# INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS

UNITY FOR SAFETY AT SEA

IFSMA

## 33RD ANNUAL GENERAL ASSEMBLY

## ANTWERP, BELGIUM, 24-25 MAY 2007

## ANNUAL REPORT AND ACCOUNTS



**33rd AGA Proceedings**
**PART A**

With the Compliments of
The Secretary General


202 Lambeth Road, London SE1 7JY
Tel.: +(44) 20 7261 0450
Fax.: +(44) 20 7928 9030
Email:HQ@ifsma.org
Web Site: www.ifsma.org

# IFSMA 33rd Annual General Assembly
# in Antwerp, Belgium, at the Radisson SAS Park Lane Hotel

## Provisional Agenda

| **Thursday** | **Item** | **24th May 2007** |
|---|---|---|
| 0800-0900 | | Registration |
| 0900- | 01 | Introduction of Baron Delwaide by Capt. Alain PELS, KBZ President.<br>Welcome address by Baron Leo Delwaide, Honorary President of PoA<br>Opening address by Capt. Alain PELS, KBZ President |
| | 02 | Reply by Captain Christer Lindvall, President IFSMA |
| | 03 | Adoption of Agenda |
| | | Adoption of Minutes, 32nd Annual General Assembly, Los Angeles, USA. |
| -1030 | 04 | Matters Arising from Minutes of 32nd General Assembly<br>Establish Drafting Groups |
| 1030-1100 | | **Coffee Break** |
| 1100-1130 | 05 | Secretary General's Report |
| 1130-1210 | 06 | Honorary Treasurer's Report |
| 1210-1215 | 07 | Appointment of Honorary Auditor |
| 1215-1230 | 08 | Budget and Subscriptions 2008 |
| 1230-1400 | | **Lunch Break** |
| 1400-1430 | 09 | **Safety of Large Passenger Vessels – Allan Graveson (Nautilus UK)** |
| 1430-1500 | 10 | **Administrative Workload Onboard – Carmen Dewilde (KBZ)** |
| 1500-1530 | | **Tea & Coffee Break** |
| 1530-1600 | 11 | **Introducing the E-Nav Revolution – David Patraiko (Ind Member)** |
| 1600-1700 | 12 | **Fairtrade for Seafarers – Mark Dickinson (Nautilus UK)** |
| 1700 | | Close of First Day's Meeting (may finish earlier to prepare for evening) |
| 1730 | | Coach leaves hotel for Town Hall |
| 1800-1900 | Pre Dinner Reception hosted by Mr. Marc Van Peel, Alderman, Port of Antwerp | |
| 1900-2300 | IFSMA-KBZ Annual Dinner (Venue - Antwerp Town Hall) Hosted by KBZ.<br>**(DRESS CODE - LOUNGE SUIT)** | |
| **Friday** | | **25th May 2007** |
| 0900-0930 | 13 | **Progressive Training Techniques – Sudhir Subhedar (Ind Member)** |
| 0930-1000 | 14 | **Competence Based Learning & Evaluation – Steven Cross (GlobalMET)** |
| 1000-1030 | 15 | **Training Discussion with consideration of information from S. Africa.** |
| 1030-1100 | | **Coffee Break** |
| 1100-1130 | 16 | **Accidental Oil Spill (Oil Separator Malfunction) Georges Havelka (ACOMM)** |
| 1130-1200 | 17 | **Development and Operation of Gwadar Port – Raffat Zaheer (Ind Member)** |
| 1200-1230 | 18 | **IALA VTS Committee – Paul Owen (Assistant Secretary General + Ind Mem)** |
| 1230-1400 | | **Lunch Break** |
| 1400-1430 | 19 | **To be announced** |
| 1430-1500 | 20 | **To be announced** |
| 1500- | 21 | Drafting Groups – Reports |
| | 22 | Approval of Resolutions |
| | 23 | Venue of Next Annual General Assembly |
| -1600 | 24 | Any Other Business |
| 1600 | | **Close of General Assembly** |

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# INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS

Head Office: 202, Lambeth Road, London, SE1 7JY, England
Telephone: +44 20 7261 0450
Fax: +44 20 7928 9030
Email: hq@ifsma.org
Web Site: www.ifsma.org

## EXECUTIVE COUNCIL

| | | |
|---|---|---|
| President | Captain C. Lindvall, Sweden | Elected 8.5.06 |
| Deputy President | Captain K. Akatsuka, Japan | Elected 8.5.06 |
| Vice Presidents | Captain J. Benyo, USA | Elected 8.5.06 |
| | Captain M. Castro, Argentina | Elected 8.5.06 |
| | Captain M. Dickinson, UK | Elected 8.5.06 |
| | Captain B. Haave, Norway | Elected 8.5.06 |
| | Captain P. Osichansky, Russia | Elected 8.5.06 |
| | Captain P. Vigneron-Larosa, France | Elected 8.5.06 |
| | Captain W. Wittig, Germany | Elected 8.5.06 |

## SECRETARIAT

| | | |
|---|---|---|
| Secretary General | Captain R. M. MacDonald | Appointed 01.08.01 |
| Assistant Sec. Gen. | Captain P. R. Owen | Appointed 01.10.96 |
| Admin. Officer | Mrs. R. Howlett | Appointed 08.10.02 |

## HONORARY MEMBERS

| | |
|---|---|
| Dr C. P. Srivastava | Elected 1985 |
| Captain Nic W.C. Rutherford | Elected 1992 |
| Mr William O'Neil | Elected 1993 |
| Captain Gerhard Goldberg | Elected 1995 |
| Captain Genji Yoshinaga | Elected 1997 |
| Captain Hiroshi Kawashima | Elected 1998 |
| Captain Roger Clipsham | Elected 2002 |
| Mr. Efthimios Mitropoulos | Elected 2004 |

## HONORARY INDIVIDUAL MEMBER

| | |
|---|---|
| Captain Henrik Sem | Elected 1993 |

## FOUNDING ASSOCIATIONS

Association Nationale des Officiers et Marine du Commerce, Le Maillon, Paris, France
Collegio Nazionale Patentati Capitani L.C.e D.M.,Genoa, Italy
Irish Institute of Master Mariners, Dublin, Ireland
Koninklijk Belgisch Zeemanscollege Vereniging voor Zeeofficieren, Antwerp, Belgium
Nederlandse Vereniging van Kapitans ter Koopvardij, Rotterdam, Netherlands
Norges Skibsforerforbund, Oslo, Norway
Society of Master Mariners (South Africa), Cape Town, South Africa
Verband Deutscher Kapitane und Shiffsoffiziere, Hamburg, Germany

# IFSMA Associations and Votes

| No. | Association | Location | Date Joined | 2006 | In Good Standing | Votes |
|---|---|---|---|---|---|---|
| 01 | CCUMM | Argentina | 01/01/80 | 350* | Not Yet | (2) |
| 02 | GlobalMET (Was AMETIAP) | Australia | 28/02/06 | 30* | Not Yet | (1) |
| 03 | KBZ | Belgium | 01/01/74 | 40 | Yes | 1 |
| 04 | BUSMA | Bulgaria | 03/03/94 | 30 | Yes | 1 |
| 05 | CMMC | Canada | 27/3/07 | 30 | Yes | 1 |
| 06 | CMMA | Cyprus | 03/03/94 | 45* | Not Yet | (1) |
| 07 | NAUTILUS | Chile | 28/02/06 | 70 | Yes | 1 |
| 08 | DNA | Denmark | 01/01/84 | 796 | Yes | 4 |
| 09 | FSOU | Finland | 15/05/96 | 300 | Yes | 2 |
| 10 | AFCAN | France | 01/07/79 | 51 | Yes | 1 |
| 11 | ACOMM | France | 01/01/75 | 42 | Yes | 1 |
| 12 | VDKS | Germany | 01/01/74 | 215 | Yes | 1 |
| 13 | AESM | Hong Kong | 19/11/99 | 100 | Yes | 1 |
| 14 | IIMM | Ireland | 01/07/74 | 60 | Yes | 1 |
| 15 | LSMA | Latvia | 18/03/04 | 104 | Yes | 1 |
| 16 | NVKK | Netherlands | 01/01/74 | 85 | Yes | 1 |
| 17 | Nautilus NL | Netherlands | 28/02/06 | 547 | Not Yet | (3) |
| 18 | NMOA | Norway | 01/01/74 | 3650 | Yes | 6** |
| 19 | AMOSUP | Philippines | 20/10/06 | 100 | Not Yet | (1) |
| 20 | MSMA | Murmansk Rus | 21/11/89 | 56 | Yes | 1 |
| 21 | FESMA | Vladivostok Rus | 27/03/90 | 150 | Yes | 1 |
| 22 | SMMSA | South Africa | 01/01/74 | 30 | Yes | 1 |
| 23 | AVCMM | Spain | 01/01/76 | 50 | Yes | 1 |
| 24 | SSOA | Sweden | 01/07/85 | 344 | Yes | 2 |
| 25 | OSMA | Odessa Ukraine | 02/11/89 | 50* | Not Yet | (1) |
| 26 | Nautilus UK | UK | 28/02/06 | 3161 | Yes | 6** |
| 27 | CAMM | USA | 02/10/92 | 94 | Yes | 1 |
| | | | | | | |
| | Group Individual Members | | | 178 | Yes | 2 |

**** Declarations for Year End 31st December 2006 not received (as of 18/4/07)***

***** As agreed at 25th Annual General Assembly held in Durban, May 1999.***

## Individual Members Joined – Since last Report to May 2007

| Name | Country | Joined |
|---|---|---|
| Viktor Kyrylenko | UKRAINE | 10/05/2006 |
| Jonathan Samuell | USA | 27/04/2006 |
| Vadim Vasilev | RUSSIA | 20/06/2006 |
| James Thomas Dyer | USA | 15/09/2006 |
| Freddy Bob-Jones | UK | 04/10/2006 |
| Saeid Malek Zadeh | IRAN | 30/11/2006 |
| Andriy Vasilenko | UKRAINE | 23/01/2007 |
| Behzad Roshani | IRAN | 15/02/2007 |
| Glenn R Boaz | INDIA | 15/03/2007 |
| Sten Rigedahl | SWEDEN | 24/4/2007 |
| Aleksandrs Osanovs | LATVIA | 24/4/2007 |

## Associations Joined – Since last report to May 2007

| Name | Country | Members |
|---|---|---|
| Associated Marine Officers' and Seamen's Union of the Philippines (AMOSUP) | Philippines | 100 |
| Company of Master Mariners of Canada (CMMC) | Canada | 30 |

**Total Membership as at 24/4/2007**

| | |
|---|---|
| **Association Members** | **10,580** |
| **Individual Members** | **178** |
| **Honorary members** | **9** |
| **Total** | **10,767** |

# Balance Sheet:
## As of 31/12/06

| Cash and Bank Accounts | Assets (£) |
|---|---|
| Cash Account | 10.76 |
| Current | 3,239.98 |
| Savings | 15,609.09 |
| ***TOTAL Cash and Bank Accounts*** | 18,859.83 |
| | |
| | |
| | |
| Assets | 0.00 |
| ***TOTAL Other Assets*** | 0.00 |
| | |
| | |
| | |
| Investments | 75,000.00 |
| ***TOTAL Investments*** | 75,000.00 |
| **TOTAL ASSETS** | **93,859.83** |
| | |
| | |
| **Liabilities & Equity** | |
| Liabilities | 0.00 |
| Credit Card | 0.00 |
| **Total Liabilities** | 0.00 |
| **Total Equity** | 93,859.83 |
| **TOTAL LIABILITIES & EQUITY** | **93,859.83** |

# IFSMA Profit and Loss Statement 2006

| **INCOME** | **Budget** | **Actual** | **Variance** |
|---|---|---|---|
| | Year 2006 | Year 2006 | Budg/actl |
| Associations | 54000 | 72092.74 | 18092.74 |
| Individual Members | 6500 | 6072.43 | -427.57 |
| RTCME Registrations | 900 | 620.00 | -280.00 |
| Interest Bank | 350 | 531.64 | 181.64 |
| Interest Bonds | 2750 | 3213.18 | 463.18 |
| Repayments and Misc Rcpts | 1000 | - | -1000.00 |
| Donations | 500.00 | 1095.25 | 595.25 |
| Others | 500.00 | 497.20 | -2.80 |
| | | | |
| **Total Income** | **66500.00** | **84122.44** | **17622.44** |
| **EXPENDITURE** | | | |
| Accommodation | 8000.00 | 8000.00 | 0.00 |
| Insurance (Office and Equipment) | 550.00 | 567.00 | 17.00 |
| Corporation Tax | 0.00 | 0.00 | 0.00 |
| Bank Charges | 100.00 | 76.05 | -23.95 |
| Staff | 40000.00 | 39358.87 | -641.13 |
| Printing and Stationery | 2000.00 | 5043.66 | 3043.66 |
| The Media | 2000.00 | 1050.00 | -950.00 |
| Advertising | 500.00 | 00.00 | -500.00 |
| Postage | 3000.00 | 3299.86 | 299.86 |
| Communications (Tel/Fax) | 1250.000 | 1146.95 | -103.05 |
| General Assembly | 3000.00 | 6620.29 | 3620.29 |
| Executive Council meetings | 500.00 | 1718.24 | 1218.24 |
| IMO Meetings | 500.00 | 1554.80 | 1054.80 |
| Other meetings UK and overseas | 500.00 | 1773.40 | 1273.40 |
| Office Purchases | 0.00 | 591.02 | 591.02 |
| Command Seminar | 0.00 | 112.50 | 112.50 |
| Office Equip maintenance | 872.00 | 231.13 | -640.87 |
| Equipment Rental | 1200.00 | 883.60 | -316.40 |
| Contingencies | 250.00 | 0.00 | -250.00 |
| Misc | 250.00 | 128.00 | -122.00 |
| **Total Operating Cost** | **63687.20** | **72155.37** | **8468.17** |
| **Cash Flow** | **2812.80** | **11967.07** | **9154.27** |
| **Depreciation** | **2169.00** | **0.00** | **-2169.00** |
| **Contribution** | **643.80** | **11967.07** | **11323.27** |

**INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS**
202 LAMBETH ROAD, LONDON SE1 7JY
**Telephone**: 020 7261 0450 **Facsimile**: 020 7928 9030
**E-mail**: HQ@ifsma.org **Web Site**: http://www.ifsma.org
PRESIDENT: Captain Christer Lindvall, Sweden

Hon. Auditor's Report

6 March 2007

I have examined the annexed Balance Sheet and Income & Expenditure Account for 2006, and have obtained all the information and explanation which I consider necessary for my audit.

In my opinion proper books have been kept by the Federation and the Balance Sheet and Income & Expenditure Account, which were in agreement therewith, give a true and fair view of the state of the Federation's affairs as of the 31st day of December 2006.

Signed

Captain E. Colin Evans, FNI
Individual Member & Hon.Auditor

# ACCIDENTAL OIL SPILL DUE TO OIL-SEPARATOR'S MALFUNCTION

by Captain Georges Havelka, ACOMM

## INTRODUCTION

It became a common sight in Brest to see a ship putting into port because it had been intercepted by the Navy and accused of voluntary pollution. A glittering wake had been observed, and a photograph taken of the ship's wake. The Tribunal, with only this proof and with the plane's pilot as the only witness, decides to release the ship on bail in the order of 200,000 / 400,000 Euros. The shipmaster, more often than not, admits the spill and attributes the spill to a faulty separator. The requested sum is paid and the ship leaves Brest, not without delay; PSC has its role to play and there may be a week-end.

The procedure seems to us questionable for several reasons.

- The only proof is a photograph. That phosphorescent wake may not be an oil spill and, if it is, may be attributed to another ship, as, in the vicinity of the TSS they follow each other closely.

- The oil spill cannot be but small. A reported phosphorescent wake, say 15 or 20m wide, 5 or 10km long, less than 1mm thick, means a quantity of a few hundred litres of oil, in some cases less than 100 litres. This rather symbolic pollution disappears rapidly.

- The responsibility of an eventual oil-separator's malfunction should not be attributed to the shipmaster alone. Other bodies should be held responsible for that, the chief engineer, manufacturer, supplier, various inspectors and surveyors including the PSC inspector. In other fields of transport, air, rail and road, a technical malfunction is not automatically attributed to the pilot or conductor.

  The installation of separators aboard ships dates from about 1970 and became compulsory recently under IMO rules. It is, then, a relatively recent piece of equipment. This is why our colleague Georges Verdier, Chief Engineer, presents hereunder a short description of this piece of machinery and the way it functions.

- One final point. Why does the shipmaster so often admit the spill? One can admit, à-priori, that the captain does not knowingly throw oil polluted water overboard, otherwise he would do it at night or farther from the shore. Is he incited to admit the spill by his employer? It may be that admitting the spill and paying the required deposit will shorten the judicial procedure and allow the ship to leave earlier. A disturbed ship's schedule means a considerable loss of money.

## OILY WATER SEPARATOR ( OWS )

Oil/water separators installed on board ships must conform to the requirements of the Resolution MEPC60(33) amended by MEPC107(49) of 18th July 2003. Their use is compulsory as specified in MARPOL, Rule 10.

## GENERAL

Densities of oil and water are different. Consequently, in the vast majority of cases, Water/Oil separators installed on board merchant vessels separate water and oil on the principle of their densities.

Oily bilge-water is pumped into the device by an adjustable pump either from the bilges direct or from a retention tank. After the treatment oil is collected at the top and clean water at the bottom of the device. This pump must have a regular output, type approved, avoiding any kind of turbulences causing additional emulsion and mixing effects which would compromise the O/W separation on the principle of gravity.

An oil concentration detector measures the quantity of oil in water, which must not exceed 15 PPM (part per million). If that limit is exceeded, an automatic monitoring device should stop the separator and activate an alarm.

Usually, in the vast majority of cases, a separator is designed as follows:

- A first rough separation is achieved on the principle of different densities, as soon as the oily water enters into the separator.
- The liquid passes then through a system of baffles, change of direction and acceleration followed by a resting zone in view to regroup all droplets of oil in suspension.
- The process also makes use of centrifugal force.
- A built-in coalescer which is a sort of very open porous type strainer with an oleophilic surface separates the smallest droplets of oil.

## COALESCENCE

When 2 different liquids are mixed, the droplets of each of them have a tendency to join each other in order to form an assembly of 2 separate liquids.

The coalescer or filter-coalescer can contain a metallic mesh or granules. If granules, they may be made of oleophilic and hydrophobic propylenes (Advanced Pollution Control Technology) or of ceramics containing oleophilic amines.

Oil separated from water accumulates at the top of the separator and either flows out continuously as in what is called “vases of Florence”, or is detected by level sensors and the backwashing is started. This not only drains off all remaining droplets of oil and sludge to the bilges but also washes the coalescer and its strainers with inverse flow of water.

To create this backwash, the separator is equipped with a set of electrically controlled valves to stop the input of oily water as well as the output of clean water and to open a drain-cock for a drain-tank to receive oil. Another valve is activated to receive clean water for the backwash through the same opening as the clean water output.

The counter-current may be started manually or automatically. Oil detected by level sensors may be evacuated, on option, without stopping the separator.

N.B. There are generally 2 level sensors placed at the top of the separator, one lower than the other. The lower-one activates the drain-cock and the higher-one closes it. Of course, the lower-one should not be placed lower than the input of oily water.

In some models, to improve the first rough separation, the oily water is pumped in tangentially. This makes the liquid spin around and consequently pushes the water to the periphery, the oil staying near the centre.

There are also separators using the centrifugal force only. Oily water is pumped in tangentially, spinning around with a force which may be as high as 1,000 x gravity. Water is pushed hard against the sides while descending. Oil is collected at the top and drained off to the drain-tank.

Some installations have an additional oleophilic strainer placed beyond the level sensors in view to reduce even more the quantity of oil in the output before pumping it overboard. In some yachts that are not equipped with 15 ppm separators, oleophilic strainers are mounted directly on the output of bilge pumps. (Docs Vulkan)

PUMPS

They are mainly volumetric, positive displacement, self-priming pumps, in order to assure a steady throughput without undue turbulence or additional emulsion.

Volumetric pumps may be of several types:

- Diaphragm
- Peristaltic
- Eccentric screw

Diaphragm pumps

Two parallel diaphragms are driven by the same shaft. While one side of each diaphragm receives the liquid to be pumped, the other side is sealed with air which alternatively, as the membrane moves, flows from behind one diaphragm to behind the other through a set of non-return valves.

The liquid to be pumped is, then, drawn in and pushed out by one side of the membranes only. There maybe, however, pumps where the liquid is pumped by both sides of each membrane.

Peristaltic pumps

The liquid to be pumped is contained within a flexible tube fitted inside a circular casing. A rotor with a number of rollers, shoes or wipers turns and compresses the tube forcing the liquid to move through the tube. As the tube opens to its natural state after the passing of the cam, fluid flow is induced to the pump. This process is called PERISTALSIS.

Eccentric screw pumps

A rotor, in steel, rotates in a stator, in elastomer. The centres of these two bodies are offset, creating eccentricity. Extensible vanes fitted to the rotor create cavities of variable volumes causing flow of the liquid through input and output holes on the stator's casing.

If the liquid to be pumped contains abrasive particles or elastomer hostile chemical elements, the stator will wear away quickly. In that case, a centrifugal pump is preferable.

Principle of PPM measurement

This measurement works on the scattered light method. Clean water is a good light conductor and does not cause any refraction. If there are some oil or other opaque particles mixed with water, the light is scattered proportionally to the number of those particles. However, light may be scattered also by turbulence.

A sample water of the separator's output passes through a glass tube. A light beam is emitted from one side of the tube and received on the other side by a photocell, both positioned on a straight line passing through the centre of the tube. In case of clean water, the quantities of light emitted and received are identical. In case of water mixed with oil or other opaque elements, not all light emitted will be received. A calculator, if working properly, translates this difference in PPM (Parts per million).

This system has a drawback and that is, the light is scattered not only by hydrocarbons but also by any other solid elements in suspension in water, or by air bubbles if there is turbulence in the output. An improvement is achieved by placing a second photocell, out of line by "alpha" degrees with the first photocell and which receives light deviated by air bubbles. Light received, then, by both photocells should be equal to light emitted. There still remains the problem of solid particles other than hydrocarbons; light is scattered the same way as with hydrocarbons.

This may be obviated by installing more cells and an occulting device. Oil droplets deviate light as a prism does. Consequently, it is possible to collect deviated beams of light by an additional photocell, 160° from the emitting cell. With this device, solid particles in suspension in water are appreciably detected and the separator's efficiency improved. (Docs Inventive Systems Inc).

Value in PPM of the output is permanently displayed on separator's control panel but it is not recorded on a printout.

In some installations 2 pumps are used, one for the input of oil polluted water and the other for the output of treated water. The throughput of the latter one diminishes as oleophilic strainers get clogged with oil. The loss of suction power is measured by a vacuum gauge. The constructor considers that for a given vacuum value, the output reaches 15 PPM. With this system there is no possibility to visualize permanently the output value in PPM.

If the value of 15 PPM is exceeded, the intake is stopped automatically or a by-pass valve is activated to stop the output to the sea and redirect it to the retention tank, if there is one, or back to the separator. An alarm is also activated, both visual and audible. On some well equipped ships, an alarm is recorded on the engine room computer.

There is no way, onboard, to check the validity of the PPM value indicated. Once a year, at least, a sample of treated water is sent ashore for analysis and the PPM value found by the laboratory is compared to that which has been indicated by the separator. Last analysis results are usually displayed on the separator.

It may happen, then, that the concentration of oil in treated water exceeds 15 PPM without any alarm or indication. Therefore, a rough visual check of the output should be made to avoid, as much as possible, the discharge of polluted water overboard.

## MAINTENANCE AND REPAIRS

Maintenance of the separator falls on the ship and should be scheduled as for any other "critical" piece of equipment. Its output pipe, for pumping overboard, should be well marked and safely locked outside of operating periods.

The inside of the separator requires little care, except thorough cleaning when it is possible. If necessary, cleaning or replacement of ceramic oleophilic strainers, all other filters and of level detection probes.

Pumps are mechanical devices with moving parts which wear and must be replaced. There should be, then, on board a sufficient stock of spare parts. Pumps must be in perfect condition if the separator has to work properly.

Oil concentration detector (PPM) is an electronic device and requires little maintenance, mainly cleaning the glass tube in which water flows to be analysed. There should be on board, some spare parts, light emitter, glass tube, gaskets.

There should also be spare coils for electrically controlled valves, fuses, lamps.

Functioning of the alarm and of the by-pass valve should be checked before making use of the separator and at least once per week. The test should be entered in the log; it is required by the USCG, and eventually by PSC.

## DISCUSSION

The Shipmaster is in command of the whole ship; he is then responsible also for the Chief Engineer.

Every pumping of the bilge water, whether to the retention tank or over-board (if PPM is OK) is entered by the Chief Engineer in his log. If use is made of the separator, it should be entered in the log, starting and closing time, ship's position and quantity of water pumped. In case of a faulty functioning it is easy to trace the beginning of the pollution and in case of a normal functioning it is easier to defend oneself.

The best method is to pump water from the bilges to a retention tank, if there is one, and to let it decant. When this retention tank is full, it can be partially emptied through the separator. In this manner, water to be treated contains less hydrocarbons in suspension.

The sludge at the bottom of the retention tank will be pumped ashore, in the next port, if it is equipped properly.

This method, however, is not feasible for VLCCs. They are most of the time moored on buoys and the problem of getting rid of ship's sediments is very difficult to solve.

Another problem concerns the pump for pumping those sediments ashore. Often one makes use of the separator's output pump. Its throughput is low, say 1 to 2 $m^3$ /hour; on a VLCC it will take 20 hours to empty a retention tank of 40 $m^3$ in theory. In reality, there will be some counter-pressure due to the length of the pipes and their diameter. Throughput of the pump will be probably 500 litres/hour and the tank's emptying will last 80 hours. As a ship's stay in port doesn't exceed 24 hours, there are some problems. A solution might be to use a special powerful transfer pump with large diameter pipes.

# Competence Based Learning and Evaluation: Developments and Non-Developments in MET

Prof. Capt. Stephen J. Cross, MSc, FNI, GlobalMET
Maritime Institute Willem Barentsz,
P.O.Box 26, 8880AA Terschelling West, The Netherlands,
www.miwb.nl and sjcross@hetnet.nl

## Introduction.

The status of MET around the world is of a different standard and level of sophistication. Despite the STCW 95 review which was supposed to create a global standard framework for a.o. education and training, the exercise and subsequent document has been so politically influenced that there are many ways of interpretation possible.

Hence one might pose the question what is still missing in the MET initiatives and processes and what can be done about it. GlobalMET has taken the initiative to try and set the questions and give some guidance towards the answers.

In order to show how a qualitative system can be developed it seems interesting to view the MET evolution in a major seagoing country such as the Netherlands. Over the past years a great number of changes have taken place in MET in the Netherlands. The changes have been industry driven, educationally driven and politically driven. The various programmes and systems and the respective qualifications awarded are of interest from about 1970 until present. One significant development milestone has been the introduction of the dual purpose programme in MET. This started a phase of different philosophy compared to the MET systems in many other countries.

Subsequently the introduction of STCW 95 will have introduced considerable changes in the training methodologies worldwide as well. Besides that, new developments in education in general are often also applicable to global MET and the intent will often be to implement these changes in line with other programmes within educational systems. A number of these additional recent developments have been identified and are also explained hereafter.

## From 1970 onwards.

The shipping industry is often characterized as being very traditional and conservative. However even the strongest of critics must view the MET in The Netherlands with admiration. From 1967 until now some 7 forms of MET structures have been implemented.

- AS/ BS a 2 year sandwich system where the theory for 3rd mate and 3rd engineer was included. Oral exams and higher rank studies were to be taken in sequence later.
- BS/BM a 2 year sandwich system where the theory up to 1st mate and 1st engineer was taught and oral exams done by the Ministry of Transport.
- HTS-N/HTS-W being the 4 year front ended Dutch equivalent of the Bachelor programme with all theory up to 1st officer and 1st engineer including 1 year seatime.
- HTS-Nplus/HTS-Wplus: an extension of the previous system, however now with an optional component of the lowest level CoC of the counter discipline
- Marof HBO (semi-integrated Nw of Wn) is the mandatory follow up of the previous system whereby both operational level CoC's where awarded and the highest in the counter discipline acquired after sufficient sea service
- Marof HBO (fully integrated officer) being the fully integrated dual purpose system whereby the highest rank in both disciplines is achieved,

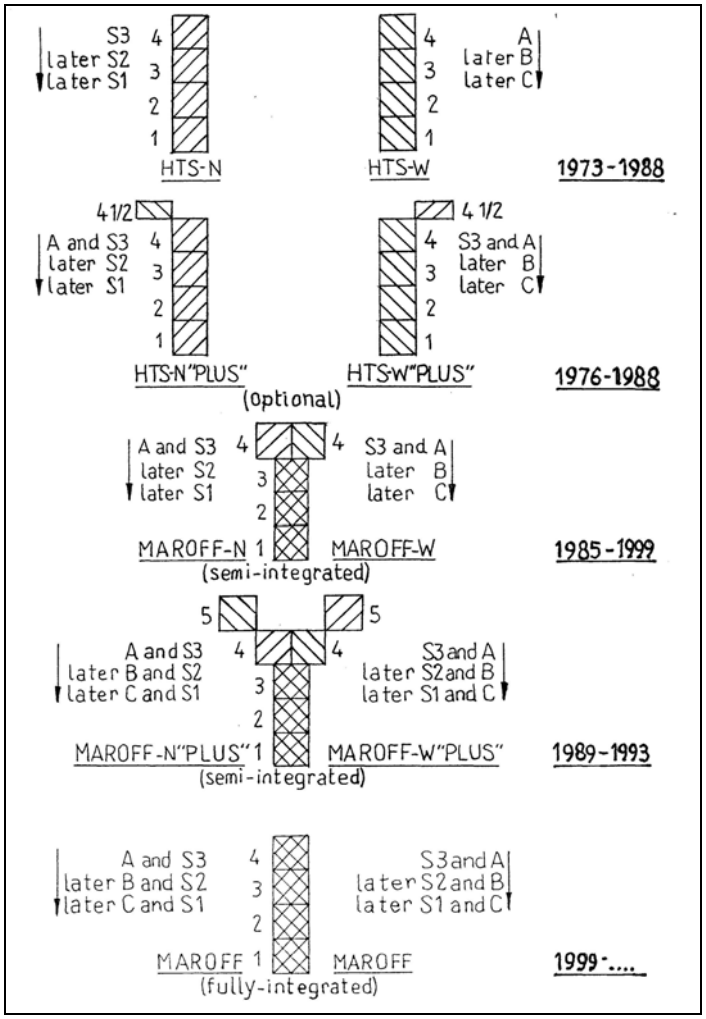
- Marof BMO (Bachelor of Maritime Operations) in which the demand for specialization in the final year is heard again from industry as the ships still require specialists rather than only generalists to perform efficient operations.

The above illustrates a new system every 5 years which in turn means that one cycle of the predominantly 4 year programmes which are delivered can barely be run once, before the next amendments are already being introduced.

## The Dual Purpose switch.

The system of dual purpose or integrated training of seagoing personnel has been around for quite some years now. As the level, extent, rewards and terminology used in this context vary considerably the phenomena tends to be often misunderstood by those not directly involved. An attempt is made to explain the various systems used in dual purpose training and operations in The Netherlands.

The basic idea behind the introduction of the polyvalent or dual purpose merchant officer is that in essence the running of a vessel is a single operation viz. carrying out the shipborne transport of merchandise in a safe and economic way. The objectives of all officers and personnel on board converge in the achievement of this set goal. The advance of modern technology on board ships, reflected in increasing automation and mechanisation makes the concept of the dual purpose officer perfectly feasible.




*Netherlands dual purpose evolution*

One issue is essential to remember when discussing and designing the dual purpose curricula and about which some misunderstanding and controversy still exists: The dual-purpose training

programme shall always take into consideration that the majority of the shipowners still have mono-disciplined shipboard operations. This implies that the graduates will have to be able to function in both a mono-disciplined as well as a dual-purpose environment. Functioning in a mono-disciplined environment will be possible in the same professional manner as would be in a dual purpose operation.

## Competences required.

Apart from the structure evolution of both shipboard operations and the related training and education systems as illustrated above, the content of the various programmes, the development of curricula and the philosophy of teaching, was also changing at the same time. Obviously these activities further complicate the implementation of the teaching efforts.

- The shift from subjects to modules to competences

First of all the traditional subjects were grouped into modules which have some or other kind of coherence. These modules in turn were then clustered into competences. Obviously here the structure of the STCW 95 revision should have triggered this evolution in each MET system globally

- Knowledge based versus competence based learning

The other trigger within STCW95 was supposed to be the change from knowledge based learning and evaluation to competence based learning and evaluation.
Numerous educational books and theories describe the features of competence based learning. Although there are slight differences by philosophy or culture all systems do agree on the basics.
What competence based learning definitely is not, is the continuation of the traditional classroom theory teaching, describing the competence required verbally or written and then hoping that students will be able to transfer that knowledge of the process, skill or competence into the actual action when on board ship. And this of course both in routine and emergency situations.
Competence based learning will acquire a different approach, less class room theory and a lot of hands on workshop, laboratory, training vessel or simulator practice and assessment.

- The change in examination regimes

With reference to the above it will become obvious that the endless written exams are only to a limited extent suitable for application in competence based education and training. The competence of being able to write is then the main element being assessed.
And even the ever popular oral examinations are really only assessing if someone can speak understandably (also a great competence) but hardly what we are expecting as the prime task of for instance a competent ship handler.

Examinations or assessment of the skills and competences without the proper tools to demonstrate one's competence with, can not classify as competence based evaluation.
In the Netherlands a decrease in the number of written exams to about 50% of the present amount is taking place and continuous assessment, portfolio and practical demonstrations are the methods used in the new style examinations.

## Competence based learning

Another new element STCW95 brought us is the identification of learning objectives required to be met for various ranks, functions and subjects. Standards of competence are by definition related to functions. The functional approach will now allow for competences to be developed which can form a common basis for the certification of seafarers.

In a competence based training system the basis of the training design is explicit and has measurable standards of performance. This implies that assessment will form an essential part in a competence based system. This in turn will require a high degree of QA to take place in order to check that the training and assessment are performed in a proper way.

When setting up such a system a number of steps are to be taken:

- standards of performance are to be distinguished
- identify the relevant competence based standards
- check these with the already applied practice
- where there are differences there is an apparent need for training

The competence based standards then form the framework for assessment. Evidence of performance will be monitored and measured, possibly by means of "before and after" testing. Accreditation that all of the efforts are resulting in the right outcome is the final step.

## Competence based evaluation.

Demonstrating one's competence can be done in a number of ways and in the maritime field by a.o. approved simulator training where appropriate. As such simulators seem a useful, relevant and widely applied training tool so evaluation and assessment should also be possible through this type of tool.

However how this shall be achieved as well as what type of simulator is required to achieve demonstrating a certain competence are questions which will easily come to mind.

The classification of simulators drafted by IMSF and others and adapted by DNV in their standards seems relevant and useful in relation to applications and the relevant learning objectives.

Once the simulator training has been approved and the right type of system is used for such then the even more complicated and interesting issue of assessment and examination of the evidence from this training comes up. This should obviously show if a person is able to perform a skill and thus be judged competent.

If assessment seems difficult in general teaching, imagine how it will be in a specialistic field as the maritime operations are. New techniques and methods for an objective assessment seem crucial.

On the issue of assessment of training and skills competency a number of points:

- training without assessment is a wasted effort,
- focus on methods for assessing competence,
- testing in life like situations,
- simulators provide training resembling shipboard practice,
- use training tool (simulator) for assessment of competence,
- criterion referenced testing will be required,
- other methods which can also be used for evaluation of competency are: training vessel, practical workshop, continuous assessment, written exams.

This means that in a competency based training system once the competence or function has been described, a check must be made, the assessment, if the competence is mastered. This check will have to be done against predefined criteria. These can be agreed upon in advance so that the trainee is informed of what he will be assessed on and against which criteria. In order to attempt to show the complexity of changes and developments in the structures and the contents it seems useful to incorporate these elements in a matrix as is shown hereafter.

## Other phenomena and developments.

- The Major/Minor structure and the Bachelor/Master structure

From the Europe wide education harmonization discussions a number of new items have emerged. The Major/Minor structure is a system whereby the core of an educational programme is considered

the major and this can be complemented with a number of minors often offered as electives. In this way a diversification is possible within the structure of a school system and it almost allows for tailor making the programme to the preference of student and sector of industry.

The Bachelor/Master structure aims at formatting higher education programmes Bachelor level structures in order to clear the way towards Master programmes in continuing education.

| **Netherlands MET** | Sandwich system | Front-ended | Duration | Subjects | Modules | Competences | Knowledge based | Competence based | Examinations | Assessment | Major/ minor | BA/ Ma | Diploma | Degree | ECTS | QA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AS/AM Ended 1967 | x | | 2 | x | | | x | | x | | | | x | | | |
| BS/BM Ended 1973 | x | | 2 | x | | | x | | x | | | | x | | | |
| HTS-N / HTS-W 1973 | | X | 4 | | x | | x | | x | | | | | X | | |
| HTS-N plus / HTS-W plus 1976 | | X | 5 | | x | | x | | x | | | | | X | | |
| Maroff HBO (semi) 1985 | | X | 4 | | x | | x | x | | x | | | | X | | x |
| Maroff HBO (fully) 1999 | | X | 4 | | | x | | x | | x | | x | | X | x | x |
| Marof HBO (specialized) 2004 | | X | 4 | | | x | | x | | x | x | x | | X | x | x |

*Netherlands MET composition*

- The change from diplomas to degrees with introduction of Dublin descriptors

The seafaring education programmes were traditionally only developed to provide the graduates with certificates of competence for the various ranks. Both seafarers and industry are now starting to realize that there might be another life than seafaring and further studies will be important. By incorporating the seafaring educational programmes into already existing academic structures within training establishments the graduate seafarer should be able to at least acquire a Bachelor degree. The next step can then ever be Master studies or even PhD research.

Within the Bachelor degree a number of general competences apart from those required by the profession must be developed and incorporated. These are the so-called bachelor competences laid down in the Dublin descriptors

- The European Credit Transfer System initiated in the Bologna declaration.

If harmonization is to have any success at all, there must be a common method of awarding study results. For this purpose the European Credit Transfer System was developed and has now been introduced in most higher educational programmes in the Netherlands. Each year of study contains 60 EC and thus the MET bachelor programmes are totalled to 240 EC.

- Quality Assurance in MET through STCW95 guidelines.

With the advent of the revised STCW code new aspects are being introduced in the traditional maritime education and training concepts. One of these aspects is the matter of quality standards in maritime education and training with consequently the related quality control and quality assurance requirements.

In the manufacturing industry these are well adapted requirements for which a number of systems and standards have been developed and applied. In the services industry, and as such education and training should be regarded, there are also possibilities to apply various qa systems. However in maritime educational systems this is fairly novel.

## What is wrong?

The above paragraphs attempt to illustrate activities which have been initiated in the seafaring training industry of an established maritime nation. However as pointed out there are huge differences worldwide on the level and sophistication of MET. Below are six major issues and proposed actions to address each, as agreed at a previous AMETIAP/Global MET seminar and since endorsed in subsequent discussions:

1 *STCW has not achieved a universal standard, there is too much non-compliance (some wilful), too much room for interpretation and competence not validly assessed:*
Proposed actions:

- compliance enforcement to be enhanced
- competence beyond compliance to be sought
- clear definitions of 'STCW competencies' to be spelt out
- international goal-based criteria to be developed
- review and amendment of STCW to be initiated, with MET providers having significant input;

*2 the industry does not have a strong commitment to training, which is seriously under resourced and with insufficient recognition given to the investment aspect of training:*
Proposed actions:

- the value of training to be identified and promoted;
- a structured demonstration of how training pays to be developed
- cost/benefit ratios to be determined;

*3 there is a shortage of competence in the delivery of MET, the professionalism, expertise and industry experience of trainers needs strengthening:*
Proposed actions:

- minimum standards for the delivery of maritime education and training to be developed and implemented
- more recognition that assessment is the driver;

*4 there is little commitment to continuing competence:*
Proposed actions:

- requirements for mandatory verification of continuing competence to be developed
- advocacy for continuing professional development to be strengthened;

*5 attention has been too concentrated on technical aspects:*
Proposed action:

- the focus on holistic and 'soft skills' to be increased – leadership, communication, intercultural relationships, motivation, attitude.

*6 insufficient attention is given to recruitment and retention of seagoing staff and to ensuring appropriate educational background, attitude and aptitude:*
Proposed actions

- selection of recruits to be improved;
- retention difficulties outlined by recent research and 'lack of career' perception to be addressed.

The last item 6 - recruitment and retention - reflects the overlap into other human resource issues. Again, the real question is how this may be achieved? Suggested basic principles to consider are:

- industry to be the driver of change in this respect;
- proposals for change to reflect the various sectors of the global industry - in fact all activities that will benefit from improved MET;
- the seafarers and the MET providers to have input which reflects their crucial industry roles. It is the industry that must pick up the ball. It is the industry that must put its house in order with respect to the serious human resource issues - and we are part of that great global industry of fundamental importance to the global economy.

With input from a much broader base, thinking will be clarified and clear recommendations formulated. The close collaboration between all sectors of the shipping industry – ship owners, ship managers, manning agents, regulators, suppliers, educators and trainers – should also extend to relevant sectors of other industries with similar education and training needs; eg other sectors of the transport industry.

Raising awareness of what is wrong and what to do about it appears an appropriate initial step. To do this a clear statement needs to be formulated, distributed and accepted. This statement should be prepared by a small group, distributed and accepted by the industry as a statement of policy for the development of the education and training it needs into the foreseeable future. Steps to implement that policy should then be determined.

## Conclusions.

Many training establishments offering maritime programmes are involved in multiple dynamic activities. Programmes are changed due to demands from industry, structures of contents are being changed due to educational harmonization and new insights, conditions under which to perform and the related financing are under pressure and being changed due to political priorities being adapted. At the same time the interest for a seafaring career in the western oriented countries, including the Netherlands is decreasing with the present young generations. Less seafarers means less mouth to mouth advertising which results in less students knowing of the profession and the opportunities.

Obviously thus, an enormous amount of effort is being put into pr activities, advertising and heralding the beauty of the sea, the good employment conditions and the abundant opportunities in both seagoing and shorebased maritime employment positions. However having succeeded in attracting sufficient numbers of (prospective) seafarers will only have the required results if the next pitfall can be avoided: the lack of well trained and qualified teaching staff. Educational programmes for MET lectures are under development and will soon become available.

In order to address the need to further develop maritime education and training:

Stage 1

1. a statement as to maritime education and training problems and solutions to be prepared by the MET providers, in association with seafarers and other sectors of the shipping industry and other interested parties;
2. this statement to be widely reviewed within the industry and amended accordingly;
3. industry to agree the statement reflects its needs and actions needed to meet the needs;
4. the statement to then be distributed to associated bodies, such as IMO, ILO;
5. overall agreement on a 'voyage plan' for improving maritime education and training

Stage 2

1. implementation methodology, resources needed and accessible to be determined by an industry representative group;
2. plan for implementation to be prepared, distributed and agreed within industry.
3. implementation to commence, with subsequent review and adjustment

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## Brief CV of Author

*After an operational seagoing career in the Dutch merchant and offshore construction fleets, Capt. Cross became a qualified lecturer in higher nautical education in the Netherlands. Simulator instructor, examiner of masters and mates, lecturer of maritime education and training at the World Maritime University were the next occupational stages. Then Capt. Cross was employed as Senior Advisor at the Kongsberg Norcontrol Simulation and highly engaged in research projects, functional development of maritime simulator systems as well as simulator instructor and assessor training on a worldwide basis. On 1/1/99 he joined the Maritime Institute Willem Barentsz on Terschelling in the Netherlands in the position of Director. Professional memberships include a.o. Nautical Institute, Royal Institute of Navigation, Netherlands Society of Maritime Technologists, Netherlands Association of Master Mariners, IMLA, IAMU, IMSF, AMETIAP/Global MET.*

## ANNEX 1: Global MET.

GlobalMET/AMETIAP CHARTER 2006 - 2010

**We**, the representatives of the Member Institutions of the Association of Maritime Education and Training Institutions in Asia Pacific, participating in the 2005 Annual General Meeting of AMETIAP (Global) Limited in Manila, Philippines, in November 2005:

**Recognising** that AMETIAP was formed to promote, develop and support, in the spirit of co-operation, the common interests of its members in all matters concerning the development and quality of maritime education and training institutions, with the declared objectives:
• to provide a forum for the exchange of views among members;
• to foster, develop and maintain close cooperation between and among members on matters relating to maritime education and training including maritime research and development and other matters of mutual and/or collective interest;
• to extend assistance consistent with its policies and capabilities to any member upon the latter's request;
• to formulate a common stand on issues of interest to AMETIAP related to maritime education, training, research and development;
• to improve or assist in improving the services provided by members through the efficient and economic utilisation of resources;
• to represent the general membership in its collective dealings with regional and international organisations;
• to acquire, collate, process and disseminate relevant data and material of common interest to all members;

**Agree** that, during the period 2006 to 2010, in working to achieve its objectives AMETIAP is to collaborate with the International Maritime Organization, International Labour Organization, International Shipping Federation, Asian Shipowners' Forum, International Transport Workers' Federation and other appropriate international, regional and national organisations with the further development of quality maritime education and training by:
• entering into agreements for mutually beneficial collaborative activities;
• liaising with parties interested in the provision of quality maritime education and training;
• serving as a communications network, source of information and channel for advice for members, as well as for non-members;
• representing member institutions as appropriate;
• promoting effective maritime education and training as fundamental to safety, efficiency and security in maritime transport and to the protection of the marine environment;
• building understanding of the potential and needs of member institutions, especially of those in developing countries;
• designing and implementing mutually beneficial activities such as:
    - analysing the needs of member institutions, developing a data base, promulgating outcomes, rganising and conducting activities to meet those needs;
    - organising workshops, seminars, conferences and other meetings;
    - arranging and assisting fellowships, staff and student exchanges;
    - facilitating cross recognition of courses and and credit transfers;
    - designing and validating courses and developing course materials;
    - identifying and securing human, financial and technological resources;
    - initiating research, development and delivery of maritime education and training to meet the requirements of the maritime industry and other stakeholders and encouraging the use of state-of-the art methodologies and technologies;
• building membership to encompass all significant providers of maritime education & training;
• building associate and other categories of membership to encompass all stakeholders in the development of maritime education and training;
• accumulating financial resources from subscriptions and other sources adequate for the purposes of AMETIAP;
• achieving observer status at appropriate international and regional organisations;
• developing a secretariat and efficient administrative and financial systems and procedures;

**Agree** also that by 2010 AMETIAP shall be recognised as a highly effective organisation providing a key mechanism in facilitating the development of maritime education and training in accordance with the requirements of the international shipping industry, international maritime conventions and other agreements, as well as with recognised and appropriate academic standards and practices.

## Annex 2: STCW Review.

The comprehensive review of STCW commenced at the 38th Session of the IMO Sub-Committee on Standards of Training and Watchkeeping (STW), held on 22-26 January 2007. The following consolidated list of the issues to be reviewed was agreed, subject to approval by the MSC at its 83rd session:

- retain the structure and goals of the 1995 revision;
- do not down-scale existing standards;
- do not amend the articles of the Convention;

- address inconsistencies, interpretations, outdated provisions, MSC instructions, clarifications already issued and technological advances;
- address requirements for effective communication;
- provide for flexibility in terms of compliance and for required levels of training, certification and watchkeeping arrangements due to innovation in technology;
- address the special character and circumstances of short sea shipping and the offshore industry;
- address security-related issues.

As mentioned in Gen Memos 04/07 and 06/07, Global MET members are invited to provide comment on the STCW review to the Secretariat. GlobalMET is liaising with relevant parties with a view to developing a combined submission.