"Mircea cel Batran" Naval Academy Scientific Bulletin, Volume XIV – 2011 – Issue 2
Published by "Mircea cel Batran" Naval Academy Press, Constanta, Romania

RISK FACTORS AND CONSEQUENCES OF NAVAL CASUALTIES

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Abstract: *Shipping casualties are due of 80% to 85% because the human element that may be a result of:*
• wrong policy of the company in the field of human resources;
• crew personnel errors which may refer to:
- training errors;
- errors due to staff with responsibilities in this area.

Factors leading to marine casualties:
• lack of adaptation to the conditions of the voyage:
- 40% of the casualties occur in the early hours of March after shipment;
- adaptation: 12-18 hours, 3-4 days, 7-8 days;
- preconception of the lack of danger in known areas (10% of the casualties);
- lack of attention caused by fatigue after 4-5 months, stress, lack of adaptation.
• high level of accepted risk;
• exclusive use of the radar in areas like: entering/exiting, channels, etc. (6 hours at the TV screen, radar, computer lead to hypnotic effects, hallucinogens);
• isolated sailing;
• objective factors: technique, wrong maneuver of other vessels.

The main types of emergencies:
• collision at sea/port;
• grounding , fires, serious danger with sinking possibilities, uncontrolled movements of large masses, the ship's lack of steering, major pollution, piracy, terrorism. Procedures exist for each action (emergency plans) compiled in advance for which you do the exercises for their knowledge and for the formation and strengthening of procedures for action in the critical situation.

A rate of 45% of non-compliance of the audit is due to non-execution of some exercises and not registers them.

The importance of exercises:
• Automation mode of action leads to:
- reduction of time;
- increase in quality execution;
- increased confidence in own forces (factor in combating panics);
- increased crew cohesion (support against stress at sea);

To avoid naval casualties the crew must have a good moral status, as defined by those three of M in the English language that were translated by ABC in Romanian as follows:

3M	Meat	ABC	Alimentație
	Money		Bani
	Mail		Comunicații

In order to resolve emergencies there are ROLES, the components of a role are:
- name;
- alarm signal;
- name, surname;
- assembly station and action;
- function;
- attributions:
- who is subject;
- with whom, with what they communicate;
- with what they acting.

It is possible that the ship to carry personal that is not part of the crew. In this case the action shall be fixed in good time manner for the temporarily crew personnel.

Attributions common to all the roles on passengers:
- alerting those responsible;
- checking if they are dressed according to the season;
- assembly to call stations;
- rescue vest dressing;
- checking (the call);
- possibly looking into living spaces;
- the movement (to the means of escape), maintaining order on passages, stairs and supervision of passengers in general.

Prevention of panic

Panic is a reaction of exception (crew) group as a whole. A state of abnormal fear caused by the actual situation of risk or just considered as such and which is reflected in:
- disordered behaviors, perplexity;
- danger to the life situation;
- appears more likely when people are in closed compartments and people are less familiar;
- staff believes that the path to safety is inaccessible or hard to reach.

Ways to prevent panics:
- prior training exercises;
- the warning at the appropriate time of an emergency situation but only by authorized personnel;
- process of uninterrupted ordering;
- centering crew to actions;
- concise and perfectly feasible guidelines;
- isolation of persons who panicked;
- the restoration of law and order, to threat with the use of force, if necessary.

Panic leads to two main phenomena:
1. increase the risk of casualties;
2. the decision may be affected by such:
• in case of an overload of stress, risky decisions;
• when risky factor is the short time we have available for decision-making, the tendency of postponement;
• overloading with information, make it difficult to analyze and take decision;
• under conditions of overload the decision maker priority is shifting to a single decision neglecting the others.

In the case of stress subsolicitation note the following phenomena:
• self low consideration;
• manifested fatigue;
• irritability;
• hyper critic attitude;
• inconsistence;
• low interest;
• confusion in thinking;

• lack of enthusiasm;
• excessive incentives.

In the case of an overload of stress are observed:

• memory loss;
• lack of cooperation;
• anxiousity;
• depression;
• low interest for activities.

Causes of loss of human life on the ship are:

• 50% naval distress;
• 19% occupational diseases: contracted or maintained;
• 15% casualties on board at work;
• 2% suicides;
• 6% lost at sea;
• 7-8% other causes.

Lloyd's estimated that the order of the factors leading to these losses is:

- inadequate training;
- careless in activity;
- unsatisfactory design of equipment, tools, etc.;
- excessive fatigue, stress;
- consumption of alcohol;
- organization-factors;
- fatigue:
- dynamic (for those who work physically);
- static;
- sensory;
- cerebral (stress responsibility – commanding personnel).

Impact of Naval casualties on life, the economy and the environment

Shipping casualties are categorized by the impact they have on human life, on economy and environment in:

- minor casualties,
- serious casualties
- very serious casualties.

Minor accidents resulting in loss of materials that can be repaired and then the ship may be recovered in its original state. In such accidents there are no injured or deceased and the environment is not affected.

Serious casualties entail total loss of the ship, but without any loss of human and the environment it is not seriously affected.

Very serious casualties are involving loses of life, or causing injury or infirmity or the ecology of regional being seriously affected.Final report released on IMO site for shipping casualties investigated and classified is referred to the year 2003. Using it and previous reports we extracted the following important data concerning human losses:

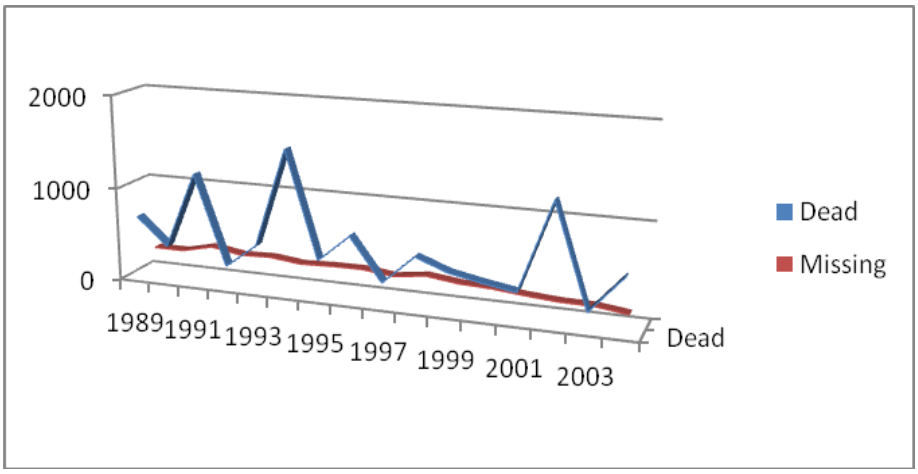

Fig. 1 Human victims due to casualties shipping period 1989-2004

You can see in this graph the large number of lives lost at sea. Lost at sea in accordance with the practices fall within another category but the practice shows that over 99% of them are dead and their corpses or destroyed cannot be recovered.

Economic losses include the value of the ship and cargo. The value of the ship can climb from a few million dollars up to several hundreds of millions. The value of the goods is very variable, from tens of thousands of euro in case of bulk carriers to hundreds of millions of euro in case of container.

Table 1. Naval causalities with human victims in 2003

SHIP FLAG	SHIP	DEATHS	INJURED
BAHAMAS	IBERIAN COAST	2	0
BOLIVIA	NINA N	1	0
BULGARIA	BELASITZA	1	1
CAMBODIA	ALASKA	5	0
CHINA	LIAO LU DU 7	4	0
CHINA	SHENG XIN	11	0
DENMARK	STEVNS POWER	11	0
ERITREA	HIMBOL	2	0
FINLAND	PEGASOS	1	0
FRANCE	TAHITI NUI IV	7	0
HONDURAS	AGIOS DIMITRIOS 7	0	2
HONDURAS	LINA A	8	0
HONG KONG	OGRADY	2	0
INDONESIA	KAWAN KITA VII	15	0
NDONESIA	LUCKY PACIFIC	9	0
INDONESIA	PAGARUYUNG LIMA	4	0
INDONESIA	WIMALA DHARMA	11	0
JAPAN	SANPO MARU NO. 2	1	0
MALTA	EFXINOS	4	2
PANAMA	HEUNG-A JUPITER	7	0
PANAMA	MARINA IRIS	6	0
PANAMA	PENDOLA	4	0
PHILIPPINES	DONA TRINIDAD II	0	3
PHILIPPINES	SUSAN	11	0
RUSIA	STRELETS	9	0
SPAIN	SPABUNKER CUATRO	1	0
SWEDEN	SEAWHEEL RHINE	0	1
TONGA	TOR I	8	0
TUNISIA	AMIRA I	24	0
UNITED KINGDOM	ARCO DUR	1	0
UNITED KINGDOM	PRIDE OF PROVENCE	0	30
UNITED KINGDOM (ISLE OF MAN)	HAPPY FALCON	1	1
VIETNAM	HOANG DAT-35	3	0
TOTAL		174	40

But the most expensive damage by a naval casualty occur in oil tanker cases which can carry up to 500 000 tons of crude oil and derivatives as well as in the case of chemical tanker.

The most important ecological tragedy as a result of a naval disaster has occurred on 16 March 1978 when the oil tanker Amoco Cadiz under the Liberian flag, of 233 690 DWT has come aground 5 km away from the French coast, freeing 1.6 million barrels of oil (250,000 m3) in to the sea.

The collapse was due to a failure in the steering gear and bad weather that did not allow rescue tugs to establish lines with the tanker and pull them away from the danger zone. There were 320 kilometers of French coastline affected, oil impregnates in certain places in the sand up to depths of 50 cm. The consequences of this disaster are still seen after three decades of the damage.

Two months after the accident have been recovered more than 20 000 dead birds, millions of mollusks and sea urchins and other species living on the seabed. The fish population was deeply affected, in the years after the accident being found fishes with ulcers and tumors.

Even today has not been established without any doubt the cause of the accident because of the lack of clear evidence, particularly such as recording conversations between the master and the tugs were to intervene in the area. Although the investigation has established that the oil tanker master Pasquale Bardari requested late the help from the tugs, he accuses the german service of towing vessels that would have delayed the intervention deliberately to negotiate a higher sum of money for participating in the rescue.

International regulations requires all vessels at sea to assist in the rescue but saving activities without compensations is done only upon personnel on board; saving the ship and cargo requires later compensation of the rescuers.

French authorities have estimated the damage to the fisheries and tourism in the area, combined with the cost of cleaning operations at two billion dollars but the courthouse of Chicago established in 1990 that the US firm Amoco must pay damages of only 120 million dollars.

Fig. 2 Inscription on the ship's anchor Amoco Cadiyz exposed in Brittany and traces of oil near Brest in august 2008.

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