Guide for a SAFE NAVIGATION and for EMERGENCY MANAGEMENT

Edition 2014

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SUMMARY

FOREWORD

This guide is devoted to people going at sea and is the result of a collaboration of three different public entities, all of them joined and involved in the important role of protecting health and safety in the workplaces: the Maritime Direction of Friuli Venetia Giulia Region, the Healthcare Service n. 1 in Trieste and INAIL – Navigation sector.

This guide aims at drawing the attention of all those working on board ships and boats, of ship-owners and employers, of masters appointed to manage the ship, of components of crews, as well as those who, for various reasons, may be involved, even if indirectly, in the organization of safety on board (security and safety stakeholders, associations and unions, boards, Trade union organizations, etc.) in relation to the problem of prevention against accidents.

To protect the health of maritime workers and make navigation safer are paramount objectives. We wish that this brief guide may be well accepted and, above all, its instructions applied by everybody in order to improve in the best and most effective way safety on board.

RISK FACTORS

The maritime work environment

The maritime sector has an outstanding importance for the economy and is the basis of commerce and trade at global level. However, the maritime activity is characterized by a **high degree of hazardousness** and, therefore, calls for the adoption of specific prevention measures that are necessary. The theme of safety for sea workers is one the most sensitive ones. The ship, as an isolated environment, and the sea, with its features of hazardousness and unpredictability, may determine situations that are often unpredictable and hard to foresee.
On board ships, tasks and activities have to be clearly distributed and jobs have to be planned as much as possible on the basis of the requirements and to meet the deadlines. In case of necessity, the personnel on board may be called anytime to give their help, often in critical conditions.

The human factor - the crew

On board ship it is extremely important that all crew components are **appropriately organized in function of their competences**. Each component must know and fulfill their own duties and must be coordinated and integrated with other people working on board. It is also crucial that the shipmaster and all concerned supervisors and appointed persons are capable of giving instructions and advice to their collaborators and colleagues, especially to make them work together, as a close-knit and well organized team, able to follow any appropriate operation procedures. One of the most important aspects of this job is the ability to guarantee motivation in every single professional figure and put to good use everybody's share of work.
The **fatigue factor** should also be taken into account so that processes and procedures shall be planned in an appropriate way, assigning an appropriate time to rest. The crew members must be trained so as to be able to face sudden changes that often occur and must be able to manage in a correct way any dangerous situations and emergencies.
Finally, attention should be drawn on some basic aspects of **"working together"** which should always be guaranteed on board:

- **Composition of the crew, according to number of people and their qualifications** so as to guarantee a safe navigation, as well as the effectiveness shipboard services;
- **A complete training**
- **Experience and expertise**

Another essential aspect of the work on board is the solidarity and harmony amongst crew members.
In reference to this, the most important role is given to the Shipmaster a figure to whom, together with the ship-owner, specific tasks are attributed in relation to ship-board safety organization. A good level of safety is achievable not only by complying with technical and regulation provisions, but also through an effective communication, information dissemination and training all crew members. A crew who are able to work in harmony and to comply with the applicable regulations, in addition to perform with more productivity their own tasks and jobs, guarantee better safety conditions. In taking advantage of teamwork and interdependence of the components, the whole group shall be able to cope effectively with the challenges they face.
As much important is the bond of trust that should be established among crew members. Relying on professional, appropriate and competent co-workers is a reassuring factor and injects tranquility in case of difficulties and challenging events.

The environment

In maritime work, some factors represent important critical points:
- Weather conditions (wind, ice, fog and mist, etc.);
- The organization of work in port areas;
- A frequent and prolonged isolation time during longer navigation routes.

Such factors may influence the safety and might cause the occurrence of accidents and injuries. It is therefore crucial that a travel planning and the instruments on board are effective and well working so as to foster a safe navigation in relation to weather and sea conditions.
Over the last years, a slight decrease in the incidence of reported injuries to sea workers has been observed. According to INAIL data, in 2012, as compared to 2011, a reduction of 3.7% was observed in the number of reported injuries and of 2.8% of compensated workdays. All of this depends, however, from the reduction of the employment in this sector.
Injuries in the maritime sector occur mainly in the categories of passenger ships, merchant transport ships and fishing vessels.

Injury seriousness

As regards the severity of injuries, we may refer, rather than to the total number of accidents, to the following typologies:

- Injuries causing permanent disablement;
- Fatal injuries.

Statistical data referred to 2012 show a slight reduction, as compared to 2011, in the number of compensated workdays for injury; however, in this case a relevant part is also played by the economic crisis with its **relative reduction of employment**. Furthermore, it cannot be excluded that the culture of prevention is starting to give some results. In this regard, it is anyway crucial to maintain a high attention on risks.

Injuries and gender

In the maritime sector the presence of women is still very limited and women are mainly present in the category of passenger ships where there is also the professional category of licensees on board, including people working in trade, commercial and leisure activities on passenger ships. It is therefore apparent that in this category the highest number of injuries is recorded amongst women working at sea.

Occupational qualifications of injured people

As regards the professional qualifications, more than 40% of accidents and injuries occurred every year to seamen, cabin boys and common polyvalent ship-boys. If we observe only the category of passengers, where most part of injuries occurs, according to the three professional qualifications mentioned above, the rates are respectively: 10.23%, 23.1% and 13.74%. The qualification of cabin boy is in absolute terms the one with the highest rate of accidents in the passenger category.

Injured people's nationality

97% approximately of injuries regard maritime workers of Italian nationality. As regards the remaining 3%, 45% approximately occur to workers of Romanian origin.

The place where the injury occurred

More than 57% of accidental events occurred in open sea. The distribution of the events between open sea and port is differentiated, sometimes significantly, according to vessel category. In the analysis of the events occurred over the past years, two regularities have been in particular observed: the distribution of injuries in the fishing ship category and in the recreational boats category. In the former case, the events are most frequent in open sea whilst in the case of recreational boats, a high percentage of injuries has been observed every year when the boat is in port.

Causes of the accidental event

The causes of accidents are mostly recorded in case of slipping and fall on board. As regards the injured parts of the body, the mostly injured or hit parts are lower limbs followed by hands and fingers.
Concerning the nature of injuries, the most recurrent typology includes contusions, excoriations and abrasions followed by fractures, infractions, crushes and amputations, mostly present in the fishing sector.

Age of the injured people

The average age of the injured people is approximately around 42 years. In case of women the average age is much lower and is approximately around 33 years.

Closed and cramped spaces

Places	Working process concerned
• Closed, small-sized work settings or without natural air flows • Working inside tanks, water and furnace oil tanks, fuel tanks, double bottoms, closed holds, chain lockers, fore and after peaks and similar areas. • **In general all those confined areas not habitually used as standard workplaces**	• Cleaning • Inspections (even if only with the head inside) • Maintenance 

Risk

- **electricity and low lighting**
- **noise**
- **environmental conditions** such as high temperature, obnoxious atmosphere: accumulation of harmful gases, dust, oxygen scarcity!! (Carbon monoxide, petrol vapours, methane, hydrogen sulphide, carbon dioxide from fermentation)
- **operation hazards** (difficulties to move, reduced accessibility, difficult to exit or escape, low visibility, risks of falling from height)

Personal protective equipment	Behaviours
• **masks** with filter or isolating breathing inhalators (only insofar as, as long as the concentration and the nature of gases or vapours has been assessed, they offer a safety guarantee) • **helmet** against impact with structures or objects • **safety harness** • protection **gloves** • eye protection in case of exposure to hazardous substances • safety **footwear** • protection clothes • personal meter devices	• in the cases in which masks are used, an appropriate air-circulation has to be ensured • in presence of gases use tools and instruments which do not produce sparks • **never work alone** • always verify the presence of gauges and indicator devices of hazardous gases and vapours • always keep the safety belt and breathing devices at hand in presence of gases

Safety measures

- Monitoring
- Personal protection equipment
- Develop emergency systems and devices
- Safety access
- Surveillance of processes and operation
- Work permit
- Verify the presence of an appropriate air circulation
- Train workers for the characteristics and risks in places in which they are called to work

Obligations

- Worker's access must be conditional on safety procedures (for ex. Work permit)
- **30%** at least of workforce must be **expert** (at least three years of work in confined places)
- Workers shall be **trained and informed**
- Everybody shall be provided with all the necessary **personal protection equipment and training**
- The shipmaster shall identify a representative with appropriate professional skills, who supervises performed activities
- Knowledge of **emergency procedures**

Applicable regulation: Legislative decree n. 272/99, Legislative decree n. 81/08, Presidential Decree n. 177/11

- Access of workers only with external assistance
- Presence of forced-air ventilation and appropriate lighting
- Gas-free environments or provided with air
- **The access to areas with hazardous or fatal gases is strictly forbidden!**
- With suspicious atmosphere the worker must be provided with a protection and safety belt

Falls from height

Places

- Works carried out at a **height that is more than 2 m** in respect to a stable plan and without protection devices
- Activities involving the use of vertical stairs beyond 5 m of height without stable prevention devices
- Works carried out on portable stairs, simple ladders or ladders without stability

Working process

- Maintenance and cleaning of equipments and structures
- Access to goods and containers in height
- Embarkation/disembarkation or painting with Jacob's ladders or storm ladders
- Access to equipment for maneuvering or adjustments

Risk

- **Slipping** from rungs
- **Stumbling** on walking surfaces
- Missed grip of the ladder
- Lateral capsizing of ladder
- Risk of atmospheric events:
  - Rolling and pitching of ship
  - Slippery or wet planes and supports
  - High speed wind

Personal protective equipment

Complete **BODY HARNESS** with back support provided, if necessary, with:

- **Roller stopper**
- **Energy dissipater**
- **Sling no longer than 1.5 m**
- **Certified snap-hooks** with a device against accidental openings
- Double sling with snap-hooks

PROTECTION GARMENTS: helmet, gloves, anti-slipping footwear, appropriate clothes

Behaviours

- Always check that the equipment works
- The protection system must be attached to a rail or a track or to stable portions of fixed parts.
- Never work alone in situations with specific risks
- Never carry materials when using ladders or stairs

Precautions

- Provide appropriate equipment for any specific processes
- In case of skidding danger ensure in the appropriate way or maintain the foot on the ladder or on stairs.
- Assess the presence of anti-slippery devices to the lower and upper extremities of the ladder uprights
- Anchor the ladder to fixed parts while working
- Using the life jacket during working processes outside the ship or processes entailing the risk of falling in the sea

Obligations

- Always prefer collective protection measures, whenever possible; otherwise use personal protection equipments
- Do not tamper with personal protection equipments
- Workers should receive a specific training to use personal protection equipments
- Be aware of emergency procedures
- Always use certified equipments

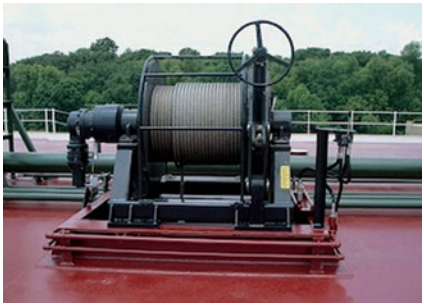
Regulations

Legislative decree 81/2008 and subsequent modifications and integrations:

- Implement collective protection equipments and devices to protect from falls (rails, tracks, barriers)
- Expose workers to processes from height only if weather conditions allow for that
- Ensure a regular maintenance of personal protection equipment and always have available spare parts in case of damage
- Train and inform the workers about the specific risk and train them to use the PPE.

Equipment and plants

Ropes and winches



Risk:
- Shearing
- Entrapment
- Crushing

Causes:
- Uncontrolled movements or slipping of ropes and wires
- Unprotected winding drums and machinery
- Worn out components
- Stopping systems inappropriate to emergency cases

Precautions and measures:
- Protection cages or barriers to avoid contact with mobile parts
- Optical or acoustic signs of hazardous movements, emergency shutdown systems

Operations of loading or side doors operation, bulwark stairs, holds

Risk:
- Shearing
- Entrapment
- Crushing
- Being hit

Precautions and measures:
- Verify that near moving gears during movements with remote controls there are no people around
- Following any written procedure
- Deploy mechanical blocks if provided
- Verify the correct functioning of stop block devices
- Eliminate losses in hydraulic circuits of switching

Electrical wiring and appliances

Risk:
- Electrocution
- Fire

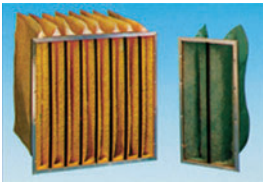
Precautions and measures:
- Never carrying out electrical maintenance without specific qualifications
- Appropriate electrical and mechanical isolation of lead-in wires
- Always keep the switchboards closed
- Pay attention to electrical information signs

Pipes and cable troughs

Risk:
- • Getting hit by hot liquids
- Steam jets
- Burns due to contact with hot or cold surfaces
- Aerial dispersion of polluting gases

Precautions and measures:
- Perform maintenance on a regular basis
- Eliminate immediately any leaks
- The hot parts must have appropriate insulations
- Contain any leaks with suitable absorbent materials
- According to the case, using eye shades, gloves and anti-slipping footwear

Ventilation systems

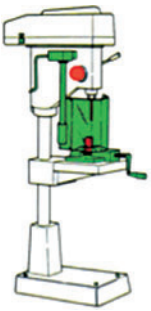


Risk:
- Biological
- Dusts and polluting materials dispersed into air

Precautions and measures:
- Clean periodically the cable troughs and filtering systems
- Clean periodically the drain tanks and/or the humidification plants
- Clean the air outlets
- Verify periodically the air inlets

Machineries

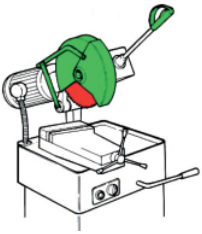
Drilling machines



Risk:
- Excoriation
- Cuts
- Entrapment of organs during work

Precautions and measures:
- Presence of a blocking micro-switch acting on the carter opening
- Presence of an adequately sized screen provided with micro-switch
- Presence of emergency button
- Presence of connector terminal
- Use of gloves and goggles

Metal cutting circular saw



Risk:
- Shearing
- Noise
- Projection of objects
- Contact with lubricating and refrigerating oils
- Powders and fumes

Precautions and measures:
- Turn on the device in presence of other people
- Adjustable protectors
- Always wear gloves and goggles

Welding

Risk:
- Projection of sparks or melted metal
- Welding fumes
- UV, infrared and blue light rays

Precautions and measures:
- Using protection masks
- Use of gloves
- Complete anti-fire outfit for the whole body
- Shoes with welding spats
- Leather aprons

Lathes

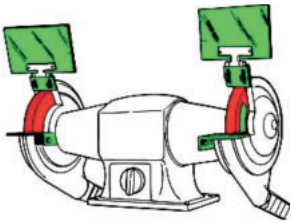
Risk:

- Traumas, contusions
- Shearing
- Crushing and dragging
- Electrocution
- Fatal electric shocks
- Projection of materials
- Contact with lubricating and refrigerating oils

Precautions and measures:

- Provide for adequate working processes
- Protection of the area in which the tool is used
- Presence of the emergency stopping button
- Restriction to access the area of motor rotation transmission
- Starting levers with dual security stroke
- Protection with horizontal bar for fast forward
- Always using gloves and goggles
- Always wear an adequate outfit

Fixed and portable sanders



Risk:

- Shearing
- Abrasions
- Powders and fumes
- Hearing impairment
- Vibrations

Precautions and measures:

- Presence of adjustable anti-sliver screens
- Presence of the carter to protect the abrasive disk
- Presence of benches and worktables
- Always wear gloves and goggles, earplugs or protectors
- Feeder cables must not be damaged

Chemical agents

Places	Working processes concerned
Environments inside or outside the ship, for example: • Engine rooms, shaft tunnels and alleys • Tank rooms, cases, after peak • Technical rooms • Rooms serving as anti-fire automatic equipment (CO2, etc.)	• Painting • Mechanical maintenance • Cleaning and sanitation • Disinfection • Engine and equipment lubrication • Bilge water sanitation

Risk

Safety risk

- **Fire:** from combustible substances, liquid or solid substances in presence of ignition causes such as open flames or sparks of different nature
- **Explosion:** caused by saturated air of combustible substances in presence of ignition causes such as sparks, electrostatic streams or open flames
- **Corrosion:** from contact on skin with liquid or solid products (for ex. Hydraulic oils, solvents, scale solvents, decalcifying substances)

Risks for the health (contact with skin and respiratory tract)

- **Intoxication:** caused by the use of volatile substances such as solvents or fumes from combustion in scarcely or poorly aired environments
- **Poisoning:** accidental ingestion of stored substances, for example in containers without proper labels
- **Carcinogenic:** caused by habitual staining or soiling with drain oils

Personal protection equipment	Behaviours
MASKS: *Low risk* (low concentration in the air): facial mask with anti-dust filter or with active charcoal *Medium risk:* facial partial mask in rubber with mono or polyvalent cartridge filters *High risk* (atmosphere with a high rate of polluting substances); complete facial mask *Specific garments:* gloves, shoes, goggles, apparel	• Constant use of personal protection equipment • Following safety procedure • Verify the presence of a proper air circulation in case of use of masks • Verify the absence of any ignition causes 

Precautions

- Provide appropriate equipment for specific jobs
- Reduce to a minimum part the length and intensity of the exposition
- Presence of constant and necessary air circulation
- Safety procedures in confined spaces (see table on confined spaces)
- Availability of safety information sheets

Obligations

- Label the products to be used if they are divided into portions
- Consult the safety information of products employed
- Maintain containers of used substances closed, in a specific and well ventilated place
- Regularly cleanse or substitute the personal protection equipment
- Always follow the symbols and information on safety
- Always comply with **instructions of products and of emergency during use**

Regulation: legislative decree 81/08 - Title IX

- Proper handling of chemical agents in any type of process, including production, handling, stock, transport or disposal and waste treatment
- Elimination or reduction at a minimum level of the risk also by substituting with other and less hazardous agents
- Evaluate the health condition of a single worker in relation to his/her exposure to a chemical agent
- Evaluate the risks deriving from the presence of chemical agents considering their harmful properties and the information on safety and health
- Identify general measures for the prevention of risks, any appropriate specific measures of prevention and protection, any proper procedures in case of accidents or emergencies

Workplaces - The galley

Definition of the risk

The galley is a workplace on ships and includes a number of specific risks such as:

- Burns
- Scalds
- Slips
- Cuts
- Micro climate
- Fire
- Biological
- Electrical
- Mechanical
- Manual handling of loads

Personal protection equipment	Behaviours
• Thermal gloves against heat • Metal mesh gloves • Anti-stain apron • Anti accident shoes • Work clothes	• Use of personal protection equipment if necessary • Compliance with safety procedures • Never remove safety devices from machineries

Precaitopms

- In galleys with gas stoves always pay the maximum attention when open flames are on
- Never hang clothes or clothing over the cooker to dry
- Never leave a cooking stove unattended
- Keep the security bar in its place around the cooking blocks and also use cookware holder to avoid that cookware move
- Always keep in mind where the anti-fire cover and the extinguisher are placed and know how to use them
- Never throw water on hot grease because that might cause a vapour explosion with projection of grease-drops and might cause a risk of burning nearby people
- Using non slip mats on the galley floor
- Electrical appliances must be in perfect conditions and functioning; any damages must be fixed immediately
- Use kitchen gloves to remove hot pots from the oven
- Keep knives in the appropriate racks or holders or in their drawer
- Never leave knives on benches or submerged in sinks, where someone, unable to see the handles, might catch them from the blades and get hurt
- Wash one's hands before preparing meals
- Order and clean must be flawless in order to avoid the presence of animals (rats, mice) or insects (flies, cockroaches) which could alter the food or endanger the health of the crew
- Cold rooms must be provided with alert warning systems with opening devices

Obligations

- Gas cylinders must be placed in an appropriately aired room or outside on the deck
- The fire extinguishers placed in the galleys should be of CO_2 type
- Always follow product or emergency instructions before use
- Do not damage the anti-fire positions and do not move them from their places

Use of personal protection equipment and its characteristics

Helmets

They shall be in plastic material, resistant and reinforced and must:

- Absorb bumps and hits
- Resist to perforations
- Be anti-fire
- Ensure protection from water (rain) and sunlight
- Have dielectric properties
- Have a smooth cap and adjustable trim
- Not be more than 2 years old in case of daily use

Shoes and boots

In leather or other waterproof or transpiring materials with the following qualities:

- Shoes must have a steel cap or in composite materials (impact energy to 200 joule)
- Anti-slipping soles, resistant to hydrocarbons
- Anti-static
- Protection of the heel from bumps
- Anti-perforation sole
- Optional anti-abrasion protection of the ankle
- Anti-heat or anti-fire sole
- Easy to be slipped off if necessary

Gloves

Latex, nitrile rubber (NBR), leather with the following qualities:

- Anti-abrasion, anti-cutting, anti-tear and anti-perforation
- Resistant to heat and flames
- Resistant to cold
- Anti-static

Eye protection - eye glasses

In plastic with the following characteristics:

- Anti-scratch, anti-fog finish
- Protection from UV rays
- Protection from powder and sprays

Protective clothes against stain

They should be in cotton or synthetic fibers, including trousers or jacket or outfit, if necessary, disposable or reusable, with the following characteristics:

- transpiring or waterproof
- anti-fire or auto-extinguishing
- with a high visibility
- anti cold
- disposable

Obligations

Personal protection equipment must be used only when the hazards cannot be removed or reduced by:

- Technical measures of prevention
- Organization plans for prevention
- Measures, means or methods of collective prevention

PPE must be:

- Appropriate in order to prevent the risks on the workplaces
- Take into account ergonomic requirements of workers
- Adjusted on the workers according to their requirement and their health conditions
- Compatible with other PPE in case of multiple hazards which require the simultaneous use of PPE

Regulations: Legislative decree 271/99, article 5; Legislative decree n. 81/08

The employer must provide for:

- Give workers any necessary PPE
- Maintain effective the available PPE, with maintenance and substitution
- Inform and train workers on the risks and the correct modes of use
- Train workers to use the PPE to protect the hearing equipment and that of third category (breathing systems, protections in case of works at height, etc.)

Workers must:

- Undertake a program of training and exercise
- Take care of the PPE they have been given
- Using the PPE following the instructions
- Signaling any damages or faults deriving from their employment to the appointed person

Noice

Places	Working processes concerned
Places and areas inside or outside the ship where the acoustic pressure is above 80 dB (A), for example: • Engine rooms • Winches room • Vehicle hold • Funnel • Workshops • Compressor and pump rooms	• Maintenance and adjustments in the engine room • Inspections in noisy rooms with an average permanence of more than 5-10 minutes • Use of portable tools (peckers, sanders, etc.) • Support in hold for vehicle embarkation or disembarkation

Risk	Average acoustic abatment of PPE					
	PPE	Frequency (Hz)				
		500	**1000**	**2000**	**4000**	**8000**
Low risk **<85 dB(A)** Medium risk between **85 e 87 dB(A)** High risk **>87 dB(A)** Hearing impairment: • bilateral hearing loss	Mold inserts	15-35	20-35	20-40	35-45	25-45
	Deformable inserts	25-40	25-40	30-40	40-45	35-45
	Half interts	10-30	10-30	20-35	25-40	25-40
	Protective helmet	15-0	25-40	30-40	30-40	25-40
	Helmets and inserts	25-50	30-50	35-45	40-50	40-50

PPE	Behaviours
HEARING PROTECTION To be divided in function of the **level of risk**, such as: • ear plugs • silhouetted or flexible inserts • half-inserts • pre-modelled on personal mold • light hearing protection of 150 gr. • heavy hearing protection of 300 gr	• Assess tools integrity • Always use PPE in cases where exposition is equal or above lower values of action 80 dB (A) • Properly use the PPE and never alter equipment • Do not use disposable PPE twice • Pay attention to alert and alarm signs

Precautions

- Inform the workers about the injuries provoked by exposure to noise
- Train workers on safety procedures to reduce at a minimum the risks of exposure
- Train workers to use PPE
- Implement the appropriate signs in relation to the risks
- Provide appropriate soundproof rooms

Obligations

- Carry out a regular health surveillance and inform the worker in case of changes to his/her health
- Reduce at a minimum the number of workers exposed
- Prefer collective measures of protection; in case that is not possible use the PPE
- Choose the PPE on the basis of the type of noise present on board

Applicable regulation: Legislative decree 271/99, Legislative decree 81/08

- Evaluate the level, the type and the duration of exposure, all the effects on health and safety of workers
- Remove or reduce to a minimum the source of noise, also choosing appropriate working tools
- Establish a noise limit that cannot be exceeded
- Evaluate the exposure to noise as a factor of fatigue

MHL - Manual handling of loads

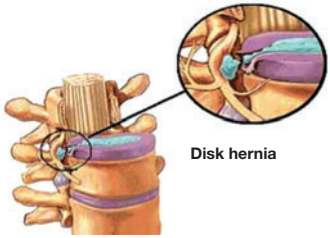
Definition of the risk

It includes operations of **transport** or carrying of a load including actions such as lifting, posing, pushing, pulling, fetching or moving a load of more than **3 kg**, which may cause a risk from biomechanical overload.

Effects of the exposure

Disorders include pathologies of the back, the upper and lower limbs which appear as a consequence of strains protracted over a period of time and excessive work load. For example:

- Spondylosis and arthrosis of the disk
- Lumbagos
- Disk hernias



Determinants of risk

Characteristics of the load:
Weight, size, balance, grip

Requested physical strain:
Excessive strain or caused by an unexpected movement, launch, individual factors

Characteristics of the work environment:
Slipping floor, scarce room, inappropriate micro-climate

Requirements of the activity:
Requested physical strains, excessive distances for transport

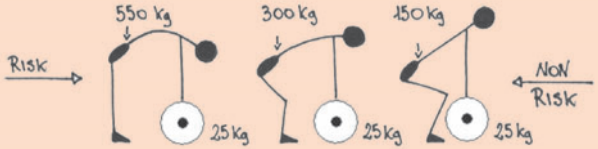
Geometry of lifting

- The distance of the object from the trunk
- Flexion and torsion of the trunk
- Distance between the beginning and the end of the lifting movement
- Load unbalanced
- Non ergonomic handle or grip

Behaviours and precautions

- Health surveillance of the worker exposed to the risk of MHL
- Work in two when loading more than 25 kg (20 kg for women)
- Use anti-accident footwear
- Use gloves to improve the way loads are handled
- Organize in an ergonomically favourable way loads to handle are arranged

Consequences of the load on the intervertebral and the cartilaginous disks: an excessive exertion on the back bone beyond the sustainable lumbar load may cause a bio-mechanical risk of injuries of the intervertebral disks and cartilages. To lift up the same load (25 kg) causes a different risk according to the type of movement exerted



Obligations

- Provide workers with appropriate information in relation to weight and other characteristics of the load to be handled
- Train, inform and instruct the workers about the risks and the modalities to execute handling and movements in a correct way
- Organize the workplaces, work processes, environments and working times so as to ensure a safe manual handling
- Provide auxiliary mechanical means to handle load wherever possible

Regulation ISO 11228 parts 1-2-3

- Evaluate the risk using standard models
- Adopt organization methods and tools capable of eliminating or reducing at a minimum level the risk
- Perform the health surveillance of exposed people

Climate and micro climate

Definition of the risk

This is a list of external agents such as wind, sun strokes, rain which determine the climatic conditions of outdoor workplaces.

The microclimate is a group of factors such as temperature, humidity, air speed which regulate the climatic conditions of indoor workplaces

Effects of exposure

The human organism needs to maintain a thermal constant. Variations of body temperature beyond the regular limits may cause pains of the main physiological functions with more or less severe consequences on working capacities and, in extreme conditions, might cause pathological disorders such as:

- Headaches, drowsiness
- Nausea, irritability
- Thermal stress when a person cannot maintain their body temperature constant (hypothermia or hyperthermia)
- Pathologies caused by heat such as erythema, heat stroke and syncope

Determinants of risk

Environmental physical factors:

- Air temperature
- Air speed (it favours sweat evaporation)
- Relative humidity (it slows or hinders sweat evaporation)
- Radiating heat (emitted from hot surfaces)

Subjective and personal factors:

- Physical activity performed
- Clothing (it determines a thermal isolation; a proper use of clothing is the most effective way to control risk)
- Age and sex
- Individual physical structure and acclimatisation
- Health conditions

Behaviours and precautions

- Have breaks in function of one's metabolic consumption in the activities performed
- Drink liquids as needed also with minerals, following medical prescription
- Keep an ongoing air circulation
- Air conditioning of work environments
- Thermal and protection clothing from rain
- Use of head coverings in specific geographical areas

Obligations

- Assess the risks connected to the quality of air and the microclimate
- Maintain air conditioning and ventilation equipment efficient, if present
- Promote information and training of workers on the possible effects of an unfavourable microclimate for health and wellbeing during work
- Medical fitness of the workers exposed in a continuous way to temperatures below 0°C.

Applicable regulation: Legislative decree 271/99, Legislative decree n. 81/08

- Assess the stress factor in function of the weather conditions or the presence of ice on the ship
- In closed workplaces it is necessary to take into account working methods and physical strains of workers. They must have clean air obtained through natural openings or through air circulation systems.
- The temperature of the places must be appropriate for the workers taking into account their physical strain
- When it is not possible to change the temperature of the whole room or area, the worker must not be exposed to a too high or too low temperature and that is to be obtained by localized technical systems or personal protection devices.

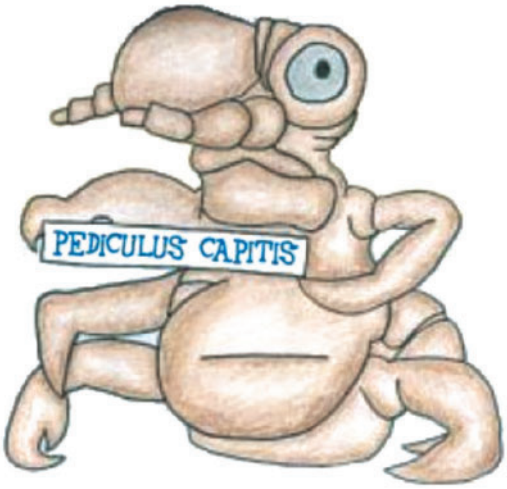
Diseases and prevention

Definition

Crew members may risk more to develop and diffuse some infectious diseases due to short or prolonged contacts with other people in confined environments. In passenger ships the exposure to infections may derive also from contacts with passengers.

Among sea workers the following cases are frequent:

- **Infections transmissible through respiratory tract** because they are related to climatic and environmental factors of shipboard life that foster them (shifts from warm to cold temperatures such as in the engine room, cold storages, etc.);
- **Types of inter finger epidermal disorders** (due to the use of rubber boots);
- **Mycosis** related to common use of hygienic services;
- **Infectious gastro-enteritis** related to the consumption of improperly stored food or foodborne;
- **Infestations of ectoparasites** (pediculosis and scabies);
- **Infectious diseases** such as typhoid fever, hepatitis A and for the crew of vessels calling at locations in tropical countries possible outbreaks of diseases such as malaria, yellow fever, Neisseria meningitis, amebiasis;
- **Infections sexually transmissible** (bacteria, viruses, protozoa, parasites, fungi and ectoparasites), HIV/AIDS.



Prevention

For maritime workers **prevention of infectious risks** is essentially based on:

- **Specific clinical tests** to be performed in a preventive medical examination before signing;
- **Training and information** about the most common infections and about hygienic rules and behaviours to adopt;
- **Clinical check-ups performed on a regular basis** at the health care service for mariners;
- **Maintenance of standard hygienic levels** on board;
- Safety of water supplies;
- Safety of food supply.

Below, some **prevention rules** are suggested:

- Take care of personal hygiene (shower, bath)
- Change regularly your underwear
- Wash your hands with water and soap for at least 20 seconds;
- Cover your nose and mouth with a handkerchief or paper tissue when coughing or sneezing and then throw it in the waste bin;
- Do not exchange objects or food with other components of the crew (pens, glass, cutlery, snacks, etc.)
- Do not touch your eyes, nose and mouth without having washed your hands (the influenza virus is transmitted in that way);
- During sexual intercourse always use condoms (a protection barrier against sexually transmissible diseases including HIV).

Food

Daily requirement

Appropriate food regimes are fundamental to maintain a good health condition. An erroneous diet may in fact expose to risks both due to an inadequate energy and nutrition substance intake, and to possible hygienic contaminations of food products.

In reference to the former risk, we draw the attention on the concept of **"energetic requirement"** intended as the energy intake from food which is necessary to meet the body's energy expenditure.

Energy requirement is expressed in **calories** (kcal) and varies according to age, weight, sex, metabolism, health status, work type and related physical activity.

It is important that maritime workers learn to follow an appropriate alimentation regime also on board, meeting some simple basic rules.

The daily rate of carbohydrates should be approximately of 55% (of this, a 10% maximum should come from simple sugars), the rate of fats of 20-25% and the rate of proteins of 10-15%.

It is assumed that such amounts are optimal as energetic "mix" to meet one's requirements.

When the energy and/or nutrient intake through food is not adequate a state of malnutrition due to a defective diet (malnutrition) or an excessive diet (hyperalimentation) may arise.

The former (malnutrition) may lead to severe nutrition deficiencies at the level of proteins and calories; fortunately it is rare that that might happen on board because food products are in general always available.

Also a too rich alimentation may harm the organism, fostering the appearance of cardio-vascular disorders, diabetes and some cancer related diseases.

Risk factors most commonly implied in the development of the foodborne diseases are:

- Storage and preservation according to the temperature required
- Inappropriate cooking
- Bad storage or preservation
- Preparation of food to far in advance and stored at room temperature
- Cross-contamination between raw food and cooked food
- Scarce cleaning of utensils and tools
- Consumption of raw food (for example, eggs, meat, seafood)

A correct diet

An optimal dietary regime is at the basis of a **correct lifestyle**.

It is important to consume 5 portions every day amongst fruit and vegetables of different colours, eating cereals such as bread, pasta, rice, corn, barley, couscous up to 6-7 portions every day. Meat should be eaten 4 times a week at maximum, fish at least 3 times, 2 eggs a week, legumes at least 3 times a week.

The consumption of fats, saturated fats, sweets, salted food and above all alcohol has to be limited.

The optimal partition of daily food includes the consumption of **3 main meals**:

- **Morning breakfast**, may be sweet or not, as long as it is nutritious and varied. It should never be skipped because the organism needs all necessary energetic intake to meet the challenges of a work day;
- **Lunch / dinner:** for main meals it is better to choose low seasoned food or add vegetal seasoning (preferably extra virgin olive oil)

To prevent food related diseases:

- **Check your weight** using expert indications;
- Practice a good amount of physical activity in proportion to individual needs (at least 30 minutes per day);
- Avoid a monotone diet, using the possibilities offered by local food production, to **vary the dietary routine** means to ensure the organism a proper intake of all of the substances;
- Avoid to consume raw products of animal origin or undercooked food;
- Take care of hygiene of food products and the environment in which they are stored, prepared and consumed (holds, tables, counters, lockers);
- Drink plenty of water, avoid to satisfy your thirst with drinks containing sugars or stimulating substances like caffeine;
- Eat different types of season fruit, taking into consideration the energetic balance of the organism to balance consumed calories with the daily physical activity;
- Re-evaluate to sit at the table as a meeting and socialization point at least for one meal.

Alcohol and drugs

Definition of the risk

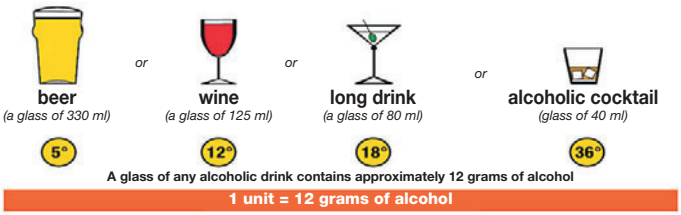
The assumption of alcohol, psychotropic substances or drugs determines the alteration of the worker's abilities and represent a risk for him/her and for third parties.
The assumption of alcoholic drinks may also cause an increase of the effects due to occupational exposure to toxic substances or to medical treatments assumed.

Effects of exposure

Alcohol is a psychotropic, toxic substance (it alters the mental ability) able to cause dependence. It causes effects at the level of almost all of the organs. The alcohol assumed is redistributed to all the tissues and its presence in the blood is proportional to that at cerebral level, determining, even at a very small quantity, effects which may constitute a severe situation of risk

An estimation of the amount of alcohol intake

The quantity of alcohol may be calculated on the basis of the following scheme, according to the type of drink; a glass corresponds to the same quantity of alcohol (defined as "Alcoholic unity"):



After the assumption the permanence time of alcohol in the blood may partially vary from person to person, on average the human organism may assimilate one alcoholic unit per hour

1 alcoholic unit 0,1-0,2 g/l in the blood	2 alcoholic unit 0,3-0,4 g/l in the blood	3 alcoholic unit 0,5-0,8 g/l in the blood
• Reflexes are slightly altered • The subject tends to act imprudently due to a lowering perception of the risk	• Slowing down of control and mental processing abilities • Movements and operations are performed abruptly with coordination problems	• The visual field is reduced (decrease of lateral vision) • Perception of noise, light and hearing stimuli is reduced • Reaction time is strongly compromised • Big mistakes in performing activities which require attention are possible

Behaviours and obligations

- If alcoholic drinks are allowed on board, they may be assumed only after working hours and in any case in moderate quantities
- The effects of alcohol are directly proportional to its concentration in the brain, which is independent from the fact that the alcoholic drink was assumed before or after working hours; therefore, it is strictly forbidden to assume alcoholic substances before starting duty.

Applicable regulation: legislative decree 81/08, Law 125/01, CSR 16/3/2006

- Workers must be informed about the risks related to alcohol assumption when working
- According to article 15 of Law 125/2001, shipboard work is included amongst the working activities for which it is prohibited to assume or provide alcoholic drinks, because it may cause a higher risk of occupational accidents
- To verify the compliance with such a prohibition the competent doctor may carry out random checks or tests on alcohol
- Health surveillance of workers is also aimed at verifying the absence of any conditions of alcohol dependence and drug abuse, including alcohol
- The worker cannot refuse to be submitted to tests and checks decided by the doctor
- The worker for whom a positive alcohol test results or who is found in a condition of alcohol dependence has to be dismissed from his position according to competent doctor's opinion.

Subjects involved

Law on protection - Legislative Decree 271/99

SHIPMASTER	OBLIGATIONS
According to the Waterways Code (article 321) the hierarchy on board maritime vessels places the master at the top of the crew members. The shipmaster is appointed by the ship owner who may, at any time, relieve him from his office. In case of absence, hindrance or death of the shipmaster, the vessel command is taken by the eldest deck officer in charge until new provisions are made by the ship owner. In order to be able to assume the command of the ship, the shipmaster signs a convention of agreement with the ship owner; from such a contract a work relationship of private nature is originated.	• To have gained a professional certification for mastering a ship • Issue procedures and instructions to the crew in relation to shipboard hygiene, health and safety • Appoint, amongst the crew components, the workers in charge of managing emergency situations • Inform the ship owner and the safety representative in case of unpredictable events or incidents • Inform the ship owner about any lack or shortage compromising hygiene, safety and health on board.

SHIP OWNER	OBLIGATIONS
This is responsible for the undertaking navigation operation and can be or not be owner of the ship; he is the employer of the crew members	• Evaluate the risks for health and safety • Prepare a safety plan of working setting

SHIP OWNER AND SHIPMASTER OBLIGATIONS

Within their respective roles, the ship owner and shipmaster are obliged to:

- Appoint a Responsible person and all those in charge of the prevention and protection Service
- Appoint the competent doctor
- Organize the work on board, so as to minimize the stress risks and verify the compliance with working hours planning
- Inform the workers about the specific risks and provide them with the proper PPE
- Limit to a minimum the number of workers exposed to toxic and harmful agents; guarantee condition of effectiveness in the work environment; train and instruct personnel on board in relation to hygiene.

MARITIME WORKER	OBLIGATIONS
Any person belonging to the crew, who performs at any title, a service or a working activity on board a vessel or merchant ship or fishing vessel.  	• Comply with the measures provided for by the ship owner and the ship master • Never perform operations of one's own initiative • Using in a correct way working appliances and PPE • Inform the shipmaster or the Responsible of safety on board of any shortages or fault in protection equipment and devices • Submit to medical tests

COMPETENT DOCTOR	OBLIGATIONS
A doctor who has obtained one of the certifications and training expertise for professionals as laid down in article 38 of Legislative decree 81/08, who collaborates with the employer with purposes of risk assessment and is appointed by the employer to perform health surveillance and all of the other tasks laid down in the above mentioned decree.	The competent doctor: • collaborates with the ship owner and the prevention and protection service • performs health evaluations, expresses opinions in relation to health fitness and informs the worker • performs medical examinations to workers whenever such requests are connected to occupational risks.

PREVENTION AND PROTECTION SERVICE	FUNCTIONS
On board each vessel unit, there are one or more persons with appropriate professional habilitations, appointed by the ship owner, who perform the obligations of protection and prevention service. This service has to receive by the ship owner, all the appropriate information about health and safety (nature of risks, organization of work, data from the vessel's log or accident and occupational diseases report book).	• To inform the responsible person of any shortages or faults able to compromise health and safety on board • Identify any factors of risk in relation to work activities • Examine any injuries occurred to workers on board the unit • Inform crew members about problems related to hygiene and safety at work • Propose training plans and information sessions

Protection measures

Law on protection - Legislative Decree 271/99

SHIPBOARD SAFETY REPRESENTATIVE	OBLIGATIONS
On board every vessel or ship, **maritime workers elect their own representative** of safety and health on the workplace, according to the modalities provided for in national contract agreements of category. The elected representative shall be trained and certified on shipboard hygiene and safety and on specific regulations.	• Collaborate with the protection and prevention service • Shall be consulted upon the designation of the personnel in charge of the protection and prevention service • Propose initiatives concerning prevention and protection • Receive information in relation to risk assessment and relevant prevention measures

HANDBOOK OF SAFETY

On board ships a "Handbook for the management of safety on workplace on board" has to be present and include:

- **Instruments**
- **Procedures**

employed by the ship owner to comply with the provisions set out in the Decree n. 271/99 and in international regulations. It may constitute an integral part of the "Safety Management Manual" prepared according to the rules set out in the international code of management for safety of ships and vessels (ISM Code) as for the Solas Convention.

REGULAR MEETING ON PREVENTION AND PROTECTION

The ship owner, through the service of prevention and protection, shall call, **at least once a year**, a meeting in which the ship master, the responsible of safety in the workplace and the representative of safety in the workplace are present, with the purpose of assessing:

- Hygiene and safety measures provided for on board
- The appropriateness of individual protection equipment provided for on board
- The information and training programs of seafarers
- Any changes, in respect of standard conditions of unit operation, of situations of workers' exposure to risk factors.

WORKING TIME – LEGISLATIVE DECREE 108/2005

Number of working hours: the time in which seafarers have to perform their working activity. Included in this category there are **emergency exercises**, activities concerning **shipboard safety, training, maintenance**, the activities required by the shipmaster in case of **rescue**.
Rest time: time not included in the number of working hours; this expression does not include short-time breaks or interruptions. The hours of rest cannot be divided into more than two distinguished times, of which one is at least 6 consecutive hours and the interval between the two consecutive periods shall not exceed 14 hours.

Maximum numbers of working hours:
14 hours in a 24 hour time
72 hours for a seven days time

Minimum number of hours of rest no less than:
10 hours over a 24 hour time
7 hours over a seven days time

FATIGUE FACTORS (Annex I of legislative Decree 271/99)

In order to identify shipboard working activities which may contribute to work-related fatigue, the regulations classify exposure factors into categories, indicating the activities to which such factors may be related to. Fatigue has the consequence of decreasing human performance; it may be provoked by physical, mental, physiological factors and by stress or other.
In case of seafarers, the main causes of fatigue are the **bad quality of rest**, excessive workloads, excessive noise and the interpersonal relations. The factors that contribute to create such causes are different and the importance of factors is differentiated in relation to the activities.

Factors may concern:
- The management and administration responsibilities (communications, assignment of tasks, equipment level, port operations, etc.)
- The ship (automation degree, reliability of equipment, etc.)
- The crew members (experience, quality and skill, training level, etc.)
- External environments (weather conditions, traffic density, situations at port, etc.)

ALLERT: a long term exposure to specific factors of fatigue may cause the occurrence of specific occupational diseases (hearing impairment caused by noise, pathologies of the disk, bronchopathies, etc.)

Accidents and compensation

What to do in case of injury

The insured person shall **inform immediately** the shipmaster of any accident occurred, even if of slight importance, indicating if there are any witnesses (article 52, paragraph 1, of Presidential Decree 1124/65).
The employer must report the accident to the Insurance Institution within two days from the time he had notice for any injury implying an absolute temporary disablement of more than three days (article 53, paragraph 1 of Presidential Decree n. 1124/65).
The article 18, paragraph 1, letter r) of Legislative Decree of 9 April 2008, n. 81 lays down the obligation of employers to communicate to the Insurance Institution, for statistical and information purposes, the data concerning injuries involving an absence from work of at least one day, excluding the one in which the accident occurred.

Benefits

THE INDEMNITY OF TEMPORARY DISABILITY

The day when the accident occurred is considered as a working day and shall be paid by the employer. From the day after the disembarkation the INAIL pays out a temporary disability allowance of 75% of the retribution received by the worker.
There are no limits to the duration of the temporary disability paid out by Inail, which is terminated when the clinical conditions of the insured are stabilised and the person is able to return to work.

ALLOWANCE FOR TEMPORARY UNFITNESS TO NAVIGATION (LAW 1486/1965)

This benefit is reserved to seafarers belonging to the I and II category of maritime workers who, once they are clinically recovered, do not still result fit to navigation. The beneficiaries are those who, at the end of a period of compensated support for a temporary disability to work due to injury or disease, and after they have been examined by a permanent medical Board of I degree (constituted at each Harbormaster's office), are declared as temporarily unfit to perform some specific services on board. The allowance is paid out as a 75% of compensation, excluding the amounts received as extra-hours, for a maximum period of one year.

COMPENSATION FOR PERMANENT INJURY

A worker who has suffered from an injury to his/her psychophysical integrity in consequence of an accident is entitled to receive a payment due for compensation as:

- **A lump sum**, if the degree of permanent disability is comprised between 6% and 15%. The Legislative Decree 38/2000 laid down that no compensation is due for damages below the threshold of 6%;
- **An annuity**, with payment of monthly postponed accruals, if the disability degree is included between 16% and 100%.

The annuity level is proportioned to the percentage of permanent disability and the retribution received, within a minimum and a maximum amount established and regularly updated by law.
The benefit attachment date starts in case of injury from the termination of the temporary allowance, in case of occupational disease, from the submission of the administrative claim. The annuity is increased of a twentieth for every apportionment in case of family dependants, that is for the spouse and for each living child dependant of the insured under the age of 18 or for a disabled child.
For children who study, the limit is 21 and 26 years of age in case they attend vocational school or secondary general education or university and are not employed.

Economic benefits

SURVIVORS' PENSION

In case of death of the injured a survivors' pension is provided:
- To the spouse, amounting to 50%;
- For each child, amounting to 20%
- To the orphans of both parents, amounting to 40%.

For other categories, the pension or annuity amounts to 20% for every family relative and for each brother or sister if living together and dependant on the deceased insured.

FUND FOR THE FAMILIES OF VICTIMS OF SERIOUS ACCIDENTS

This support fund was established (Budget Law 2007) at the Ministry of Labour, Health and Social Policies with the purpose of providing for an adequate support to workers' families, insured and not insured, within the meaning of to Presidential Decree 1124/65, who were victim of serious accidents at work.

The survivors entitled to receive the above mentioned benefits are those included in the article 85 of the above mentioned decree:
- **spouse**
- **legitimate children, natural or recognizable, adoptive children** up to 18 years old, up to 21 years old if high school students or vocational students, up to 26 years old if university students, with no limits in case of children with total disability to work.

In absence of any designated beneficiary spouse and children:
- **Natural parents or adopted** dependent on the deceased worker.
- **Brothers or sisters** dependent or cohabitant with the deceased worker

The decree provides for two types of benefit:

- A one-off benefit whose amount, determined by the number of the surviving members, takes into account the resources of the Fund on a yearly basis and takes into account the trend of the occupational accidents. The established amount for household is divided into equal parts amongst the entitled members.
- An advance payment of the annuity to survivors equal to three monthly retributions of the annual income, calculated on the minimal amount established by law for the payment of the annuity. Such advance payment is provided for exclusively for workers' survivors under compulsory insurance protection, as laid down in the Consolidating Act n. 1124/65 and is paid out according to the conditions and provisions set out in article 85 of C.A. The annuity advance payment is paid out together with the one-off benefit.

The one-off benefit is paid upon submission, via registered letter with receipt, of a specific claim on the appropriate form and submitted by one of the beneficiaries only, within 40 days from the date of death.

DEATH GRANT

This benefit is provided for to the survivors of an injured worker who is deceased due to an occupational accident or disease. The Institution pays out the grant; the benefit amount is revalued every year according to a special ministerial decree on the basis of the real variation of consumer prices.
In case of absence of survivors the allowance may be paid to anyone who can demonstrate to have paid the expenses.

Fall into sea

Definition of the risk

In work settings that are open on board there is the risk of falling into sea.
"Man overboard!" is an experience that you would never make. If someone falls overboard, it is important that crew members are able to recover the person and take them back on board.

What are the causes?

This type of incident is in almost every case predictable. Anyone may fall overboard and people mostly at risk are experienced seafarers. Accidents may occur in the most unexpected times. A fall into water always **requires a ready response by the crew**. If you fall overboard a ship in port, moored or buoyed in a tidal area, you should try to not being dragged away from the area. Also be careful with non tidal areas or those where strong streams are created by wind flows through the islands.

PPE and behaviour

- **Life jacket**
  It has to be worn when required by procedure.

What to do in case of fall into sea

If you fall overboard a ship that is moving you risk to be left fast behind. If you start swimming, you may get cold and tired, accelerating the occurrence of hypothermia. In addition, to reach a unit, even if it is moving at 1-2 nodes only is difficult, if not impossible.
Try to keep calm and alert. If the crew has launched a lifebuoy, grasp it or hang on the floating lifeline. If there are waves, keep your back to them to avoid to breathe the sprays. Cross your legs and wrap yourself to let the body temperature decrease as less as possible. If you are wearing a tarpaulin, hold the neck, wrists and ankles tight. The chance to identify a man fallen overboard into sea depends on sea conditions. If there are waves, it is difficult to see a head on the water surface. Coloured strips on an inflated life jacket increase the visibility by day whilst refracting strips and an intermittent light increase the possibility to be seen at night.
Using a whistle is much more effective than shouting.
An individual Epirb (life buoy emitting a radio signal of emergency) may transmit a signal from the point of fall to research and rescue services.

DO NOT SWIM except in case you are close to a safe position where you can be rescued.

Dangers deriving from cold - HYPOTHERMIA

The effects of hypothermia make the cold water lethal. The estimated times of surviving show that you must not waste vital time to take a person back on board.

temperature	Exhaustion and unconsciousness	Surviving time
0°C	Below i 15 min	45 min
0 – 4,5°C	15 – 30 min	30 – 90 min
4,5 – 10°C	30 – 60 min	1 – 3 hours

Useful contacts

MINISTRY OF INFRASTRUCTURES AND TRANSPORT
GENERAL COMMAND OF THE ORGANISM OF HARBORMASTER'S OFFICES COAST GUARD

Viale dell'Arte, 16 - 00144 Rome

In sea environment the **emergency channels** are::

- Radio channel **VHF ch16** (naval);
- Emergency frequency **MF/HF 2182 MHz** (naval);
- Emergency frequency **UHF 121.500 MHz** (aeronautics) for aural communications.

Le richieste di soccorso possono, altresì, essere effettuate con l'impiego del sistema GMDSS (sia in VHF - HF/MF - satellitare).

Other expressions used for distress alerts

Mayday Relay
Mayday Relay is a distress alert for a serious case but indirect, that is made by a third party on behalf of someone in distress. It may happen that who is in need of launching a mayday is, for any reasons, unable to do that, for example because the VHF radio system is down, because it has no radio range or because they are covered by an island blocking the signal.

Securité
The term securité is used to transmit useful information to third parties, with the purpose of signaling possible causes of danger.
This system is used to signal all those situations which might cause damages to other vessels or aircrafts, such as, for example, wrecks, tidal or rogue waves, sudden storms or drifting objects such as huge trunks or floating containers.

Pan Pan
Pan pan formula (from French "panne") is used to request a not urgent rescue, following a situation that is not serious and in which there is no imminent life danger, such as, for example, the request for a towage because the boat has run out of fuel.

INTERNATIONAL RADIO MEDICAL CONSULTATION SERVICE
Italian Centre responsible for maritime medical service (T.M.A.S.)

FREE SERVICE OF TELEMEDICINE

The International radio medical centre was established with the purpose of providing radio medical assistance to maritime workers, embarked on ships without doctors on board of any nationality, in navigation at sea.

The CIRM offices are in Rome and its medical services are free. They take care of any transportation of the patient on a ship provided with medical services or, if the distance allows for that, the transportation of the patient by ship or airplane for a rapid hospitalization.

The Radio medical assistance of the CIRM is ensured by doctors in ongoing guard service (24/24 h). The commands of ship navigating with injured or diseased people on board may contact the service via:

International Radio Medical Consultation Service (C.I.R.M.)
Via dell'Architettura, 41 - 00144 - Rome
Telephone: [+39] - 06.59290263
Fax [+39] - 06.5923333
Mobile: [+39] - 348 - 3984229
E-mail telesoccorso@cirm.it
Telex: 612068 C.I.R.M. I

Italian coastal radio stations

Sources

The images are taken from the **"European guide for the prevention of accidents at sea and the safety of fishermen"**
www.europeche.org

For any further information you can go to the following institutional sites:

www.trieste.guardiacostiera.it

www.cirm.it

www.ass1.sanita.fvg.it

www.inail.it

www.salute.gov.it