassium Hydroxide)	Teco Chemicals AS – Norway	NOR
Clean Break	UNI Americas LLC	USA
Cold Wash HD	UNI Americas LLC	USA
Ecoclean	UNI Americas LLC	USA
Rust Off	UNI Americas LLC	USA
Seaclean	UNI Americas LLC	USA
Enviro HCF Tank Kleen	Enviro-Tech Specialities, Inc	USA
Enviro Multi Kleen	Enviro-Tech Specialities, Inc	USA
Enviro Rust Kleen	Enviro-Tech Specialities, Inc	USA
Enviro Teepol	Enviro-Tech Specialities, Inc	USA
AMEROID RSR	DREW MARINE	USA
Drew BC	DREW MARINE	USA
Envirocare 480	DREW MARINE	USA
ATLAS 100	Atlas Chemicals, Inc	USA
ATLAS 150	Atlas Chemicals, Inc	USA
ATLAS 202	Atlas Chemicals, Inc	USA
ATLAS A-CHLOR	Atlas Chemicals, Inc	USA
ATLAS AQUA-SOLV	Atlas Chemicals, Inc	USA
ATLAS CD-SEA	Atlas Chemicals, Inc	USA
ATLAS I-A-C	Atlas Chemicals, Inc	USA
ATLAS KRUSHER	Atlas Chemicals, Inc	USA
ATLAS MAR-CLEAN	Atlas Chemicals, Inc	USA
ATLAS METAL BRIGHT	Atlas Chemicals, Inc	USA
ATLAS METAL TREAT	Atlas Chemicals, Inc	USA
ATLAS SUPER GREEN	Atlas Chemicals, Inc	USA

1. All products evaluated in accordance with MEPC.1/Circ.590.

a Product Name	c Poll. Cat.	d S/P	e Ship Type	F Tank Type	G Tank Vent	H Tank Control	I' Electrical Class	I" Electrical Group	I"' Flashpoint >60ºC:	j Gauging:	k Vapour Detection	l Fire Protection	n Emergency Equipment	O Special Requirements	Company
Solvesso 200	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	A,B,C	No	15.12, 15.17, 15.19.6	ExxonMobil
Solvesson 150	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	A,B,C	No	15.12, 15.17, 15.19.6	ExxonMobil
Solvesson 150ND	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	A,B,C	No	15.12, 15.17, 15.19.6	ExxonMobil
Solvesso 200 ND	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	A,B,C	No	15.12, 15.17, 15.19.6	ExxonMobil
Value CA	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	A	Yes	15.12, 15.17, 15.19	SASOL

A TANKEROperator supplement

Tanker shipping review

March 2011

Contents

Odfjell's *Bow Flora* and *Bow Sun* seen at Ulsan. Photo credit – Odfjell Mr Lee.

...take a closer look

ASRY - Arab Shipbuilding and Repair Yard Co. centrally located in the Arabian Gulf, provides a comprehensive range of services for all your ship repair and conversion needs.

ASRY

P.O. Box 50110, Hidd, Kingdom of Bahrain
T: +973 1767 1111 F: +973 1767 0236 E: asryco@batelco.com.bh

www.asry.net

What will 2011 hold?

Global economic recovery is underway, supported by robust emerging markets growth. The strength and resiliency of the global economic recovery thus far has been a welcome surprise.

During the course of 2010 the world economy continued to post impressive gains and has withstood significant challenges to derail it, such as the Greek and Irish sovereign debt crises, said McQuilling Services in its Annual Review.

Industry watchers continue to warn of the possibility of downside risks, but for now, a positive – even robust – economic backdrop can be taken as the planning case. The IMF World Economic Outlook in October 2010 projected global economic growth at 4.2% in 2011, now it expects 4.4% expansion.

Tanker demand measured in tonne/miles grew an estimated 3.9% in 2010 over 2009 levels but only 2.7% from 2008 levels. The majority of demand resides in the VLCC sector at over half of total tanker tonne/miles recorded, the consultancy said.

Estimated year-on-year gains of 3.5% for crude and residual fuels transport demand and 7.3% refined products transport demand were observed in 2010. On average, clean transport demand has risen 5.2% per year since 1999.

Tanker demand going forward is expected to average between 1-2% for crude and residual fuels transport, although McQuilling forecasted about 4% growth in the VLCC sector in 2011. The report also said that clean product transport was estimated to grow at about 4-5% per year on average during the planning period.

In 2010, it was expected that 327 vessels would be delivered into the trading tanker fleet from shipyards. Only 234 deliveries occurred, 93 fewer than anticipated, but net fleet growth in 2010 was still 7%. McQuilling's orderbook at the beginning of 2011, after adjusting for the likelihood of delays and cancellations, amounts to 713 vessels on order between 2011 and 2014, (excluding IMO I and II types).

Single hull question

Last year was the deadline for the phase-out of single-hull tankers under IMO 13G regulations and 152 tankers exited the trading fleet. Going forward, fewer exits are expected as the decision criteria returns to economic obsolescence from regulatory mandate. McQuilling forecasted that 75 vessels will leave the trading fleet this year but the fleet will still expand by 6% due to the heavy delivery schedule.

The main theme for the 2011-2015 planning period is again net fleet growth, carried over from last year. However, differences in the supply and demand balance across sectors will be seen with VLCC and Suezmax tonnage challenged the most by the spectre of a developing tonnage surplus. Supply factors such as slow steaming or floating storage can absorb a substantial portion of the surplus of vessels available to meet demand, however.

Spot freight markets increased in 2010 over 2009, but bunker prices were 6.4% higher than forecast, reducing earnings somewhat. McQuilling expected freight rates in the larger sectors to trade sideways for the next two years, driven by an oversupply of vessels.

Freight rates in the smaller sectors will be influenced by these levels, as has been observed historically, even though their supply and demand fundamentals are generally better than in the VLCC, or Suezmax sector.

Lacklustre freight markets in the near-term may lead to a bearish asset price sentiment and weaken the resolve of shipbuilders. This may lead to an erosion of newbuilding contract prices but over the five-year forecast period, it is expected that the overall asset price trend to be up.

Traditional shipping finance remained tight in 2010, available to mainly existing clients of the few banks who continued their lending with stricter terms and covenants. Analysis of acquisition projects revealed lacklustre operating returns based on forecasted freight rates and current asset prices.

Secondhand tonnage yields the best return results. Successful tanker enterprises will need to combine steady operating returns with well-timed acquisitions and sales of vessels in order to yield acceptable total returns over the next few years, as has been the case historically.

Bunker prices will continue to escalate, driven by thinning supply, quality problems and emissions restrictions. This will continue to erode TCE revenues for tanker operators.

For 2011, McQuilling said that it expected freight to remain at or near 2010 levels (adjusted to 2011 WS flat rates).

Bunkers are forecast to average $510 per tonne this year, so TCE revenues should be slightly less than last year*.

TO

This is an exert taken from the McQuilling Services Tanker Market Outlook: 2011-2015, which is available in PDF and hardcopy versions, 100+ page full-colour report (~70 figures / ~25 tables).

	Sport rate Forecast (2011 WS)		TCE Revenue Forecast (US$ 000/Day)	
	2010 (Act)*	2011	2010 (Act)*	2011
Crude & DPP				
VLCC 260 MMT (AG / East) TD 3	59	58	33.1	27.6
Suezmax 130 MMT (Wafr / USAC) TD 5	82	82	25.6	23.1
Aframax 70 MMT (Carib / USG) TD 9	115	117	14.5	13.0
Panamax 50 MMT (Carib /USAC) TD 10	124	127	11.8	11.5
Clean Products				
Aframax 75 MMT CPP (AG / Japan) TC 1	101	105	13.3	12.3
MR 38 MMT CPP (Carib/USAC) TC 3	121	120	7.5	7.3
MR 30 MMT CPP (Sing / Japan) TC 4	121	145	3.5	5.6

Actual 2010 average spot rates based on 2011 Worldscale flat rates

Source: McQuilling Services

Spot Rate Forecast by Trade (2011 WS) / TCE Revenue Forecast by Trade (US$ 000/Day)

Worth biding your time before investing?

While in the first half of 2010, tanker freight rates and tanker asset prices held strong, everything else considered, in the second half of the year there had been a precipitous drop of spot freight rates and in turn, a noticeable decline of tanker asset prices*.

The consensus for the cause of the strength has been that the contango play for oil and a sizeable number of the world fleet utilised as storage (up to about 50 VLCCs at one point, or close to 10% of the world VLCC fleet) in the first quarter of 2010 provided a strong floor for the market. In the second half, when there was not noticeable storage play, and the newbuildings kept being delivered with almost metronomic repetition, the tonnage supply did dwarf the demand for tankers.

Based on data collected from Compass Maritime and the Baltic Exchange, one-year timecharter rates for modern VLCCs fell from $45,000 per day in July 2010 to about $30,000 per day at present, a drop of about one-third (Graph 1). There has been an almost tantamount drop in the rates for Suezmax tankers, while declines for Aframax and coated Panamax (LR1) and MR2 tankers have been contained in the 10-15% range.

One has to keep in mind that timecharter data is more 'predictable' than the spot market and it presents the 'smoothed out' version of daily market gyrations. If one were to consider spot rates, there had been numerous fixtures in the past couple of months where tankers were fixed below operating breakeven, or at rates to cover only the bunkers' expense, or even at rates that were downright negative.

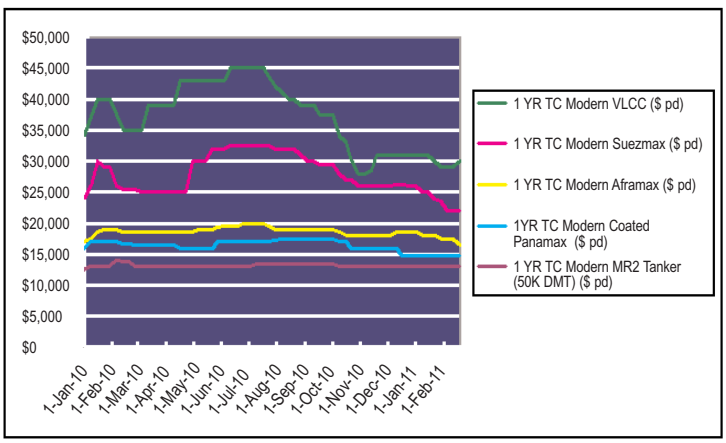
With an anemic freight market in plain view, it's not a surprise that asset prices have been on a softening trajectory. Based again on data provided by Compass Maritime and the Baltic Exchange, for five-year old vessels, between July 2010 and at present, asset prices have dropped by about 15%, with coated Panamax tankers experiencing the worst decline of about 20% while MR2 tankers behaving best with a 7% decline (Graph 2).

On a note of caution, such data is based strictly on 'last done' in a not-always-liquid market, and, in certain cases an argument can be made of what defines a 'market transaction' when allegedly there should be no compulsion to act by either the buyer or the seller.

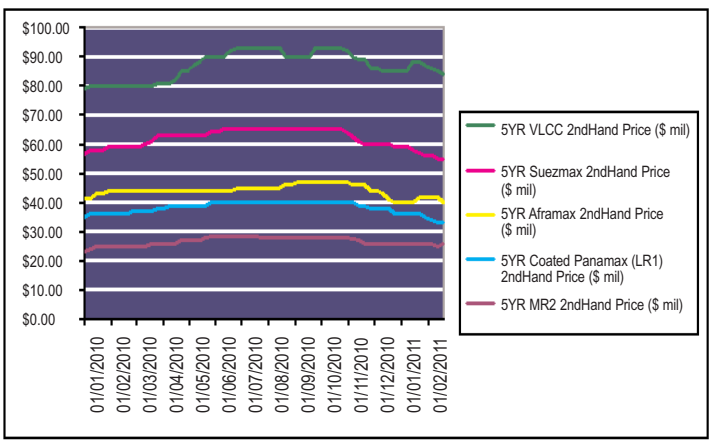
It should also be noted, however, that different age vessels within each asset class are behaving in a completely different way in the present changing market. At present, first generation double-hull tankers of about 14-17 years of age, even from very reputable yards and from 'good stables', can only hope for a less than 100% premium over the demolition market, assuming a decent survey position. Some of these vessels have 10 years of remaining commercial life, given that they have no phase-out or any other regulatory handicaps.

For instance, 1993-1995 built Aframax tankers from South Korean yards can only hope for a price of $12-14 mill range when their scrap price is $6-8 mill. Assuming 10 years remaining commercial life and today's demolition prices at that time, the premium over scrap price plus the capital expenses required special and intermediate surveys, imply about $10 mill above scrap market, or about one million dollars per annum. If it were to be amortised, she would require, on average, less than $3,000 per day operating profit to break even, that is, a freight market of less than $10,000 per day; based on Compass Maritime data, the 20-yr average T/C rate for an early 1990's built Aframax has been around $19,000 per day, thus allowing substantial room for error.

However, it should be noted that it will be impossible to obtain in today's market competitive debt finance (mortgage) and such vessels cannot be commercially competitive when modern tonnage has flooded the market and even they can be had below operating breakeven. For charterers of quality, there is no logic utilising a 'vintage' vessel when they can have their choice of modern tonnage at very competitive rates. Again, such



Graph 1 - TC Rates Feb 20 2010.



Graph 2 - Asset Prices Feb 20 2010.

discrimination by charterers may have forced prices of such vintage vessels to such low levels, in the first place!

However, for charterers with their own captive cargo or for charterers who have access to ports and jurisdictions of less than demanding standards, these vessels could be the source of significant profits. And, as it has been the case, these are the buyers who have been showing interest for such tonnage primarily from Asian countries.

Values holding

On the other hand, vessels of less than five years old, although they have not actively been transacted in the last six months, seem to be holding onto their nominal values fairly well and very close to their newbuilding contract price ('intrinsic value' as some may say), given that they are ideal candidates for financial buyers and buyers with an eye for the capital markets. In a commodity pricing freight market, obviously these vessels have been the most competitive at obtaining cargo (but again, at rates the market would bear); besides, they are the easiest types of vessels to obtain debt financing given that they have most of their economic life ahead of them.

For five-year old prices in each major asset class in the tanker market space, we have calculated the implied EBITDA based on prevailing market prices and rates, and making standard industry assumptions in terms of financing and operations. The results are shown in Table 1, and the EBITDA multiples are ranging in a band of 10-12, with VLCCs being the most overpriced vessels and MR2 tankers the least.

In each case, the multiple is within investment standards and implying about a decade or a bit more of payback period. By comparison, the price-to-earnings ratio (PE) for the Standard & Poor's 500 Index is considered fairly priced at 17, indicating that asset prices are trading below the equities market, overall.

	VLCC	Suezmax	Aframax	LR1	MR2
Asset Price (5yr old) ($ mil)	$84.00	$55.00	$40.00	$33.00	$26.00
1YR TC Rate ($'000 pd)	$30.00	$22.50	$17.00	$15.00	$13.00
Utilization Rate	92%	92%	92%	92%	92%
Vessel Daily OpEx ($'000 pd)	$9.00	$8.00	$7.00	$6.00	$5.00
Leverage	50%	50%	50%	50%	50%
Cost of Debt	6%	6%	6%	6%	6%
Cost of Equity	12%	12%	12%	12%	12%
Cost of Capital	9%	9%	9%	9%	9%
EBITDA	**12.37**	**11.86**	**12.68**	**11.59**	**10.23**

Table 1 - Tanker asset classes - EBITDA Calculation.

In general, shipping equities seem to be trading at similar or higher PE ratios than the underlying assets, and a direct implication might be that an investor is better off in investing directly in assets at present market conditions than in shipping equities. Of course, PE ratios and EBITDA multiples are 'historical' and backward looking numbers without telling the whole story: it would still be difficult justifying such 'low' ratios when one takes into consideration that one brand-new VLCC and three brand-new MR2s will be delivered every five days this year alone! Such a generous supply of additional vessels in an already oversupplied market could definitely pull rates even lower and thus pushing the ratios much higher.

In Table 2, based on the same financial and operating assumptions as for the calculation of EBIDTA multiples, we run calculations for the internal rate of return (IRR) in each of the five tanker asset classes. Based on current asset prices and prevailing one-year time charter rates, VLCC vessels of five-years of age seem the least attractive with an IRR comparable to the 10-year Treasure Note (about 4%), while MR2s at present prices and rates seem the most promising with more than 20% IRR. Again, IRR calculations heavily depend on the assumption that future rates will at least remain constant and equal to today's rates during the remaining commercial life of the vessels.

Our calculations were meant to be for illustration and discussion purposes, and not for real life investment guidance. Almost 30 months after the Lehman Brothers collapse, financial and shipping markets are still dislocated, to a fair extent, and for the sake of uniformity, we assumed same amount and cost of leverage in each of the asset classes, similar (and some might argue low) cost of equity (irrespective of asset class), etc.

On the one hand, leverage today requires a strong balance sheet and track record and not just a decent vessel or employment. And on the other, we assumed it will just remain constant, an assumption that the events and volatility of the recent years have shown that the only constant in shipping is change itself, sounding more like an ancient Greek philosophical aphorism (by Heraclites) than an investment guideline.

However, overall, given the just acceptable ratios and taking into consideration that there is still a robust amount of vessels to be delivered, irregardless of market conditions, one might say that there is still time before an investor wishes to go full steam ahead on tanker projects. TO

	VLCC	Suezmax	Aframax	LR1	MR2
Asset Price (5yr old) ($ mil)	$84.00	$55.00	$40.00	$33.00	$26.00
1YR TC Rate ($'000 pd)	$30.00	$22.50	$17.00	$15.00	$13.00
Utilization Rate	92%	92%	92%	92%	92%
Vessel Daily OpEx ($'000 pd)	$9.00	$8.00	$7.00	$6.00	$5.00
Leverage	50%	50%	50%	50%	50%
Cost of Debt	6%	6%	6%	6%	6%
Cost of Equity	12%	12%	12%	12%	12%
Cost of Capital	9%	9%	9%	9%	9%
IRR	**4.17%**	**8.63%**	**14.85%**	**18.44%**	**23.82%**

Table 2 - Tanker asset classes - IRR Calculation.

**This article was written by Basil M Karatzas, director for projects & finance for Compass Maritime Services in the New York area. He can be reached at BKaratzas@CompassMar.com or Basil@BMKaratzas.com*

Worldwide Aftersales

MAN | PrimeServ

MAN

TANKER*Operator's* Top 30 owners and operators

Taking the usual format, this list has been compiled in descending order of total tanker deadweight tonnage per company. The figures have been taken from company websites, the Equasis database, other sources and the companies themselves. We have not included FPSOs, FSOs, LPG carriers, or LNGCs in the total.

With the plethora of newbuildings delivered last year and the amount of tonnage yet to come, there has been and still will be changes in fleet compositions during the next couple of years, which has and will result in some companies having a higher ranking in the table in future editions.

For example, NITC has claimed that once its massive VLCC newbuilding programme has been completed, the company will attain second, or third place in terms of total deadweight tonnage.

FRONTLINE

(19.3 mill dwt, plus 1.8 mill dwt newbuildings)

1 **John Fredriksen's Frontline** is the world's largest operator of VLCCs with 50 on its books, plus five newbuildings.

In addition, the company operates eight OBOs and 21 Suezmaxes and has another two Suezmax tankers on order.

The total includes those commercially managed by Frontline and owned by subsidiary Independent Tankers Corp. Several are bareboat and timechartered out for long periods.

Frontline's policy is not to undertake technical management of its fleet, but rather use third party shipmanagement concerns.

This is undertaken by several shipmanagement companies, including oil majors BP, Chevron and Shell, which have several vessels on bareboat charter. Other independent shipmanagement companies used include V Ships (UK, Norway and Germany), V Ships subsidiary ITM, Sea Team and Thome.

Earlier this year, Frontline announced that it had sold its 2006-built VLCC 'Front Shanghai' for $91.24 mill. As part of the transaction, Frontline has chartered back the vessels for two years at a daily rate of $35,000.

More recently, Frontline sold its entire stake of 1.4 mill shares in OSG. ■

Teekay Corp

(14.9 mill dwt, plus 218,000 dwt newbuildings)

2 **Again Teekay has been** forced into second place purely on deadweight tonnage terms.

Teekay's fleet still number over 150 vessels, including FPSOs, FSOs, LNGCs, LPG carriers, plus more than 70 timechartered vessels.

However, as with every company listed, we have excluded the FPSOs, FSOs, LNGCs and LPG carriers from the total deadweight tonnage.

The group still claims to transport around 10% of the world's seaborne oil trade, as its mainstream tanker fleet consists of 36 Aframaxes; eight product tankers; 36 shuttle tankers, plus another two newbuildings, 27 Suezmaxes and one VLCC in a joint venture with Wah Kwong.

In addition, the group operates six FSOs; five FPSOs; 17 LNGCs; plus four newbuildings and three LPG carriers, plus another two newbuildings.

It remains the world's largest shuttle tanker operator and is currently taking delivery of four state-of-the-art shuttle tankers from Samsung.

Teekay Corp has split its empire up into four publicly listed companies – Teekay Corp and subsidiaries Teekay LNG Partners, Teekay Offshore Partners and Teekay Tankers.

On 1st April of this year, Teekay's long time president and CEO Bjorn Moller steps down to be replaced by executive vice president Peter Evensen. ■

Teekay's Aframax *Axel Spirit*.

MOL Group

(13.9 mill dwt)

3 **This year, we have only** included the vessels managed by MOL Tankship Management Asia and MOL Tankship Management Europe, as chartered vessels have proved difficult to quantify, hence the Japanese giant moves down to third spot in the rankings.

In total, these two concerns manage 40 VLCCs, one Suezmax, 10 Aframaxes, 10 LR1s, four MRs and five Handymax tankers. In addition, the companies manage nine LPG carrier, according to the Equasis database.

Of course, MOL is a prolific charterer of tonnage and has interests in over 70 LNGCs, which, as mentioned above, have not been included in the figures for this year's review, and the chartered vessels change almost daily. ■

Nippon Yusen Kaisha (NYK)

(12.8 mill dwt)

4 **NYK has further increased** its fleet with deliveries of VLCCs and chemical/product carriers. There are still more to come.

We have taken the figures for the group as a whole and not disseminated the vessels between various owning and management companies.

Thus far, there are 42 crude oil tankers, of which 36 are VLCCs, 27 chemical/product carriers and five pure chemical carriers managed.

In addition, NYK controls 10 LPGs and an ammonia carrier, plus over 30 LNGCs, which have not been included in the figures.

At the beginning of February, it was reported that the 266,000 dwt VLCC *Tajima* had been sold to Dynacom for $28.1 mill.

In another move, last year, NYK decided to invest in Knutsen Offshore Tankers ASA (KOT), which will result in NYK owning 50% of KOT's total capital.

Following this investment, KOT's name will change to Knutsen NYK Offshore Tankers AS.

KOT is the world's second-largest owner and operator of crude oil shuttle tankers and operates all over the world.

In a statement, NYK said that it considered the offshore shuttle tanker business to be ripe for growth following the expansion of offshore operations related to oil production in deepsea areas, including those off Brazil.

Knutsen NYK Offshore Tankers will begin operations with 24 of the world's 82 shuttle tankers (existing and under construction). ■

Overseas Shipholding Group (OSG)

(11.4 mill dwt, plus 1.1 mill dwt newbuildings)

5 **OSG owns or manages a** variety of tonnage, including the three out of four of the world's largest remaining ULCCs of 440,000 dwt each.

Two are on storage duties, while the other is still trading. In total, OSG boasts 124 vessels, including wholly-owned and bareboat chartered tonnage.

Broken down into vessel types, these include three ULCCs, 14 VLCCs, plus two newbuildings; two Suezmaxes; 20 Aframaxes, plus two newbuildings (includes the lighterage fleet); 13 Panamaxes, plus two newbuildings; 46 Handysize, plus three newbuildings (includes the US flag fleet); one newbuilding chemical carrier; one car carrier; 10 articulated tug barge (ATB) combinations, plus one newbuilding and four LNGCs.

Nine of the 11 newbuildings are wholly owned.

Last year, OSG moved the commercial management of its LNGC fleet, previously managed as a standalone business unit, to the company's international product carrier and gas strategic business unit.

OSG said that this move reflected the recent focus on its three core segments - crude oil, products and US flag - while ensuring that the LNG business was optimally managed. ■

OSG owns a considerable number of Jones Act tankers.

AET Tankers

(10.7 mill dwt, plus 2.9 mill dwt newbuildings)

7 **MISC Berhad subsidiary AET** has shot up the rankings due to the deliveries of two VLCCs and 10 Aframaxes in the past 12 months.

This gives the Singapore-based concern 13 VLCCs, one Suezmax, 59 Aframaxes, one Panamax and nine product carriers of various sizes.

Not stopping there, AET has another four VLCCs, four Suezmaxes, four Aframaxes, two dynamic positioning shuttle tankers and one product carrier still to come, which should propel the company into the top five next year. ■

Sovcomflot Group (SCF)

(11.02 mill dwt, plus 2.07 mill dwt newbuildings)

6 **Taking SCF's tanker fleet, the** Russian giant controls 132 vessels and has another 19 on order. In addition, the group controls eight LNGCs and two LPG carriers.

The in-service tanker fleet includes 12 coastal/small vessels, 10 Handysize tankers, 30 MRs, six Panamaxes (including five ice class shuttles), 48 Aframaxes (including two ice class shuttles) and 18 Suezmaxes.

Still to come are two VLCCs, seven Aframaxes and four Panamaxes (LR1s).

The company claims to be No 1 in MR, Arctic shuttle tanker and ice class LNGC operation and No 2 in Aframaxes and MRs.

In February, it was announced that SCF had purchased six Aframax shuttle tankers from Primorsk Shipping. They are each fitted for loading at Sakhalin.

In addition to these six vessels, the delivery of a new Aframax *Suvorovsky Prospect* (ice-class 1B) and three LR1 product carriers (in joint ownership with Glencore) in February/March 2011, will see the Group's fleet increase by another 1 mill dwt. ■

SCF is No 1 in Arctic shuttle tankers.

NITC

(10.59 mill dwt, plus 6.82 mill dwt newbuildings)

8 **NITC owns and operates 43** tankers and has another 22 on order for delivery 2011-2013.

Its current fleet consists of 28 VLCCs, nine Suezmaxes, five Aframaxes and one Handysize.

The newbuilding programme includes another 22 VLCCs, plus six 'Caspimax' shuttle tankers of 63,000 dwt, one small LPG carrier and two chemical/product tankers.

At a recent press conference, NITC said that once all of the newbuildings were delivered, NITC would reach at least No 3 in the world in terms of dwt, as the VLCC fleet alone would total 17.5 mill dwt.

Long term, NITC said that if and when the various Iranian gas trains come on stream, there would be a need for about 83 LNGCs to transport the gas. ■

NITC's latest VLCC is the *Sifa*, which is on bareboat from Oman Shipping.

Maersk Tankers

(8.77 mill dwt, plus abt 2.15 mill dwt newbuildings)

9 **Maersk Tankers, part of the** giant AP Moller-Maersk group, has increased its fleet of managed vessels by an infusion of newbuildings of which there are still more to come.

In all, the fleet amounts to 229 tankers, plus 18 newbuildings, which includes 11 VLCCs, plus six newbuildings; a large fleet of LR2s in a managed pooling arrangement with TORM; another large fleet of Handysizes and MRs in the Handytankers pool and also a considerable number of intermediate and smaller chemical/products tankers under the Broström banner.

In addition, Maersk Tankers looks after another 30 LPG carriers, 16 of which come under the VLGC pool. These, plus the LNGCs, FPSOs, FSOs, have not been included in the figures. ■

Euronav

(8.7 mill dwt, plus 0.95 mill dwt newbuildings)

10 **Antwerp-based large tanker** operator Euronav has 17 VLCCs, 20 Suezmaxes and one ULCC in its fleet, having sold off some of the older VLCCs.

In addition, there are a further four Suezmaxes and one VLCC under construction.

The company has a 50% share in two 440,000 dwt FSOs together with OSG and operates another sister vessel (ULCC) in the Tankers International pool in which Euronav is a major player. ■

Maran Tankers Management

(8.4 mill dwt, plus 1.1 mill dwt newbuildings)

11 **Maran Tankers Management** is part of the Angelicoussis Shipping group and is represented by Agelef Tankers in London, acting as agents.

This shipmanagement concern looks after 16 VLCCs, 12 Suezmaxes and eight Aframaxes.

In addition, there are seven newbuildings to come.

An affiliate, Maran Gas, has five LNGCs and two LPG carriers on its books, which have not been included in the figures. ■

The 2009-built VLCC *Caesar* seen at her delivery.

THE ULTIMATE PROTECTION

Superior tank coatings for the widest possible range of liquid cargoes

"Our phenolic epoxy HEMPADUR 15500 has more than fifteen years track record with excellent global performance and is rated the best phenolic epoxy tank coating in the market today. In Korea we have coated the tanks of more than 100 vessels with this product without a single claim."

Michael Aamodt, Group Marine Product Manager

For more information please visit: www.hempel.dk

HEMPEL

TORM

(7.85 mill dwt, plus 282,000 dwt newbuildings)

12 **The Danish product tanker** giant has slipped down the ratings, due to the loss of some pool members to a breakaway group.

However, TORM still controls 117 tankers and has six newbuilding MRs to come. The in service fleet is split between 28 LR2, 28 LR1s, 50 MRs and 11 Handies, or SRs.

TORM manages three pools – LR2, LR1 and MR, but lost some tonnage when former employees started up a rival pooling arrangement and took a few owners with them. ■

TORM's Aframax *Torm Marianne*.

China Shipping Development

(6.9 mill dwt, plus 1.9 mill dwt newbuildings)

13 **The Chinese giant has taken** delivery of several VLCCs since last year's report, pushing the company up the listing.

According to the Equasis database, China Shipping Development manages 11 VLCCs, four Aframaxes and a plethora of crude, products and chemical tankers of all sizes, ranging from Panamaxes to small 4,000 dwt product carriers.

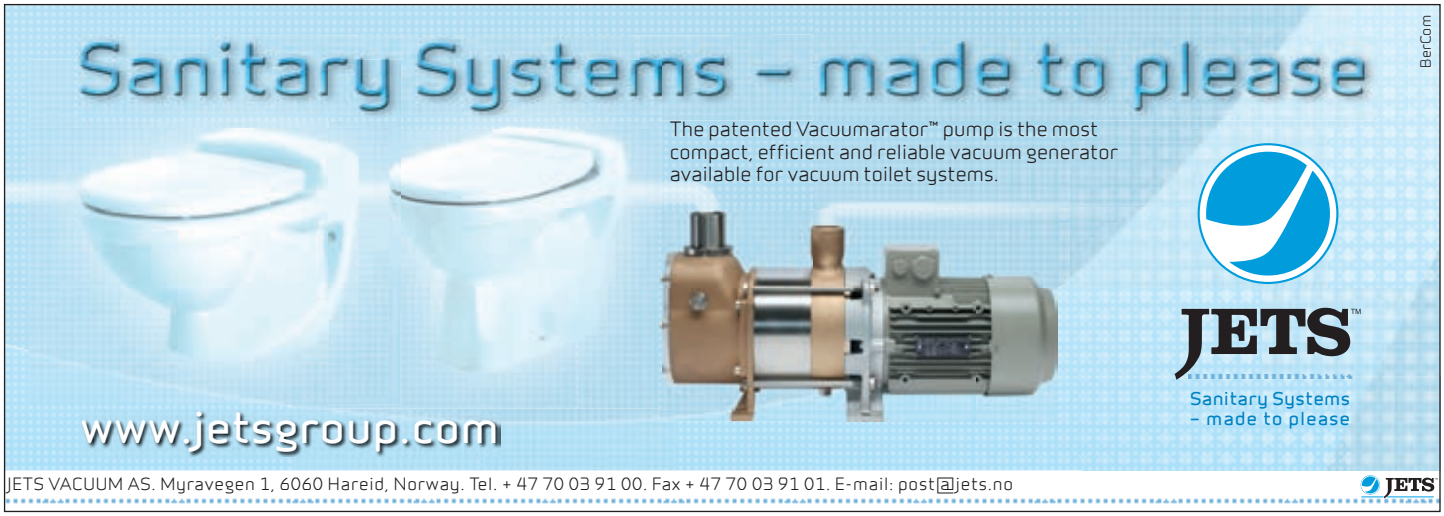
The 42,000 dwt *Chang Chi* seen at Fawley refinery.

Many purely operate on the Chinese coast and river systems and therefore are difficult to trace.

Last August, the company said it would purchase 14 new vessels for $424 mill after its first-half 2010 profit jumped 60%.

China Shipping Development said in a statement that it had 65 tankers and 103 commodity vessels at the end of June 2010. The company also said it had 49 vessels on order for 2012 delivery. The backlog included six tankers.

Last December, China Shipping Development announced that it will build eight 48,000 dwt crude/product tankers at Guangzhou Shipyard for about $300 mill. ■



Vela International Marine

(6.58 mill dwt)

14 **The Dubai-based Saudi** Aramco subsidiary has continued its policy of selling its older VLCCs and taking delivery of newbuilding units.

Vela controls 20 VLCCs, four MRs and one LR2.

At any one time, Vela will also have about 40 VLCCs and product tankers on spot, or long term timecharter. ■

National Shipping Co of Saudi Arabia (NSCSA)

(6 mill dwt, plus a plethora of newbuildings)

15 **NSCSA currently owns 17** VLCCs, 13 chemical carriers and 4 ro-ro vessels.

NSCSA is the 6th largest VLCC operator globally. The company also has a 30.3 % stake in Petredec, which a leading LPG trader and controls large number of LPG carriers.

The chemical carrier fleet operates under the banner of National Chemical Carriers (NCC) – an 80:20 joint venture with SABIC. NCC claims to be the leader in Middle East chemical transportation.

The company has another 11 chemical carriers on order that includes two re-purchased tankers, due for delivery during 2011-2012.

In 2009, the company entered into an agreement with Odfjell to bareboat charter three stainless steel parcel tankers for a period of 10 years with purchase options after three years. The ships will continue to be operated by Odfjell Tankers.

In June 2009, NCC signed a 50:50 joint venture with Odfjell to establish an operating company in Dubai. This was set up to commercially operate their combined fleet of coated chemical tankers in a pool. The JV came into effect on 1st January, 2010.

On 4th July, 2010 the company signed a contract with Daewoo (DSME) to build a specialised chemical tanker of 75,000 dwt, which is expected to be delivered during 2013. This takes the number of chemical tanker newbuildings up to 12.

NSCSA has its own in-house ship management concern Mideast Ship Management, which will handle up to 46 vessels by the end of 2013. ■

Ocean Tankers

(5.74 mill dwt, plus 1.9 mill dwt newbuildings)

16 **The Singapore-based** company's fleet consists of more than 110 vessels of all shapes and sizes, ranging from six VLCCs, Suezmaxes, Aframaxes, Panamaxes, MR1s, MR2s, GP tankers and bunker/lubricant barges, as well as tugs, towing supply tugs, to passenger boats.

The newbuildings are six VLCCs, which will be delivered over the next two years starting almost immediately, Ocean Tankers reported.

As of now, Ocean Tankers' current shipping capacity is 5.74 mil dwt, plus 1.9 mill newbuildings.

The newbuildings are all VLCCs, which will be delivered over the next two years starting from now. They are world's largest and most modern double-hull oil tankers built to the requirement of IACS' Common Structural Rules (CSR). ■

The 2008-built VLCC *Hua San*.

Dynacom Tankers Management

(5.7 mill dwt, plus 1.2 mill dwt newbuildings)

17 **Also reflecting the number of** tanker deliveries during the year was Athens-based Dynacom Tankers Management.

This increased Dynacom's fleet to 12 VLCCs, 14 Suezmaxes, one Aframax and 17 Panamaxes.

In addition, in February of this year, it was reported that the company had purchased the 1996-built NYK managed VLCC *Tajima* for $28.1 mill. ■

Tsakos Energy Navigation (TEN)

(4.9 mill dwt, plus four newbuildings of 630,000 dwt)

19 **TEN's pro-forma fleet** consists of 52 double hull vessels of 5.6 mill dwt, which includes two Suezmaxes under construction for delivery in 2011 and a further two DP2 Suezmaxes for delivery late 2012/early 2013.

The balanced fleet ranges from VLCCs, Aframaxes through to 26 product carriers (LR2s to Handysize), plus one LNGC.

TEN has remained profitable each year since its inception in 1993, deriving profits from both operations and sale and purchase activities. ■

Tanker Pacific Management

(4.76 mill dwt, plus 1.28 mill dwt newbuildings)

20 **Tanker pacific has managed** to shed some of its older tonnage, but has a number of newbuildings to come.

In total, the fleet consists of seven VLCCs, 20 Aframaxes and 10 MRs.

The newbuildings include four Suezmaxes, four LR1s and seven MRs. ■

BW Maritime

(5.46 mill dwt, including one newbuilding)

18 **BW Maritime manages 15** VLCCs, including one newbuilding to be delivered this year, plus 12 product tankers and two chemical carriers.

In addition, the BW Group's gas and offshore divisions are responsible for a large fleet of LPG carriers, LNG carriers and FPSOs. ■

The VLCC *Utah* is now the *BW Utah*.

Shipping Corporation of India (SCI)

(4.45 mill dwt, plus 864,000 dwt newbuildings)

21 **SCI has been taking delivery** of several vessels this year and at the same time disposing of elderly units in the fleet.

Deliveries have included six LR1s, two LR2s and one Aframax, while six tankers were recycled. Newbuildings still to come include two Aframaxes and two VLCCs.

The company has around 41 tankers of all types and size ranges, including four VLCCs.

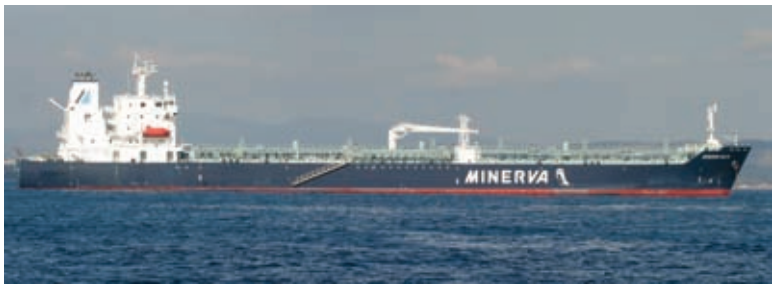
In addition, SCI has one FSO and interests in two LPG carriers and two LNGCs. ■

Minerva Marine

(4.38 mill dwt)

22 **Minerva continues to add** tonnage and currently has three VLCCs, five Suezmaxes, 20 Aframaxes and 10 MRs on its books.

The company also manages three capesize and one Kamsarmax bulk carriers. ■



One of Minerva's MRs seen at Gibraltar.

BP Shipping

(4.3 mill dwt)

23 **Once again there is no** change to BP Shipping's fleet composition.

BP manages four VLCCs, 20 Aframaxes, 17 MRs and a shuttle tanker.

In addition, the oil major subsidiary manages four VLGCs, seven LNGCs and another LNGC for the Northwest Shelf project. ■

Dalian Ocean Shipping

(4.2 mill dwt)

24 **The COSCO subsidiary** controls 10 VLCCs, two Suezmaxes, three Aframaxes, 10 Panamaxes and three MRs.

In addition, Dalian Ocean manages six small LPG carriers. ■

MarineLINE® 784
for Chemical/Product Tankers

THE tank coating system for carrying CPPs, PFADs, Methanol, and Bio-Fuels.

Rely on MarineLine® 784 tank coating to handle a wide range of cargoes carried by chemical and product tankers. MarineLine® 784 offers enhanced corrosion resistance compared to phenolic epoxies or zinc silicates, at a similar cost. It is faster and easier to clean, with higher cargo purity.

ADVANCED POLYMER COATINGS

Advanced Polymer Coatings
Avon, Ohio 44011 U.S.A.

+01 440-937-6218 Phone +01 440-937-5046 Fax www.adv-polymer.com

Associated Maritime Corp (AMC)

(4.12 mill dwt, plus 594,000 dwt newbuildings)

25 **The Hong Kong Min Wah** subsidiary has also risen in the listing due to an influx of large tankers.

At present, AMC manages 11 VLCCs, one Suezmax and seven Aframaxes and is about to take delivery of another two VLCCs.

Both concerns are part of the giant China Merchants conglomerate. ■

SK Shipping

(3.78 mill dwt, plus 1.28 mill dwt newbuildings)

26 **The South Korean concern** has climbed the rankings thanks to the delivery of several VLCCs last year.

In total, SK Shipping now has 11 VLCCs, two Aframaxes, three chemical/products carriers, one product carrier and four small chemical/products carriers.

Last year, SK ordered another four 320,000 dwt VLCCs from Hyundai.

In addition, the company operates five LNGCs and four LPG carriers. ■

Thenamaris Ships Management

(3.37 mill dwt)

27 **Thenamaris' total tonnage** has fallen slightly due to fleet disposals.

However, the company has two VLCCs, six Suezmaxes, 16 Aframaxes and eight chemical/products tankers on its books.

The company also has interests in drybulk carriers and a containership. ■

The Aframax *Seamusic* seen at Coryton refinery.

Univan Ship Management

(3.24 mill dwt)

28 **Univan currently manages** 10 VLCCs, four MRs, one Handysize chemical/products carrier and two small chemical/product carriers.

Other vessel types are also managed and the company is involved in newbuilding supervision for third party owners, including VLCCs. ■

Chevron Shipping

(2.9 mill dwt)

29 **Chevron Shipping's fleet** includes seven VLCCs, four Suezmaxes, two Aframaxes, four chemical/products carriers and one product carrier.

In addition, Chevron manages two LPG carriers and one LNGC. ■

Odfjell

(2.35 mill dwt, plus 18 newbuildings of 760,000 dwt)

30 **The world's leading parcel** tanker operator has crept into the top 30 at the expense of Kuwait Oil Tanker Co with a total of 86 vessels.

These are split between about 45 owned, 32 timechartered and nine under commercial management.

Odfjell also has 18 vessels on order, 12 of these with partner NCC and is in dispute with Sevmash over another tranche of cancelled orders. ■

Are owners and charterers really that stupid?

Much of IMO's thinking about regulatory alternatives for reducing CO2 emissions from ships is based on the assumption that shipowners have been slow to adopt measures which would increase fuel efficiency, even when such measures are economic*.

For example, the Bahamas flag state said that unfortunately, due to various structural impediments in the industry, the high cost of fuel has not been the main driver for the adoption of these technical and operational measures.[1]

This failure is variously ascribed to the fact that –

1) Owners know their ships will spend a part of their lives, quite possibly a large part, under term or bareboat charter. While a ship is under term or bareboat charter, it is the charterer that purchases the fuel, and decides where and how fast the ship steams. Therefore, it is claimed the owner has no or at least greatly reduced motivation to invest in fuel saving technology.

The Bahamas in support correctly calls this a "key assumption" in the thinking of the IMO's Market Based Measures (MBM) working group. The MBM Working Group report repeatedly refers to "non-price barriers" which "restrict the uptake of fuel/energy operational and technical measures".

2) Owners have the ability to pass through any increase in BFO cost to their customers in the form of higher freight or timecharter rates, therefore there's no point investing in saving. The Bahamian submittal puts it succinctly; "The high cost of fuel, although a significant factor, can be passed on through freight rates, or is paid by an external party and not the owner."[2]

This view is further supported by the fact that several influential studies have found that there is tremendous potential to cut fuel consumption at little or no cost by employing technologies that owners currently are not using. For example, the second IMO GHG Study 2009 said that CO2 emissions could be reduced 25% to 75% "….by using known technology and practices."[3]

DNV claimed that measures exist which would reduce CO2 emissions from ships by 400 mill tonnes per year (about 26%), which have negative abatement costs, meaning if implemented, they would increase the owner's profits.[4]

Therefore, DNV was forced to conclude; "The results of this study indicate the lack of responsiveness to economics as a driving factor for change". This has become received wisdom at the IMO.

The term charter issue

Let's begin with the term charter issue. In any term charter, the shipowner must stipulate the ship's speed-fuel curve. The contract or charterparty then goes into considerable detail about what happens if the ship fails to perform up to the warranted fuel consumption. Basically, the owner pays for any fuel the ship uses above the charter party curve.

Prospective term charterers collect a batch of offers, each of which include not only a term charter rate but also a stipulated cargo capacity and a stipulated speed fuel curve. They run these offers through an analysis to determine which ship will meet their transport capacity at minimum cost. I operated large tankers for some 25 years and was involved in numerous T/C negotiations. I can assure you that speed/fuel was front and centre everytime. Here is a memo that I wrote to my troops in July, 2002. The memo was mainly in response to their moaning that our standard speed/fuel curves were unrealistic (translation: they had to work too hard to get the fuel consumption down to these levels) But it also makes the point of the importance of speed/fuel curves in winning term charters.

Note: The *Empress des Mer* was a 1976-built ULCC owned by a competitor.

Notice that in at least one example cited the ship with the lower term charter rate did not get the business.

TO: hsc_/ppd1, apb1, kis1
FROM: martingale/jack
RE: Consumption Curves in T/C description, Q88, MFIX etc
The speed-fuel curves in MFIX, T/C description, Q88 etc are,
ME + 1 gen + sludge under ideal conditions.

That is:

1) A fuel with an NCV of 42,707 kJ/kg.
2) Calm water, no wind.
3) Perfectly clean hull and propeller.
4) Main engine operating right on spec.

In MFIX, we adjust this curve for actual NCV using the FO_LOSS field.

We also adjust for expected weather and current by leg using the SPD_ADJ fields.

This curve serves as an achievable target. If we don't meet it after properly adjusting for NCV and weather, then something is wrong and we must find out what and fix it.

We must not lower our standard.

In almost all T/C's, this curve will be too optimistic since it will be warranted up to Beaufort 5. But for T/C purposes we want to over-specify the ship.

When the potential charterers run our warranted curves through their algorithms to get equivalent unit ($/t) transport cost, they will find that they can pay us a higher T/C rate than if we gave then a more conservative curve.

Most long term charterers must go with the ship that gives them the lowest equivalent unit cost.

We will get more business at a higher TC rate. Of course, we will give some of that back in claims but the give back is always much less than the additional T/C revenue.

A classic case was the *Embassy* and *Empress des Mer* with Vela in 1990. The former using a conservative curve got $39,000 per day and paid no penalties, while the latter using a ridiculously optimistic curve got $41,000 per day and ended up paying $250,000 in penalties.

The additional T/C revenue over the 4.5 year charter was about $3.3 mill. Later the *Empress* finessed another ULCC *Grand* out of a one year KPC charter that, in a falling market, we desperately wanted. The brokers told us that the *Empress* was in at (from memory) $26,000 per day and firm. So we went slightly lower and firmed.

The business went to the *Empress* at the higher TCE. Later I found out from KPC that the competitor had over-specified the ship by more than a knot over calm water speed. We had only over-specified the *Grand* by using calm water.

The KPC chartering manager told me that the *Empress*' speed-fuel curves were "really sexy".

We too have to be 'really sexy'. The memo goes on to further berate the poor recipients for not meeting our fuel consumpton targets.

The point of course is that term charterers know that for the length of the term charter they will be the effective owner of the ship and they want the cheapest ship for the fuel cost they expect to pay during the T/C.[5] Owner shenanigans aside they will do their damndest to get her.

Fuel cost - a weak driver

DNV, the Bahamas, and much of the IMO hierarchy agree that fuel costs have been a disappointingly weak driver for fuel efficiency. But in my career as an owner, fuel costs have not only been a strong driver, they were the driver. We adjusted our steaming speeds almost weekly on the basis of the current spot rate and our BFO costs.

When the market was in boom, we were blasting along as fast as we could. When the market was in slump, we were going as slow as we could. We instituted all sorts of procedures to monitor fuel consumption, spent all kinds of time tuning the plants, hasseling the chief engineers when we were unhappy, etc and on occasion firing them.

The single biggest question we asked ourselves in specing new vessels is what was the BFO price going to be? One thing we did not worry about was whether or not the ship was going to be term chartered. In fact, in all the voluminous correspondence leading up to an eight ship, half-billion dollar programme in 1999/2000, the subject never came up. For we knew any efficiency we could gain would be reflected in the T/C rate.

Herein lies the fallacy in the Bahamian claim that the fact that savings in costs eventually get passed on to shippers, means that owners have little motive to economise. But this competing away of savings only happens after the great bulk of the owners have implemented the savings. At that point, any owner who has not kept up will go broke.[6] Survival is very strong motivation for most people.

In the course of my career BFO went from $50 to $250 per tonne. And over that 30-year period, fuel consumption almost halved. The first ships I operated were 390,000 dwt ULCCs built in the late 1970's. They had a full speed fuel consumption of around 210 tonnes at 16 knots. The last ships I operated were 440,000 dwt ULCCs, which burned 121 tonnes at the same speed. The relative improvement at slow-steaming speeds was even higher.

The latter ships were designed in 1999/2000 to a BFO cost of a little over $100 per tonne. If I were building a ship today, I'd use a design fuel cost of at least $500 per tonne and probably higher, maybe as high as $750, depending on what I thought IMO was going to do. Like every owner, I would invest in any fuel reduction measure that I thought was going to improve my bottom line at that price.

In our 1999/2000 newbuilding programme, we surveyed all the possibilities. And we ended up installing 'over-sized' engines and generators at the cost of close to $2 mill per ship, in part because it allowed us to move down the engine's SFC curve toward the minimum SFC point (about 70% of MCR).[7]

We went through all the hydrodynamic devices, pre-swirl, post-swirl, etc. I became entranced with something called a propeller boss fin. The vendors claimed it would save 2% to 3% or more. You'll see the same numbers or higher in IMO documents.[8] The device only cost $40,000 so even at $150 per tonne, all I had to do was save 300 tonnes of fuel to pay for it, less than three days MCR steaming for the ULCC. It seemed to me it might work, so I studied it carefully. However, the more I got into it the less support I found for the claims.

At the end of the day, I couldn't be sure if the gadget was going to save me fuel, or cost me fuel. We didn't invest in the boss fin, but it wasn't because we were stupid or lazy, or we were going to pass the cost of the fuel on, or the ship was going to be timechartered. If the device gave us a competitive advantage, we would get the savings.

So we have a disconnect. I claim owners will jump on anything that they think will make them money. IMO and others believe the owners are "unresponsive to economics".

There are two reason for this dichotomy:

1) The potential savings are grossly exaggerated.

Much of the savings that some IMO studies point to simply don't exist, or are unproven, unsafe or not economic even at today's BFO price. Take all the propeller flow modification devices. Most of them have been around for 20 years or more.

The problem is separating vendor claims from actual performance. Model tests are indicative but not quantitively reliable for these devices both because of scale effects and the artificial conditions in the towing tank. Full scale tests are even harder.

If a device does save a percent or two, it will be almost impossible to see in any but long term, carefully monitored experiments. Speed goes as power to the 1/3 or less. So a 3% saving will show up as less than a 1% increase in speed at a given power. This is difficult to measure under the best of conditions. But to make matters much worse, we almost never have the best of conditions. The savings, if they exist, will be dominated by all sorts of other variables, including loading pattern, hull and propeller condition, and weather. To do the necessary experiments to really determine the savings would be a very expensive proposition; so they are simply not done. We are left with vendor claims and anecdotal evidence.

Despite this, in something of a leap of faith, owners are investing in some of the more promising devices. Some 80 vessels have been built with the Kawasaki rudder bulb system, a post-swirl device. Others have fitted pre-swirl devices. If these gadgets really work, the word will get out and the owners will be happy to pay for them. But if the savings were anything like what IMO studies sometimes claim, this would already be obvious.

Other technologies that are offered as evidence of owner unresponsiveness are either imprudent, or unproven.[10] Contra-rotating props fall in the imprudent category at least for single screw ships. There is little doubt that a properly designed contra-rotating propeller could save at least 8% on most ship

types. For a VLCC the extra initial cost will be around $2 mill, for a payback of less than a year at full power. Unfortunately, contra-rotating props require complex epicyclic gearing and inter-shaft bearings.

They are inherently far less reliable than a standard VLCC shaft and propeller and would be a maintenance nightmare. No prudent owner could spec contra-rotating props on a single screw tanker. Yet most IMO studies blithely include contra-rotating props in their lists of potential savings, usually with a number like 12%, or 14%. Clearly, unproven technologies, such as air cavities, are also included in most lists, often with an unsubstantiated savings of 15%.[10]

When you take a realistic look at fuel savings measures, as owners must, the savings are far smaller than IMO thinks and more expensive. greenship.org, a group that generally takes an optimistic view of the potential for vessel emissions reductions, studied a 35,000 dwt drybulk carrier to which they fitted just about every device applicable and ended up with a 7% decrease in CO2 emissions.at an additional cost of about $5 mill, or 20% of the current newbuilding price.[12]

When Green Ship repeated this exercise for an 8,500-TEU containership, they came up with a savings of 11% to 14% at a cost of €10 mill (about 10% of current newbuild price).

2) The 10 to 20 year newbuilding lag.

Much of the prudent, feasible, economic savings that do exist have a 10 to 20 year lag before they are fully implemented in the fleet.

For example, advanced waste heat recovery (WHR) is now clearly economic on a large tanker. For an investment of about $1.3 mill, it is possible to extract enough energy from the cooling water and stack gas to support a 1,000 kW generator. For a VLCC the savings in fuel is four or five tonnes per day. At $500 per tonne, a pay back period of less than two years.

Systems installed

Owners are now flocking to install these systems on their newbuildings. In August, 2010, Wärtsilä counted 81 large vessels, including 33 VLCCs that have ordered Wärtsilä 's version of WHR.12.

The problem is that this sort of investment only works for newbuildings. The really big jump in BFO prices took place in 2005 through 2007, which means that the effect will not start showing up in the fleet afloat until 2007 to 2009 and will take 20 plus years before the fleet is fully made up of VLCC's with advanced WHR. To put in another way, much of the negative abatement cost reductions identified by DNV and others actually do exist; but only since the big BFO price jump starting in 2005. Owners are responding to this jump in fuel cost about as quickly as they can.

The polite bureaucratese talks about "lack of responsiveness to economic conditions" and the like. Of course, what they are really saying is charterers and owners are too stupid to run their enterprises in an intelligent manner. I ran big tankers for 25 years. I know term charterers are not stupid; they know the difference between a fuel efficient ship and one that is not. I know owners aren't stupid. I know they try to search out every fuel saving that makes sense.

Hero or villain?

As an employee, you want to be a hero to a shipowner? Save him some fuel and marry the owner's daughter. We can have a valid debate about the best way to regulate CO2 emissions from vessels. But that debate must not be based on misconceptions. The belief that owners and charterers are unresponsive to fuel cost is a misconception. TO

This is an extract from a paper written by Jack Devanney of the Center for Tankship Excellence. The full paper can be found at http://www.c4tx.org/ctx/pub/

Footnotes:

1. Need and Purpose of an MBM, GHG-WG 3/2, 2010-12-22, submitted by the Bahamas, page 1
2. i bid, page 2
3. Second GHG Study 2009, MEPC 59/24/Add. 1, 2009-04-09, page 10
4. Det Norske Veritas, Pathways to Low Carbon Shipping, 2009-12-15
5. Another misconception that sometimes surfaces at the IMO is that a term chartered ship won't slow steam as much as a ship in the spot market, especially if the TC rate is high. It turns out that a term charterer faces exactly the same short-run optimization problem in minimising transport costs as a spot owner does in maximising profits. See 2. The Impact of Bunker Prices on VLCC Rates for a proof. From the point of view of the charterer's speed decision, the TC hire is a sunk cost.
6. This is the core reason competitive markets are efficient. The Bahamian statement shows little understanding of how competitive markets work. The same thing can be said of much of IMO's deliberations on CO2 reduction.
7. EEDI will effectively prohibit owners from doing this.
8. Second IMO GHG Study 2009, page 172 says 4%.
9. Stangely the most exciting and impactful recent technology is almost never mentioned, and that is the switch from camshaft to electronically controlled main engines. Not only does this result in a flatter SFC curve but more importantly allows ships to operate down to 20% power continuously. Camshaft controlled engines can only operated down to about 50% power. For tankers, this means that, when the market is in deep slump, we will have the entire fleet operating at 9 knots, rather than 75% of the fleet operating at 12 knots, and the other 25% laid up.
10. Most such lists also include "speed reduction" as a CO2 abatement measure, often with a 25% savings number. Slow-steaming is not a measure; it is a reaction. The reaction depends on the current fuel cost, spot rate and the ship's speed/fuel curve. It's happening all the time. If you want more of it, simply increase the owner's fuel cost.
11. Schack, C, Green Ship of the Future, Asia-Pacific Maritime, Singapore, March, 1010.
12. Antonopoulos, D, Ship Power Merchant, August, 2010.

Piracy - the biggest threat to shipping in the 21st century

Are we now on a war footing? Some shipping people say that the time has come to fight fire with fire as the threat of piracy escalates.

Opinions are divided on just how far the shipping industry needs to go to protect their assets and the lives of their crew. Some say put armed guards on the vessels, while others urge the industry to take a more cautious view.

The IMO's stance is that it is up to the individual flag states to decide whether the hiring of professional armed guards is the appropriate form of deterrent. There are many security firms offering all manor of advice and even hardware to protect vessels and the industry associations have produced what they call the 'industry best management practice'.

Recent events in the Indian Ocean, Gulf of Aden and off the Horn of Africa has made everybody sit up and take notice of the dangers lurking in the area. And it is not only this area that is affected. West Africa has always been a hot spot for political activity aimed at the oil majors and others and this continues unabated.

The pirates themselves are becoming more sophisticated in their day-to-day operations with the use of 'mother ships' the latest threat. The use of 'mother ships' gives the pirate gangs a greater range in which to operate. As a result, they have ventured ever closer to the Indian sub-continent and to the southern area of the Indian Ocean.

One disadvantage of using 'mother ships' is that they should be easier to trace than small skiffs, or small fishing vessels, given the number of coalition warships and attendant aircraft operating in the area. However, like the allies found with the Atlantic Ocean in World War II, it is a huge area to patrol.

The IMO recently launched an action plan to promote the 2011 World Maritime Day theme: "Piracy: orchestrating the response". At the launch, UN Secretary-General Ban Ki-moon said that the piracy situation was "completely unacceptable and requires an urgent and co-ordinated response."

Speaking at IMO's London headquarters, the secretary general welcomed the decision of IMO to pay special attention to piracy during the year ahead. "This is a timely and important initiative," he said.

IMO has been combating maritime piracy for some time and a series of measures, developed with the co-operation of the littoral States and the support of the industry, helped significantly reduce piracy in the hot spots of the late 1990s and the early 2000s: the South China Sea and the Straits of Malacca and Singapore.

IMO secretary general Efthimios Mitropoulos said; "Piracy and kidnapping have blighted the maritime community for too long and it is seafarers who bear the brunt." He added, "We believe that we can use the experience gained and the successes achieved in reducing piracy elsewhere to good effect in the current arena as well, but to do so requires a well orchestrated response."

The two secretary generals were joined at the launch by Ms Josette Sheeran, executive director of the World Food Programme (WFP); Yury Fedotov, executive director of the United Nations Office on Drugs and Crime (UNODC); Robert Lorenz-Meyer, president of BIMCO, representing the shipping industry; and David Cockroft, general secretary of the International

UN secretary general Ban Ki-moon addresses the IMO.

Transport Workers' Federation (ITF), representing seafarers.

All echoed their support for this latest IMO initiative. Fedotov said, "It is clear that the only viable long-term solution to the Somali piracy problem is to restore law and order in Somalia, including in its waters. It is also clear that this solution is some years off and will require concerted and co-ordinated international effort. UNODC's counter-piracy programme focuses on supporting regional prosecutions and on rebuilding Somalia's criminal justice capacity."

Ms Sheeran focussed on the humanitarian aspect of the problem. Acknowledging the success of naval escorts in protecting food aid for Somalia, she also highlighted new challenges created by the worsening situation. "The presence of Somali pirates in an ever expanding area is of great concern because they threaten not just food bound for directly for Somalia, but our food transiting through the ports of Mombasa (Kenya), Dar es Salam (Tanzania) and Beira (Mozambique) for vital operations in Zimbabwe, the Democratic Republic of Congo and other places with great humanitarian needs."

Speakers at the launch of IMO's action plan also pointed out the economic cost of piracy. Ban said, "ransom payments adding up to hundreds of millions of dollars have created a 'pirate economy' in some areas of Somalia that make them more resistant to efforts to develop alternative livelihoods. Economies throughout East Africa and beyond are experiencing the fallout."

Representing the shipping industry, Lorenz-Meyer said, "The attacks are not only attacks on ships, but also attacks on the global supply chain in one of the world's most vital sea lanes. They threaten a supply line of vital interests to the international community."

'This is a timely and important initiative' - Ban Ki-moon.

Cockroft said many crew members were at breaking point because of the stress of passing through the area frequented by pirates. "If the risks cannot be eliminated, then seafarers will demand not to sail into the area at all and responsible shipowners will support them," he said.

Mitropoulos said IMO's action plan aimed to make some genuine inroads into what, to date, has been an escalating problem.

"In the past 12 months alone", he said, "there have been 286 piracy-related incidents off the coast of Somalia. They have resulted in 67 hijacked ships, with 1,130 seafarers on board – while, at present, 714 seafarers are being held for ransom on board 30 ships scattered at various points of the country's extensive coastline."

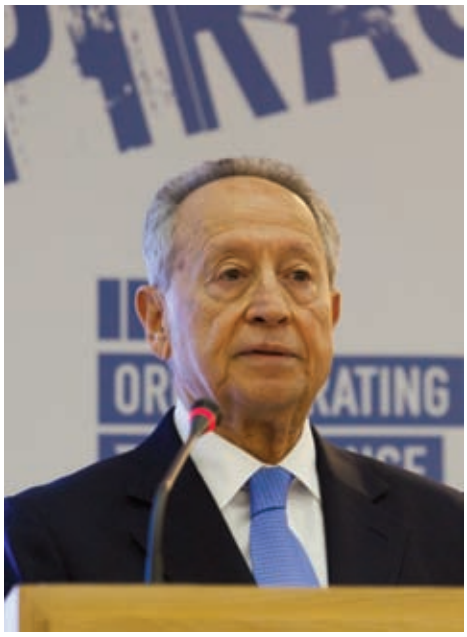
Six point plan

IMO's action plan for 2011 has six prime objectives:

- Increase pressure at the political level to secure the release of all hostages being held by pirates.
- Review and improve the IMO guidelines to administrations and seafarers and promote compliance with industry best management practice and the recommended preventive, evasive and defensive measures ships should follow.
- Promote greater levels of support from, and co-ordination with, navies.
- Promote anti-piracy co-ordination and co-operation procedures between and among states, regions, organsations and industry.
- Assist states to build capacity in piracy-infested regions of the world, and elsewhere, to deter, interdict and bring to justice those who commit acts of piracy and armed robbery against ships.
- Provide care for those attacked, or hijacked by pirates and for their families.

Among other things, during 2011, IMO will focus on promoting further co-operation between and among states, regions and organisations in reducing the risk of attacks on ships through a variety of mechanisms, including information-sharing; co-ordination of military and civil efforts; and development and implementation of regional initiatives, such as the IMO-led Djibouti Code of Conduct.

The IMO said that its action plan would build on efforts to tackle the problem that have been underway for some time. For example, through the Djibouti Code of Conduct, information-sharing centres are being established in Yemen, Kenya and Tanzania, as well as a regional training centre in Djibouti. In partnership with the UNODC, IMO is helping to develop the legal framework necessary to prosecute pirates.



Mitropoulos unveiled a six-point plan.

Ban took the opportunity to emphasize where the real source of the piracy problem lies. "Although piracy manifests itself at sea," he said "the roots of the problem are to be found ashore. This is a complex issue. But in essence, piracy is a criminal offence that is driven by economic hardship, and that flourishes in the absence of effective law enforcement.

"The only truly successful way to address the problem in the long term," said Ban, "is through a strategy that focuses on deterrence, security, the rule of law and development. Our common goal must be a sustainable solution."

In conclusion, Mitropoulos said: "This year, we are resolved to redouble our efforts and, in so doing, generate a broader, global response to modern-day piracy. More needs to be done if the ultimate goal of consigning piracy to the realms of history is to be achieved. We hope that our choice of theme for 2011 will provide an appropriate rallying point around which all those who can make a difference can focus their efforts."

Following the 3rd February launch, it has been widely reported that several large tankers, including VLCCs, have been targeted, with the result that at least two have been hijacked. This problem will not go away until the whole world sits up and takes notice. TO

The economic cost of piracy

At the end of 2010, around 500 seafarers from more than 18 countries are being held hostage by pirates. Piracy clearly affects the world's largest trade transport industry, but how much is it costing the world*?

Oceans Beyond Piracy has completed a study on the economic cost of maritime piracy. The project set out to analyse the cost of piracy to three regions: (1) the Horn of Africa; (2) Nigeria and the Gulf of Guinea; (3) the Malacca Straits.

The focus has inevitably been on the costs of Somali piracy as this is the region where contemporary piracy is most highly concentrated and is the greatest source of current data and information. The project primarily analyses direct costs, but also considers some secondary (indirect) costs. The project is designed to be a collaborative effort, and Oceans Beyond Piracy said that it would welcome any data sources, comments, or other suggestions that interested stakeholders might have.

Ransoms

Over the past five years, ransoms paid to Somali pirates have increased from an average of $150,000 in 2005 to $5.4 mill in 2010. The largest known ransom payment was for the South Korean VLCC, *Samho Dream*. This vessel was ransomed for a record $9.5 mill in November 2010. By the end of 2010, approximately $238 mill was paid in ransoms to Somali pirates in that year alone.

Shippers purchase four main types of insurance as indemnity against piracy - war risk, kidnap and ransom (K&R), cargo and hull. The most significant increase in premiums has been in 'war risk' and K&R. The Gulf of Aden was classified as a 'war risk area' by Lloyds Market Association (LMA) Joint War Committee in May 2008, and is therefore subject to these specific insurance premiums.

The 'Cost of Piracy' model calculates the additional cost of insurance to the shipping industry by using a lower bound estimate (10% of ships purchasing these insurance premiums) and an upper bound estimate (70% of ships). From these calculations, it is estimated that total excess costs of insurance due to Somali piracy are between $460 mill and $3.2 bill per year.

Navy forces

By the publisher's calculations, around $2 bill is spent each year on naval operations off the coast of Somalia. The cost of naval presence comes in two forms:

1 The cost of each contributing naval vessel. These costs are calculated using approximations of the cost of deploying a ship per steaming day, and multiplying this number by the number of vessels deployed each year - currently around 43.
2) The administrative and staffing budgets of the 'big three' naval operations - Operation Atalanta, Operation Ocean Shield, and Combined Task Force 151.2.

Prosecuting piracy

Over 750 Somali piracy suspects have either been tried for piracy, or await trial in more than 11 countries. To calculate the cost of piracy prosecutions, the number of prosecutions held in three regions was taken into account: Africa and the Indian Ocean, Europe, and North America. This number was then multiplied by an approximation of the average cost of prosecutions for piracy or similar crimes in each region. The project estimates that the cost of piracy trials and imprisonment in 2010 to be around $31 mill.

A number of intergovernmental organisations are dedicated to working towards a solution for maritime piracy. These funds represent operating costs as well as established trust funds. The total budget of these organisations is around $24.5 mill.

Re-routing ships

For some vessels, especially 'low and slow' moving ships, which are at the greatest risk of piracy attack, avoiding risk zones altogether may be a safer or cheaper option. Total excess costs of re-routing to those ships is estimated to be between $2.4 to $3 bill per year.

Shipowners may attempt to protect their property and crew from piracy attacks by

Organization	Funds
Contact Group on Piracy of the Coast of Somalia	$3.7 million
IMO Djibouti Code	$13.8 million
Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP)	$2 million
UN Office of Drugs and Crime (UNODC)	$5 million
Total Cost of Counter-Piracy Organizations	**$24.5 million**

Cost factor	Cost
Ransoms: (excess costs)	$148 million
Insurance Premiums	$460 million to $3.2 billion
Re-Routing Ships	$2.4 to 3 billion
Security Equipment	$363 million to $2.5 billion
Naval Forces	$2 billion
Prosecutions	$31 million
Anit-Piracy Organizations	19.5 million
Cost to Regional Economies	$1.25 billion
Total Estimated Cost	**$7 to $12 billion per year**

Country	Main Cost Factor	Loss Per Year
Egypt	Loss of revenue from Suez Canal fees (as ships re-route away from the Gulf of Aden)	$642 million
Kenya	Trade Impact	$414 million
Yemen	Trade Impact	$150 million
Nigeria	Losses to oil and fishing industry	$42 million
Seychelles	Losses to fishing and tourism industries	$6 million
Total Macroeconomic Costs		**$1.25 billion**

Source: UNCTAD secretariat

The alternative routes will add substantial costs.

preparing their ships with security equipment and/or guards prior to transiting a high-risk zone. The total cost of this equipment is between $363 mill and $2.5 bill per year.

Total costs

From the above calculations, the 'Cost of Piracy' project estimated the total cost of piracy in 2010 to be between $7 bill and $12 bill. This figure is not a definitive result, but an approximation. It should also be noted that like all economic assessments, these estimates reflect the current economic environment. It is worth remembering that as the international economy rebounds from the present economic recession, these numbers could be expected to change substantially.

UN Secretary General, Ban Ki-moon stated in November 2010: "Piracy... has had an immense impact on the economies of East Africa and also the wider world... International trade routes are threatened and goods in the region as well as Somalia are becoming more expensive." The table above shows just some of the costs different countries suffer, as a result of piracy.

Note that determining the macroeconomic impact of piracy is especially challenging because it is difficult to assess which costs result directly from piracy, and which costs are associated with general political or financial instability.

One Earth Future (OEF), a private foundation, is committed to seeking effective solutions to emerging governance challenges. OEF's first project was a strategic commitment to the Oceans Beyond Piracy project. Oceans Beyond Piracy seeks to engage and mobilise stakeholders to develop a global response that deals comprehensively with deterrence, suppression, and prosecution of piracy. TO

**This is an extract from a paper published by Oceans Beyond Piracy – www.oceansbeyondpiracy.org*

SharpEye™ radar performance improves pirate threat detection

The value of being able to detect small vessels approaching in any weather conditions, and automatically identify potentially hostile behaviour, is highlighted by a report of piracy in 2011's first edition of 'Maritime Feedback' (issue 28), a newsletter from CHIRP*.

"Thick low clouds and rain may provide a hiding place for pirate craft," warned a CHIRP report about an incident in the South China Sea. While passing the Anamabas Archipelago in the middle of the night, an officer of the watch noticed two small unidentified targets on the radar, and thick low clouds forming and developing in their direction.

The targets became lost in rain clutter. Some time later he received a distress call from a tanker in the vicinity advising that it had been boarded by pirates.

The 'lesson learned' was that a careful radar watch should be kept on areas of thick low clouds and rain, adjusting range and rain clutter accordingly, the watchkeeper concluded. "While this is good advice, the truth is that, in these conditions, most commercial marine radars will struggle to detect the type of small craft favoured by pirates," said Spike Hughes, Kelvin Hughes' commercial business director

"However, not all radars are the same. Our SharpEye™ solid state technology is exceptionally effective in detecting small targets, especially in high levels of rain and sea clutter and can prove a valuable tool in the early detection of pirates.

"Furthermore, SharpEye™ can help to take the strain off radar watchkeepers by automatically alerting them to craft displaying hostile behaviour patterns. Pirates typically use boats with very small radar cross-sections and approach their intended victims on a direct track, most often from astern and frequently at night.

"SharpEye's optional doppler processing means it can extract targets showing certain velocity characteristics. The detection process is completely autonomous of the display system and can be used to drive a MantaDigital display's second PPI. All targets meeting the velocity filter characteristics will be displayed, with a warning/alarm if required," Hughes said.

Better detection

SharpEye™ provides better detection of small targets than a conventional magnetron radar both because of its improved performance in clutter and by using doppler processing. These two factors combine to provide SharpEye with the best possible threat detection, approaching that of multi-million-dollar military systems, and gives a ship time to take appropriate counter-measures, Hughes claimed. TO

**Confidential Hazardous Incident Reporting Programme (www.chirp.co.uk).*

Anti-piracy – are weapons the answer?

This paper is intended to help inform the debate on the use of arms, in particular, armed 'sea marshals', in the protection of vessels conducting commercial business*.

A better understanding of the factors that will affect the maritime adventure with the introduction of weapons to vessels is required. The following is a summary of those factors.

The underlying motivation to arm vessels is a genuine desire to protect crews, ships and cargo. However, the debate currently seems to be driven more by the following: fear induced pressure on the stakeholders; the questionable authority of some proponents of arming ships; frustration throughout the industry at the apparent ease with which pirates can gain access and control of ships.

There is also much confusion on the subject of arming vessels, with the polarised views of the absolutely 'NO' lobby and the definitely 'YES' lobby, an uncertain legal environment, the effects of competing interests and the absence of real direction. The argument for arming ships increasingly relies on the use of the strap line "No ship with armed escorts has been taken." There are many equally true statements such as, "ships with particular funnel markings have not been taken".

In our view, the real debate should not be as to whether armed 'sea marshals' are appropriate for defense of vessels, but how to better protect shipping on a global basis. However, within the scope of this paper we will focus only on the issue of arms in protecting a maritime adventure.

In our view, the employment of armed guards does not, and should never allow the delegation of responsibility for their actions, or the accountability for the consequences from the employer.

Risk assessment

The starting point in the decision making process as to whether to employ armed support should be based on a full understanding of the risks that must be mitigated. In the context of this paper this is piracy, or perhaps more accurately, the unauthorised access to a vessel of unknown persons with a view to detaining the crew, ship and cargo for ransom of some kind, or the removal of cargo and/or possessions of value. (This covers situations globally).

It is fundamentally important to understand the modus operandi of pirates and their training and equipment; indeed, without an understanding any decision is likely to be flawed. Also, and in relation to Somali pirates, the debate as to whether they are actually pirates or terrorists, in the context of defending against them, is purely academic and has more to do with political agendas than providing a solution to the problem, and has no place in the threat assessment other than help define their motivation.

In any risk assessment, it is advisable to look at the situation from the attacker's perspective. It is also important to understand the three elements that are necessary for any successful attack.

1. Motivation: This is clearly a commercial proposition with large sums to be made.
2. Opportunity: This is provided by the target market, ie ships; and in the case of transiting the Gulf of Aden it is fundamentally important to understand the opportunity a vessel presents to any potential attacker.
3. Capability: This is the resource, expertise and the training required by pirates to be able to take advantage of any opportunity presented to them.

With regards to motivation, if we are successful in removing the opportunities that exist and restrict the capabilities of the pirates it will become a less rewarding enterprise for pirates and in doing so we attack their motivation.

A brief example of this may be that if 20,000 plus ships transit the Gulf of Aden each year, this provides 20,000 possible opportunities. While other obvious factors will remove some of these transiting vessels from the 'opportunity' category many more vessels could remove themselves from it if their masters and crew understood and were confident in the defensive capabilities of their vessels.

Size, speed and freeboard are characteristics that, if supported by good procedures, should require no additional security and, properly utilised, will put many ships beyond the capabilities of the pirates. In principle, the identification and removal of as much opportunity as is possible-without affecting the commercial enterprise- and the restriction of the pirates' capability to effectively deploy

Proper consideration should be given when thinking of arming vessels. Photo credit - Kelvin Hughes.

their resources combined with good procedures and their effective application will substantially mitigate the risk and will reduce the threat to shipping in general.

Of fundamental importance is that to achieve their aim, pirates must gain access to the controls of the target vessel. Gaining access to the deck alone need not necessarily provide access to controls. In any attack, we need to look at it from the pirate's perspective and the problems confronting them in achieving their objectives. They must come alongside the target vessel; they must climb the vessel to gain access to the deck; they have to traverse the deck and companionways to gain access to and take over the controls. They must make a transit to a safe port and then carry out the rest of their activities.

Difficulties that will confront pirates are; sea states, bad weather, height and difficulty of freeboard to climb, speed of target vessel, wash and manoeuvring, as well as weapons effectiveness (they do not have the weapons with the capabilities of stopping the majority of ships unless their intimidating image prevails!). A stationary vessel in a calm sea is a considerably easier prospect than one that is manoeuvring at speed.

From considerable experience in shooting, training and developing shooting techniques, we can testify to the difficulties experienced by most professional soldiers in achieving hits over 100, 200 and 300 m, when firing from a stable ground platform against a stationary target fixed to a stable platform in a benign range environment.

When you apply any movement at either end, the difficulty increases dramatically and when movement is at both ends, accuracy is replaced by luck. The chances of anyone firing from a moving skiff and hitting what they are aiming for, is very low. A hit with even an RPG7, to do any serious damage, would have to be luckiest shot in the world, and would certainly not be the result of deliberate aimed shot at a specific point on the vessel.

The use of weapons to counter piracy needs to be carefully thought through. The application of weapons should be a staged approach with the first being deterrence. For deterrence to be effective, knowledge of the weapon systems presence must be with the pirates. It must also be in their minds the fact that the weapon systems on board the vessel are more powerful than their own otherwise any deterrent effect is diminished.

To achieve this, the weapons systems on board have to be prominently displayed at least at the point of danger.

GAC Solutions provides security services.

The next stage where deterrence has failed is to effectively neutralise an attack. The weapons must either be able to put down sufficient fire power as a demonstration to clearly convince pirates that further attack would not be in their interest; or be of sufficient accuracy to disable the power units of pirate vessels; ideally without endangering any of the occupants of the pirate vessel.

This requires a category of weapons that can be described as 'specialist'. Weapons such as pistols, shotguns and single shot rifles are not capable of providing a deterrent. Neither are they capable of effectively stopping a determined armed attack. Of equal importance is the expertise of those handling the weapons systems on board ship and this is an area where the shipping industry will find it most difficult to determine.

Having served in any branch of any military for any length of time will not, on its own, illustrate the capability of security personnel with any weapons system. There is no effective system of accreditation for security companies in the world. Some of the companies who have signed up for latest Swiss generated protocols have dubious histories in relation to application of standards and there is no way of effectively policing whether or not a company complies with what it has signed up for.

When the risks are fully understood, the appropriate weapons systems have been identified and are manned by those of requisite experience so that the advantage and control of situation clearly lies with the ship and its security there needs to be clear rules of engagement to cover every situation.

Perhaps two of the most difficult areas within the rules of engagement are:

1. Who has control of the situation?
2. What actually constitutes a risk to life whereby, pirates would be engaged with lethal force?

It is our view that in all circumstances the Master must have control (and this is probably the legal position), supported and advised by the head of security. What constitutes a risk or a threat to life will, in many cases, be subjective and dependent on the experience of those security operatives involved and this could increase dramatically the potential for criminal error.

Summary

To achieve and then maintain control, the industry needs to institutionalise a better understanding of the actual risks confronting it. It must also have the means to communicate this knowledge to individual ships' Masters, officers and crews, so that all can and do understand the actual risks and how to mitigate them. In situations where it is considered appropriate to have weapons on board vessels, there needs to be a clear understanding of what constitutes appropriate weaponry that will effectively provide deterrence, and where deterrence fails be capable of effectively neutralising an armed and determined attack.

Where weapons are deployed, it is absolutely critical that those employed to operate them have the appropriate skills and experience and are also current in weapon use. Finally, rules of engagement need to be appropriate and have to be realistic; and there must be absolute clarity as to who has control.

The legal ramifications of this practical consideration are likely to be extensive.

Without proper consideration of the factors above, the deployment of weapons on vessels will do nothing to reduce the risk of piracy to shipping and could in fact perversely add further and unnecessary risks to the industry at considerable extra cost. TO

**This is an extract from a paper written by: Andrew Kain, CEO and Ric Filon, director maritime services, AKE Ltd. AKE acknowledges an interest through its support to GAC Solutions in the provision of maritime security services and support to maritime clients.*

Shipping's stance on armed guards

The International Chamber of Shipping (ICS) - whose executive committee comprising representatives of national shipowners' associations from over 30 countries met in London recently - has decided to clarify its stance on the use of private armed security guards.

ICS said that there is a ' vital need' for the military to disable the hijacked 'motherships', which the pirates are now using to launch attacks throughout much of the Indian Ocean.

Chairman, Spyros Polemis, explained: "ICS has had to acknowledge that the decision to engage armed guards, whether military or private, is a decision to be made by the ship operator after due consideration of all of the risks, and subject to the approval of the vessel's flag state and insurers. The consensus view amongst shipping industry associations remains that, in normal circumstances, private armed guards are not recommended and are a clear second best to military personnel.

"However, in view of the current crisis in the Indian Ocean - with over 700 seafarers held hostage and, most recently, a seafarer being executed – ship operators must be able to retain all possible options available to deter attacks and defend their crews against piracy. Many shipping companies have concluded that arming ships is a necessary alternative to avoiding the Indian Ocean completely, which would have a hugely damaging impact on the movement of world trade.

"The eradication of piracy is the responsibility of governments. Frustratingly, politicians in those nations with the largest military navies in the region show little willingness to increase resources to the extent that would be necessary to have a decisive impact on the problem of piracy. Western governments, at least, appear to give the impression that this otherwise unacceptable situation can somehow be tolerated. Sadly, until we can persuade governments otherwise, the use of armed guards by ships is very likely to continue increasing," he concluded.

'The use of armed guards by ship is very likely to continue increasing,' Spyros Polemis.

ICS advises that the shipping industry will meanwhile be looking at all possible options, including alternative routes, which could have a very dramatic effect on transport costs and delivery times. If increasing numbers of ships decide to divert around the Cape of Good Hope, this will almost certainly have a major impact on inventories and costs throughout the whole supply chain and, most particularly, on the cost of oil. It could also greatly damage the economies of Africa and the Middle East at this very politically delicate time.

Commenting on the situation, leading parcel tanker owner Stolt Nielsen (SNSL) said that the company will first and foremost do what it takes to protect its crews and, in so doing, the ships and their cargoes.

SNL said that it supports outside government intervention to stabilise Somalia, as shipping industry organisations have been urging for some time. Anarchy on land enables anarchy at sea.

It is unrealistic to expect an end to piracy without establishing some form of government order in Somalia. Furthermore, the company fully supports industry calls on governments for more - and broader - naval protection. The piracy situation is not improving, it is escalating. Governments collectively need to step up to the challenge by taking action now and not wait and hope that the problem will disappear, the company said in a statement.

In view of the current crisis in the Indian Ocean, ship operators must be able to retain all possible options available to deter attacks and defend their crews against piracy. When the company has no alternative it will continue the use of armed guards, which has proved to be effective as a deterrent.

SNL stressed that the risk assessment and mitigation measures deployed have been shared fully with flags, insurers and major customers - and that the company is in full compliance with all of their requirements.

Speaking at the UK annual Chamber of Shipping dinner in February, outgoing chairman Shell's Jan Kopernicki said; "The sudden deterioration over the last two months in the security of shipping off Somalia and throughout the Indian Ocean is a cause of major concern – for its spread and for the increasing levels of violence threatening our seafarers despite very good support from governments and military alike.

'This is a military problem and now needs enhanced military responses,' Jan Kopernicki.

"This is a time when political, military and industry responses must now be increased, as we work together to implement urgent solutions before the situation develops yet further out of hand. We welcome the profile given to piracy by its designation as the theme for this year's IMO World Maritime Day.

"This is no longer just a local Somali problem. This is an industrialised activity, with mother ships marauding right up to the Indian coast. I won't venture into a discussion about whether to arm merchant ships, but I will say that the current mother ship menace, the execution of seafarers and the increased aggression of attacks will only be subdued by focussed military action in the next two to three months.

"This in turn means that politicians need to give their military, whether in the UK or elsewhere, the freedom to take more explicit measures. The unofficial arming of merchant ships has not prevented the development of the current situation, nor will it, or a legalised version of it, provide the solution.

"This is a military problem and now needs enhanced military responses. And the industry fully understands the risks and difficulties involved, so I don't make these observations lightly, " he concluded. TO

TANKEROperator

KEY PLAYERS IN THE TANKER INDUSTRY
will be profiled giving their views on current legislation, recommendations and trends. These will include chief executives from all sectors of the industry from equipment manufacturers to the top shipowners

INFORMATION
about meeting oil major requirements
(TMSA / vetting)

DEVELOPMENTS in management/ safety/ environmental best practice

NEW TECHNOLOGIES
and commercial industry developments

COMMERCIAL TANKER OPERATIONS
including shipbroking, legal matters and financing

IN DEPTH INFORMATION
on the latest newbuilds, sale and purchase, freight rates and derivatives markets, using industry known commentators

A STRONG FOCUS
on shipbuilding and repair

Photo credit – Hempel

subscribe online at www.tankeroperator.com

Goodwood

AIMING AT SAFETY, SECURITY, QUALITY, ENVIRONMENTAL PROTECTION

Established with a vision to be the forerunner in providing ship management solutions.

Goodwood Ship Management Pte. Ltd
20 Science Park Road
#02-34/36 TeleTech Park
Singapore 117674
Tel: +65 6500 4040 Fax: +65 6500 4050
Email: inbox@goodwoodship.com
www.goodwoodship.com

For employment prospects with us please contact our wholly owned subsidiary
Goodwood Marine Services Pvt Ltd
Ground Floor, Valecha Chambers, Andheri New Link Road,
Andheri (W) Mumbai - 400053, Maharashtra, India
Tel: +91 22 4031 0404 Fax: +91 22 4031 0405
Email: inbox@goodwoodship.com **www.goodwoodship.com**