

From the Editor

The July - September quarter of 2001 saw both Dandu Pughiuc and myself take our first annual leave since the programme commenced in March 2000. We returned 'on-deck' much refreshed and energised. We alternated our leave to ensure continuity of manning, and good progress continued to be made during the quarter. In fact global ballast water activities are gaining such momentum that we have had to expand the newsletter from eight to twelve pages in order to provide reasonable coverage of events.

Our Guest Speaker in this issue is Dr Peter Swift, Managing Director of the International Association of Independent Tanker Owners. IMO and the GloBallast programme place a very high priority on the needs of the shipping industry, which is of course one of our main stakeholders. The views presented by Dr Smith provide a timely reminder of the urgent need for an international Convention on ballast water and the critical issues that must be addressed as we move closer to its adoption.

Our first 'story' in this issue is an update on the Port Baseline Surveys, now nearing completion for all six GloBallast Pilot Countries. This is followed by a summary of the current status of all activities in each country, with a 'mid-term' report.

We are most pleased to report that despite the tragic events that occurred in the USA on 11 September, the Ballast Technology Investment Fair went ahead in Chicago on 21 September. One of the presentations made at the Fair was on the Global Market Analysis for Ballast Water Treatment Technology, prepared by IWACO (now Royal Haskoning). We include a summary of this most interesting report from Frans Tjallingii.

We also report on ballast water activities from various regions around the world, including the USA and Canada, Nigeria and finally the world's largest Ocean, the Pacific Islands region.

The coming quarter will also be a busy time for GloBallast. The first Regional Strategies will be initiated in the Black and Baltic Seas, Risk Assessments will commence for all six Demonstration Sites, the Port Baseline Surveys will be carried out in India and Brasil, the GloBallast Legal Workshop will be held at WMU Sweden and the International Conference on Ballast Water Management will be held in Singapore. More on these next issue. Until then, happy ballasting!



Steve Raaymakers
Contributing Editor

From the Programme

A critical requirement in any multi-lateral, multi-million dollar technical cooperation programme, is to conduct regular reviews and evaluations, to assess performance and derive lessons. Being funded by the GEF International Waters portfolio, GloBallast is subject to annual Project Implementation Reviews (PIR's). The first PIR for GloBallast was completed in August. It found that progress towards development objectives is excellent, and that the level of achievement of immediate objectives has been in general highly satisfactory.

An important element of the PIR is to identify how additional resources have been leveraged from alternative sources, as part of the drive to achieve sustainable financing. Additional resources leveraged by GloBallast to date total US\$630,000, in both funding and support-in-kind. Sources include the IMO Technical Cooperation Fund, the UN Division of Ocean Affairs and Law of the Sea, the Singapore Government and industry.

Another important element of the PIR is to review the basic assumptions upon which the programme is based. One of the development objectives of GloBallast is to assist developing countries to prepare for the implementation of the new Ballast Water Convention. When the programme was designed, a basic assumption was that the new Convention would be adopted in 2001. This would have allowed a smooth transition between the regional replication and Convention implementation objectives of the programme.

However, ongoing negotiations between IMO member countries have shifted likely Convention adoption to late 2003. This creates a time gap between the scheduled end of GloBallast Phase I (March 2003) and the adoption of the new Convention. When combined with an overwhelming demand from developing countries for ongoing programmatic support, it is imperative that the unprecedented momentum of concerted international action precipitated by the programme to date, be exploited to maximum benefit through the development of GloBallast Phase II. The PCU is now preparing consultations, and looks forward to engaging constructively with stakeholders.



Dandu Pughiuc
Chief Technical Adviser

Ballast Water News is the quarterly newsletter of the Global Ballast Water Management Programme (GloBallast). GloBallast is a cooperative initiative of GEF, UNDP and IMO to assist developing countries to reduce the transfer of harmful organisms in ships' ballast water, through the implementation of IMO ballast water management guidelines.

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The views expressed in Ballast Water News are not necessarily those of GEF, UNDP or IMO.



Guest Speaker

Dr Peter M Swift
Managing Director, INTERTANKO



Dr. Peter Swift was appointed Managing Director of INTERTANKO (International Association of Independent Tanker Owners) in February 2001.

INTERTANKO represents the interests of Independent Tanker Owners and Operators and has a membership in excess of 250 with a further 300 associate members from related companies in the tanker industry.

For 24 years until 1999 Dr Swift worked for the Royal Dutch/Shell Group where he held a series of senior positions including; General Manager for Shell International Trading and Shipping Company, Area Coordinator for East and Southern Africa, General Manager of the Australian LNG Ship Operating Company and Group Naval Architect for oil, gas, coal and offshore shipping.

He graduated as a Naval Architect in the UK and obtained a doctorate from the University of Michigan. He is a Chartered Engineer, a Fellow of the Royal Institution of Naval Architects and a Member of the Society of Naval Architects and Marine Engineers.

Keys to success in solving the problem of unwanted alien species in ballast water are to ensure that the shipping industry understands the issue, knows what is required of them and is armed with the necessary equipment with which to act.

Through its Environmental Committee, INTERTANKO recognised the need for the shipping industry to be at the forefront of this matter. Since 1996 our efforts were directed at the development of Guidelines, and now a mandatory legal instrument at IMO with active participation in MEPC's Ballast Water Working Group.

Recognising that the application of operational techniques to minimize the risk of introduction was to be the first step, INTERTANKO along with the International Chamber of Shipping, set about the development of the Model Ballast Water Management Plan. Not only was this to instruct on the development of ship-specific management plans but also in the development of awareness in the shipping industry. The model plan also contains a list of regional and national legislation that has entered into force around the world. Keeping abreast of the new legislation has been a main aim of INTERTANKO. This ensures that our members are fully aware of requirements well in advance of their port call thus avoiding problems for the vessel and ensuring that local legislation is respected.

This has been a mammoth task over the past four years and has led to further efforts being made at the IMO to ensure the development of an international Convention which will be standardized across jurisdictions, and so provide the shipping industry with a clearly defined and harmonised system upon which it should operate.

In raising awareness of the problem within INTERTANKO, questions on treatment methods and techniques have inevitably arisen, and in particular, on the safety concerns with ballast water exchange at sea and hence the search for alternative methods. INTERTANKO is participating in a European Commission funded project (MARTOB) which aims to highlight and test the most promising ballast water treatment technologies (www.marinetech.ncl.ac.uk/research/martob/).

INTERTANKO's members are at the forefront of the issue in preparing for the future. A number of member companies are incorporating special pumping and piping arrangements in their new ships in order to facilitate ballast water exchange at sea. It is heartening that these considerations are being taken into account some four or five years before the vessels are ready to sail. This will not only overcome the potential safety risks of ballast water exchange, but also enhance the effectiveness of this technique in removing unwanted organisms.

The industry must continue to have the use of ballast water exchange as a management option. It is already apparent in the industry that in the near future ballast exchange will be more energy and time efficient, safer and above all more effective in reducing the number of organisms. Once standards for ballast water treatment are set, it will be up to the engineers of the world to develop the solutions.

The challenge has been set for a solution; an IMO Convention must be ready for a Diplomatic Conference in 2003. It is now up to all the stakeholders to focus on the key elements of knowledge dissemination, practicality and realism. Treatment developers and ship operators must know what is to be achieved. Requirements must be practical to ensure that focus remains on the ship and the cargo and not just the ballast. And finally, the aims of a legal instrument must be realistic. Developing a workable Convention to reduce the risk across the world must outweigh an over-stretched requirement that cannot be met.

Dr Peter M Swift

Have your say!

Please feel free to submit articles or letters to the editor for consideration for publication in **Ballast Water News**, sraaymak@imo.org

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Port Surveys Proceed at Pace

As reported in Ballast Water News No. 4 (January - March 2001), it is not possible to manage and control introduced marine species unless you know *what they are* and *where they are*. The IMO Guidelines (A.868(20)) encourage Port States to undertake biological surveys and monitoring in their ports. The results can be used to control introduced species and to advise ships of areas or times to be avoided in taking on ballast, so as to minimise the uptake and transfer of these species.

As part of its objective of assisting developing countries to implement the IMO Guidelines, the GloBallast programme is supporting each of its six Pilot Countries to conduct port baseline surveys.

As reported in Issue No. 4, the first port survey was conducted at Saldanha, South Africa in April this year. This included training marine scientists from the other Pilot Countries. Since April the GloBallast Port Survey Coordinator, Dr Marnie Campbell, has visited Dalian (China), Khark Island, (Iran), Odessa (Ukraine) and Sepetiba (Brasil) to provide further training to each country's port survey team, and to assist with finalising their survey plans and sampling designs.

She then visited Dalian, Odessa and Khark Island a second time to assist and advise during the actual port surveys, which were undertaken from 9 August, 17 August and 25 August respectively.



Plankton sampling in Dalian



Water sampling in Odessa

Training will be undertaken in Mumbai, India from 8 to 11 October and the first Indian survey will commence on 1st November. Brasil will commence its first port survey at Sepetiba on 7 November.

By the end of November all six Pilot Countries will have completed the field sampling component of their surveys, representing a major practical achievement for the programme. It is estimated that sample identification, analysis and reporting will take another 12 months. Final reports for each of the surveys will be published by GloBallast.

(Photo credits: M Campbell)



One of the Port Survey dive team, Odessa

The capacity-building aspect of this GloBallast activity means that each country now has a fully trained team and institutional arrangements for carrying out surveys for introduced marine species, according to standardised procedures. The challenge remains for each country to build on the baselines and implement ongoing, long-term monitoring programmes, for all ports in their jurisdiction. They could also lead neighbouring countries in regional port survey networks.



The 6 Demonstration Sites where GloBallast has implemented Port Baseline Surveys, providing an important building-block for a much needed global system of ongoing port surveys.

It is also vital that survey results are fed into national, regional and global databases. These must be linked to communication and reporting systems that allow the international shipping industry to be alerted to outbreaks of harmful species, so as to manage their ballast operations.

The establishment by GloBallast of biological baselines and port survey capabilities at six major ports in the main developing regions of the world, represents a positive step forward in global understanding of invasive marines species. When linked with similar surveys being conducted in developed countries, they provide an important building-block for a much needed global early-warning system for detecting, tracking, recording and reporting marine bio-invasions.

Full Steam Ahead for the Pilot Countries

Phase I of the GloBallast programme is working through six initial Demonstration Sites, located in six Pilot Countries, representing the main developing regions of the world. As the programme develops, it is intended that successes at the initial Demonstration Sites will be replicated through regional programmes, and extended into new regions under Phase II.

All GloBallast Pilot Countries have established a National Lead Agency and Country Focal Point for ballast water issues, have formed cross-sectoral Country Task Forces and have

developed National Workplans, approved by the Global Task Force. In addition, the programme has employed a Country Focal Point Assistant in each country, and established channels and procedures for the transfer and management of programme funds.

As we have now reached the mid-point of Phase I, it is timely to review the significant progress that has been made by the six Pilot Countries. Below we give an update on progress at the end of September 2001.

GloBallast Pilot Countries Progress Report: September 2001

	 Brasil	 China	 India	 IR Iran	 South Africa	 Ukraine
Demonstration Site:	Sepetiba	Dalian	Mumbai	Khark Island	Saldanha	Odesa
Region Represented:	South America	East Asia/Pacific	South Asia	ROPME Sea Area	Africa	Eastern Europe
Lead Agency:	Ministry of Environment	Maritime Safety Administration	Directorate General of Shipping	Ports and Shipping Organization	Dept. of Environmental Affairs and Tourism	Shipping Safety Inspectorate
Communication & Awareness:	<ul style="list-style-type: none"> • Communication Plan completed. • GloBallast materials translated. • Seminars and workshops held. • Local web-site under development. 	<ul style="list-style-type: none"> • Communication Plan completed. • GloBallast materials translated. • Seminars and workshops held. • Local web-site under development. 	<ul style="list-style-type: none"> • Communication Plan completed. • Local materials developed. • Seminars and workshops held. 	<ul style="list-style-type: none"> • Some planning conducted. • Newspaper & TV coverage achieved for port baseline survey. 	<ul style="list-style-type: none"> • Communication Plan completed. • Local materials developed. • Exhibit developed. • Launch event held. • TV documentary produced. • Seminars and workshops held/attended. • Local web-site under development. 	<ul style="list-style-type: none"> • GloBallast materials translated. • Lectures prepared for higher education institutions. • Local web-site under development.
Ballast Water Risk Assessment:	<ul style="list-style-type: none"> • Data collection well under way. 	<ul style="list-style-type: none"> • Data collection well under way. 	<ul style="list-style-type: none"> • Data collection well under way. 	<ul style="list-style-type: none"> • Data collection well under way. 	<ul style="list-style-type: none"> • Data collection well under way. 	<ul style="list-style-type: none"> • Data collection well under way.
Port Baseline Surveys:	<ul style="list-style-type: none"> • Training completed. • 1st survey Nov 01. 	<ul style="list-style-type: none"> • Training completed. • 1st survey Aug 01. 	<ul style="list-style-type: none"> • Training completed. • 1st survey Nov 01 	<ul style="list-style-type: none"> • Training completed. • 1st survey Aug 01. • 2nd survey Feb 02. 	<ul style="list-style-type: none"> • Training completed, including hosting other countries. • 1st survey April 01. 	<ul style="list-style-type: none"> • Training completed. • 1st survey Sept 01. • 2nd survey 2002.

<p>Ballast Water Management Measures:</p>	<ul style="list-style-type: none"> • IMO Guidelines translated. • PETROBRAS developing alternative methods, including Dilution Method. • Health Authority requires relevant ships to submit IMO Reporting Forms. • IEAPM active in ballast research, and trialling database for IMO Reporting Forms. • Federal Univ. of Rio Grande involved in GloBallast training packages. 	<ul style="list-style-type: none"> • IMO Guidelines translated. • Dalian Maritime Univ. active in R&D of alternative methods, including heat treatment and use of chlorine. • Maritime Safety Administration requires relevant ships to submit IMO Reporting Forms. • Central database developed for IMO Reporting Forms. • Developing Red-Tide Monitoring and Reporting System for Bohai Sea. 	<ul style="list-style-type: none"> • Ministry of Shipping Notice issued for ships to implement IMO Guidelines. • Maritime training institutes instructed to include IMO Guideline in course curriculums. • Port Trust requests relevant ships to submit IMO Reporting Forms. 	<ul style="list-style-type: none"> • PSO requires relevant ships to submit IMO Reporting forms. • IR Iran Shipping Line developing ballast water management plans for all relevant ships in its fleet. 	<ul style="list-style-type: none"> • PortNet requests relevant ships to submit IMO Reporting forms. • Univ. of Western Cape involved in GloBallast training packages. 	<ul style="list-style-type: none"> • National legislation requires relevant ships entering Ukrainian ports to re-ballast outside the Black Sea. • Environmental Inspectorate samples ships' ballast water for suspended solids, oil and iron content before discharge into port.
<p>Legislation & Regulations:</p>	<ul style="list-style-type: none"> • National legislation review underway as part of the broader GloBallast project. • Health Authority has developed ballast water legislation. 	<ul style="list-style-type: none"> • National legislation review underway as part of the broader GloBallast project. • Govt. is planning national legislation when IMO Convention adopted. 	<ul style="list-style-type: none"> • National legislation review underway as part of the broader GloBallast project. 	<ul style="list-style-type: none"> • National legislation review underway as part of the broader GloBallast project. 	<ul style="list-style-type: none"> • National legislation review underway as part of the broader GloBallast project. 	<ul style="list-style-type: none"> • National legislation review underway as part of the broader GloBallast project.
<p>Regional Cooperation & Replication:</p>	<ul style="list-style-type: none"> • Scientific links formed with Argentina on invading mussel <i>Limnoperna</i>. • Regional links initiated through ROCRAM. 	<ul style="list-style-type: none"> • No explicit activities to date. • Plans to link with Pacific Islands region through participating in PACPOL workshop in October. 	<ul style="list-style-type: none"> • Regional links initiated with SACEP. 	<ul style="list-style-type: none"> • Regional links initiated through ROPME and CEP. • Regional workshop being developed with support from regional oil industry (GAOCMAO). 	<ul style="list-style-type: none"> • Presentations made at meetings in Angola, Namibia and East Africa. • Links formed with Benguela project. • Nigeria and Mauritius have activities of own initiative. 	<ul style="list-style-type: none"> • Regional strategy and action plan to be adopted at Black Sea Conference, 10-12 Oct 01. • Sub-regional workshop being held for Eastern Baltic in Tallinn, Estonia, 22-24 Oct.

Conclusion

All six Pilot Countries are making good progress with implementing the foundation activities of the programme. The focus now needs to shift towards the actual implementation of ballast water management measures and further developing regional cooperation and replication. One area where limited progress has been made to date is in developing self-financing and resourcing mechanisms. The PCU will be seeking to encourage more work in this area in the coming months.

Acronyms. CEP = Caspian Environment Programme. IEAPM = Admiral Moreira Institute for Marine Studies (Brazilian Navy). GAOCMAO = Gulf Area Oil Companies Mutual Aid Organization. PACPOL = Pacific Ocean Pollution Prevention Programme. PETROBRAS = Brazilian State petroleum company. PSO = Ports & Shipping Organization (Iran). ROCRAM = Regional Cooperation Among Maritime Authorities of South America. ROPME = Regional Organization for the Protection of the Marine Environment. SACEP = South Asia Cooperative Environment Programme.

Investment Fair Fares Well



On 21 September 2001 the Northeast - Midwest Institute bravely continued with its Ballast Technology Investment Fair in Chicago, despite the tragic events in New York and Washington DC only 10 days earlier.

The primary objective of the Fair was to interest environmental venture capital in the arena of ballast water treatment development. Despite the fact that the global economic impacts of invasive marine species are likely to be in the tens of billions of US dollars, the current global R&D budget for ballast water treatment totals only about \$10 million. There is a vital need for a much greater level of investment. Demonstrating the market potential for internationally approved ballast water treatment technologies is crucial to attracting venture capital. One of the presentations made at the Fair was on a Global Market Analysis for Ballast Water Treatment Technology, prepared by Royal Haskoning. We include a summary of this important study on pages 6 to 8.

Overall, the Investment Fair attracted 80 participants, the vast majority being US based. The programme included a day of presentations and exhibits. Topics included the problem of invasive marine species, latest developments in ballast water treatment technologies and the global market analysis. Of prime interest were presentations on commercialisation strategies, licensing options and protection of proprietary rights for new and emerging technologies, and strategies for attracting investment from public and private sources.

The Fair was a positive and much needed initiative, and provided some very interesting and useful outcomes, largely in the North American context. Further details: www.nemw.org/ballastfair.htm.

Until the shipping, R&D and investment communities are provided with greater certainty through the adoption of international performance criteria and standards for ballast water treatment, the investment sector may be reluctant to commit significant capital to R&D. It may prove useful to hold a similar investment fair on a more international basis after IMO has agreed such standards, allowing investment decisions to be made in a climate of greater certainty.

Global Market Analysis Released

In order to encourage capital investment in any R&D, it is necessary to demonstrate the potential market value of the product of that R&D. In support of the Ballast Technology Investment Fair, the Northeast-Midwest Institute contracted Royal Haskoning to perform a global market analysis for ballast water treatment options. This article summarises the main findings of this study. The full report is available from www.nemw.org.

Study methods

The study was based on an analysis of Lloyds Register of Ships and discussions by an expert group consisting of representatives of the shipping and port industry, the Northeast Midwest Institute and shipping experts at Royal Haskoning. Data from a technical analysis of the Dutch fleet (performed by Royal Haskoning for the Royal Association of Netherlands' Shipowners) were also used in the analysis.

Market forces

Ballast water treatment may be considered as an alternative to ballast water exchange at sea. The demand for ballast water treatment systems is currently regulatory driven, as it is found that ballast water exchange is fraught with problems and may not be entirely effective, causing jurisdictions to require alternatives to be developed.

There are two main sets of regulatory driving forces, namely unilateral (e.g. national, state, local) legislation and international (IMO) legislation. For the immediate term, the market is especially driven by unilateral legislation.

Sales of ballast water treatment systems will depend on the acceptance of those systems as alternatives to ballast water exchange by jurisdictions that have legislation in place. The US Coast Guard and Australian authorities are presently undertaking the first developments in this direction. It is as yet uncertain how these programmes will provide for the evaluation, approval and adoption of new ballast water treatment technologies, as complex technical issues are still to be resolved.

The shipping industry is of-course deeply concerned by the development of these sometimes disparate, unilateral regulatory responses, and is calling for a uniform, international approach.

At the international level, it is likely that the new IMO Ballast Water Convention will be adopted in 2003. This will hopefully bring with it global standards and procedures for the evaluation, approval and adoption of new treatment technologies.

The Haskoning market analysis assumes that once the Convention is adopted, it may take some time (possibly years) to enter-into-force and before all vessels will

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need to perform some form of ballast water treatment. However, many countries are pushing for rapid entry-into-force and this may well be agreed at the Diplomatic Conference in 2003. The Convention will probably include a phasing-in schedule, which will decide which vessels (type, size and age) are to comply with certain requirements in what time-frame.

In addition to regulatory forces, the market for ballast water treatment technology is also driven by the fact that treatment has certain advantages over ballast water exchange, related to the predictability of risk reduction and to the safety of the vessel. In the long run, these advantages may cause ship owners to install on-board treatment options. Concern for flexibility of movement and resale of the vessel may also enhance adoption of ballast water treatment over exchange.

World fleet structure

Lloyds Register of Ships currently lists a total of 91,287 vessels globally. Not all of these vessels are likely to be affected by ballast water regulations. Examples are tugs, lighthouse vessels and fishing vessels. Excluding these gives a global figure for 'ballast relevant' vessels of around 47,228.

Besides the type of vessel, the area of operation may also determine whether a vessel will need to comply with ballast water regulations. This might be derived be vessel size. Most of the world fleet is actually quite small (see figure 1). In the study it was assumed that all vessels under 1,000 deadweight tonnes probably have regional modes of operation. Excluding these vessels gives a global estimate of about 33,392 vessels that will in some way face regulations on ballast water management.

The market analysis suggests that a 'modal' vessel in terms of ballast water relevance is probably a general cargo vessel of 12,000 deadweight tonnes. This coincides with approximately 4,000 tonnes ballast capacity, and a ballasting rate of 600-1,000 m³/h. This is a significant finding, as discussions to date have tended to focus on 'mega' vessels such as large tankers and bulk carriers. In terms of risk and the market for ballast water treatment, the 'modal' vessel may be a more important factor.

The age distribution of the world fleet is important to determine the expected number of new buildings in the future, and the number of vessels on which retrofit will be likely. The market analysis adopts a figure of 10 years as the maximum age at which a vessel may be considered for retrofitting a ballast water treatment system.

Market predictions

As the market is regulatory driven, until the various unilateral regimes (e.g. USA, Australia) resolve outstanding technical issues and implement standards and procedures for the evaluation and approval of new ballast water treatment systems, and until the new IMO Convention is adopted, the market will be marginal and R&D based.

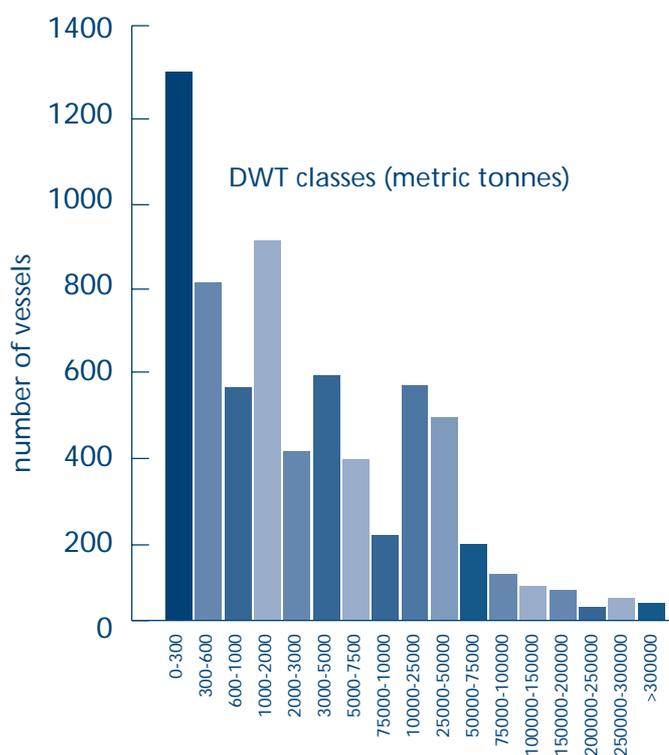


Figure 1: Distribution of deadweight in the world fleet

When the Convention is adopted, it will hopefully set such standards and procedures, meaning that system developers will know what to aim for, and ship owners with sufficient awareness and financial means may choose to adopt ballast water treatment even before the Convention enters-into force. The Haskoning market analysis assumes that this market will consist of 'ballast relevant' vessels (new buildings/retrofits) of high-income countries (as defined by the World Bank).

The market analysis also assumes that at least 5 years will be required from when the Convention is adopted in 2003 to when sufficient ratification has occurred to allow it to enter into force (i.e. 2008). Based on this assumption, the whole world fleet will need to consider ballast water treatment after 2008. For retrofit it is assumed that most vessels will do so on their next major survey (5 years), so most vessels will probably have decided on retrofitted ballast water treatment before 2013 (NB. see Editors Note).

Based on data provided by vendors of treatment equipment, the cost of fitting a modal vessel with a treatment system is estimated to range from 200,000 to 310,000 USD per vessel. Calculations on potential turnover were made by multiplying the number of vessels in three time periods (2003-2008, 2008-2013 and after 2013). The potential turnover in the first period is estimated to be somewhere between 1.1 and 1.8 billion USD and for the second period somewhere between 3.5 and 5.4 billion. The stable market (after 2013) will amount to new built vessels, which are estimated to be about 1,054 vessels, representing a potential turnover of between 1.1 and 1.6 billion USD. The basis of these findings are presented in table 1.

Market Analysis continued...

Year	Market	No. vessels (per 5 yr period)	Potential turnover (million USD/yr)	
			Lower estimate	Higher estimate
2001-03	Marginal R&D based market	Few		
2003-08	Retrofit of vessels younger than 10 yrs of high-income countries	3,384	676,8	1049,04
	New Buildings of high-income countries	2,270	454	703,7
	total	5,654	1130	1752
2008 +	Retrofit of vessels younger than 10 yrs	12,075	2415	3743,25
	All New Buildings	5,270	1054	1633,7
	total	17,345	3469	5377

Table 1: Vessels eligible for BWT and potential turnover

Conclusions

This study has shown that the potential global market for internationally approved ship-board ballast water treatment systems is huge, approaching US\$10 billion over the next twelve years. This is somewhat higher than earlier estimates

(NB. see Editors Note).

The diversity of ship types, sizes and trades will result in a market which has room for different products, so long as they meet prescribed standards. Additional segmentation of the market analysis will be needed. The better the market is understood, the better treatment technology developers can make business plans in order to obtain investment. Even with the prospect of a huge market, venture capital may be reluctant to invest during the current R&D phase.

Yet again, we have a very useful study showing that the international community must act soon to develop and agree uniform standards and procedures for the evaluation and approval of new ballast water treatment systems. Investment uncertainty will then be removed and the market will take care of the rest.

Before then, one can already consider the needs of the shipping industry in managing the risks involved with ballast water transfers. The company that finds a system that is fit for these situations can gain access to a huge market, until the ship is invented that can sail without ballast water.

Frans Tjallingii

Frans Tjallingii was a consultant with IWACO Water & Environment Consultants in the Netherlands (now part of Royal Haskoning). He recently moved to the Netherlands North Sea Directorate to work on international issues.

Editors Note:

The Haskoning market analysis, like many such studies, is based on a number of critical assumptions. The limitations and implications of these assumptions must be carefully considered before the findings become enshrined in folk-lore.

In particular, the timing assumptions may be subject to correction. Many parties are pushing for rapid entry-into-force provisions in the new Convention and this may well be agreed at the Diplomatic Conference in 2003.

Some countries have put forward models for 'optional mandatory' ratification and entry-into-force arrangements. This would mean that a signatory might implement the Convention in national legislation as soon as it is adopted, and not have to wait for international entry-into-force requirements.

In any case, once international standards for ballast water treatment are set, many jurisdictions are likely to adopt these rapidly, irrespective of any Convention entry-into-force or phase-in schedules.

The international regulatory driving forces may therefore begin to have a fuller effect much sooner than assumed in the Haskoning study. This will be a major incentive in the global market for treatment systems, and will substantially bring forward the market predictions. This will make the market scenario even more attractive than that contained in the study as outlined above.

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NEWSFLASH!!



NEW PCU STAFF
Christine Gregory joined the GloBallast Programme Coordination Unit on 1st October 2001 as the new Principal Administrative Assistant.

Welcome to Christine!

US Technology Verification Scheme Applied to Ballast Water



Environmental Technology Verification Program (ETV), to verify the performance of innovative technical solutions to problems that threaten human health or the environment. ETV was created to substantially accelerate the entrance of new environmental technologies into the domestic and international marketplace. It is an innovative programme designed to accelerate the development and commercialisation of market-ready environmental protection technologies.

ETV operates through public/private testing partnerships to evaluate the performance of environmental technology in all media, including air, water, soil, ecosystems, waste, pollution-prevention and monitoring.

Market input is conveyed by the active involvement of stakeholder groups consisting of technology buyers, sellers, regulators, consultants, financiers, exporters and others within each sector.

All test/quality assurance plans and protocols are developed with the participation of technical experts, stakeholders and vendors; available prior to testing; peer reviewed by other experts; and updated after testing, as appropriate.

All test procedures, technology performance reports and verification statements are available on the ETV website within hours of finalization.

The highest levels of quality data are assured through the implementation of the ETV Quality Management Plan that is compatible with both US and international quality standards.

In recognition of the need for new ballast water treatment technologies to be independently evaluated and verified, and for their commercialisation and wide-scale implementation to be accelerated, the EPA and United States Coast Guard have signed a Memorandum of Agreement for the application of the ETV process to ballast water treatment technologies in the US (www.epa.gov/etv/moa_coastguard.htm).

A Pilot effort, which is being managed on behalf of the EPA and US Coast Guard by consultants NSF International, is moving quickly ahead. A stakeholder meeting was held in June this year and an initial technical panel meeting was held in August, aimed at developing treatment testing and verification protocols. The goal is to have a draft protocol available for stakeholder review by the end of this year. A

meeting was also recently held with ballast water treatment technology vendors to inform them of the ETV process and to solicit input on the verification protocol. The vendor meeting was held in Chicago on 20 September, just before the Ballast Technology Investment Fair.

The Pilot Study will seek to verify the performance of treatment technologies. The verification will be looking not only at the ability of the technologies to remove or inactivate invasive species, but will also provide additional performance information such as power or chemical requirements, response to power fluctuations, personnel time to operate, reliability, residuals handling and other installation and operational measures.

Vendors of ballast water treatment technology who have their systems verified by the ETV process can only stand to gain much stronger market positions.

While this is a US initiative, application of the ETV process to ballast water treatment will hopefully provide valuable input to IMO's efforts aimed at developing international standards and procedures for the evaluation and approval of new ballast water treatment systems. It will be important that a broad international review of the ETV verification protocol is achieved.

At the meeting in Chicago, vendors were very vocal on the need to establish international standards for these technologies, and indicated that the lack of a standard is a major hindrance to technology developers. It was also suggested that close coordination of efforts between EPA/ETV, USCG, IMO and other countries/groups that may be developing similar programmes, is critical for the ETV process to have added value to vendors. Once again, the call has gone out for a uniform, standardised, international approach.

All stakeholders, including internationally, are invited and encouraged to participate. Contact Tom Stevens, the NSF ETV Pilot Manager, at stevens@nsf.org. Additional information about the ETV Program may be found on the USEPA and NSF web sites (www.epa.gov/etv) and (www.nsf.org/etv).





Nigeria Initiates Seafarer BW Training

The Joemarine Institute of Nautical Studies in Delta State, Nigeria, has initiated training in ballast water management for ships' Masters and other maritime personnel, using materials provided by the GloBallast programme.



The 1st training course in ballast water management at the Joemarine Institute of Nautical Studies, Nigeria.

Nigeria is one of Africa's major economies and such initiatives are a significant boost for the programme's regional replication efforts.

GloBallast will now be working with the institute and others throughout Africa to forge closer links, and to share experiences with the programme's African demonstration site in Saldanha, South Africa. Well-done Joemarine!

SR



Canadian Guidelines Implemented

Canada is now well underway with implementing its *Guidelines for the Control of Ballast Water from Ships in Waters Under Canadian Jurisdiction*, which came into effect on 1 September 2000 (www.tc.gc.ca/MarineSafety/).

The Guidelines were developed under the auspices of the Canadian Marine Advisory Council and reflect wide consultation with shipowners, environmental organizations, government departments and the US Coast Guard. They are designed to implement the IMO Guidelines (A.868(20)) in Canadian waters.

As Guidelines they do not appear to have statutory mandate and are expressly subordinate to the statutory provisions of Canadian maritime legislation.

The Canadian Guidelines require all ships that carry ballast water to have a ballast water management plan, and reference the ICS/INTERTANKO Model Ballast Water Management Plan as an appropriate guide.

Relevant ships intending to visit Canadian ports are required to submit a Ballast Water Reporting Form, based on the IMO form, to the relevant Port State Authority prior to entry into Canadian waters.

Port State Authorities are provided with interrogative guidelines and the ability to board ships and take ballast water samples if necessary.

The Guidelines are supplemented with Regional Annexes, which provide region-specific requirements for the West Coast, Great Lakes and St Lawrence River, Eastern Canada north of 60° N and the remainder of the East Coast.

Subject to the Regional Annexes, ballast water taken on by ships outside Canadian waters, may not be discharged within Canadian waters, unless it has been subject to ballast exchange in locations of 2,000 metres or more in depth; or at prescribed, alternate exchange zones; or subject to alternative treatment methods acceptable to Transport Canada.

The disposal of sediments from ballast tank cleaning must be conducted outside Canada's 200nm EEZ, or at approved land sites.

The Annexes in some cases provide for more stringent requirements, and have been developed in recognition of regional differences in trade, ship types, geography, ecology and risk species.

The Canadian Guidelines go a long way towards implementing parts of the IMO Guidelines, but are lacking in several key areas. These include the IMO sections on dissemination of information, training and education and Port State considerations.

In particular, there is no provision for the implementation of port surveys to detect introduced species and to establish reporting systems, for alerting ships taking-on ballast in Canadian waters to outbreaks of harmful species.

Another problem is that while provision is made for ships to be boarded and sampled, no guidance is given on sampling and subsequent analysis, in terms of purpose and procedures.

A major weakness, one that is shared by all countries trying to implement the IMO Guidelines, is that while provision is made for ships to use alternative methods that are acceptable to the authorities, there is currently no way for the authorities to responsibly determine acceptability.

Once again, IMO member countries must act now to address this glaring gap by developing the necessary standards.

SR

Preventing Pests in Paradise



The Pacific Ocean covers nearly a third of Planet Earth, and the Pacific Islands, while tiny in land area, maintain jurisdiction over 30 million square kilometres of ocean – equivalent to the combined land areas of Canada,

China and the USA. There are at least 11 km² of ocean for each and every Pacific Island citizen. Jurisdictionally, the sea is nearly 200 times more significant to the average Pacific Islander than it is to the average global citizen.

The importance of the sea to Pacific Island peoples cannot be overstated. Neither can the importance of shipping. On far-flung lands in an immense ocean, communities are overwhelmingly dependant on shipping for economic survival.

The declaration of 200 nautical mile Exclusive Economic Zones by island countries, creates a 'seamless' spread of jurisdictions across the Pacific, making it nigh impossible for ships to transit this region on the 'high seas'. The Pacific Islands thereby play unwitting host to transit ships trading between the mighty economies of the Pacific Rim.

In terms of ballast water and invasive marine species, this creates a potential time bomb for Pacific Island marine environments. Transit ships en-route from Japan to Australia, Singapore to South America or New Zealand to California, for example, pass right through the waters of Pacific Island countries. In order to comply with the ballast water management requirements of Pacific Rim ports, such ships may undertake ballast water exchange in the vicinity of small island States. They may be inadvertently threatening Pacific Island countries with their ballast water discharges.

In response to the overall environmental threats posed by shipping in the region, the South Pacific Regional Environment Programme (SPREP), has developed the Pacific Ocean Pollution Prevention Programme (PACPOL). SPREP is a regional organisation comprising 26 member countries. With a staff of 70+ and a new headquarters in Samoa, it manages an impressive portfolio of environmental technical cooperation projects.

SPREP has formal links with IMO, having signed a cooperation agreement and having Observer status at IMO meetings. It is also the executing agency for a

number of IMO Technical Cooperation projects in the region, through PACPOL.

PACPOL is designed to address all forms of ship-sourced marine pollution, and aims to assist SPREP member countries to implement IMO Conventions, including the emerging ballast water Convention.

In order to assess the potential ballast water threat posed by transit shipping, the PACPOL workplan includes a risk assessment that aims, amongst other things, to identify and map mid-ocean ballast exchange areas. This will enable an enlightened assessment to be made of the potential risks posed (or not posed) by transit ballast exchange. Funds are currently being sought for this study.

In addition to transit shipping, Pacific Island ports themselves receive direct ballast water discharges. Large tankers call at many ports in the region, and container and general cargo ships transfer 'packets' of ballast water between island States. In some countries, bulk products such as sugar, woodchips, nickel and phosphate are exported, resulting in significant ballast water imports.



Shipping is a major industry in the Pacific Islands region

To begin addressing the port situation, SPREP has recently submitted a funding proposal to AusAID, to carry out port baseline surveys for introduced marine species in Pacific Island ports. These would be based on the Australian CRIMP Port Survey Protocols, similar to surveys carried out at the GloBallast Demonstration Sites. This would be a major boost to the global network of port surveys.

Finally, the GloBallast programme is looking to form stronger links with SPREP and its PACPOL programme, as part of our regional replication efforts. The beginning of this cooperation is marked by the attendance of Mr Zhao Dianrong from the GloBallast Demonstration Site in China, at the next annual PACPOL workshop in Tahiti this October. Mr Zhao will provide training in ballast water management and share China's experiences under the GloBallast programme, with Pacific Island maritime and environment officials.



Progress Report



Activities Undertaken July - September 2001:

- ✓ Annual leave taken by PCU staff.
- ✓ Risk assessment tenders processed.
- ✓ Port survey training conducted in Brasil, China, Iran and Ukraine.
- ✓ Port surveys commenced in China, Iran and Ukraine.
- ✓ Web site updated.
- ✓ Review of information clearing house commenced.
- ✓ US West Coast Ballast Outreach Project reviewed and evaluated for US Sea Grant programme.
- ✓ Mission undertaken to Estonia to plan Baltic ballast water initiative.
- ✓ Articles published in PEMSEA Tropical Coasts journal and Shippingworld/ Shipbuilder magazine.
- ✓ 1st GEF/UNDP Project Implementation Review completed.
- ✓ Principal Administrative Assistant recruited.
- ✓ Compliance monitoring and enforcement scoping study carried out.
- ✓ Legal workshop planned at WMU.
- ✓ Development of Train-X packages progressed.
- ✓ Concept Paper drafted for GloBallast Phase II.
- ✓ 6th issue of Ballast Water News produced.

Activities Planned October - December 2001:

- Attend and present at 41st meeting of SIGTTO, Bracknell, 2-4 Oct.
- Hold Black Sea Regional Conference on Ballast Water Management & Control in Ukraine, 10-12 Oct.
- Provide ballast water training at annual PACPOL Workshop, Tahiti, 8-12 Oct.
- Hold Eastern Baltic Sub-Regional Workshop on Ballast Water Management in Estonia, 22-24 Oct.
- Undertake support mission to Brasil.
- Initiate South American regional activities through ROCRAM meeting, Ecuador, 22-23 Oct.
- Attend/assist International Conference on Ballast Water Management, Singapore, 1-2 Nov.
- Attend APEC Workshop on Risk Management Frameworks for Introduced Marine Pests, Hobart, Australia, 12-15 Nov.
- Hold legal workshop at WMU, Sweden, 14-16 Nov.
- Commence ballast water risk assessments.
- Conduct port surveys in Brasil and India.
- Initiate ballast water sampling training and assistance for Pilot Countries.
- Commence planning for 3rd GPTF meeting in Goa, India.
- Produce 7th issue of Ballast Water News.



More Information?

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