# SEA FISHERMEN & RISK PERCEPTION

Laurent Guillet, Gaël Morel

Research realized with Prevention Maritime Institute

# THE PURPOSE

Examine the perception of the fishing sailors with respect to the risks to which they are exposed and to classify these risks

The objective is compared risks perceived with the real risks

- ✓Study carried on the perception of the risks of the fishing sailors
- ✓Maritime fishing is the occupations most dangerous :
  - ☞Environment hostile and changing
  - ☞Movements of the ships
    - ↳Many risks which result from: falls, crushing, cuts, burns…
- ✓Assumption: Risks underestimated, erroneous perception at the origin of the conduits at the risks?

# RISK PERCEPTION

Discovered of a whole of mental strategies that the individuals use to build their behavior (Sandman, 1993)

The perception of the risks decreases when they are familiar risks, voluntary or perceived like controllable.

The individuals over-estimate the risk perceived like involuntary, imposed

# PERCEPTION of the RISKS to MARITIME FISHING

- Classification of the risks in 4 categories (Sato, 1998; Nielsen, 2001):
  - Damage related to the ship (failures, boardings…)
  - Personal accidents (Wounds, falls…)
  - Living and working conditions at sea (suicide, tiredness…)
  - Diseases
- Classification of the risks in 4 categories (Kaplan & Kite-Powel, 2000):
  - Reduced size of the crew (Extra work, tires…)
  - Period of fishing limited (use of the boat by bad weather)
  - Dangers because of the transit enters the fishing zone
  - Fishing zones limited (obstructions)

# METHODE

## Participants

106 fishing sailors

From 18 to 53 years (31,5 years; SD: 8,9)

Mainly sailors (72%), owners (12%), mechanics (7,5%), of the cook and boatswain (7,5%) (1%)

# Questionnaire which describes one day standard of fishing:

- Equipment
- Ship on the way towards the places of fishing
- Ship in action of fishing
- Ship on the way return towards the places of fishing
- Operation of unloading of fish
- Operation of put at quay and repairing of the ship

With each stage, an identical question

To list the risks to which you are exposed and which can harm your health and your safety

# 2389 réponses enregistrées

Constitution of categories

- Health : 4,1 %
- Security : 84,4 %
- Environment : 7,04 %
- Society : 4,46 %

## Sécurité (84,4 %)

- Functional unit risks : 5,87 %
- Technical risks : 0,42 %
- Physicals risks : 51,12 %
- Rythm of work : 7,42 %
- Electrics risks : 0,34 %
- Risks set fire to: 0,92 %
- Acoustics risks : 1,09 %
- Risks of falls : 17,22 %

- Abordage
- Echouement
- Coupures
- Chocs
- Ecrasements
- Entrainements

- Fatigue
- Horaires
- Baisse de l'attention

- A la mer
- Entre quai et navire
- Glissade de plain pied

## Categorization different and more precise than that proposed by Sato (1998):

- Diseases
- Damage related to the ship
- Personal accidents
- Living and working conditions

New grid

- Health
  - Abuse substances
  - Diseases
  - Hygiene of Life
- Security
  - Functional unit risks
  - Physicals risks
  - Rhythms of work
  - Risks of falls
- Environment
  - State of the sea
  - Thermals risks
- Society
  - Economical Risks économiques
  - Systemic risks
  - Aspiration individual

# Differences perceived risks and real risks?

Use of the data received from the fishing sailors

Use of the data of the IMP concerning the accidents declared with fishing between 1996 and 2004

Comparison Risks perceived and real according to:

type of trade with the position of the ship

kind of navigation with the position of the ship

kind of accident and kind of navigation

| Risques | Réel A quai | Perçu A quai | Réel En route | Perçu En route | Réel En pêche | Perçu En pêche | Réel Autre | Perçu Autre | Réel ND |
|---|---|---|---|---|---|---|---|---|---|
| Chute de hauteur à bord | 50,0% | 17,2% | 11,2% | 20,7% | 34,2% | 62,1% | 3,5% | 0% | 1,2% |
| Chute de plain-pied | 33,0% | 25,3% | 12,0% | 31,6% | 50,8% | 40,9% | 3,1% | 2,2% | 1,2% |
| Chute par-dessus bord | 47,1% | 43,2% | 5,8% | 32,9% | 36,5% | 20,5% | 8,7% | 3,4% | 1,9% |
| Heurt avec un obstacle fixe | 22,1% | 15,4% | 12,2% | 50,0% | 61,1% | 30,8% | 3,0% | 3,8% | 1,6% |
| Frappé, entraîné, coincé par... | 17,6% | 32,0% | 7,4% | 23,5% | 70,7% | 41,8% | 3,2% | 2,7% | 1,1% |
| Coupé, piqué par | 24,9% | 6,0% | 7,6% | 35,8% | 63,4% | 54,8% | 2,5% | 3,3% | 1,6% |
| Effort excessif | 32,4% | 24,9% | 7,1% | 11,1% | 55,4% | 23,6% | 3,6% | 40,4% | 1,5% |
| Flamme, incendie, explosion | 45,5% | 12,5% | 21,2% | 55,4% | 30,3% | 26,8% | 3,0% | 5,4% | 0% |
| Gelures, brûlures | 46,9% | 6,5% | 12,2% | 43,8% | 33,7% | 40,2% | 5,1% | 9,5% | 2,0% |
| Choc électrique | 37,5% | 0% | 6,3% | 62,5% | 56,3% | 37,5% | 0,0% | 0% | 0% |
| Autre | 32,7% | 7,5% | 9,5% | 34,5% | 44,9% | 30,7% | 8,2% | 27,3% | 4,8% |
| Non précisé | 27,1% | 0 | 9,4% | 0 | 50,4% | 0 | 3,1% | 0 | 9,9% |
| % | 29,0% | 18,8% | 9,2% | 30,7% | 56,2% | 37,0% | 3,7% | 13,5% | 2,0% |
| Total | 4358 | 449 | 1379 | 734 | 8453 | 884 | 560 | 322 | 294 |

# Distribution of the accidents and position of the ship

For the risks real and perceived :

Comparison of the ratio R =

% (Standard of accident X position of the ship)

% Position of the ship

| | |
|---|---|
| | R > 2 : liaison positive très forte entre les deux modalités |
| | 2 > R > 1,5 : liaison positive forte entre les deux modalités |
| | 1,5 > R > 1,2 : liaison positive entre les deux modalités |
| | 1,2 > R > 0,8 : pas de liaison évidente entre les deux modalités |
| | 0,8 > R > 0,66 : liaison négative entre les deux modalités |
| | 0,66 > R > 0,5 : liaison négative forte entre les deux modalités |
| | 0,5 > R : liaison négative très forte entre les deux modalités |

Strongly representative of the falls from height to quay

| | REALS (Industrial accidents) | | | | |
|---|---|---|---|---|---|
| | With quay | On the way | In fishing | Anothers | ND |
| Fall from height on board | 1,73 | 1,22 | 0,61 | 0,93 | 0,59 |

Sousestimation légère

| | RISKS PERCEPTION | | | |
|---|---|---|---|---|
| | With quay | On the way | In fishing | Anothers |
| Fall from height on board | 0,92 | 0,67 | 1,68 | 0,00 |

Sousestimation très forte

Surestimation très forte

| | Rapport | | | |
|---|---|---|---|---|
| | With quay | On the way | In fishing | Anothers |
| Fall from height on board | - | Opp - | Opp + | |

| | RAPPORT | | | |
|---|---|---|---|---|
| | A quai | En route | En pêche | Autre |
| Fall from height on board | - | Opp - | Opp + | |
| Fall on one level | + | - | = | |
| Fall over edge | + | Opp + | = | |
| Clash with a fixed obstacle | = | + | = | |
| Struck, involved, wedged by… | Opp + | = | - | |
| Crossed, piqué by | - | + | + | |
| Excessive effort | - | - | + | |
| Flame, fire, explosion | Opp - | - | + | |
| Gelures, burns | Opp - | + | = | |
| Electric shock | = | Opp + | = | |
| Others | | | | |
| % | 18,8% | 30,7% | 37,0% | 13,5% |
| Total | 449 | 734 | 884 | 322 |

**Comparison between Kind of accident and Position of the perceived and real ship**

The most perceived risks: Falls with the sea, cuts, shocks by the machine of fishing, state of the sea

Risk Cut over-estimated compared to the declaration of the accidents

Assumptions: no the systematic declaration, existence of a Threshold of gravity to reach to regard a cut as an industrial accident

Risks of boardings and failures minimized in spite of the mediatization of this type of event

UBS
UNIVERSITÉ DE BRETAGNE-SUD

LESAM GESTIC

ErgoMare
COLLOQUE INTERNATIONAL

Phase 2 of the study :

# Risks evaluation



Laurent Guillet & Gaël Morel