

Coastal Zone Management & Management

Disaster Management

Disaster



Hazards Scenario

■ An ILO report (May 1999) on safety and health in the fishing industry shows that compared to other industries, **Fatality rate in fishing is much higher.**

■ As per ILO estimates, the fatality rate in fishing at global level is about 77% that is **24000 fatalities per year.**



■ In India at the national level one of the major information on status of sea safety is Group Accident Scheme for Active Fishermen of Ministry of Fisheries implemented by the **FISHCOPFED and Oriental Insurance**

■ A study carried out by the South Indian Federation of Fishermen Societies (SIFFS) in Tamil Nadu for the period of 2000–07 estimated about **1210 accidents** during the period excluding the death due to Tsunami.

■ From the SIFFS study, it can be inferred that the major causes of drowning are **capsizing, engine failure and surf crossing** mostly during returning from fishing.

■ Another recent study (2004-09) carried out by the Programme Inter-Governmental Organization (BO National Institute of Occupational Safety and Health (NI objective of the study was to found causes of the accident during that period. The study indicated that **cases death was due to drowning.**



Sea safety

Safety at sea can be defined as a set including policies, technologies, training, which implemented can reduce risk associated with marine

- The best possible way to improve safety vulnerability of the fishermen is inclusive develop



Sea safety history



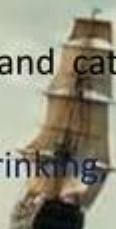
- The first international convention concerning safety at sea was the **Safety of Life at Sea**, prompted by the **Titanic disaster in 1912**.
- The three organizations of the United Nations, **ILO, IMO** and **WHO**, jointly prepared a **Code of safety** for fishermen and fishing vessels.

PART A (Adopted in 1968)	PART B (Adopted in 1978)
Safety and health practices for skippers and crews	Safety and health requirements for the construction and equipment of fishing vessels

Factors affecting Safety in Marine Fisheries

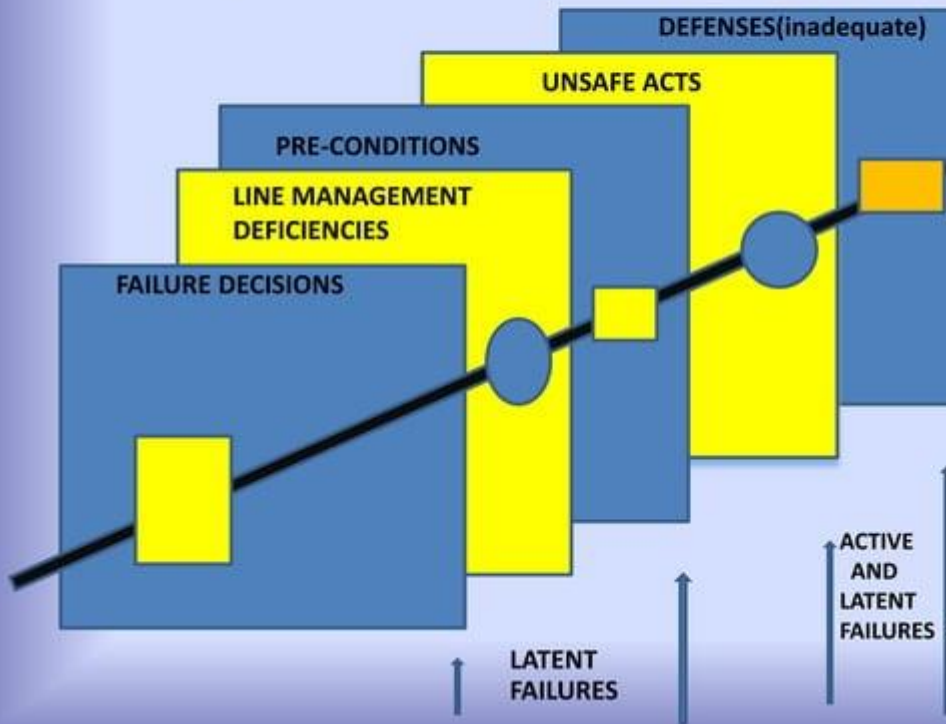
➤ The factors or risk profile of a fisher engaged in fishing can be expressed as:

Total risk = Policy-induced risks + Internal Arrangement(IA) induced risks + Behavioral risks + External(natural)

- Policy induced risk includes registration and licensing of vessels.
 - IA induced risks include relationship between boat and fishers, experiences and training.
 - Market conditionalities, like need to land catch before lower price competition.
 - Behavioral risks include habits like drinking, ignoring safety, carrying First Aid box, etc.
- 
- A small boat is visible on the water in the bottom right corner of the slide. The background of the slide is a photograph of a body of water under a cloudy sky.

REASON'S ACCIDENT CAUSATION MODEL

The complexity of accident causation is illustrated by "Reason's Accident Causation Model" forward by Prof. James Reason of Manchester University, U.K.



The development of the model shows

➤ The fishers were not aware of any weather warning and they made a poor decision to go to sea (decision).

➤ They possibly did not inform their voyage plan to their family and did not call for Search and Rescue Operation (SAR) and they did not follow the shipping route possibly due to lack of navigational training and poor line management).

➤ The sea turned rough (pre-condition).

➤ The fishers ventured in to the sea without any personal protective equipment (PPE) like life jacket or buoy (unsafe act).

➤ They were not having any communication equipment like a flashlight and even the flashlight not secured (a possible danger).



Common types of Accidents and the

Types of accidents

Capsizing



Pos

- Poor
- heav
- wat

Sinking



- Bad
- Bad

Drifting



- Bad
- insta
- Bad
- engi
- Lack
- Lack
- shoo

Collision



- Lack
- light
- Tire
- Ignor

Fire



- Bad e
- Bad cooking
- Short

Work accidents



- Slipped
- Unpro
- Tired

Health outcomes

- The most prominent health outcomes resulting from recreation are:

Types of health hazard	Possible reasons
<p data-bbox="60 350 339 422">Drowning and near-drowning</p> 	<ul style="list-style-type: none">• Alcohol consumption• Waves (coastal, boat, chop)• Pre-existing disease• Sea current (including tides, undertow)• Offshore winds (especially with floatation devices)• Bottom surface gradient and stability• Impeded visibility (including coastal structures and overcrowding)
<p data-bbox="60 743 397 816">Major impact injuries, especially spinal injuries</p>	<ul style="list-style-type: none">• Poor underwater visibility• Bottom surface type• Water depth• Diving into a wave or into water of unknown depth• Jumping into water from trees, balconies, structures

Types of health hazard	Possible reasons
<p>Slip, trip and fall injuries (including bone fracture and breaks).</p>	<p>Diving into shallow water Underwater objects (e.g. walls, piers) Adjacent surface type (e.g. water fronts, jets) Poor underwater visibility</p>
<p>Cuts, lesions and punctures</p>	<p>Presence of broken glass, bottles, cans and medical wastes Walking and entering water barefoot</p>
<p>Retinal dislocation</p>	<p>"Bombing" (jumping onto other water users) Diving into water/Jumping into water from</p>



- Source: WHO, 1998

Measures for ensuring safety

Information :

- The first and foremost necessity is to set up a **reporting procedure**.
- Currently, the BOBP-IGO is working with NIOSH(National Institute for Occupational Safety and Health, USA) to formulate an accident-reporting mechanism.
- They provide **Group Insurance Scheme** for fisher.



Measures for ensuring safety

Policies :

In Indian context fishing is a state subject for in waters up to 12 nautical miles. Beyond 12 nautical miles of EEZ fishing comes under central government.

➤ Marine Fishing Regulation Act(MFRAs) and Merchant Marine Act (MSA) provides for registration and licensing of fishing vessels of Fisheries of the state (1958).

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
CERTIFICATE OF BOAT REGISTRATION
STATE OF PRINCIPAL USE - GEORGIA

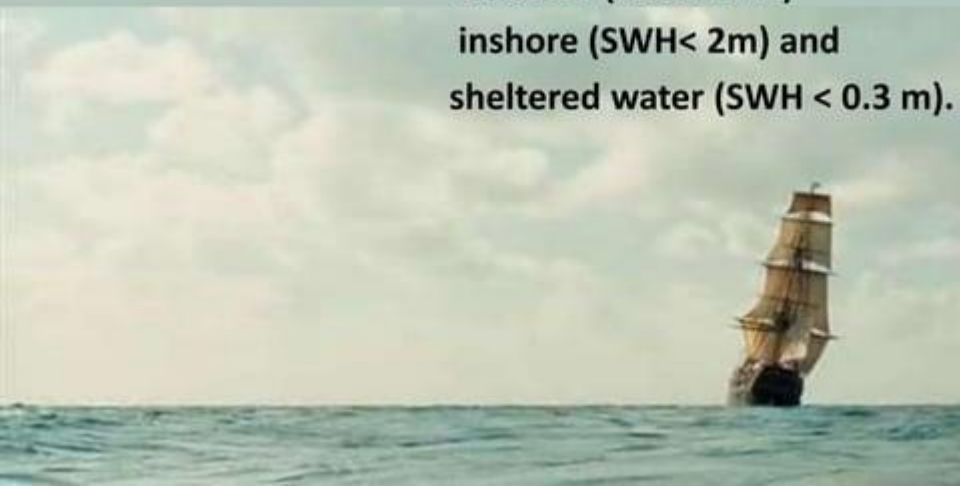
REGISTRATION NO. GA 3717ZW		CLASS 1 4 2 1 1 1 1	EXPIRES 05/31/01
WEIGHT 92	LENGTH 17 10	HULL NUMBER	REGISTERED AT Sample
HULL NO. 2K5000K000			
Joe Sample 5858 Sample Road Anywhere, GA 30528-0000			



Considering design of the vessels to designate operation:

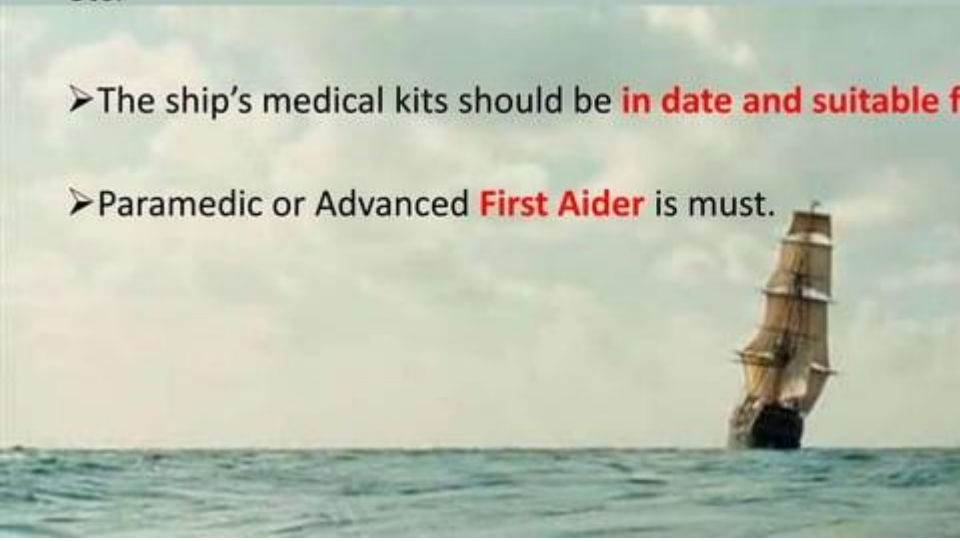
Fishing vessels meet different sea conditions. International Standards Organization (ISO) uses the term **wave height (SWH)** which is the average of the 1/3 highest waves.

- These categories are: Oceanic (SWH > 4 m)
 - offshore (SWH < 4 m)
 - inshore (SWH < 2m) and
 - sheltered water (SWH < 0.3 m).



REQUIREMENT SHOULD BE TAKEN CARE IN CASE OF MEDICAL AND HEALTH

- Members of the crew should have current **medical fitness**
- The preparation of a survival kit such as a **"72-hour kit"** as per the requirements of the relevant authorities. These kits may include food, medicines, first aid kit, etc.
- The ship's medical kits should be **in date and suitable for use**
- Paramedic or Advanced **First Aider** is must.



Contd....

- There should be a **stretcher** on board.
- Prescription drugs should be locked up.
- **Fresh water tanks** should be cleaned regularly.
- **Noise level survey** should be conducted and results p
- **Smoking policy** and areas designated.
- **Air quality and conditioning** to an acceptable standa





SUB-TOPIC:

- Lifebuoys
- Lifejackets
- Immersion suits and anti-exposure suits (AES)
- Thermal protective aid (TPA)
- Line throwing appliance
- General alarm and public address system



Sea Safety Equipmen & Life Saving Applianc



Life saving appliances

- ❖ Life saving appliances are the equipments used to save lives in case any vessel is in danger.
- ❖ The vessel may be in distress due to various misfortunes such as cyclone, leaks, collision, running aground, hitting against

Some important life saving appliances are:

- | | |
|------------------------|-----------------------------|
| ❑ Life boat | ❑ Buoyant line |
| ❑ Class c boat | ❑ Life jacket |
| ❑ Inflatable life raft | ❑ Line throwing appliances |
| ❑ Life buoy | ❑ Parachute distress rocket |
| ❑ Buoyant apparatus | ❑ Red star distress signal |
| ❑ Self igniting light | ❑ Portable radio equipment |



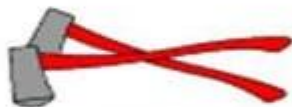
LIFE JACKETS



IMMERSION SUIT



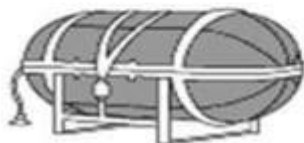
FIRE BUCKETS



FIRE AXES



EXTINGUISHERS



LIFE RAFT OR LIFE BOATS



FIRE PUMP



Liferaft



Lifebuoy



Evacuation chute



Line-throwing appliance

Fire appliances

Fire on board the vessel is the most dreadful hazard. In spite of all precautions fires do occur on vessels due to various reasons.

All fires are not of same type. The fire extinguishers used for different types of fires are also different.

Depending on the type of materials involved, fires are classified into three main types:

- ❖ **Dry/solid fires**
- ❖ **Inflammable liquid fires**
- ❖ **Electric fires**



Contd....

Types of fire extinguishers used:

- Soda acid and gas/water types
- Foam type
- Carbon dioxide extinguishers
- Dry chemical powder
- Halon extinguishers
- Fire buckets
- Fire pump
- Fire hydrants
- Fire hose
- Nozzle
- Fireman's outfit

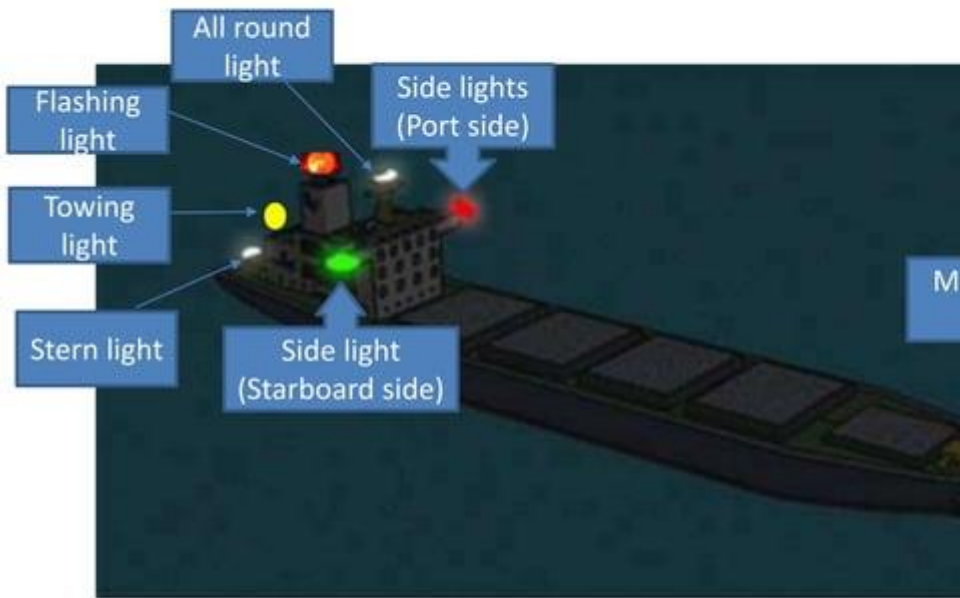


Light signals

- Light signals are used for avoiding collision in the sea and in the condition of a ship.
- The lights and shapes specified in Rules 20 shall comply with the provisions of these Regulations **PART C—LIGHTS AND SHAPES.**

Some important light signals used are:

- ◆ Mast head light
- ◆ Side light
- ◆ Stern light
- ◆ All round light
- ◆ Towing light
- ◆ Flash light
- ◆ **Special flashing light etc..**



Marina Entry Signals

Lights



Fixed

Fixed

Fixed

Flashing

Meaning

Vessels shall not proceed

Vessels may proceed with caution
Two way traffic

Vessels may proceed with caution
One way traffic

Serious Emergency
all vessels to stop or divert according to instructions

Only ONE GROUP of lights to be shown

Common Flags



R

Pass me a



Y



I

Engaged



R

Manoeuvring & W

These signals may be supplemented by light signals

1 Short blasts Alter

2 Short blasts Alter

3 Short blasts Going

5 Or more short blasts Your


Flag signals

Flags are also used for express the condition of a ship. Identity of the ship. There are several types of flags used

- ◆ Administrative flag
- ◆ Emergency signal flag
- ◆ Alphabetic flags
- ◆ Code/Answer Pennants
- ◆ Numeral Flags
- ◆ Special Flags
- ◆ Pennants etc.



Flag	Name & Phonetic Pronunciation	Meaning
	A lfa AL-fah	I have a diver down; keep well clear at slow speed.
	B ravo BRAH-voh	I am taking in, discharging, or carrying dangerous cargo.
	C harlie CHAR-lee	"Yes" or "affirmative". Change of Course (Sailing Regatta)
	D elta DELL-tah	I am maneuvering with difficulty; keep clear.

	India IN-dee-ah	I am directing my course to port. (International) Coming alongside. (Navy) Round the Ends Starting Rule (Sailing Regatta)
	Juliet JEW-lee-ett	I am on fire and have dangerous cargo; keep clear.
	Kilo KEY-loh	I wish to communicate with you.
	Lima LEE-mah	You should stop your vessel immediately. Come Within Hail or Follow Me (Sailing Regatta)
	Mike MIKE	My vessel is stopped; making no way. Mark Missing (Sailing Regatta)
	November no-VEM-bur	No or negative. Abandonment and Re-sail (Sailing Regatta)
	Oscar OSS-kur	Man overboard.
	Papa pah-PAH	All personnel return to ship; proceeding to sea (Inport).

AUTHORITIES AND ORGANIZATION CONNECTED TO SEA SAFETY

- ✓ FAO, UNO
- ✓ NIOSH, USA
- ✓ SAR (Search & Rescue) Organization
- ✓ Safety Engineers Association (SEA – India)
- ✓ Coast guards
- ✓ Indian Navy
- ✓ Local authorities
- ✓ Vessels Monitoring Authority
- ✓ Vessel Licensing Authority



**Food and Agriculture
Organization of the
United Nations**



INSTITUTES CONCERNED TO SEA SAFETY

- ✓ Sea Explorers Institute Educational Trust, Kolkata
- ✓ National Institute of Watersports, Goa, Ministry of Tourism, **Government of India**
- ✓ Sea Skills Maritime Academy; Coimbatore, Tamilnadu; **Government of India**
- ✓ Institute for Offshore and Maritime Studies(IOMS), Mumbai
- ✓ Mumbai Maritime Training Institute(MMTI)
- ✓ Samundra Institute of Maritime Studies, Pune
- ✓ Marine Training Academy, Gujarat & Mumbai; **Government of India**



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- Sea safety and life saving appliances- Latha Shenoy

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- INTERNATIONAL—Lights and Shapes
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Thank you