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COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES

Strategic Partnerships for Vocational Education and Training

Project Title	**TRAINING TOOL BASED ON THE USE OF ICT FOR RISK PREVENTION AND SAFETY IN THE TRAWLING FISHING (DVD: SAFE FISHING)**
Project Acronym	**SAFE FISHING**
Project Number	**2014-1-ES01-KA202-004404**

INTELLECTUAL OUTPUT 1

safefishing

STUDY:

PREVENTION PROCEDURES AT EUROPEAN LEVEL.

IDENTIFICATION OF NEEDS

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0. BACKGROUND

In terms of qualifications and learning for an adequate management of occupational hazards associated with the activities, trawling fishing sector has some deficiencies:

- The **legislation on prevention** establishes as a requirement to provide staff with specific training for their workplace, before beginning to develop the jobs as during their professional period.

  This training ends up being very general, instead of specific. Also it is common not to fulfill periodic training due to complications involved in its organization, especially in sectors such as this one in which workers are relocated for long periods.
- This sector's **training on prevention is given by means of traditional learning technologies in all partner countries** (Spain, France, Italy, Turkey and Belgium) being more protracted and complicated to form groups for the course. It is a more effective visual training in which the pupils could identify their job, their risks and the correct methodology for the working development in order to prevent incidents and accidents.
- This sector is characterized by the **presence of the workers in the deep-sea for considerable periods of time,** which disables the organization of initial and periodic training.
- **Training programs about occupational hazards standardized to European level do not currently exist**

These needs were detected by the Safe Fishing Project partnership developer (ARVI-Spain, SGS-Spain, IMP-France, MARE-Italy, RTEU-Turkey and EUROPÊCHE-Belgium), deciding to work together in order to provide and to advise the sector on a **Training Program Standardized to European Level for the management and prevention of the occupational hazards in the trawling fishing sector through a territory specific programme of innovative material and audiovisuals.**

The **standardization** of the training to European level provides the sector with *added value* to facilitate the *mobility of the personnel*, the *exchange of knowledge* and with this, the *professionalization of the sector*.

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Audio-visual training material has *easier comprehension and utility*, facilitating training on board.

Spain has preventive contents, financed and supported by a Public Entity as for Prevention of Labour Risks that are adapted as reference but these have not developed as far as to provide ICT tools ("ANÁLISIS DE LA PROBLEMÁTICA DE LA SINIESTRALIDAD EN EL ARTE DE ARRASTRE EN LA PESCA DE ALTURA Y GRAN ALTURA: GUÍA DE PROCEDIMIENTOS DE ACTUACIONES PREVENTIVAS").
This material is a good starting reference point to develop the training material needed in the sector in order to provide it with a training tool capable to qualify and to protect staff.

Because of this, partners are working in the **SAFE FISHING DVD** development taking the Spanish material on prevention as reference.

1. *IO1* OBJECTIVE

SAFE FISHING project tries to promote a development of an ***educational, innovative and safe trawling fishing sector*** across the standardization of the *Procedures of the Preventive Action at European Level* using ***training tools based on the use of ICT***.

Thus, this project aims to develop **Audio-visual Training in occupational hazards in the trawling fishing industry**

First of all, it is necessary to develop **two preliminary studies of the sector on prevention *and training*, knowing the *particularities of the sector, its tasks, the workplaces, the vessels, the equipment used, the occupational hazards associated and the preventive training taught currently in the sector.***

All this in order to develop a **roadmap for the later adaption of the Spanish Preventive Procedures to the partner countries and Europe.**

This intellectual output is the result of the *Work Package 2 (WP2): Preliminary study and identification of training needs in prevention of labour risks in the trawling fishing sector,* through which the partnership has developed these previous analyses and roadmap

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2. *IO1* METHODOLOGY

- **The activities of the WP2 are:**

☐ **Activity 8:** Preliminary Study of the Sector on prevention to European level.

☐ **Activity 9:** Preliminary study of the Sector on training regarding the prevention of labour risks to European level.

☐ **Activity 10**: Routing sheet for the adjustment of PREVENTIVE PERFORMANCE PROCEDURES and their identification to develop to European level.

- **Involved Partners (WP2):**
  - ARVI (Spanish partner)
  - SGS (Spanish partner)
  - MARE (Italian partner)
  - RTEU (Turkish partner)
  - IMP (French partner)
  - EUROPÊCHE (Belgian partner)

- **Execution Term (WP2):** December 2014 – November 2015

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2.1.: ACTIVITY 8: PRELIMINARY STUDY OF THE SECTOR ON PREVENTION TO EUROPEAN LEVEL.

- **Action 1:** ARVI, MARE, IMP, RTEU, EUROPÊCHE filled in a checklist (CL.0) identifying the tasks developed in the trawling fishing in their countries. In order to fulfill this:
  - 1.1. ARVI and SGS (Spanish partners) prepared a checklist (CL.0) with the tasks included in each process of the trawling fishing in Spain:
    - *Procedure:* **Equipment**
    - *Procedure:* **Navigation to fishery**
    - *Procedure:* **Catch**
    - *Procedure:* **Processing**
    - *Procedure:* **Stowage**
    - *Procedure:* **Navigation to port**
    - *Procedure:* **Unloading**

  - 1.2. M.A.R.E., RTEU, IMP and EUROPÊCHE selected the tasks developed in those Procedures in their specific countries and identified another tasks developed in their countries but not included in the CL.0 (=new tasks); as a result of this activity, partners developed **1 CL.0/country**

  - 1.3. SGS analyzed these checklists (CL.0) and prepared the guidelines to develop the preliminary study on prevention and templates for bibliographical studies (BS.1.1. and BS.1.2) and quantitative study (QS.1.3) –ANNEX I-.
    In the designing of these templates, SGS selected the specific tasks developed in each country (with the CL.0 information) and designed the templates specifically for each partner. The objective of these templates are the same (identifying tasks, jobs, vessels and occupational hazards) but their contents are specific taking into account the particularities of each country.

- **Action 2:** partners conducted a bibliographical study (BS.1.1). **1 BS.1.1/country**

- MARE, IMP, RTEU and EUROPÊCHE provided a detailed description of both tasks and new tasks developed in their countries. *To this end, SGS had selected each partner's specific tasks previously and new activities according to the conclusions of the 1.3. action (CL.0) and indicated to partners in order to analyze them*
- ARVI developed an analysis only with the new activities indicated by the rest of partners in CL.0 because the rest of tasks were already being analyzed in Spain (they are the project's reference). *SGS selected the new activities according to the conclusions of the 1.3. action (CL.0) and indicated them to ARVI in order for them to be analyzed*

- ARVI, MARE, IMP, RTEU and EUROPÊCHE selected which working places (jobs) are involved in each task in their countries:

  - **Cook: C**
  - **Sailor: S**
  - **Engineer: E**
  - **Boatswain: B**
  - **Deck Crew + Official: DCO**
  - **Fishing Ship Master: FSM**
  - **Coast Ship Master: CSM**
  - **Captain: Cp**

- To do this, ARVI, MARE, IMP, RTEU and EUROPÊCHE filled in the **Tables A (tasks) and B (working places) of the template: ANNEX I**

- **Action 3:** ARVI, M.A.R.E, IMP, RTEU and EUROPÊCHE developed a **bibliographical study (BS.1.2)** of the trawling ships and equipment used in their countries**. 1 BS.1.2/country**
  In order to do so, each partner filled the **Table C of the ANNEX I template**
  The project's application form established that this bibliographical study is addressed to the vessel but as improvement, partners decided to analyze the trawling ships and other equipment used in the activities development.

During the bibliographical study (BS.1.2) development, ARVI, MARE, IMP and RTEU have submitted images of the trawler vessels and equipment. Partnership is forming an image bank to study the sector and to be a possible resource during the DVD development. This **image bank** is not included in the initial proposal of the project (application form) but partners considered that repository as a good resource to support the products of the project.

- **Action 4:** ARVI, M.A.R.E, IMP, RTEU and EUROPÊCHE realized a **quantitative study (QS.1.3):** in order to identify the occupational hazards of the sector**. 10 questionnaires/country**
  - SGS identified the **occupational hazards associated with each procedure's task** and prepared a **quantitative questionnaire -template (ANNEX II: TABLE D)-** with these risks
  - ARVI, MARE, IMP, RTEU and EUROPÊCHE distributed the template **(ANNEX II: TABLE D)** to the companies and workers of the sector in order to fill them
  - Later, ARVI, MARE, IMP, RTEU and EUROPÊCHE collected at least **10 questionnaires filled/country**
  - SGS shall analyze questionnaires and obtain the conclusions of the QS.1.3

- **Action 5:** with the **BS.1.1, BS.1.2 and QS.1.3,** ARVI, IMP, RTEU, M.A.R.E and EUROPÊCHE, provided images and videos, photos…. that will support the WP3 and WP4 development (image bank)

- **Action 6:** finally, SGS wrote a report of conclusions of the **PRELIMINARY STUDY OF THE SECTOR ON PREVENTION** with BS.1.1 + B.S.1.2 + QS.1.3

- **Action 7:** SGS created an image bank with the photos, images and videos provided by the rest of partners in order to support the WP3 and WP4 development

2.2.: ACTIVITY 9: PRELIMINARY STUDY OF THE SECTOR ON TRAINING REGARDING PREVENTION OF LABOUR RISKS TO EUROPEAN LEVEL

- **Action 1:** SGS prepared a template for the **quantitative study (QS.1.4) - ANNEX III: TABLE E-)** in order to identify the current training in occupational hazards developed in the sector

- **Action 2:** ARVI, MARE, IMP, RTEU and EUROPÊCHE developed the quantitative study about the occupational hazards training. **10 questionnaires/country**

  - ARVI, MARE, IMP, RTEU and EUROPÊCHE distributed the template **(ANNEX III: TABLE E)** to the companies and workers of the sector
  - Later, ARVI, MARE, IMP, RTEU and EUROPÊCHE collected at least **10 questionnaires filled/country** in order to fill them
  - SGS analyzed the questionnaires (at least: 50 questionnaires) and obtained the conclusions of the **QS.1.4**

- **Action 3:** finally, SGS wrote a report of conclusions of the **PRELIMINARY STUDY OF THE SECTOR ON TRAINING REGARDING OCCUPATIONAL HAZARDS** with the **QS.1.4**

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2.3.: ACTIVITY 10: ROUTING SHEET FOR THE ADJUSTMENT OF PREVENTIVE PERFORMANCE PROCEDURES AND THEIR IDENTIFICATION TO DEVELOP TO EUROPEAN LEVEL.

- **Action 1:** SGS analyzed the preliminary studies developed in the activities 8 and 9 taking the Spanish Preventive Procedures as reference in order to adapt and improve them to the rest of countries to promote the development of a Program of Training Standardized to European level.

- **Action 2:** SGS identified the needs and contents to develop.

- **Action 3:** SGS wrote these results in the roadmap including:
  - The guidelines for the adaptation and improvement of the Spanish Preventive Procedures to the rest of the participating countries
  - The gaps in training contents of on prevention, which are necessary to develop from a European perspective.

- **Action 4:** later, SGS discussed with ARVI, INFORCOOP, IMP, RTEU and EUROPÊCHE the content of the roadmap and its application for the adaptation of the Procedures in each country. The partnership agreed on the strategies to follow to this adaptation and improvement.

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2.4.: TEMPLATES PREPARED AND USED FOR THE *IO1* DEVELOPMENT

- **CL.0: CHECKLIST: TRAWLING FISHING ACTIVITIES** *(activity 8)*

- **ANNEX I: TEMPLATE: PRELIMINARY STUDY OF THE SECTOR ON PREVENTION TO EUROPEAN LEVEL (O1-A1) (BS.1.1. + BS.1.2)** *(activity 8)*
    - Tasks description (BS.1.1): TABLE A
    - Workplace description (BS.1.1): TABLE B
    - Description of Trawling ship and equipment used (BS.1.2): TABLE C

- **ANNEX II: TEMPLATE: QUANTITATIVE STUDY TO IDENTIFY THE OCCUPATIONAL HAZARDS (O1-A1) (QS.1.3)** *(activity 8)*
    - Occupational hazards in the trawling fishing sector (Qs.1.3): TABLE D

- **ANNEX III: TEMPLATE: QUANTITATIVE STUDY TO ANALYZE TRAINING IN OCCUPATIONAL HAZARDS IN THE TRAWLING FISHING SECTOR (O1-A2) (QS.1.4)** *(activity 9)*
    - Training in occupational hazards in the trawling fishing sector (QS.1.3): TABLE E

These Annexes are the basis on which partners developed the Preliminary Studies. They have not been added to this Intellectual Output. This Intellectual Output includes the conclusions extracted with the information contained in them.

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3. Conclusions Report: PRELIMINARY STUDY OF THE SECTOR ON PREVENTION TO EUROPEAN LEVEL

- In the first part (a), this study includes a joint analysis developed with the information of all participating countries about the following topics:

  - ☐ Preventive study of the sector on prevention to European Level: tasks and occupational hazards
  - ☐ Preventive study of the sector on prevention to European Level: trawling ships and equipment used

- Following (b), it includes the conclusions obtained.

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a. Joint Analysis:

PRELIMINARY STUDY OF THE SECTOR ON PREVENTION TO EUROPEAN LEVEL: tasks and occupational hazards

Information Source: Annexes: I and II each partner

PROCESS Procedure	Task / Jobs (*)	Task Description	OCCUPATIONAL HAZARD IDENTIFIED
EQUIPMENT (ALL)	GENERAL		Falls from ladder to different level when accessing the hold
			Fall to different level from service stairs
			Fall to different level due to openings, slips, tripping, absence of collective protection equipment, hatches, sticks, falling into the sea…
			Falls on the same level due to slips, tripping, tripping over objects, wet or slippery deck by hydraulic oil leaks. This situation occurs due to the workers not using non-slip footwear
			Falling down of people due to footstep over objects, remaining material, tools…
			Falling objects due to an improper handling of loads
			Falling objects due to collapse caused by the falling of material handled by the crane
			Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness
			Blows with mobile objects when people go under/over the cable, sweep line….
			Blows and entrapments due to a failure of the work equipment anchor on board
			Entrapments with the mobile parts of the work equipment; gears, net drum…

			Overstrain and musculoskeletal discomfort due to postural physical burden when the work requires standing and people handling the machine and other equipment during the equipment procedure
			Electrical contact Risks
			Exposure to toxic or corrosive substances due to the leaks in the refrigerant circuit of the hold (refrigerants such as Freon)
			Disease from natural causes
			Sinking due to loss of stability, waterways, weather conditions
			Flooding due to lack of maintenance and signaling of the sealing elements, deck closures, bilge…
			Fires and explosions on the ship
			Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise...
	Transfer to port ***C; S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK, BE:** The crew is moved with several transport means, from their homes to the port where the ship is docked. **FR:** Large trawlers (> 40 meters): two ways: by plane and bus/train or only by bus across the channel France-United Kingdom for crews of large trawlers which stay all year on the fishing areas and use Scottish or Irish ports. It takes 5 hours with private plane and bus or 10-12 hours with regular lines of planes and bus or only with bus. Crewmen should carry their luggage (clothes and others things for 3	Traffic accidents New risk: New risk: new content!!!

		weeks at sea) wait, to be controlled by police and custom, to sit in planes or buses. Sometimes, they should carry small material for the boat. It isn´t difficult but the trajectory can be long (12 hours) and just when they arrive onboard, the captain must sail towards fishing areas. Five or six hours after, the trawl is in the water. <u>Other trawlers:</u> crewmen use their own car, motorcycle or bicycle. It can be every day (trawlers < 12m), every week or every two weeks. Sometimes the owner of the trawlers uses a taxi or a private van to drive all the crew to the port. More and more crewmen must live far from the port (along the coast it´s more expensive to rent or buy a house).	

	Loading/Unloading ***C; S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** The access to the ship is through the gateway or other access medium installed for this. **FR, BE:** Large trawlers (> 25 meters): crewmen use a gangway. It is installed with the crane of the boat or with ashore staff and means (crane, forklift truck...). The safety net under the gangway isn´t often installed. Medium trawlers (16<L< 25m): these boats are docked along the docks but crewmen don't use the gangway. They jump from the dock to the boat when they are on the same level or they use dock ladders when the boat is lower than the dock. Also, they use fenders, portholes, rails...when the boat is higher than the dock. Crewmen pull on the moorings when the boat is discarded from the dock. Sometimes, crewmen must cross one or two boats in order to arrive to their trawler.	Falls to different levels and on the same level
			Falls into water from gangway or from foot bridge. New risk: new content!!!

		Small trawlers (<16m): Crewmen walk on a gangway. Sometimes they use a ladder to pass from the pontoon to the boat. Pontoon is a safety solution but it must be built for a professional use (wide enough to store some material on it without disturbing the circulation of the fishermen)	Stepping over objects New risk: new content!!!
			Strikes against stationary objects New risk: new content!!!
	Moving on board ***C; S; E; B; DCO; FSM; CSM; Cp***	**TK:** Walk on vessel from one place to another **IT:** Walk by vessel from one place to another: Horizontal circulation (on the deck; in the galley) and vertical circulation (couchette; cockpit; engine room: only in harbour, not	Falls to different levels New risk: new content!!!
			Falls on the same level New risk: new content!!!
			Falling of detached objects New risk: new content!!!
			Stepping over objects New risk: new content!!!
			Strikes against stationary objects New risk: new content!!!

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		during navigation) **SP, FR, BE:** Walk by vessel from one place to another: Horizontal circulation (deck, gangway) and vertical circulation (staircase, inclined ladder with steps, upright ladder with bars). In the specific case of France, sometimes, there is a lift but only for material and catch.	Physical agents: noise New risk: new content!!!
	Starting of engine and radio equipment ***E; DCO; FSM; CSM; Cp***	**SP, IT, TK:** Some machines and radio equipment need connecting with a motor to operate. Thus, it is necessary to provide the ship with energy. **FR, BE:** To start the main engine, a battery or an air bottle is used. To do this, it can be necessary to go to the engine room	Entrapment between objects of handling equipment with lack of protections or safeguards New risk: new content!!!
			Thermal contacts New risk: new content!!!
			Electrical contacts New risk: new content!!!
			Explosion/Fire New risk: new content!!!
			Physical agents
			Physical agents: exposure to high noise, especially in the engine room New risk: new content!!!
	Installation of safety net under the boarding bridge (large trawlers) New activity!!! ***S; B; DCO***	**FR, BE:** The net is attached to the bulwarks.	Occupational Hazard.
	Sailing with a small boat to the main boat (small trawlers) New activity!!! ***S; B; DCO***	**FR, BE, SP:** Crewmen are boarding from pontoons, a dock ladder or a slipway on the small boat. To sail to the main boat they use oars. When they arrive to the main boat, one of the crewman retain the two boats one against	Water Falling New risk: new content!!!

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		the other, another crewman boards on the main boat, and then is boarding himself. The small boat is tied with a buoy. When the wind is strong this operation is dangerous because the small boat is often an unstable craft which can be heavy charged with men, material and/or catch. Crewmen often store their lifejacket on the main boat, so they don't wear them when they are onboard the small boat.	

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EQUIPMENT: Food supplies/nets and boxes/maintenance material and spare materials	Preparing cargo on dock *C; S; E; B; DCO;*	**SP, IT, TK:** Manually positioned on dock **FR, BE:** In large trawlers, sometimes crewmen are helped by the ashore staff to bring the cargo from cars, trucks, hangars...on the dock just near the boat. For this, they handle the cargo manually or using a trolley or a forklift truck	Falling of stacked materials
			Falling objects due to collapse, caused by Falling material carried by the forklifts, in loading and unloading activities or due to collapse of stacked material in the loading and unloading operations in the storage area....
			Falling objects during the driving with forklift, due to the transportation of the cargo or due to the collisions with fixed objects
			Striking against stationary objects during the driving with the forklift
			Entrapment of body parts (hands, arms, legs, etc.) between objects and fixed elements. This situation occurs when worker expose these body parts outside the cab of the forklift
			Entrapment for forklift overturning due to an improper positioning of the cargo, excessive weight of the cargo, uneven ground, and excessive speed, sharp turns....
			Blows against vehicles during the displacements through circulating areas for the forklifts.
			Overturning of the forklift at the dock
	Mechanical loading (crane) on board *C; S; E; B*	**TK:** In the case of the cargo would be heavy, crewmen use crane or capstan. **IT:** If possible (unusual): one crewman drives the crane, one or two crewmen stay on the dock and one or two crewmen stay on the deck or other space of the boat to remove the slings. **SP, FR, BE:** One crewman drives the crane or uses a capstan. One or two on the dock. One or two on the deck or other space of the boat to remove slings. When using a capstan, it is more difficult to control the movement of	Falling of the load during the moving of the crane, due to an improper stowed, auxiliary element (cables, slings, hooks...), crash against an obstacle, causing the precipitation of the load
			Entrapment, falling loads, blows against mobile objects
			Drop the load by the accidental starting of the crane
			Collapse of the load to be hoisted by crane
			Dropping of the load by an improper load in the sling
			Blows with the cargo handled by the crane, especially when guided manually.
			Falling objects due to breakage of any hose leading, causing the Falling of the mast of the crane, falling the load...
			Blows against mobile parts, suspended load during the use of the crane by all workers

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		the load and it is dangerous for fingers or hands if the rope slips around the capstan	
	Manual loading on board ***C; S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** Materials are passed by hand from an operator on the dock to another one who is on the boat **FR, BE:** Crewmen form a chain to pass loads from hands to hands. Heavy loads are carried by two people. Ropes and hoists are used for changes in levels. On the fishing deck they can use winches to pull cargo and in large trawlers, they can use conveyors	Falling objects due to inadequate cargo handling Overstrain due to inadequate cargo handling
	Storage of cargo ***S; E; B; FSM***	**SP, IT, TK:** The materials are placed on the deck or in a special compartment in order to avoid obstructing activities **FR, BE:** Boxes, covers of boxes, baskets, gears, foods, and drinks... should be stored onboard in several places. On the large new trawlers there are specific spaces for each thing with a safety blocking system installed during the construction of the boat. But the sizes of these spaces are often too small, and in that case, the storage is the same than the storage in small trawlers. On small trawlers, often the spaces aren´t large enough to receive the cargo. So the cargo is stored along the decks and gangways	Overstrain due to inadequate cargo handling Falling objects due to a collapse occasioned by an improper stacking of the load Blows caused due to sudden movements of the materials which have been stored improperly

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		reducing the space for the circulation of the crew. The crew must use ropes or straps to block the cargo along the decks and gangways.	
	Put ice in the fish room New activity!!! ***S; B;***	**IT, TK:** The ice is stowed in crates or produced directly on board **FR, BE, SP:** The port can be equipped with self-service for the distribution of the ice. In this case, crewmen locate the trawler with the hatch just under the chute in order to install different chutes onboard and control the movement of the ice and its level in the different compartments of the fish room. The quantity of ice depends of the trip duration and the presence or not of an ice-machine onboard.	Skin allergies, injuries or damages New content!! Cold and flu New risk: new content!!!
EQUIPMENT: Preparing fishing gear	Preparing cable ***S; E; B; DCO; FS ; CSM; Cp***	**SP, IT, TK:** They are already in the winch for cable **FR, BE:** Cable can arrive on a reel (coil) or only coiled on itself. The large coils must stay on the dock and the end of the cable is fixed to the winch. On the dock, the coil turns on a reel when the winch is pulling the cable. This system on the dock must be well balanced and stable. If not, the heavy coil can reverse Small coils are loaded on the deck with a crane and the cable is rolled by hand when	Blows against mobile objects when workers go under/or over cable when it´s coiled Entrapment between the cable and the winch machine during the winding Blows with objects produced by the cable breakage and its handling Blows during the cooling of the cable in the winch Entrapment with cable during its winding Blows due to an inadequate fastening of the heavy materials on deck (for instance: cable), especially in bad weather conditions New risk: new content!!! Entrapment with cable during its measurement for marking de cable New risk: new content!!! Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machine and other equipment

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		they have to be put on a winch. One of the crewman activates the winch and other crewmen control the position of the cable. If the first crewman hasn´t a good view of the other crewmen, one of them must stand at a place where he can see the winch and the men around the cable to be able to inform the man at the winch (pull, stop, throw...) To join or disjoin two cables, crewmen have to make splices in order to install shackles. To do that they use tools like hammer, wrench... Then blowpipe or electric circular saws are used. The cable has to be passed in sheaves on the deck or at different heights in the gantry. To do that, crewmen have to climb on the gantry. On a great number of trawlers, ladders and platforms to facilitate these tasks in safe conditions are not installed	
	Preparing sweep line ***S; E; B; FSM; CSM; Cp***	**SP, IT, TK:** They are already wrapped in the net drum They are stored on both sides of board **FR, BE:** Same operations than for preparing the cables.	Entrapment between the sweep line and the winch machine during the winding
			Blows with mobile objects when workers pass below or above the sweep line during the winding
			Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machinery and other equipment
	Preparing trawl doors ***S; E; B; FSM; CSM; Cp***	**SP, IT, TK:** There are already in the side supports of the derrick **FR, BE:** Trawling door can be loaded on the deck or directly suspended to the gantry with a crane	Falling into the sea during the lashing of trawl doors
			The drop of the door during its movement developed by the crane due to a defective cable and other auxiliary element (slings, hooks....) causes a break, or crash that causes the precipitation of the load
			Crash the door when it is hoisted by crane
			Blows with the door manipulated by the crane, especially when it´s guided by the operator with his hands

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		(onboard or not). When it´s loaded on the deck, after having fixed the cable, the trawling door is put in the water with an auxiliary winch and the cable is hauled with the main winch until the door arrive to the pulley of the gantry. A second pair of doors must be stored on the deck on large trawlers. Here the blocking system must be very strong and reliable. To join or disjoin the cable to the door, crewmen have to make splices in order to install shackles. To do that, they use tools like hammer, wrench... Then blowpipe or electric circular saws are used.	
	Preparing net ***S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** Either nets lies on deck or partially lifted from the deck and ready to be used **FR, BE:** Nets are stored on drums. On large trawlers they are stored on decks, spare decks, or stockroom. Manual handling and handling with crane are used to move these pieces of net. When a net is wrapped on a drum, one of the crewman active the drum and the control to position and guide the net on the drum. It can be necessary to tie some pieces to the net on the drum to avoid the entanglements when throwing the net. The different pieces of the net are putting together with needles, strings and knives. Here it´s not easy to have an ergonomic layout of the working posts because the deck	Cuts and blows with mobile objects when people pass under/ over the net when it´s winding Entrapment between net and machine Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machinery and other equipment

		must be free when hauling and shooting.	
	Preparing clump, which is the central weight they put between two trawls used together (twin trawls) it can be put with the third task (doors) New activity!!! ***S; E; DCO***	**SP, IT, TK:** If it's present, it´s ready in the side supports of the derrick **FR, BE:** This central weight used between two trawlers can be compared with the trawl doors. The clump can be stored inside or outside the boat on the stern. Like the doors it must be blocked very strong and reliable and the tasks on the clump are the same	Occupational Hazard
EQUIPMENT: Fuel	Bunkering ***S; E; B***	**SP, IT, TK:** It is made directly with the fuel pumps present in the dock. The boat is approached to the dock and the sailor put the pump into the tank. Often sailor uses rags to prevent the escape of fuel **FR, BE:** Fuel arrives to the trawler with a pipe that comes from a tank, a truck ashore or a boat. A man carries and unrolls the pipe. A wrench is used for connection/disconnection. The level of fuel in each tank and the position of the boat in the water must be controlled during bunkering	Falls on the same level during the walk through the engine room, due to a bad lighting, slippery floor.... Projection of liquids due to splash of fuel that could occur during the connection/disconnection the bunker and opening the valves´ tank Fire caused by oil spills Fire/Explosions Dermatitis caused by contact with the fuel Cuts with objects (manipulation of valves)

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PROCESS Procedure	Task / Jobs (*)	Task Description	OCCUPATIONAL HAZARD IDENTIFIED
NAVIGATION TO FISHERY (ALL)	GENERAL		Falls to different level due to openings, slips, trips, absence of collective protection, hatches, sticks, falling into the sea…
			Falls to different level from service stairs
			Falls on the same level due to slips, trip, tripping over objects, wet or slippery deck by hydraulic oil leaks. This situation occurs due to the workers not using non-slip footwear
			Tripping over objects, material remains, tools…
			Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness
			Blows and entrapments due to a failure of the work equipment anchor on board
			Electrical contact Risks
			Glare produced by the sun in the cockpit of the bridge
			Exposure to toxic or corrosive substances due to the leaks in the refrigerant circuit of the hold (refrigerants such as Freon)
			Disease from natural causes
			Sinking due to loss of stability, waterways, weather conditions
			Collision against the coast, pier, another vessel or semi-submerged object to the drift caused by a poor maintenance of the radar
			Stranded due to the approach to the coast and/or beach too much caused by a poor maintenance of the probe
			Machine failure due to lack of regular maintenance
			Flooding due to lack of maintenance and signaling of the sealing elements, deck closures, bilge…
			Fires and explosions on the ship
			Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise ...
NAVIGATION TO FISHERY: Set up	Undocking *S; B; DCO; FSM; CSM; Cp*	SP, IT, TK: A person in the driver cabin and two or more people to the tops. The boat departs from	Falling of the people on the same level during the access or circulation trough the engine room
			Entrapment by or between objects during the reviewing and starting of the engine and auxiliary elements (belts, drive shafts ....)

		the dock with the aid of the engine and it's driven by the person in the driver cabin outside the port **FR, BE:** All crew of fishing vessels (large and small) do the undocking themselves. Perhaps some captains of large trawlers can use other workers to help the crew on the dock. So, this tasks description only concerns the undocking development for the crew (and it isn´t applicable to the external workers). With a crew of five people, the distribution is: one person in the wheelhouse two people on the bow (one on the dock and another on the boat), two on the stern (one on the dock and another on the boat). On large trawlers, with several moorings stern and bow, you have more than two crewmen on bow and stern. Over five people untie on the dock and another pull the mooring onboard. In the case, the crew for this task has less than five crewmen, without external help, the same man unties on the dock, jumps onboard and pulls the mooring. When there are only two people onboard, one in the wheelhouse, and another is on the dock running from bow to stern and jumping onboard.	Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods standing and people handle the machinery and other equipment Thermal contacts with elements or lines with high temperature Electrical contacts in the commissioning of the ship and navigation equipment Explosions due to lack of working procedures in explosive atmospheres, accumulation of gases and slurries in bilges, poor ventilation, etc ... Fire due to poor maintenance on the electrical system and/or engine Physical agent: exposure to high noise, especially in the engine room
	Tug use New activity!!! ***S; B; DCO; FSM***	**FR, BE:** We have never observed large trawlers using tug in a port, only merchant ships. Crewmen	Occupational Hazard

		have to throw a rope to the tug, and to haul the rope with the towing cable which is heavier, until a pull spot. Here a specific winch can be used to haul in. It can also be done by hand. When tug is pulling, crewmen give a wide berth. Crewmen come back to the pull spot when the tug stops pulling. Then, towing cable is carried outside the trawler and throws to the tug. A good coordination between the two captains (tug and trawler) is very important here in order to preserve the safety of crewmen. It is very dangerous that a boat or a winch are pulling when men have their hands on the towing cable .	
NAVIGATION TO FISHERY: Navigation	Free navigation ***S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** A person in the driver cabin and the crew is relaxing or preparing the nets **FR, BE:** One person in the wheelhouse (sometimes two on large trawlers, or on all trawlers if the weather is very bad: rain, fog...). The function is watchkeeping. He is looking at the sea with the navigation instruments and is using the helm, engine or propeller if is necessary. He is also listening to radio: other boats, weather report, safety report, SOS. The duration of a watchkeeping depends of the trawlers (number of crewmen trained and allowed to be alone in the wheelhouse). On a lot of trawlers of 15-25 m staying many days and nights at sea, there are crewmen with lot of experience, well trained and able	Electrical contacts in the management and handling of navigational equipment Possible collisions with other vessels Physical agent: exposure to high noise (engine room) Forced postures Overstrain and musculoskeletal discomfort due to postural physical burden when the work is involves standing for long periods and people handle the machinery and other equipment Navigation with bad weather

		to stay alone in the wheelhouse, although this isn´t allowed. When a crewman is watchkeeping, the captain gives him instructions to be wake up if is necessary. In almost all the wheelhouses, you find a dead man alarm and the captain must give the instruction to use the alarm	
	Functioning and maintenance control ***E; DCO; FSM; Cp*** **SP, IT, TK:** The machine chief and subordinate staff inspect the correct operation of all equipment, repair some breakdowns and maintain in optimal conditions all equipment **FR, BE:** There are a lot of control panels in the wheelhouse and the captain or second captain has a look on them when they are in the wheelhouse. If a crewman is in the wheelhouse, he would have instructions about the alarms. Also, in the engine room or in a specific room near the engine there are a lot of control panels. On large trawlers, there are two or three crewmen (sometimes more) only working around the engine, helm, and propeller, traction auxiliary and cooling/freezing system. So, they can also have watchkeeping. On trawlers of 18-25 meters, which stay a lot of days at sea and far from the coast, only one man is the responsible of the functioning and maintenance control (with the captain) and this man is also working on the desk (hauling and shooting the trawl, handling the catch). Probably, in these medium trawlers the watchkeeping isn´t in the engine room. The mechanic engineer makes patrols every hour in the engine room and near important equipments. On small trawlers with fishing not too far from the coast, during 1 to 5 days, the		Falls to different level New risk: new content!!! Hits with objects or tools New risk: new content!!! Falling of detached objects New risk: new content!!! Thermal contacts New risk: new content!!! Electrical contacts New risk: new content!!! Projection of fragments or particles New risk: new content!!! Entrapment between objects New risk: new content!!! Fire/Explosion New risk: new content!!! Contact with caustic and/or corrosive substances New risk: new content!!! Chemical agents New risk: new content!!! Physical agents New risk: new content!!!

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	captain is often also the mechanic engineer. He makes patrols. During watchkeeping or patrol they look different controls (pressure, temperature, oil in a tank...) On large trawlers a lot of data are recorded in paper or computer. On small trawlers, the data recorded is less.		Radiations exposure New risk: new content!!!
			Exposure to high noise, especially in the engine room New risk: new content!!!
	Cook / Wait on/ Cleaning *C; S; E; B*	**SP, IT, TK:** The cook and subordinate staff are responsible for the preparation and service of meals for the crew. Also, they are the responsible for cleaning the galley and dining rooms **FR, BE:** On large trawlers a crewman trained in a cookery school, is the cook. He prepares the meals and cleans the dishes, the galley and the refectory for a crew of fifteen people or more. If the crew is very large the cook can have an assistant.	Falls on the same level New risk: new content!!!
			Falling of detached objects New risk: new content!!!
			Hits with objects or tools New risk: new content!!!
			Thermal contacts New risk: new content!!!
			Entrapment between objects New risk: new content!!!
			Electrical contacts. New risk: new content!!!
			Fire New risk: new content!!!
			Hygienic environment New risk: new content!!!

		On medium trawlers (18-25 m) with a crew of five to seven, a crewman who isn´t trained in a cookery school is the cook of the meals and the cleaning of dishes, galley and refectory during a trip. This person can change every day of the trip. The gangways, cabins, toilets, and spaces of work (wheelhouse, decks, factory, engine room...) are cleaned by the users. Everyone washes and dries his own clothes. The duration of the free navigation can be a few hours or many days. During this time, after a period of rest, the crewmen have hours of works (on the fishing gears, cleaning, stowing...). They wait on also using collective or personal computers to play games or look at video films.	Healthy eating problems New risk: new content!!!
	Safety exercises on large trawlers with a lot of free time New activity!!! ***C; S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** Is necessary to carry out simulations of emergency situations: fire, leak, man overboard... **FR, BE:** On merchant ships, the safety exercises are developed on Sunday. In the fishing sector, even on large trawlers, currently it isn´t yet in the preventive culture.	Lack of relaxation, may cause fatigue and stress New risk: new content!!!
	Production of ice on trawlers with an ice-machine New activity!!! ***C; S; E; B; DCO; FSM; CSM; Cp***	**TK:** The ice machine operator puts in functioning and controls the ice machine when they need it. The crewmen who have the responsibility of the catch allocate the ice in different boxes. He uses a shovel and chutes.	Skin allergies, injuries and damages New risk: new content!!! Entrapment between objects New risk: new content!!!

		IT, SP, FR, BE: There is a machine for ice production within the cooling cell. When the crew uses it, gets inside the cooling cell, often without wearing appropriate clothing against low temperatures.	
NAVIGATION TO FISHERY: Preparing fishing gear	Preparing fishing gear ***S; E; B; DCO; FSM***	**SP, IT, TK:** Place the sensors on the rig and/or trawl doors. While the net is lying on the ground and it´s being controlled **FR, BE:** Place the sensors on the rig and/or trawl doors. While the net is lying on the ground and it´s being controlled For safety, it always better to do it when the equipment and trawlers are in the port (without movements) but when you have a long time of free navigation, the crewmen prefer to spend more time with their family and to use the time of navigation to prepare the fishing gear	Falling overboard into the sea during the stay in the vessel deck Falling objects due to an improper handling of loads Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness Blows with objects or tools during repair operations of nets… Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machinery and other equipment Entrapments between the gear and the net´s drum during its winding Blows with mobile objects passing below or above the gear
	Preparing different sensors they put on trawl and doors (loading battery) New activity!!! ***S; B; DCO***	**SP, FR, BE:** For safety, it always better to do it when the equipment and trawlers are in the port (without movements) but when you have a long time of free navigation, the crewmen prefer to spend more time with their family and to use the time of navigation to prepare the fishing gear	Overstrain New risk: new content!!! Struck by objects or tools New risk: new content!!! Falling objects during their manipulation New risk: new content!!!

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PROCESS Procedure	Task / Jobs (*)	Task Description (**)	OCCUPATIONAL HAZARD IDENTIFIED
CATCH (ALL)		GENERAL	Falls overboard into the sea during the stay in the vessel deck
			Blows with mobile objects passing below or above of the cables when you go in drag
			Falling objects by improper handling of loads
			Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness
			Entrapments of fingers and hands with the blocks, pulleys….
			Entrapment with mobile parts of work equipment, as winch gears, windlass, net drum...
			Entrapment due to involuntary manipulation of the equipment, causing unexpected starting of the same
			Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machinery and other equipment
			Electrical contacts in the management and handling of navigational equipment
			Glare produced by the sun in the cockpit of the bridge
			Forced postures
			Postural physical burden, musculoskeletal discomfort and/or visual fatigue inherent in the workplace caused by its ergonomic design. This situation occurs standing for long periods using display screens of data (radar, computer, sound...)
			Falls to different level by slips, absence of collective protection, falling into the sea
			Falls to different level by hatch hold, sticks.
			Falls to different level from service stairs
			Falls on the same level due to slips, trip, tripping over objects, wet or slippery deck by hydraulic oil leaks. This situation occurs due to the workers not using non-slip footwear
			Tripping over objects, remaining material, tools…
			Blows and entrapment due to a failure of the anchor of the work equipment

			on board
			Blows by heavy objects like rocks that are caught in the net and are put on deck New risk: new content!!!
			Electrical contact Risks
			Disease from natural causes
			Sinking due to loss of stability, waterways, weather conditions
			Collision against the coast, pier, another vessel or against a semi-submerged object, poor maintenance of radar
			Stranded to the background during approach to the coast and/or beach and a poor maintenance of the probe
			Machine failure due to lack of regular maintenance, lack of material respect
			Flooding due to lack of maintenance and signaling of the sealing elements, deck closures, bilge…
			Fires and explosions on the ship
			Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise ...
CATCH: Throwing out manoeuvre	Throwing fishing net ***S; E; B; DCO; FSM; CSP; Cp***	**SP, IT, TK:** The net is lifted and dragged by two sailors on the stern edge and is lowered into the water while the net drum unrolls **FR, BE:** The net can be heavy or light, it´s depending of the size of the boat and of the species you are fishing. The cod-end is shut (node or two metallic pieces one blocked in the other with a hammer). A light cod-end is thrown in the water with the hands (one person is enough). A heavy cod-end is pulled in the inclined ramp (trawlers > 40 m in France) or lift above the stern bulwark and pulled above the water with traction/lift auxiliary. One person hangs a hook with a string he keeps in his hands to the cod-end. Another man pulls the cod-end outside the boat with a winch a cable passing in a pulley	Falling into the sea when people go down the stern ramp and extend the net
			Blows and entrapments with the gear
			Blows by heavy objects like rocks that come in the net and are put on deck
			Entrapment with mobile parts of work equipment and net drum´s gear
			Entrapment and blows caused by a sudden and involuntary starts of the equipment

		installed above the water at the extremity of a beam of the gantry. When the cod-end is above the water, the person with the string attached to the hook pulls on it to unhook the cod-end. Some trawlers have a slide between the drum and the stern bulwarks When the cod-end is in the water, the net follows alone if its lower rope and upper rope with floats (of the mouth of the trawl) isn´t too heavy). People have just to guide with the hands, to help the net to pass over the stern bulwark while the drum unrolls the net. The person at the lever of the drum can be in the wheelhouse or on the fishing deck. The most important is to have a good direct vision on the men near the net. On some trawlers, video cameras are used to improve the vision, but direct vision is better for safety (the vision field of the camera is more narrow). With heavy lower rope and upper rope with the floats you must repeat the same operations than for the cod-end to help it throwing out of the boat. And the crew must wear helmets. When the wings of the trawls arrive (drum empty), short cables are unrolled of the drum. On some trawlers these cables are joined to short sweep lines themselves wrapped on the drum. On other trawlers, often when they use long sweep lines, these short cables arriving just after the wings of the trawl, will be joined to the sweep lines which are stored on specific winch or above the main cables on the same winch. So, on a lot of trawlers you haven´t next task (throwing sweep line) because between the net and the doors you have a short cable wrapped with the net on the drum. When two trawls are use together, two drums are working together, and for the crewmen the operations are repeated. The number of cables double on the fishing deck requiring greater care for the rum's driver and the crewmen near net and cables	

	Throwing sweep line ***S; E; B; DCO; FSM; CSP; Cp***	**SP, IT, TK:** The sweep lines flowing out of the boat on the stern edge up to the point where trawl doors hooks are. In the meantime, the two sailors hold separate the two sweep lines with some iron stakes driven into the stern edge, that prevent contact between the two sweep lines **FR, BE:** When the drum is empty, the net is behind in the water joined to the drum with cables. Crewmen should join the sweep line to these cables. It can be easy and safe if you can work the feet on the deck. On some trawlers (20-25 meters) with drums on the upper deck, crewmen should climb on something or on the bulwark to join the sweep line to the drum's cables. When it´s done, the drum/winch's driver throws out the drum's cables until the strain of the net in the water is transferred on the sweep line. Then, he hauls on the sweep lines on their winches and the crewmen can disjoin the drum's cables of the extremities of the wings of the trawl, on each side of the boat. Now the drum/winch's driver can throw out the sweep line, and the crewmen wait on the arrival of the sleeping cable which will be joined to the doors.	Entrapments with mobile parts of work equipment (gears…) Entrapments with mobile parts of machine during the haul down of the sweep line Entrapment when workers guide the sweep line with the hand
	Releasing and throwing trawl doors ***S; E; B; DCO; FSM; CSP; Cp***	**SP, IT, TK:** The sweep lines are unhooked by the two sailors from the ropes that bind them to net drum and then are attached to the trawl doors that are still stuck close to the derrick and are kept in that position by cables that are still rolled up in the winch for cable At this point, two sailors go to the winch for cable, while the third remains at the helm. The two sailors positioned to the winch for cable begin to unroll the cables and trawl doors fall into the water	Falling overboard into the sea during the stay in the vessel deck Blows with the doors when they are being hoisted Entrapment during the door´s maneuver in the shackling of the cable, during the tensing of it and during the pulling the chain outside of the doors´ arms Entrapments with mobile parts of machine during the haul down of the sweep line Entrapments during the extension of the doors

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		FR, BE: On large trawlers with a ramp, a hook is hooked at the sleeping cable when it´s arriving at the end of the deck (before the cable slip down in the ramp) without stopping the throwing out of the sweep lines, and a shackle at the extremity of the sweep line, before the sleeping cable is blocked in a ring at the extremity of the cables/chains fixed behind the door. So, the strain of the net and sweep line comes on the door, and the sleeping cable becomes soft (without strain on it). Then, crewmen can lift the sleeping line by hands or with a winch, and hang it on the door. The cable come from the sweep line winch is ranged on the deck. The door is just moved on a few centimeters (cable hauled on) just enough to remove the chain which retain it to the bulwark. The door is now ready to be thrown in the water. On trawlers without a ramp you find two procedures. The same than onboard large trawlers, a shackle which arrives in a ring causing the transfer of the strain on the door or a hook at the extremity of the cable/chains behind the door which is put in a ring at the extremity of the sweep line by crewmen (throwing stop) and after a slow throwing to transfer the strain on the door. On these trawlers the sleeping cable can be taken in the hand by crewmen just under the pulley on each side of the gantry, and hanged on the doors (boat with specific winch for sweep line) or joined to the topmast heel rope of the doors (boat with sweep line on the same winch as the warp/main cable). Then, the winch's driver can lift slowly the door to allow a crewman to remove the chain which retains the door under the pulley of the gantry. The door is now ready to be thrown in the water. When there is a weight between two trawls used together, the operations are the same than for each door.	

	Throwing cable ***S; E; B; DCO; FSM; CSP; Cp***	**SP, IT, TK:** At this point, the cables connected to the trawl doors begin to flow from the winch for cable, the trawl doors fall into water and the cables are unrolled up to the desired depth. When they have reached this depth, the two sailors re-locking the two winchs for cable in such a way as to make them stay in that position. **FR, BE:** At the stern, one crewman controls the position of the doors in the water and, when it´s good, makes a signal with the hand to the winch's driver who is generally in the wheelhouse but can also be just behind the winches (old trawlers). The cable is thrown out. The length of cable is generally three times the depth. In larger depths (1500 meters) it´s fewer than three times because there isn´t enough cable on the winch. On large new trawlers, it´s easy to drive (shoot, stop, haul on, slow, fast, guidance of cables..) the winch and you have sensors which give you instrumented information on the length of each cable and on the tension (strain)... On old small trawlers a lot of commands are manual. To stop or to guide the cable you must turn a wheel for example. Sometimes the cable is thrown on the brake (the drum is free and you control the speed with the brake). The information on the length of cable already throw is given with marks on the cables (you must always look at the cables). Here, throwing cable is a painful task for the winch's driver. When the wanted length of cable is in the water, the motor of the winch is stopped and the brakes are tight.	Blows with mobile objects from trawling elements breaking and lack of maintenance of cables.... Entrapments with mobile parts of the work equipment such as the gears Entrapments with mobile parts of the machine during the haul down of the cable Entrapments during the guiding of the cable with the hand
CATCH: Trawling	On Trawling ***S; E; B; DCO; FSM;***	**SP, IT, TK:** One person (usually the commander) remains at	Entrapment due to approach close to the cables during the trawling, near the blocks or rollers Blows with mobile objects passing below or above of the cables when you go

	CSP; Cp	the helm, the others remain in the galley or in the bunk **FR, BE:** On all trawlers, large or small, stern or side, with bottom trawl or pelagic, the captain (or the crewmen) in the wheelhouse has the same data to pick up and the same actions to execute. But the load of work depends on the equipment and software available. The task already described for free navigation still exists. The other tasks are: to follow a way on the bottom of the sea without hang the trawl to it or to a phone cable, a wreck... (computer with gaps positions and maps of the bottom with public and persona; data); to control if the mouth of the trawl is well opened (speed, position of the doors, sensors...); to control (or to try to know) which species are caught by the trawl (sounder, sonar); to control the quantity of fish in the cod-end (sounder, sensors on the cod-end); to cross other trawlers (without hang the two trawls).	in drag Possible collisions with other vessels
	Specific rules of navigations on pair trawlers (in respect of the distance between the two boats with a rope or with positioning instruments) New activity!!! ***S; E; B; DCO; Cp***	**IT:** The distance between the two vessels is maintained with a textile cord called *traversino* in Italy. This cord is connected to the bow of the two vessels and its length is between 50 to 100 meters **TK:** The distance between the two vessels is maintained with a textile cord called *halat* in Turkey. This cord is connected to the bow of the two vessels and its length is between 30 to 80 meters **FR, BE:**	Rope breakage New risk: new content!!! Entrapment of the hands risk New risk: new content!!!

		When towing the trawl with two boats, you must keep an accurate distance between the two boats. You must have a good coordination between the two wheelhouses to follow the same way with the same distance between the two boats.	
	Procedures when doors, sweep line or net hang the sea bottom specific rules New activity!!! ***S; E; B; DCO; Cp***	**IT:** The distance between the two vessels is maintained with a textile cord called *traversino* in Italy. This cord is connected to the bow of the two vessels and its length is between 50 to 100 meters **TK:** The distance between the two vessels is maintained with a textile cord called *halat* in Turkey. This cord is connected to the bow of the two vessels and its length is between 30 to 80 meters **FR, BE:** The smaller the trawler and the shallower the depth of the sea, (short cables), the risk of capsizing is greater when the trawl hangs. On some small trawlers (< 12m), with poor equipment, when fishing in areas where there is a high risk to hang the bottom, the captain keeps one hand on the warp (to feel the vibrations) and the other on the lever of the engine. When it hangs, they must quickly reduce the speed and release the cables. It is important to free the trawl without loss of material (net, door, sweep line...). The number of different situations is high, and the procedure is different for each situation: hauling the gear on one cable when the other is broken, trying to catch the trawl with a grapnel when the two cables have been cut.... Some situations are also very specific: phone cable is tensile and pieces with high	Rope breakage New risk: new content!!! Entrapment of the hands risk New risk: new content!!!

		voltage can arrive onboard; hanging a container floating in the column of water isn´t the same as hanging the bottom	
CATCH: Retrieving maneuver	Retrieving cable ***S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** Two sailors are positioned on bells and activate the rewinding of the cables that raise the trawl doors from the water and bringing them back into position near to the derrick. At this point the bells are blocked **FR, BE:** In the wheelhouse or on the deck at the direct driving on the winch (small trawlers), the captain (or crewmen) uses a lever to roll up the cables on the winches until the doors (and clump) arrive along the boat.	Entrapment due to approach close to the cables during the trawling, near the blocks or rollers Entrapments with mobile parts of work equipment (gears….) Entrapments with the mobile parts of the machine during the torn of the cable Entrapment when workers mount the cable, or strip it when it´s turning
	Lashing trawl doors ***S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** The trawl doors are connected to the sides of the derrick and they are adhered to these by the live cables **FR, BE:** If the trawler has a specific winch for sweep lines or if rolls up the sweep lines on the drum under the net, one crewman on each door unhooks the faux bras (sleeping sweep line) and hooks it to a sleeping cable (coming from a drum or a winch). When the crewmen are ready, they make a sign to the captain (or the winch man) that rolls up the cables on a few meters and stops. When the crewmen can reach the extremity of the cables (or chains) behind the doors and unhooks them. When they roll up the sweep lines on the same winch, they must unhook the door of the main cable. To do it, when the door arrives against the pulley of the gantry, they thread a chain in the topmast heel rope of the door and hang this chain to the gantry. You make a sign to the	Falling into the sea during the lashing doors Blows and entrapments due to place hands or feet off the side when they are reaching the doors. Blows with the doors of them when they are veering Blows and entrapments with doors during their lashing Entrapments with mobile doors of the machines during their veering

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		captain (or winch man) that lets the door come down on the chain. Then they can unhook the sleeping sweep line which is rolled up on a few meters and stops when the crewmen can reach the extremity of the cables (or chains) behind the doors and unhooks them.	
	Retrieving sweep line ***S; E; B; DCO;FSM; CSM; Cp***	**SP, IT, TK:** Once the trawl doors are close to the derrick and are held in place by live cables, the sweep line are disconnected from the trawl and reconnected to the ropes of the net drum to be rewound. **FR, BE:** When the sweep lines are rolled up on a winch (specific or the same than for the main cable) the crewmen wait and just control (with their eyes) the state of the sweep line. When the sweep lines are rolled up on a drum the crewmen often have to guide them, putting their hands on it to push and pull	Entrapments with mobile parts of work equipment (gears…) Entrapments with mobile doors of the machines during the veering of the sweep line Entrapments during the veering of the sweep line
	Retrieving fishing net ***S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK:** The net drum starts to wrap the sweep line and the fishing net is slowly hoisted aboard, until about half way. The final part of the fishing net that contains the catch remains out of the boat. At this point, a natural fiber rope, called *ghia* (specific name in Italy) or *gaydaroz* (specific name in Turkey), is tied around fishing net in the part closer to the stern's edge. This rope is pulled by the winch so that is raised through a pulley connected to the derrick and consequently the fishing net is hoisted on board almost completely. The only part that remains out of the boat is the catch. At this point, the *ghia* or *gaydaroz* is untied and tied further, along the fishing net, very close to the catch, in such a way as to repeat the	Entrapments with the mobile parts of the work equipment such as gear of the net drum when Crewmen are standing too close to the net drum Blows and entrapments with the gear Entrapments with the mobile parts of the net drum during the veering of the gear

		lifting operation with the winch and, thereby, to hoist completely the catch on board **FR, BE:** Crewmen often have to guide the net on the drum. Sometimes, they must tie the heavy bottom rope (rock hoppers) to facilitate the rolling up of the fishing net on the drum. When there are previous catches in the cod-end, crewmen shake the net. In France, one stern-trawler, bought in Ireland, is transferring the cod-end, along the vessel, in the water, with a crane, to the side. There, the cod-end is lift onboard with a winch and a derrick. When the fish room is forward, this modus operandi, reduces mechanical and manually the catch handling onboard and allows the layout of crew accommodations on all the breadth of the boat in the middle of the boat between fishing deck (on stern) and fish factory (forward). Another advantage is the separation of the working spaces for the trawl and for the catch. The stern of the main deck is for the trawl, and forward is for the catch. So, forward you can have a fixed fish-tank and others equipment which not block when hauling/shooting the net. A lot of trawlers are like this in Great Britain, Scotland and Ireland	Entrapments during the veering of the net
	Open cod-end and toss the catch into the catch tank ***S; E; B***	**SP, IT, TK:** Once the catch is on board, the *ghia* is untied and re-tied very near the catch, in such a way that it can be lifted from the ground. When catch is raised, a sailor unties the cod-end by dropping fish on the stern. **FR, BE:** To open the cod-end, crewmen must lift it (a specific	Falling of the shoal during the cod-end opening Falling to different levels through the swamp which is unprotected Falling on the same level when you press the shoal that hasn´t been introduced in the swamp Blows and cuts on the hands due to handling fish with the hands Entrapment and Falling load due to an improper maintenance of work equipment Falling of the cod-end Falling of the load due to a cable breakage by overload the equipment Entrapment with cable or windlass while they are in handling

		winch called *caliorne*, which means main tackle) and catch a rope under the cod-end and pull on it with a high strength. Some crews use a winch or to get the necessary strength and to stay far enough from the heap of fish which are falling from the cod-end in the tank or on the deck (small trawlers). On large trawlers this work is done just near a hatch Some large pelagic trawlers use a pump to aspirate the fish from the cod-end still in the water near the boat to a tank in the vessel.	Entrapments when workers are close the door´s swamp
			Dermatitis, skin allergies and eye irritation

PROCESS Procedure	Task / Jobs (*)	Task Description (**)	OCCUPATIONAL HAZARD IDENTIFIED
PROCESSING (ALL)	GENERAL		Falling on the same level and blows against fixed structures and small space during working and movement
			Musculoskeletal injuries caused by repetitive manual movements, incorrect postures and manual handling of loads. The repetition of the same movement continuously can cause muscle stress and injuries. Overstrain caused by postural physical burden and standing for long periods, causes a musculoskeletal discomfort and/or eye strain.
			Falling, blows and entrapment with conveyors
			Entrapments with mobile parts of the work equipment
			Entrapments, blows, cuts... caused by improper handling of the work equipment and by sudden restarts
			Electrical contact in repair operations, maintenance and cleaning
			Dermatitis and skin allergies due to frequent hand washing and the contact with the waste and offal of the fish
			Falls to different level due to openings, slips, trips, absence of collective protection, hatches, sticks, falling into the sea…
			Falls to different level from service stairs
			Falls on the same level due to slips, trip, tripping over objects, wet or slippery deck by hydraulic oil leaks. This situation occurs due to the workers not using non-slip footwear
			Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness
			Blows and entrapments due to a failure of the work equipment anchor on board
			Electrical contact Risks
			Disease from natural causes
			Sinking due to loss of stability, waterways, weather conditions
			Collision against the coast, pier, another vessel or semi-submerged object to the drift, poor maintenance of radar
			Stranded due to the approach to the coast and/or beach too quickly, poor maintenance of the probe

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			Machine failure due to lack of regular maintenance, lack of material respect
			Flooding due to lack of maintenance and signaling of the sealing elements, deck closures, bilge
			Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise ...
			Fires and explosions on the ship
PROCESSING: Elaboration	Select *C; S; E; B; DCO*	**SP, IT, TK:** Two sailors are positioned astern, kneeling on the ground, to select the fish. The fish is thrown in plastic crates, divided by species. This work is quite dangerous, because when the sailor selects fish, the fishing net is already at sea and the sailors working near live cables **FR, BE:** On trawlers with two decks for working (the upper deck for the trawl and the main deck for processing the catch), the catch is selected on a conveyor along which crewmen working standing. On trawlers with only one deck for the trawl and processing the catch, you can also find conveyors (trawlers > 20 meters) which bring up the catch from the deck a height of 1 meter. The fish tank is on the fishing deck just under the drums and can be lift with a winch. The fish is falling in a hole where it´s taken with an inclined conveyor which drives the fish on a horizontal conveyor where the crew select the different species and grade. On trawlers with only one deck and without conveyors, crewmen can select kneeling with baskets around them. They can also empty the cod-end in many boxes and carry and empty	Infections caused by small wounds from thorns, teeth and fins of fish or accidental contact of potentially dangerous species Rejection of offal and guts during their handling

		each box on a fixed table where they select the catch. This table can also be movable between the level of the deck where the cod-end is emptied and its height of 80 to 100 cm	
	Behead ***S; B***	**SP, FR, BE:** This task is done very often and at a specific workplace on large freezer trawlers making fillets. The head of the fish is cut with a circular or vertical saw. On small trawlers if for some species you have to behead the fish, you use a knife.	Entrapment with the blade during a jam and the equipment not stopping safely Entrapments and cut with the circular steel blade, trawling bands Blade break exposing the work equipment to excessive speeds or stress, causing projection of fragments of the blade
	Eviscerate ***C; S; E; B; DCO***	**SP, IT:** Sailors moving amidships behind the net drum, and eviscerate fish **FR, BE:** On all the size of trawlers, crewmen use knives to eviscerate. The workplace can be developed in a table for the guts and another for the eviscerated fish (large trawlers) or not (small trawlers). In this last case, when standing, the crewmen looks for a support their body, takes the fish in a basket, guts it and throws it in another basket. He can also gut the fish, sitting on a reversed basket/box or something else. On large trawlers, gutting machines are also used. Fish arrives with a conveyor in a tub. Each fish is taken by crewmen who install it on a rail or between supports which drive the fish in front of a saw. The gutting machine can be adjusted for different species and sizes.	Blows and cuts with knives Projection of entrails and offal during the eviscerate
	Cut tail	**SP, FR, BE:**	Entrapments and cut with the circular steel blade, trawling bands Entrapments and cut with the blade when working with the hands very next

	C; S; B	This task is done very often in a specific workplace on large freezer trawlers making fillets. The tail of the fish is cut with a circular or vertical saw. On small trawlers, if for some species you have to cut the tail of the fish, you use a knife.	to disk saw
			Entrapment with the blade during a jam and the equipment does not stop safely
			Blade break to expose the work equipment to excessive speeds or stress, causing projection of fragments of the blade
			Entrapments with the blade during a jam with the consequent equipment stop without safely
			Entrapments and cut with the circular steel blade, trawling bands
	Wash *C; S; E; B; DCO*	**SP, IT:** It´s carried out by a sailor with sea water fired from a pump **FR, BE:** On small trawlers a pump and a hose are used to wash the catch. Some crew washes each fish with the hose. You have the hose between your legs or in one hand and the fish in the other hand. Others wash the fish with the hose in a basket; one Crewman carries a basket and empties it in another basket, another Crewman washes the fish Falling from the basket in the other with the hose. The fish can also be washing in a tank. On large trawlers, conveyors drive the fish in washing machines and other conveyors extract them from the washing machines.	Entrapment with mobile parts of equipment
			Entrapment with the drum or cutting knife during jams in which the equipment doesn´t stop safely
	Skint *C; S; B*	**SP, FR, BE:** This task is done very often and at a specific workplace on large freezer trawlers making fillets. The skin of the fish is removed with a specific machine. On small trawlers, if for some species you have to peel the fish, you use a knife.	Entrapment with mobile parts of equipment
			Entrapment with blades during jams in which the equipment doesn´t stop safely
			Sudden restarts of the equipment with an unauthorized starting, causing accidents such as entrapment, cuts
			Blade break to expose the work equipment to excessive speeds or stress, causing projection of fragments of the blade

	Fillet *C; S; B*	**SP:** Enter a fish into filleting equipment in order to make two fillets **FR, BE:** This task is done very often and in a specific workplace with the hands and with a knife or with specific machines on large freezer trawlers making fillets. Fillets are observed on luminous tables to extract the bones.	Entrapment, cuts and blows for using the machine without its safety guards New risk: new content!!!
	Classify *C; S; B; DCO*	**SP:** Manual classification of species by size Automatic classification of species according to sizes: an equipment with sensors according to the weight of each catch opens a gate or another for the storage and then pack according sizes **FR, BE:** On some trawlers after having selected each species of fish, crewmen classify each species into different sizes (sort, grade). Rules can be used to measure each fish or to control the quality of the classification from time to time. It is done on a table or conveyor or unfinished workplace. On some large trawlers, it is possible to find large grading machines.	Overstraining by manual handling, repetitive work and unsuited postures New risk: new content!!!
			Entrapments during automatic classification New risk: new content!!!
			Manual classification of species performing by hand may cause skin injuries and poisoning from fin rays New risk: new content!!!
	Encase *C; S; E; B*	**SP, IT:** Catch is placed in plastic crates which are immediately placed in cold storage	Exposure to repetitive movements and postural overstrain
			Overstrain caused by improper load handling

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		FR, BE: This task is done very often in a specific workplace on large freezer trawlers that make fillets. Fillets are put in boxes/cases on a table. Cases are shut. On fresh fish trawlers fish, crabs, langoustines can be put in boxes on the deck. For trips of one day the boxes stay on the deck (not in the fish room); water (sometimes ice) is used to preserve the quality. For many days trips the boxes go down in the fish room. Langoustines can stay alive in fish room during 2 or 3 days if it´s stored in water (pool with a cleaning system)	
	Pre-freeze in cabinets/tunnels ***C; S; E; B***	**SP, IT, TK:** The catch is placed in plastic crates which are immediately placed in cold storage **FR, BE:** This task is done very often in a specific workplace on large freezer trawlers making fillets. Cases with fillets are carried and put in cabinets or tunnels. Cabinets or tunnels are shut and freezing begins	Falling boxes or trays during the handling Exposure to toxic or corrosive substances due to the leaks in the refrigerant circuit in tunnels and/or cameras. These operate with very low temperatures and use refrigerants such as Freon or ammonia alone or in mixed form Exposure to low temperatures in the cold storage and freezing tunnels
	Unloading of cabinets/tunnels ***C; S; E; B***	**SP:** The trays or freezing cabinets for ultra freezing are downloads from tunnels or freezing cabinets manually driven or mechanically so (in some trawlers). The trays usually weigh between 10kg and 20kg. **FR, BE:** This task is done very often in a specific	Falling boxes or trays during the handling New risk: new content!!! Exposure to toxic or corrosive substances by the presence of leaks in the refrigerant circuit in tunnels and/or chambers New risk: new content!!! Exposure to low temperatures in the cold storage and freezing tunnels New risk: new content!!!

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		workplace on large freezer trawlers making fillets. Cabinet or tunnels are opened and cases are taken and brought to the workplace for removal from mould.	
	Removal from mould *C; S; B*	**SP:** Once the tunnels are downloaded, it proceeds to remove the frozen mold (trays) with blow against a table, or using an automatic stripper product. **FR, BE:** This task is done very often in a specific workplace on large freezer trawlers making fillets. Heat, hot water and shocks are used for the removal from mould.	Entrapment by mobile parts of the block New risk: new content!!!
			Entrapments due to jam New risk: new content!!!
			Entrapments caused by improper handling of the equipment New risk: new content!!!
			Postural problems due to the position of working materials New risk: new content!!!
	Package *C; S; B*	**SP:** After removing the product from the tray, it proceeds to insert it into the final package: plastic box, bag.... **FR, BE:** This task is done very often and in a specific workplace on large freezer trawlers making fillets. The block of frozen fillets is put in a bag and the bag in a carton. A sticker with name of the species, size, number of fillets, weights...is placed on the carton.	Exposed to repetitive movements New risk: new content!!!
	Box strip *C; S; B*	**SP:** It proceeds with the closing of the final package, usually by a strapping, surrounding	Entrapments caused by improper handling of the equipment New risk: new content!!!
			Electric risk New risk: new content!!!

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		the container with a tape with a fiber end being sealed by heat **FR, BE:** This task is done very often in a specific workplace on large freezer trawlers making fillets. The block of frozen fillets is put in a bag and the bag in a carton. A sticker with name of the species, size, number of fillets, weights...is placed on the carton.	Risk of projection of the strip New risk: new content!!!
	Cleaning ***S; E; B***	**SP, FR, BE:** Water and chemical products are used to clean the trawler ship: walls, decks, machines, conveyors, cases...	Falling on the same level by tripping and slipping (spills, obstacles to impede the passage of workers)
			Projection of fragments and/or particles during the use of the pressure washer to clean the fishing park
			Electrical contacts with the pressure washer use
			Exposure and contact with toxic and irritants substances in the use of cleaning products such as bleach, detergents, disinfectants ...
	Cleaning: All tasks above exist on fewer than ten freezer trawlers in France. The large majority of the trawlers are fresh fish boats using ice for the conservation of the catch. So, on all of them you find: select, eviscerate, wash and put in the ice in box, bulks or tubs. Lot of them have a poor	**SP, FR, BE:** When a langoustine is dead it becomes black. To avoid this change of color, crewmen use a chemical product mixed with water in a tank where baskets of langoustines are immersed for a few minutes	Falling on the same level by tripping and slipping (spills, obstacles to impede the passage of workers) New risk: new content!!!

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	mechanization handling. So manual handling of heavy loads (fish, ice) on trawlers which catch langoustines and stay at sea during 10 to 15 days is very common, they must treat the catch with a specific product to maintain a good appearance of the langoustines New activity!!! ***S; B***		Electrical contacts in the use of the pressure washer. New risk: new content!!!
			Exposure and contact with toxic and irritants in the use of cleaning products such as bleach, detergents, disinfectants, etc. New risk: new content!!!

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PROCESS Procedure	Task / Jobs (*)	Task Description (**)	OCCUPATIONAL HAZARD IDENTIFIED
STOWAGE (ALL)	GENERAL		Falls on the same level and blows against fixed structures and small space during the working and movement
			Falling of the boxes during their handling
			Musculoskeletal injuries caused by repetitive manual movements, incorrect postures and manual handling of loads. The repetition of the same movement continuously can cause muscle stress and injuries. Overstrain caused by postural physical burden whilst standing for long periods and causes a musculoskeletal discomfort and/or eye strain.
			Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machine and other equipment
			Falls to different level due to openings, slips, trips, absence of collective protection, hatches, sticks, falling into the sea…
			Falls to different level by hold, sticks.
			Falls to different level from service stairs
			Falls on the same level due to slips, trip, tripping over objects, wet or slippery deck by hydraulic oil leaks. This situation occurs due to the workers not using non-slip footwear
			Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness
			Blows and entrapment by anchor failure of the work equipment on board
			Electrical contact Risks
			Disease from natural causes
			Sinking due to loss of stability, waterways, weather conditions
			Collision/approach against the coast, pier, another vessel or semi-submerged object to the drift, poor maintenance of radar
			Stranded with background during the approach to the coast and/or beach too quickly, poor maintenance of the probe
			Machine failure due to lack of regular maintenance, lack of material respect
			Flooding due to lack of maintenance and signaling of the sealing elements, deck closures, bilge…

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			Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise ... Fires and explosions on the ship
STOWAGE: Stowage in holds	Mechanical stowage in holds ***S; B***	**SP:** In freezer vessels: Lifts are used to enter the frozen product warehouse and hold it. Later, the use of conveyors to transport the product from the lift to the final stowage area **FR, BE:** On all the trawlers which stay at sea more than one day, the fish room is under the deck where the catch is elaborated. On very small trawlers (<12m), sailing for 1 day's trip, the fish room isn´t used for catch but to store fishing equipment. In the south of France, some trawlers of 24 meters, going at sea for one day, have no fish room under the main deck but on the main deck. So you have some boats where there are only horizontal movements of the catch on the main deck, and the large majority of trawlers where there are horizontal movements of the catch on the main deck, vertical	Falls to different levels through the hatch of the hold. New risk: new content!!!

		movements between main deck and fish room and horizontal movements in the hold. On the main deck, catch are transported by hand, carried or pulled with a hook (in boxes or baskets), on conveyor (not conditioned, in boxes or baskets). Sometimes, the fish arrive to the fish room' hatch from a draining rack, slipping down on a chute which drives the fish directly in bulks in the fish room. On the trawlers of 24 meters (south of France) we have seen crewmen using a hand pallet truck at sea in good weather. Between main deck and fish room, the catch can slip down on chute (not conditioned fish, cartons also); be moved down in boxes or baskets with a manual or mechanical hoist; be moved down in boxes, baskets or tubs (>100 kg) with a lift. In the fish room the catch can arrive directly in bulks with chutes; must be carried by hand (boxes, baskets); are moved on conveyors (boxes, baskets). In France, some boats have tried mechanical systems to move heavy tubs or boxes at sea, vertically and horizontally in the fish room. These systems are very slow and if there is only one shift working 24h/24 in the crew, they don't accept the slow speed of the system which shortens the time of rest.	Falls to different level to go down the manual staircase to store boxes in the hold New risk: new content!!!
	Manual stowage ***S; E; B; FSM***	**SP, IT, TK:** In freezer vessels: The final product is introduced into the hold via ramps installed for this purpose in small hatches of the space, these boxes for these ramps down to the hold for later transport the stowage area *Ships fresh:* Using hoists to introduce fish boxes in the hold and winery and then spread a layer of ice (with a shovel) on top of the box and transport it to the stowage area	Falls to different level through the hatch of the hold
			Falls to different level to go down the manual staircase to store boxes in the hold
			Crash with stacked boxes in the hold
			Exposure to toxic or corrosive substances due to the leaks in the refrigerant circuit of the hold. These operate with very low temperatures and using refrigerants like Freon
			Exposure to low temperatures in the hold

		In Italy: the plastic crates with fish are manually placed in cold storage The plastic crates (in Italy) or plastic/wood crates (in Turkey) with fish are placed manually in cold storage **FR, BE:** On small trawlers (under 15 m) where the fish room isn´t very high all (vertical and horizontal movements) can be done by hand without hoist, conveyor. Crewmen should move the catch, the ice, the empty boxes or tubs or the shelves (bulk stowage). If there isn´t ice machine they also must break the ice which becomes very hard after a few days in the fish room. On some trawlers of 15-35 meters (sometime more), it can be almost the same.	
NAVIGATION TO PORT (ALL)		**GENERAL**	Falls to different level due to openings, slips, trips, absence of collective protection, hatches, sticks, falling into the sea…
			Falls to different level by hatch hold, sticks.
			Falls to different level from service stairs
			Falls on the same level due to slips, trip, tripping over objects, wet or slippery deck by hydraulic oil leaks. This situation occurs due to the workers don´t use non-slip footwear
			Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness
			Blows and entrapments due to a failure of the work equipment anchor on board
			Electrical contact risks
			Glare produced by the sun in the cockpit of the bridge
			Disease from natural causes
			Sinking due to loss of stability, waterways, weather conditions
			Collision/approach against the coast, pier, another vessel or semi-submerged object to the drift, poor maintenance of radar

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			Stranded with background due to the approach to the coast and/or beach too quickly, poor maintenance of the probe
			Machine failure due to lack of regular maintenance
			Flooding due to lack of maintenance and signaling of the sealing elements, deck closures, bilge…
			Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise ...
			Fires and explosions on the ship
NAVIGATION TO PORT: Overhauling and maintenance	Stowage and overhauling of fishing gear and auxiliary elements ***S; E; B; BPODCO; FSM; CSM; Cp***	**SP, IT, TK:** If needed, the fishing net is adjusted by a sailor at the stern. Furthermore the boat is cleaned with a water jet **FR, BE:** When there is enough time, the time of navigation to port is used to repair the gear: mending the net, changing cables, chains, shackles... these operations are performed on the fishing deck, with no finished workplace. Painful postures must often be adopted: leaning back, kneeling... And heavy weights (nets, ropes, cables, chains, rock hoppers...) are moved by hands. Winch, drums, winch, hoists are used for the very heavy loads. Electrical portable tools are used: grinder, circular saw, welding station...acetylene/oxygen blowpipe is also often used. On large trawlers where the engine's staff is important (two, three or four crewmen) and well qualified, the time of navigation can also be used for overhauling and maintenance of the winches, drums, cranes or others auxiliary elements. On small trawlers (< 35 m) where only one person, with a basic qualification, have in charge the control and maintenance of the engine and auxiliary	Falls to different level through the hatch
			Falling objects due to incorrect manual handling
			Falling loads detached during navigation due to an improper stowage
			Falling load during its movement by crane, due to an improper hook, cable or other auxiliary element (slings, hooks...)
			Blows with objects or tools during repair operations of nets…
			Blows with the cargo handled by the crane, especially when it´s handling with the hands.
			Falling objects due to breakage of some hose causing the falling of the mast of the crane, load…
			Blows against mobile parts, against suspended loads, using the crane by all workers without distinction…
			Falling objects when workers walk through the enabled areas for the crane
			Entrapment with mobile parts of work equipment, as gears, net drum...
			Entrapment and blows against mobiles objects
			Falling down of the load due to unexpected start of the crane
			Collapse of the overloading when it´s be hoisted by crane
			Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machinery and other equipment

		elements, the main operation is greasing the different pulleys in the gantry. To do it, is necessary to climb rather high.	
NAVIGATION TO PORT Navigation	Free navigation ***C; S; E; B; DCO; FSM; CSM; Cp***	**SP:** The commander pilots the boat, the others prepare the plastic crates for the sale and clean the boat **FR, BE:** One person in the wheelhouse (sometimes two on large trawlers, or on all trawlers if the weather is very bad rain, fog...) for watchkeeping. He is looking at the sea and at the navigation instruments. He is using helm, engine or propeller if necessary. He is also listening to radio: other boats, weather report, safety report, SOS. The duration of a watchkeeping depends of the trawlers (number of crewmen trained and allowed to be alone in the wheelhouse). On a lot of trawlers of 15-25 m staying many days and nights at sea, many experienced crewmen are well trained and able to stay alone in the wheelhouse, but are not allowed, because they are not officially qualified. When crewmen are watchkeeping (not the captain or the second-in-command if there is one), the captain gives him instructions to be woken up if necessary. In almost all the wheelhouses, you find a dead man alarm, and the captain must give the instruction to use it. When the boat is sailing to port the captain (or another crewman on large trawlers) must keep attention to the freezing or cooling system to preserve the cargo.	Falling overboard. Falls on the same level. Blows against stationary objects Electrical contacts in the management and handling of navigational equipment Possible collisions with other vessels Forced postures Postural physical burden inherent in the workplace caused by an improper ergonomic design of it. This situation occurs whilst standing using display screens of data (radar, computer, sound...) the causing musculoskeletal discomfort and/or visual fatigue
	Vessel cleaning ***S; E; B***	**SP, IT, FR, BE:** Usually, during the week, the deck is cleaned with sea	Falls to different level through hatches, vents… unprotected Falls to different level to go up/down the ladder in order to access the hold Falls on the same level by tripping and slipping

		water. Sometimes, at the end of the week, on Saturday, are used products **TK:** Water and chemical products are used to clean the vessel	Exposure and contact with toxic and irritants substances in the use of cleaning products such as bleach, detergents, disinfectants ... Exposure to low temperatures to perform the cleanup of the hold and freezing tunnels
NAVIGATION TO PORT: Arriving to port	Mooring ***S; E; B; DCO; FSM; CSM; Cp***	**SP, IT, TK, BE:** The boat approaches the dock and a sailor jumps from the boat on the dock and ties the moorings to the bollard **FR:** All crew of fishing vessels (large and small) do the undocking themselves. Perhaps some captains of large trawlers can use other workers to help the crew on the dock. So, this task's description is only concerning for the undocking develop for the crew (it isn´t applicable to external workers). With a crew of five people, the distribution is: one person in the wheelhouse two people on the bow (one on the dock and another on the boat), two on the stern (one on the dock and another on the boat). On large trawlers, with several moorings stern and bow, you have more than two crewmen on bow and stern. Over five people untie on the dock and another pull the mooring onboard. In the case, the crew for this task has less than five crewmen, without external help, the same man unties on the dock, jumps onboard and pulls the mooring. When there are only two people onboard, one in the wheelhouse, and another is on the dock running from bow to stern and jumping onboard.	Falling objects in handling Entrapment between objects Overstrain and physical burden during the developing of the work standing or in forced postures, causing discomfort musculoskeletal Possible collisions with pier and other vessels
	Using a small boat between the main boat	**FR, BE:** Arriving on the anchor on which the small boat is tied,	Occupational Hazard

	and the quay New activity!!! ***C; S; E; B; DCO; Cp***	crewmen is catching a sleeping rope on the buoy by hand or using a stick if the deck is too high above the water. The main boat is moored on the anchor, and the small one is pulled on one side of the trawler. One of the crewmen retains the two boats one against the other, when the other are boarding on the small boat, and then is boarding himself. To sail to a dock ladder (pontoon, beach, or slipway) they use oars (sometimes a small outboard motor). When the wind is strong and enters in the port these operations are dangerous because the small boat is often an unstable craft which can be heavy charged with men, material or catch. Crewmen often store their lifejacket on the main boat, so they don't wear it when they are onboard the small boat.	

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PROCESS Procedure	Task / Jobs (*)	Task Description (**)	OCCUPATIONAL HAZARD IDENTIFIED
UNLOADING (ALL)	**GENERAL**		Falls to different level due to openings, slips, trips, absence of collective protection, hatches, sticks, falling into the sea…
			Falls on the same level due to slips, trip, tripping over objects, wet or slippery deck by hydraulic oil leaks. This situation occurs due to the workers not using non-slip footwear
			Blows against stationary objects due to an improper signaling, improper order and/or improper cleanliness
			Blows and entrapments due to a failure of the work equipment anchor on board
			Electrical contact Risks
			Disease from natural causes
			Sinking due to loss of stability, waterways, weather conditions
			Machine failure due to lack of regular maintenance
			Flooding due to lack of maintenance and signaling of the sealing elements, deck closures, bilge…
			Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise ...
			Fires and explosions on the ship
UNLOADING: Unloading at port	Psychosocial factors caused by fatigue, lack of privacy, distance from loved ones, limited space, long working hours, lighting, noise...	**TK:** Usually small trawlers which come back to port every evening have only a few boxes of catch stored on the main deck. These boxes are landed, one by one, by hand or with ropes and hook depending of the height of the dock compared to the deck of the trawler. **IT:** For the majority, vessels are very small trawlers which come back to port every evening and have only a few	Falling material by an improper cargo handling
			Entrapment due to an improper handling of work equipment
			Electrical contact in repair, maintenance and clean activities
			Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machine and other equipment
			Exposure to low temperatures in the hold

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		boxes of catch stored on the main deck. The boxes are landed, one by one, by hand **SP:** Palletizing and strapping takes place in freezer vessels. With one or more tone to unload each pallet, generally is used a self-propelled crane. In smaller boats (fresh), unloading is made by stacking the boxes one above the other and with the crane aboard the hook (about 20 boxes downloading at time) **FR, BE:** Very small trawlers which come back to port every evening have only a few boxes of catch stored on the main deck. These boxes are landed, one by one, by hand or with ropes and hook depending of the height of the dock compared to the deck of the trawler. Some ports are equipped with cranes or derricks and winch, the fishermen can use. On trawlers, staying at sea many days, the crew can do all job or can be help by external workers. The operations (and associated risks) depend of the storage mode: bulks, boxes/cartons (5 to 30 kg), tubs (200, 400 kg). Storage in bulks: crewmen in the fish room using shovels and hooks take the fish (and some ice) in the bulk and put it in a basket (large fish) just under the hatch or in boxes (small fish). The basket is lifted with a crane (or derrick winch) and emptied by crewmen, on the quay, in a tub/bin on wheels. External workers are selecting the species and grading directly in the tub/bin on wheels. The boxes are lifted and put down on a carriage on the quay. The carriage is pushed or pulls toward sorting tables on which the boxes are emptied by hand. External	

		workers select and grade on the tables. Storage in boxes/cartons: crewmen take the boxes/cartons by hands. It´s difficult because they are very tight to optimize the cargo in the fish room. Cartons are more difficult to be extracted because without handle. A conveyor can be used to move the boxes/cartons to the hatch. Under the hatch boxes/cartons are piled. They are piled on a palette or not. It can also be a net or a sort of cage (a palette with sticks and net around to avoid the Falling of boxes/cartons when lifted). Piles on the palette can also be surrounded with a plastic film. Most of the trawlers don't use palettes. The piles of boxes are moved in the fish room with hand pallet truck. If the fish room hatch is large enough, a forklift truck can also be put in the fish room with the crane The piles of boxes are lifted with slings hooked to the first box of the pile. This modus operandi does not require hooking the hatch when lifting, if not, boxes can easily Falling. Cleaned boxes with their lids are loaded just after following the same modus operandi. In the fish room piles of boxes or lids are moved by hands to be stored. Some boats have a conveyor in the fish room a lift between fish room and main deck a conveyor between main deck and dock Storage in tub: horizontal movements in the fish room of tub of 200 to 400 kg are obtained with a cable, pulleys and a winch in the fish room or on the deck above the fish room. When the tub is under the hatch, a crane is used to lift it on the quay. A difficulty can appear when the tub is only made to be move with the forks of a trolley. To lift them with a crane you must have a specific metallic system which take the place of the forks and can be hooked to the crane's cable. Some fishermen make holes in the four superior corners of the tubes to hook the slings, but tubs are not made to	

		support these weights. Cleaned and empty tubs are loaded just after. Empty tub is a weight of 50 to 70 kg;	
	Uploading of goods at Port ***C; S; E; B; DCO; FSM***	**SP, IT, TK:** Is done manually, by pass-hand **FR, BE:** Rubbish, engine, winch... pieces can be uploaded at port with the same methodology than unloading the catch.	Falls to different level through hatches, vents unprotected Falls to different level to go up/down the ladder to access the hold Falls overboard or while walking on the ship Falling stacked material Falling objects by crash Falling objects by handling Falling goods handled by crane Overstrain and musculoskeletal discomfort due to postural physical burden when the work involves standing for long periods and people handle the machinery and other equipment Exposure to low temperatures in the hold
	Cleaning holds ***S; E; B; FSM***	**SP, IT, TK:** Carried out by a sailor with a jet of water **FR, BE:** Water and chemical products are used to clean the holds. The shelves are cleaned by the crewmen. Boxes and tubs are cleaned by external workers.	Falls to different level through hatches, openings... unprotected Falls to different level going up/down the ladder to access the hold Falls on the same level by tripping and slipping Projection of fragments and/or particles during the use of the pressure washer to clean the fishing park Electrical contacts with the pressure washer use Exposure and contact with toxic, and irritants substances in the use of cleaning products such as bleach, detergents, disinfectants...
	Using trolley from the quayside to cold chamber New activity!!! ***S; E; B; DCO; Cp***	**SP, IT, TK:** Once goods unloaded at the port are transported to the market for sale (fresh) or refrigerator for storage (freezers). It´s transported in refrigerated vehicles as vans or trucks The frozen product is transported by forklifts and fresh by hand truck or pallet	Risks inherent in the truck New risk: new content!!!

		FR, BE: Most often, trolleys aren´t used by the fishermen. They only push and pull trolleys without an engine. But on dock, circulation rules must be known by everybody. Some owners ask to one or two crewmen to be trained to drive motor-trolley.	Hit and traffic accidents New risk: new content!!!

LEGEND:
(*): *Cook: **C;** Sailor: **S**; Engineer: **E;** Boatswain: **B;** Deck Crew + Official: **DCO;** Fishing Ship Master: **FSM;** Coast Ship Master: **CSM;** Captain: **Cp***

(**): **SP:** *Spain;* **IT:** *Italy;* **TK:** *Turkey;* **FR:** *France;* **BE:** *Belgium*

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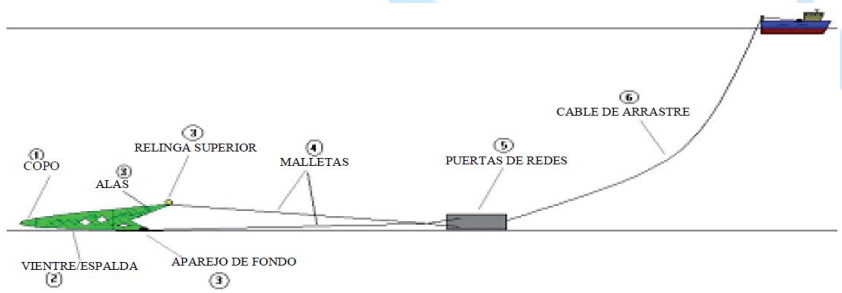
a. Joint Analysis:

PRELIMINARY STUDY OF THE SECTOR ON PREVENTION TO EUROPEAN LEVEL: trawling ships and equipment used

Information Source: Annex: I each partner

TRAWLING SHIP	
IT: Typical trawling boat (Bottom otter trawling, OTB)  	**TK:** Typical trawling boat (Bottom otter trawling, OTB) 
SP: Stern trawler with nets to catch fish bridles to direct them, trawl doors to keep open the net horizontally and cables to tow all the gear. A robust footrope protects the bottom of the net on the seabed. The vertical opening of the mouth of the net is provided by a float attached to the headline (or float line), while the cod-end or net bag is used to catch and facilitate its hoisted aboard the ship	**FR, BE:** **10 – 12 meters – Two decks: main deck and under main deck - breadth: 4 to 5 meters** ***Main deck*** (generally not covered): wheelhouse: forward with a galley/refectory just near; fishing deck: two split winches with cables going directly to a pulley on each side of the gantry. A gantry supporting two to four drums; A table to select/grade in the middle on the fish room hatch or near. ***Under main deck*:** from bow to the stern: berths (crew accommodations), engine room, fish room, helm's local **12 – 15 meters – Three decks: main deck and under main deck + a shelter**



deck with the wheelhouse on it (or between main and shelter deck) – breadth: 5 to 6 meters
Main deck: from bow to stern: storeroom(gear), galley/refectory/toilets on one side and a working space on the other side, fishing deck with two split winches with cables going directly to a pulley on each side of the gantry. A gantry supporting two to four drums; under the drums a table to select/grade.
***Under main deck*:** from bow to stern: peak, fish room, crew accommodations, engine room, helm's local

15 – 40 meters – Three decks: main deck and under main deck + a shelter deck with the wheelhouse on it – breadth: 5 to 10 meters –
***Up deck (on the shelter deck)*:** from bow to stern: anchor winch, crane, and hatch, space to store boxes or tubs, wheelhouse, liferafts, winches, drums, gantry.
Main deck: from bow to stern: storeroom, galley/refectory/cabins/toilets on one side and a working space on the other side, fishing deck with two split winches with cables going directly to a pulley on each side of the gantry. A gantry supporting two to four drums; under the drums a table to select/grade or a tank. Some trawlers have conveyors to handle the catch from the tank forward. The winches can be forward just near the storeroom. In this case, cables run above the shelter deck. Winches can also be under the fishing deck in a local between engine room and helm's local.
Under main deck: from bow to stern: peak, fish room, engine room, crew accommodations, helm's local. Crew accommodations can also be between fish room and engine room, or all the cabins are on the main deck (boats over 25 meters).

> 40 meters -Three decks above the main deck and the under main deck (5 decks) – breadth: 10 to 12 meters –
***Bridge deck*:** wheelhouse and outdoor gangway.
Up deck 2: cabins, infirmary
Up deck 1: forward (covered): galley, refectory, toilets, crew accommodations;

	backward (not covered): fishing deck with cables winches, sweep lines winches, drums, cod-end winch, gantry, freedeck. On each side of the not covered fishing deck you find technical spaces which are covered. ***Main deck***: fish tank, factory with: conveyors, gutting machine, washing machine, gutting/sorting workplaces (on fresh fish trawlers) the same, cutting machine (head, tail) peeling machine and fillet machine, luminous table, freezing system, packaging workplaces (on freezer trawlers) crew accommodations ***Under main deck***: from bow to stern: peak, fish rooms, engine room, helm's local. **10-12 meters** **12-15 meters**    **15-40 meters**

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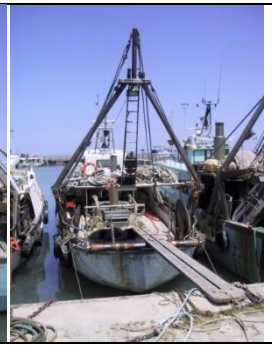
EQUIPMENT: Preliminaries: Transfer to port	
IT: The crew reach the boat by car	**TK:** The crew reach the boat by car
SP, BE: Transfer to the ship from home(by car, taxi, plane, boat)	**FR:** **Large trawlers (> 40 meters):** by plane, bus and train or only by bus across the Channel for crews of large trawlers staying all year long on the fishing areas and using Scottish or Irish ports. Time travel is from 5 hours (private plane and bus) to 10 or 12 hours when using regular airlines and bus (or only a bus). Crewmen have to carry their own luggage (clothes and others things for three weeks at sea) wait to be controlled (police, customs) and to sit in planes or buses. Sometimes, they have to carry small material for the boat. It´s not difficult but it can be long time (12 hours) and just when he arrives onboard, the captain must sail towards fishing areas. Five or six hours later, the trawl is in the water. **Other trawlers:** crewmen use their own car, motorcycle or bicycle. It can be every day (trawlers< 12m), every week or every two weeks. Sometimes the owner of the trawlers uses a taxi or a private van to drive all the crew to the port. More and more crewmen must live fare from the port (along the coast it´s more expensive to rent or buy a house). When you come back after a trip at sea you can be very tired and not able to drive. But it´s difficult for crewmen to rest onboard in the port before diving back to home.

EQUIPMENT: Preliminaries: loading/unloading	
IT: Small gangway: get on board on fishing boat	**TK:** Vessel approaches to dock and sailors arrives deck from dock or they passes vessel to vessel directly: get on board on fishing boat






SP:

Gateway/crane(in some cases to install or remove):

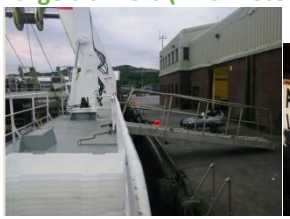
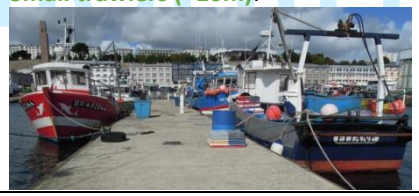
- **Gateway:** installed to embark or disembark
- **Crane:** lifting machine with a discontinuous movement intended mainly to raise and distribute the loads in the vessel in the space. Also, for auxiliary operations


FR, BE:

Large trawlers (> 25 meters): crewmen use a gangway. It´s installed with the crane of the boat (foreign port) or with ashore staff and means (crane, forklift truck...). The safety net under the foot bridge isn´t often installed.
The gangway: steel, aluminum; eight to ten meters long; seventy to ninety cm wide; guard-rail on each side; two wheels at one extremity. It can be stored onboard during trip or on the quay. The board crane or another on the dock is used to install the gangway between the dock and the boat.

Medium trawlers (16<L<25m): these boats are too large to be docked along a pontoon. They are docked along quays but crewmen don't use gangway. They jump between the trawler and the dock (or from the dock to the boat) when they are on the same level or they use dock ladders (boat lower than the quay) or they use fenders, portholes, rails... (boat higher than the quay). Crewmen pull on the moorings when the boat is discarded from the quay. Sometimes, crewmen must cross one or two other boat to join their trawler. The gangway described above is unusual. Sometimes a board without guard-rail is used (unusual also).
Some (very few) trawlers are built with an integrated ladder on one or to side of the hull Pilot ladder can also be installed at port

Small trawlers (<16m): crewmen walk on a gangway between the dock and a

	pontoon. Sometimes a stepladder helps them to pass from the pontoon to the boat. Pontoon is a safety solution but it must be built for professional use (wide enough to store some material on it without disturbing the circulation of the fishermen). Nothing is used between quay, pontoon and boat **Large trawlers (> 25 meters)** **Medium trawlers (16<L<25m)**    + **Small trawlers (<16m)**: 

EQUIPMENT: Preliminaries: Moving on board	
IT: Board's clothing: every sailor wears boots and waxed jackets. No machines are required	**TK:** Board's clothing: every sailor wears boots and waxed jackets. No machineries are required

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SP: Wandering around the ship	**FR, BE:** Horizontal movements of crew: deck, gangway with non-skid surface and handrail. Vertical movements of crew: staircase, inclined ladder with steps, upright ladder with bars 

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EQUIPMENT: Preliminaries: Engine and radio equipment	
IT: Ignition engine 	**TK:** Ignition engine 
SP: Engine/air compressor/pump/radio equipment: • **Engine**: the main motor is the propulsion machinery of the vessel. The auxiliary motor is the machine designed to drive an electrical generator • **Compressor**: equipment raising the pressure of a gas, a vapor, or a mixture of both • **Pump:** equipment which generates fluid movements • **Radio equipment:** equipment to communicate with other ships or rescue facilities • Engine  Air compressor  Pump 	**FR, BE:** Battery or air bottle are used to start the main engine. It can be necessary to go in the engine room or all is done in the wheelhouse.

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Pump	Radio equipment
	

EQUIPMENT: Preliminaries: Installation of safety net under the boarding bridge (large trawlers).	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Not applicable. This task isn't developed in this country	**FR, BE:** Net with strings

EQUIPMENT: Preliminaries: Sailing with a small boat to the main boat (small trawlers)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
FR, BE, SP: Inflatable boat or wood or plastic (one on each side or only one at the stern).	

EQUIPMENT: Food supplies/nets and boxes/maintenance material and spare materials: preparing cargo on dock	
IT: Manual actions: No machines or equipment are required	**TK:** Manual actions: No machines or equipment are required
SP: Stores download by mechanical equipment (forklift from trucks...)	**FR, BE:** Cars, trucks, trolley (with or without engine), forklift truck

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EQUIPMENT: Food supplies/nets and boxes/maintenance material and spare materials: Mechanical loading (crane) on board	
IT: No machines or equipment are required (normally, in Italy, vessels don't have a crane)	**TK:** No machines or equipment are required
SP: Crane: machine lifting with discontinuous movement intended mainly to raise and distribute loads in the vessel in space. As well as auxiliary operations 	**FR, BE:** **Crane:** fixed on the upper deck, with folding and telescopic boom. The control box can be fixed on the crane or movable. **Movable mast (pole)** with pulleys and a specific winch. When the boat is at sea this mast is stored above the deck. When the crew uses it, the mast is rotating on his axis (center of the boat) between the boat and the quay. The power to lift the loads is obtained with a specific winch. **Conveyor:** some large trawlers have a gate on the hull side and a conveyor arriving to this gate. When the boat is just near a quay, you can put loads by hand or with a forklift-truck on it. Movable conveyors can also be installed between the trawler's conveyor and the quay. **Crane** 

EQUIPMENT: Food supplies/nets and boxes/maintenance material and spare materials: Manual loading on board	
IT: No machines or equipment are required	**TK:** No machines or equipment are required
SP:	**FR, BE:**

Enter loads on board manually	**Horizontal movements:** a hook can be used to sweep loads on a deck. A conveyor without motor (only free rolls) can be use; you have just to pull or push the load on it. On a few trawlers, with good weather, we have seen hand pallet truck. **Vertical movements:** a pulley and a rope (simple hoist); simple and double pulleys and a rope to decrease the necessary human power to lift or to drop slowly a load. Chutes (slides) can be used between two decks. Chain hoist is often use in the engine room.

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EQUIPMENT: Food supplies/nets and boxes/maintenance material and spare materials: Storage of cargo	
IT: No machines or equipment are required	**TK:** No machines or equipment are required
SP: Placing the load at a specific location	**FR, BE:** Storerooms with shelves; on the decks, boards are used to divide the space in small cages, where you can block material. Straps, ropes, chains with tension system are used on decks to block heavy material (doors, clump, oil drums...) **Small cages** **Doors**  

EQUIPMENT: Food supplies/nets and boxes/maintenance material and spare materials: Put ice in the fish room	
IT: No machines or equipment are required (with the aid of plastic crates)	**TK:** No machines or equipment are required (with the aid of plastic crates)
SP: Icemaker: equipment used to produce ice in order to maintain a proper catch 	**FR, BE:** **Without ice machine:** On the trawler, chutes, slides are used to carry the ice in different bulks, tubs, boxes. On the dock, it can be a truck with a conveyor and a chute to bring the ice to the hatch or a self-service (charging machine). Here the boat is docked along a dock or a pontoon, the hatch of the fish room just under a telescopic chute. **With an ice machine:** often the boat takes ashore ice but less than boats without an ice machine. During the travel to fishing area the machine produces ice in a silo on the main deck or/and in a bulk in the fish room Storerooms with shelves; on the decks, boards are used to divide the space in small cages, where you can block material. Straps, ropes, chains with tension system are used on decks to block heavy material (doors, clump, oil drums...)

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EQUIPMENT: Preparing fishing gear: Preparing cable	
IT: Manual actions by sailors	**TK:** Manual actions by sailors
SP: Equipment placed on deck to stern. It is used to take, drag and turning gear 	**FR, BE:** Reel (winder, spool) can be used on a truck or on the dock (or on the deck on large trawlers); the winches; pulleys in the gantry (or under the freedeck); portable tools : hammer, shackles, wrench, blowpipe, electric circular saw; a specific tool which helps crew to slack the strands of a cable when making splices can also be used. 

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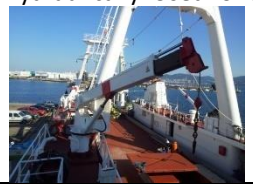
EQUIPMENT: Preparing fishing gear: Preparing sweep line	
IT: Sweep lines are already linked to the fishing net	**TK:** Sweep lines are already linked to the fishing net
SP: Porter/razor drag: task force located aft deck that is used for shooting and turning the bridles   	**FR, BE:** Reel (winder, spool) can be used on a truck or on the dock(or on the deck on large trawlers); the winches; pulleys in the gantry (or under the spare deck); portable tools: hammer, shackles, wrench, blowpipe, electric circular saw; a specific tool which helps crew to slack the strands of a cable when making splices can also be used.  

EQUIPMENT: Preparing fishing gear: Preparing trawl doors	
IT: The trawl doors are yet anchored to *braccetti* (green ones), small mechanical arms that extend the stern area during the fishing phase: they widen towards the outside of the boat  	**TK:** The trawl doors are yet anchored to *mataforas*, small mechanical arms that extend the stern area during the fishing phase: they widen towards the outside of the boat (Same as double side davits on board 
SP: **Winch/windlass/towing:** • **Crane**: lifting machine with a discontinuous movement intended mainly to raise and distribute cargo ship in space • **Winch/windlass:** equipment which rotates about an axis driven electrically or hydraulically. Used for auxiliary operation. Located on deck (bow and stern). 	**FR, BE:** Deck, ramp, winch, crane, hoist, gantry, freedeck, pulleys, cables, shackles, chains

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EQUIPMENT: Preparing fishing gear: Preparing net	
IT: 	**TK:** 
SP: Net drum: Reel belonging to the main equipment of the fishery operations (shooting and veered) located on deck, used to wind the rigging and whose rotation allows the traction and contrary operations   	**FR, BE:** Storeroom, deck, freedeck, crane, hoist, winches, drums, chains, cables, shackles, rock hopers, knives, needles, strings, pieces of nets

EQUIPMENT: Preparing fishing gear: Preparing clump, which is the central weight they put between two trawls used together (twin trawls) it can be put with the third task (doors)	
IT: If it's present, it´s ready in the side supports of the derrick	**TK:** If it's present, it´s ready on the side supports of the derrick
SP: If it's present, it´s ready on the side supports of the derrick	**FR, BE:** Deck, ramp, winch, crane, hoist, gantry, freedeck, pulleys, cables, shackles, chains

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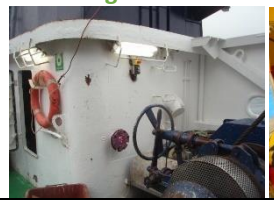
EQUIPMENT: Bunkering: Fuel	
IT: It´s made directly with the fuel pumps present in the dock. The boat is approached to the dock and the sailor puts the pump into the tank. Often, the sailor uses rags to prevent the escape of fuel	**TK:** It´s made directly with the fuel pumps present in the dock. The boat is approached to the dock and the sailor puts the pump into the tank. Often, the sailor uses rags to prevent the escape of fuel  
SP: Bunkering/piano of valve for distribution in the different tanks: • **Bunkering:** fuel inlet tube loading • **Piano**: distribution of valves for fuel in individual tanks Bunkering Piano  	**FR, BE:** A hose (pipe), a wrench, and the pipes of the tanks on the deck. In a port there is a specific flag to signalize to the other boats that you are bunkering. No smoking signalization can be seen on large trawlers.

NAVIGATION TO FISHERY: Set up: Undocking	
IT: No machinery and equipment are required	**TK:** No machinery and equipment are required
SP: Auxiliary equipment	**FR, BE:** Mooring points, fairlead, moorings, propeller, thrusters, winch

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NAVIGATION TO FISHERY: Set up: Tug Use	
IT: Not applicable. This task isn´t developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Not applicable. This task isn´t developed in this country	**FR, BE:** Mooring points, fairlead, moorings, propeller, thrusters, winch

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NAVIGATION TO FISHERY: Navigation: Free Navigation	
IT: No machines or equipment are required	**TK:** No machines or equipment are required
SP: Engine/rudder and command. Engine: is the propulsion machinery of the vessel 	**FR, BE:** Wheelhouse, pilot chair, wiper, demisting system, signalization lights, searchlight, steering wheel, automatic pilot, GPS, radar, vhf, blu, sounder, engine commands, propeller commands, alarms panel (pump, fire, engine...), electric panel

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NAVIGATION TO FISHERY: Navigation: Functioning and maintenance control	
IT: No machines or equipments are required	**FR, BE:** No machines or equipment are required
SP: Engine/compressors/pumps/grinder/emery /drill column/windlass • **Engine**: the main motor. It is the propulsion machinery of the vessel. The auxiliary motor is the machine designed to drive an electrical generator. • **Compressor:** equipment raising the pressure of a gas, a vapor, or a mixture of both • **Grinder**: a machine that generates fluid movement • **Emery:** work equipment used primarily for sharpening cutting tools • **Drill column**: tool where most of the holes are made in the workshops parts of **Windlass:** equipment that allows machining parts with geometric shape. These machines and tools operate by rotating the piece, while one or more cutting tools are pushed in a regulated movement against the work piece surface Engine  Compressor  Grinder  Drill Column  Windlass 	**FR, BE:** Control panels (wheelhouse, engine room), alarms (pump, fire, engine, auxiliary...), levels (oil, water, fuel...), temperatures, pressures (manometers), electric system, freezing/cooling system

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NAVIGATION TO FISHERY: Cook/Wait on/Cleaning	
IT: Galley and equipment	**TK:** Galley and equipment
SP: Galley place equipped with appliances needed to prepare the daily feeding the crew (oven, plate, kneading, refrigerators, knives ...)  	**FR, BE:** Galley, fryer, oven, gas, crusher, slicer, knives, plates, broom, vacuum cleaner, chemical products

NAVIGATION TO FISHERY: Safety exercises on large trawlers with a lot of free time	
IT: Simulations of emergency situations: fire, leak, man overboard...	**TK:** Simulations of emergency situations: fire, leak, man overboard...
SP: Simulations of emergency situations: fire, leak, man overboard...	**FR, BE:** Survival at sea: material against waterway, radio-communication (mayday), liferaft and material in it, lifejackets, survival suit, buoy, throw line, rescue boat, searchlight, individual and boat beacons, others means to be located on the sea (mirror, cyalum, fruorescine, spotlight). Firefighting: extinguishers, pumps, fire hose, fire blanket, respiratory apparatus Gas, refrigerant leak: respiratory apparatus

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	First aid: medical endowment, medical radio-communication, stretcher Evacuation of crewmen: other boat, helicopter 

NAVIGATION TO FISHERY: Preparing fishing gear	
IT: Machinery and equipment are not required	**TK:** Machinery and equipment are not required
SP: Windlass: equipment which rotates about an axis driven electrically or hydraulically. Used for auxiliary operation. Located on deck (bow and stern).  	**FR, BE:** Place the sensors on the rig and/or trawl doors. While the net is lying on the ground and it´s being controlled

NAVIGATION TO FISHERY: Preparing different sensors they put on trawl and doors (loading battery)

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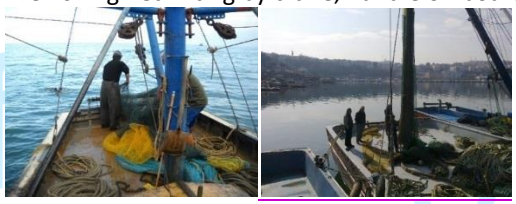
IT: Not applicable. This task isn´t developed in this country	**TK:** Not applicable.
SP: Hand tools	**FR, BE:** Not applicable. This task isn't developed in this country

CATCH: Throwing out maneuver (Throwing fishing net)	
IT: Net drum: wraps or unrolls the fishing net, lifting it on board or lowering it at sea 	**TK:** The fishing net lifting by crane, handle on board and lowering it at sea 
SP: **Drum/gate** (turnstile) **Porton stern:** perpendicular equipment to the stern ramp. With its operation: personal protection, veered and rigging gone off, protected from the sea, etc  **Windlass:** equipment which rotates about an axis driven electrically or hydraulically. Used for auxiliary operation. Located on deck (bow and stern). 	**FR, BE:** Fishingdeck, ramp, gantry, freedeck, drums, cables, chains, net, rockhoppers, sensors, hoist, hooks, hatch for visibility from the wheelhouse 

CATCH: Throwing out maneuver (Throwing sweep line)	
IT: It always takes place by means of the fishing net drum	**TK:** 
SP: Porter/razor drag: working equipment placed aft deck that is used to take the start, drag and turning gear. 	**FR, BE:** Fishing deck, winch, drum, cable, rope, chains, hook, shackles, pulleys 

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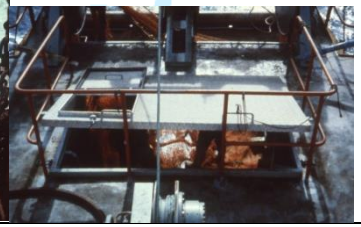
CATCH: Throwing out maneuver (Releasing and throwing trawling doors)	
IT: Winch for cables, wraps and unrolls the cables of trawl doors  	**TK:** Winch for cables, wraps and unrolls the cables of trawl doors 
SP: Razor drag/chain/ hooks/wires	**FR, BE:** Fishing deck, winch, cable, chain, hook, shackle, pulley, hoist, sensors hatch for visibility from the wheelhouse   

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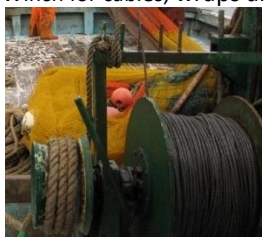
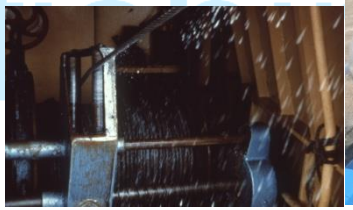
CATCH: Throwing out maneuver (Throwing cable)	
IT: Winch for cables, wraps and unrolls the cables of trawl doors 	**TK:** Winch for cables, wraps and unrolls the cables of trawl doors 
SP: Trawl winch: working equipment located aft deck that is used to take the start, drag and turn the cable 	**FR, BE:** Fishing deck, winch, pulleys, gantry, freedeck, trawl control system (pulleys)  

CATCH: Trawling (On Trawling)	
IT: One person (usually the commander) remains at the helm, the others remain in the galley or in the bunk	**TK:**

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SP: Trawl winch: working equipment located aft deck that is used to take the start, drag and turn the cable 	**FR, BE:** See free navigation with computer with GPS positions and maps of the bottom with public and personnel data, trawl control system, tension on the cable, screens of the sensors on net and doors, sounder, sonar.

CATCH: Trawling (Procedures when doors, sweep line or net hang the sea bottom specific rules of navigations on pair trawlers (respect of the distance between the two boats with a rope or with positioning instruments)	
IT: The distance between the two vessels is maintained with a textile cord called *traversino* in Italy. This cord is connected to the bow of the two vessels and its length is between 50 to 100 meters	**TK:** The distance between the two vessels is maintained with a textile cord called *halat* in Turkey. This cord is connected to the bow of the two vessels and its length is between 30 to 80 meters

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SP: Not applicable. This task isn´t developed in this country	**FR, BE:** ▪ **Procedures when doors, sweep lines or net hang the bottom or something on the bottom or in the column of water (containers):** winch, cable, automatic system to shoot the cable when high tension on it, system or tool to cut the cable, propeller commands, engine commands, steering wheel ▪ **Specific rules of navigations on pair trawlers (respect of the distance between the two boats with a rope or with positioning instruments):** positioning system (GPS), propeller commands, engine commands, steering wheel

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CATCH: Retrieving maneuver (Retrieving cable)	
IT: Two sailors are positioned on bells and activate the rewinding of the cables that raise trawl doors from the water and bringing them back into position near the derrick. At this point the bells are blocked	**TK:** Winch for cables, wraps and unrolls the cables of trawl doors 
SP: Trawl winch: working equipment located aft deck that is used to take the start, drag and turn the cable 	**FR, BE:** See throwing cables

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CATCH: Retrieving maneuver (Lashing trawl doors)	
IT: Trawl doors are connected to the sides of the derrick and they are adhered to these by the live cables	**TK:** Trawl doors are dragged from cables and anchored to *the matafora* 
SP: Razor drag/chains/hooks/wires 	**FR, BE:** See releasing and throwing trawl doors (and clump) 

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CATCH: Retrieving maneuver (Retrieving sweep line)	
IT: 	**TK:** 
SP: Razordrag / trunk 	**FR, BE:** See throwing sweep lines

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CATCH: Retrieving maneuver (Retrieving fishing net)	
IT: Fishing net 	**TK:** 
SP: **Drum/auxiliaries equipment (mosquets), cabiron.** **Net drum:** reel belonging to the main fishing switchgear (shooting and hauling) located on deck, used to wind the rigging and whose rotation allows traction care and operations contrary 	**FR, BE:** See throwing fishing net

CATCH: Retrieving maneuver (Open cod-end and toss the catch into the catch tank)	
IT: Arch that raises fishing net (derrick) and opening of cod-end: two sailor open the cod-end (picture 1), the derrick raises cod-end by means of pulley (picture 2) and the catch falls on deck (picture3)	**TK:** Arch that raises fishing net (derrick) and opening of cod-end: two sailors open the cod-end (picture 1), the derrick raises cod-end by means of pulley (picture 2) and the catch and the catch falling on deck (picture 3)

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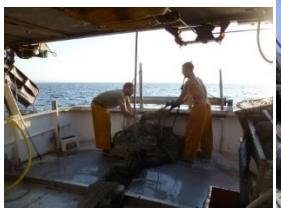
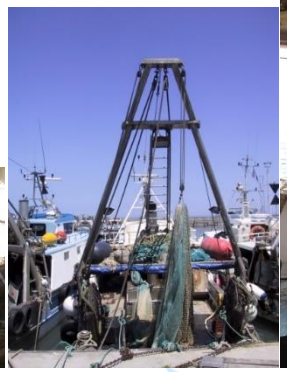
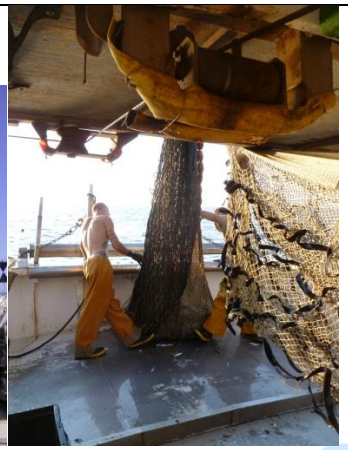






SP:

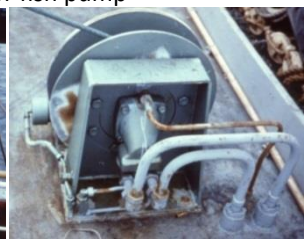
Windlass/door swamp:

- **Windlass:** winch that moves a gear in order to help raise the cod-end and later fall the fish in the swamp.


- **Marsh door:** door located in the stern on trawlers so that it can be opened or closed hydraulically. Its opening facilitates the introduction of the shoal in the fishing park

FR, BE:

Fishing deck, gantry, cod-end guide, winch, pulley, cable, drum, winch, tank with a trapdoor fish pump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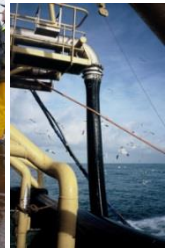
• **Cabiron/auxiliary machinery:** razor that rotates about an axis driven electrically or hydraulically. Machinery used for the auxiliary operations (similar to a winch or windlass)  	 

PROCESSING: Elaboration (Select)	
IT: Selecting fish takes place on the stern deck with gloves and knee pads 	**TK:** Selecting fish takes place on the stern deck with gloves and knee pads or else on a selectivity table  

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SP: **Conveyor/stringer/guillotine tape swamp** • **Conveyor:** equipment used for the transport of the catch, consisting of two pulleys that move a continuous belt, located in the fishing park.  . • **Stringer:** channel or hole, whose main function is to evacuate several substances, once completed the shoal. Maintenance, opening and closing, has been located in the fishing park in the stern 	**FR, BE:** Boxes, baskets, fixed table, movable table, rotating fish tank,conveyor 

• **Guillotine:** gate that opens and closes as needed, to enter catches from the swamp to the parquet fishing in order to begin the selection 	 

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PROCESSING: Elaboration (Behead)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Behead: equipped with a stainless steel circular blade makes a cut to fish, it is guided by drive belts which lead the fish to the cutting area, while a device separates the body from head machine. 	**FR, BE:** Circular or vertical saw, knife 

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PROCESSING: Elaboration (Eviscerate)	
IT: Eviscerate fish: the evisceration is carried out only by hand  	**TK:** Not applicable. This task isn't developed in this country
SP: Behead: equipped with a stainless steel circular blade makes a cut to fish, it is guided by drive belts which lead the fish to the cutting area, while a device separates the body from head machine. 	**FR, BE:** Tables, chute for rubbish, knife, chute for eviscerated fish, gutting machine  

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PROCESSING: Elaboration (Cut Tail)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Short Line: stainless steel and circular saw used to make various types of cuts in the fish. 	**FR, BE:** Circular or vertical saw , knife

PROCESSING: Elaboration (Wash)	
IT: It´s carried out by a sailor with sea water fired from a pump	**TK:** Not applicable. This task isn't developed in this country
SP: Washing machine: equipment designed for washing fish. Formed by a drum built with a stainless steel sheet. Consists with two bodies that make water collection tray and an inner inner fixed helicoid to guide the fish to the exit 	**FR, BE:** Water hose, washing machine, draining rack, baskets 

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PROCESSING: Elaboration (Skint)	
IT: Not applicable. This task isn´t developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Peeler: machine designed to remove the skin of the fish. It has a drum skinning the fish, skin sticks to the drum while skinless fish left in the output tray. 	**FR, BE:** Peeler machine, knives

PROCESSING: Elaboration (Fillet)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Filleting: Machine equipped with steel blades, it makes a dorsal cut in the fish, it´s guided by drive belts which lead to fish to the cutting zone, while a device separates the fillets 	**FR, BE:** Fillet machine, knives

PROCESSING: Elaboration (Classify)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Conveyor/sorter tape 	**FR, BE:** Boxes, baskets, rule, grading machine

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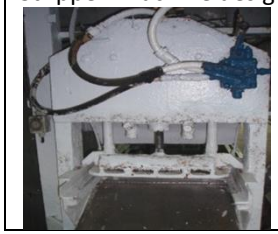
PROCESSING: Elaboration (Encase)	
IT: The catch is placed in plastic crates which are immediately placed in cold storage	**TK:** Not applicable. This task isn't developed in this country
SP: No machinery or equipment are required	**FR, BE:** Table, boxes

PROCESSING: Elaboration (Pre-freeze in cabinets/tunnels)	
IT: Cold room with plastic crates where it´s placed the fish  	**TK:** Cold room with plastic crates where you place the fish  
SP: No machinery or equipment are required	**FR, BE:** Cabinets, tunnels, boxes

PROCESSING: Elaboration (Unloading of cabinets/tunnels)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: No machinery or equipment are required	**FR, BE:** Table, boxes

PROCESSING: Elaboration (removal from mould)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Stripper: machine designed to release fish blocks in trays cabinets or freezing tunnels 	**FR, BE:** Tables , hot water

PROCESSING: Elaboration (Package)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: No machinery or equipment are required	**FR, BE:** Tables, cartons, bags , sticks, scale

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PROCESSING: Elaboration (Box Strip)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Strapping: a machine has a table that fish boxes are placed and a polypropylene strip is sealed by heat sealing. Closes, group and secure the load. 	**FR, BE:** Tables, cartons, bags , sticks, scale

PROCESSING: Elaboration (Cleaning)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Manual. Pressure cleaning machine	**FR, BE:** Water hose, chemical products, high pressure system  Treating langoustine: tank, basket, water, chemical product 

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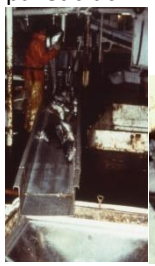
PROCESSING: Elaboration (Cleaning: All the task above exist on fewer than ten freezer trawlers in France – the large majority of the trawlers are fresh fish boats using ice for the conservation of the catch. So, on all of them you find: select, eviscerate, wash and put in the ice in box, or bulks or tubs. Many of them have a poor mechanization of handling. So you find a lot of manual handling of heavy loads (fish, ice) on trawlers which catch langoustines and stay at sea during 10 to 15 days, they must treat the catch with a specific product to maintain a good appearance to the langoustines	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Not applicable. This task isn't developed in this country	**FR, BE:** See last tables

STOWAGE: Stowage in holds (Mechanical stowage in holds)	
IT: Not applicable	**TK:** Not applicable. This task isn't developed in this country
SP: **Elevators/conveyor belt/windlass:** • **Windlass:** drum which rotates about an axis that is moved electrically or hydraulically. Used for auxiliary operations. Located on deck  	**FR, BE:** Boxes, tubs, bulks, chutes (slides), manual hoist, hoist with winch, lift, conveyors (with and without motor), mechanical system for heavy containers pallet truck  

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	 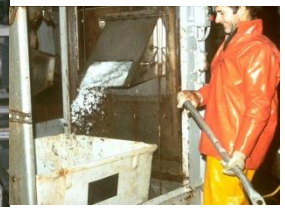 

STOWAGE: Stowage in holds (Manual stowage)	
IT: No machines or equipment are required	**TK:** No machines or equipment are required
SP: No machines or equipment are required	**FR, BE:** Boxes, baskets, tubs, bulks, shelves, shovel, pickaxe (for hard ice), manual hoist, chutes (slides) In France: Fishing deck, winch, drum, cable, net, gantry, spare deck, pulley, chains, shackles, hooks, hoist, portable tools (grinder, saw, welding, blowpipe, hammer, wrench, grease pump

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NAVIGATION TO PORT: Overhauling and maintenance (Stowage and overhauling of fishing gear and auxiliary elements)	
IT: Stowage and overhauling of fishing gear: no machineries or equipments are required 	**TK:** Stowage and overhauling of fishing gear: no machineries or equipments are required  
SP: Not applicable. Not developed this task in this country	**FR, BE:** Fishing deck, winch, drum, cable, net, gantry, freedeck, pulley, chains, shackles, hooks, hoist, portable tools (grinder, saw, welding, blowpipe, hammer, wrench, grease pump

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NAVIGATION TO PORT: Navigation (Free Navigation)	
IT: No machines or equipment are required	**TK:** No machines or equipment are required
SP: **Engine/rudder and control** • **Engine:** the engine is the main propulsion machinery of the vessel. The auxiliary engine is the machine designed to drive an electrical generator. 	**FR, BE:** See free navigation (to fishing area)

NAVIGATION TO PORT: Navigation (Vessel cleaning)	
IT: With the pressure washer	**TK:** With the pressure washer

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SP: Manual/pressure cleaning machine	**FR, BE:** The same that undocking epigraph

NAVIGATION TO PORT: Navigation (Free navigation)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: The commander pilots the boat, the others prepare the plastic crates for the sale and clean the boat	**FR, BE:** As undocking epigraph

NAVIGATION TO PORT: Arriving to port (Mooring)	
IT: No machines or equipment are required	**TK:** No machines or equipment are required
SP, BE: **Windlass/auxiliary machinery** • **Windlass:** drum rotating about an axis moved electrically or hydraulically. Used for auxiliary operations. Located on deck (bow and stern)	**FR:** As undocking epigraph

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NAVIGATION TO PORT: Navigation (Using a small boat between the main boat and the quay.)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable. This task isn't developed in this country
SP: Not applicable. This task isn't developed in this country	**FR, BE:** Inflatable boat or wood/plastic (one on each side or only one at the stern).

UNLOADING: Unloading at port (Unloading of goods at Port)	
IT: Unloading of goods at Port: manual  	**TK:** Unloading of goods at Port: manual 
SP: Crane	**FR, BE:** Pallet, basket, crane, hoist, winch

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	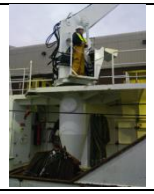

UNLOADING: Unloading at port (Cleaning holds)	
IT: With the pressure washer	**TK:** With the pressure washer
SP: Cleaning machine with water: equipment designed for cleaning with water pressure 	**FR, BE:** Water hose, high pressure system, chemical product

UNLOADING: Unloading at port (Using trolley from the quayside to cold chamber)	
IT: Not applicable. This task isn't developed in this country	**TK:** Not applicable: with VAN
SP: Forklift /hand pallet truck equipment intended for moving materials	**FR, BE:** Quays, trolleys, forklift truck, tubs, cranes

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 	  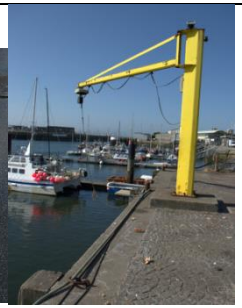 

b. Conclusions:

PRELIMINARY STUDY OF THE SECTOR ON PREVENTION TO EUROPEAN LEVEL

Information Source: Annexes: I and II each partner

CONCLUSIONS ON PREVENTION TO EUROPEAN LEVEL (tasks, occupational hazard, trawling ships and equipment used in each workplace):

a) ACTIVITIES AND OCCUPATIONAL HAZARDS

The Spanish training reference is developed for some activities.

During the development of the IO1, partnership has identified the activities developed in the sector in each country. Partnership should:

- **Adapt the current training** contents of each country (Italian, Turkish, Belgian and French) taking the Spanish training contents as reference
- **Improve the current training** in Spain with the experience transferred by another countries
- Develop the **methodology of the new activities** (Spanish, Italian, Turkish, Belgian and French)
- Identify the **occupational hazards for the new activities** (Spanish, Italian, Turkish, Belgian and French)
- Develop the **preventive measures for the Training program for the new activities** (Spanish, Italian, Turkish, Belgian and French)

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These new activities are:

PROCESS	NEW TASK
EQUIPMENT	Installation of safety net under the boarding bridge (large trawlers) **New activity (not developed in Turkey, Italy and Spain)**
	Sailing with a small boat to the main boat (small trawlers) **New activity (not developed in Italy and Turkey)**
EQUIPMENT Food supplies/nets and boxes/maintenance material and spare materials	Put ice in the fish room **New activity**
EQUIPMENT Preparing fishing gear	Preparing clump, which is the central weight they put between two trawls used together (twin trawls) it can be put with the third task (doors) **New activity**
NAVIGATION TO FISHERY Set up	Tug use **New activity (not developed in Italy, Turkey and Spain)**
NAVIGATION TO FISHERY Navigation	Safety exercises on large trawlers during free time **New activity**
	Production of ice on trawlers with an ice-machine **New activity**
NAVIGATION TO FISHERY Preparing fishing gear	Preparing different sensors they put on trawl and doors (loading battery) **New activity (not developed in Italy and Turkey)**
CATCH Trawling	Specific rules of navigations on pair trawlers (respect of the distance between the two boats with a rope or with positioning instruments) **New activity (not developed in Spain)**
	Procedures when doors, sweep line or net hang the sea bottom specific rules **New activity (not developed in Spain)**
PROCESSING	Cleaning: All tasks above exist on fewer

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Elaboration	than ten freezer trawlers in France. The large majority of the trawlers are fresh fish boats using ice for the conservation of the catch. So, on all of them you find: select, eviscerate, wash and put in the ice in boxes, bulks or tubs. A lot of them have poor mechanization of handling. Therefore, there is a lot of manual handling of heavy loads (fish, ice) on trawlers which catch langoustines and stay at sea for 10 to 15 days, they must treat the catch with a specific product to maintain a good appearance to the langoustines **New activity (not developed in Italy and Turkey)**
NAVIGATION TO PORT Arriving to port	Using a small boat between the main boat and the quay **New activity (not developed in Italy, Turkey and Spain)**
UNLOADING: Unloading at port	Palletizing and Strapping Using trolley from the quayside to cold chamber **New activity**

All countries don´t develop all tasks. The following table includes the tasks which aren´t developed in all countries and specifies the countries:

PROCESS	TASK	COUNTRIES IN WHICH THAT TASK ISN´T DEVELOPED
EQUIPMENT	Installation of safety net under the boarding bridge (large trawlers)	Italy Turkey Spain
	Sailing with a small boat to the main boat (small trawlers)	Italy Turkey
NAVIGATION TO FISHERY	Tug use	Italy Spain Turkey
	Preparing different sensors they put on trawl and doors (loading battery)	Italy Turkey
CATCH	Procedures when doors, sweep	Spain

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		line or net hang the sea bottom specific rules		
	PROCESSING	Cleaning	Italy Turkey	
		Cleaning: all tasks above exist on fewer than ten freezer trawlers in France – the large majority of the trawlers are fresh fish boats using ice for the conservation of the catch. So, on all of them you find: select, eviscerate, wash and put in the ice in box, bulks or tubs. Lot of them have poor mechanization of handling. So you find a lot of manual handling of heavy loads (fish, ice) on trawlers which catch langoustines and stay at sea for 10 to 15 days, they must treat the catch with a specific product to maintain a good appearance to the langoustines	Italy Turkey	
		Behead	Turkey Italy	
		Eviscerate	Turkey	
		Cut tail	Turkey Italy	
		Wash	Turkey	
		Skint	Turkey Italy	
		Fillet	Turkey Italy	
		Classify	Turkey Italy	
		Encase	Turkey	
		Unloading of cabinets/tunnels	Italy Turkey	
		Removal from mould	Italy Turkey	
		Package	Italy Turkey	
		Box Strip	Italy Turkey	
	STOWAGE	Mechanical Stowage in hold	Italy Turkey	

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NAVIGATION TO PORT	Free navigation	Italy Turkey
	Using a small boat between the main boat and the quay	Spain Italy Turkey

b) ACTIVITIES AND OCCUPATIONAL HAZARDS

The Spanish training reference doesn´t include some occupational hazards. Thus, the training Program that will be developed with the project must include the new contents with the suitable preventive measure to avoid the following risks:

PROCESS	TASK	NEW OCCUPATIONAL HAZARDS
EQUIPMENT	Transfer to Port	Traffic accidents. **New risk**
	Loading/Unloading	Falls into water from gangway or from foot bridge **New risk**
		Stepping over objects **New risk**
		Strikes against stationary objects **New risk**
	Moving on board	Falls to different level **New risk**
		Falls on the same level **New risk**
		Falling of detached objects **New risk**
		Stepping over object **New risk**
		Strikes against stationary objects **New risk**
		Physical agents: noise **New risk**
	Starting of engine and radio equipment	Entrapment between objects of handling equipment with lack of protections or safeguards **New risk**
		Thermal contacts **New risk**
		Electrical contacts **New risk**
		Explosion/Fire **New risk**
		Exposure to high noise, especially

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			in the engine room **New risk**	
		Sailing with a small boat to the main boat (small trawlers)	Water Falling **New risk**	
		Put ice in the fish room	Skin allergies, injuries or damages risks **New risk**	
			Cold and flu **New risk**	
		Preparing cable	Blow due to an inadequate fastening of the heavy materials on deck (for instance: cables…), especially in bad weather conditions **New risk**	
			Entrapment with cable during measurement for marking de cable **New risk**	
	NAVIGATION TO FISHERY	Functioning and maintenance control	Falls to different level **New risk**	
			Hits by objects or tools **New risk**	
			Falling of detached objects. **New risk**	
			Thermal contacts **New risk**	
			Electrical contacts **New risk**	
			Projection of fragments or particles **New risk**	
			Entrapment between objects **New risk**	
			Fire / Explosion **New risk**	
			Contact with caustic and/or corrosive substances **New risk**	
			Chemical agents **New risk**	
			Physical agents **New risk**	
			Radiations exposure	

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			New risk	
			Exposure to high noise, especially in the engine room **New risk**	
		Cook/Wait on/ Cleaning	Falls on the same level **New risk**	
			Falling of detached objects **New risk**	
			Hits by objects or tools **New risk**	
			Thermal contacts **Newrisk**	
			Entrapment by or between objects **New risk**	
			Electrical contacts. **New risk**	
			Fire **New risk**	
			Hygienic environment **New risk**	
			Healthy eating problems **New risk**	
		Safety exercises on large trawlers with a lot of free time	Lack of relaxation, may cause fatigue and stress **New risk**	
		Production of ice on trawlers with an ice-machine	Entrapment between objects **New risk**	
			Skin allergies, injuries or damages **New risk**	
		Preparing different sensors they put on trawl and doors (loading battery)	Overstrain **New risk**	
			Struck by objects or tools **New risk**	
			Falling objects during their manipulation **New risk**	
	CATCH	Catch	Blows by heavy objects like rocks that come in the net and are put on deck **New risk**	
		Trawling: Specific rules of navigations on pair trawlers (respect of	Rope breakage **New risk**	
			Entrapment of the hands **New risk**	

		the distance between the two boats with a rope or with positioning instruments)		
		Procedures when doors, sweep line or net hang the sea bottom specific rules	Rope breakage **New risk**	
			Entrapment of the hands **New risk**	
	PROCESSING	Fillet	Entrapment, cuts and blows for using the machine without its safety guards **New risk**	
		Classify	Overstraining by manual handling, repetitive work and unsuited postures **New risk**	
			Entrapment during automatic classification **New risk**	
			Manual classification of species performing by hand may cause skin injuries and poisoning from fin rays **New risk**	
		Unloading of cabinets/tunnels	Falling boxes or trays during the handling **New risk**	
			Exposure to toxic or corrosive substances by the presence of leaks in the refrigerant circuit in tunnels and / or chambers **New risk**	
			Exposure to low temperatures encountered in the cold storage and freezing tunnels **New risk**	
		Removal from mould	Entrapment by mobile parts of the block **New risk**	
			Entrapments due to jam. **New risk**	
			Entrapments caused by improper handling of the equipment. **New risk**	

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			Postural problems due to the position of working materials **New risk**	
		Packaging	Exposed to repetitive movements **New risk**	
		Box strip	Entrapments caused by improper handling of the equipment **New risk**	
			Electric risk **New risk**	
			Risk of projection of the strip **New risk**	
		Cleaning: All tasks above exists on fewer than ten freezer trawlers in France – the large majority of the trawlers are fresh fish boats using ice for the conservation of the catch. So, on all of them you find : select, eviscerate, wash and put in the ice in box, or bulks or tubs. Lot of them have a poor mechanization of handling. So you find a lot of manual handling of heavy loads (fish, ice) on trawlers which catch langoustines and stay at sea for 10 to 15 days, they must treat the catch with a specific product to maintain a good appearance to the langoustines	Falling on the same level by tripping and slipping (spills, obstacles to impede the passage of workers) **New risk**	
			Electrical contacts in the use of the pressure washer. **New risk**	
			Exposure and contact with toxic, harmful and irritants in the use of cleaning products such as bleach, detergents, disinfectants, etc. **New risk**	
	STOWAGE	Mechanical stowage in holds	Falls to different levels through the hatch of the hold. **New risk**	
			Falls to different levels to go down the manual staircase to store	

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			boxes in the hold **New risk**	
	UNLOADING	Using trolley from the quayside to cold chamber	Risks inherent in the truck **New risk**	
			Hit and traffic accidents **New risk**	

4. Conclusions Report: PRELIMINARY STUDY OF THE SECTOR ON TRAINING REGARDINGTHE PREVENTION OF LABOUR RISKS TO EUROPEAN LEVEL

- At first (a), this study includes a joint analysis developed with the information of all countries participants about the following topics:

- ☐ Pedagogic methodology implemented in the participating countries.
- ☐ The training contents taught in those countries.
- ☐ And the pedagogic system on the training

To each partner was sent the Annex III and the following questions:

- Is there any mandatory course to be done in work safety to work at the sea?
- What is the name of the courses
- Who is in charge to teach these courses?
- What are the subjects of the courses?
- What is the length and the cost of the courses?
- Who is obliged to take the courses?
- What is the public institution responsible of work safety at the sea?
- Are there different level of courses? (Level 1- level 2- level 3)
- Who can teach these courses?
- Is this course recognized at European or international level?

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- Following (b), it includes the conclusions obtained.

Joint analysis:

Spain

In Spain, training in occupational risk prevention is regulated by Law 31/1995 on the prevention of occupational hazards emanating from the Ministry of Employment and Social Security, a transposed Law of Directive 89/391 / EEC, on the application of measures to promote the improvement of safety and health of workers at work.

Article 19 of Law 31/1995, indicates that the employer must guarantee that each worker receives enough and adequate theoretical and practical training, and it should be specifically focused on the job or function of each worker. In addition, the training may be provided by the company through its own means or by arranging it with third-party services, not assuming any cost to the worker.

On the other hand, Royal Decree 39/1997, which approves the Regulation of prevention services, indicates that in order to carry out basic information and training activities for workers, it will be necessary to have a minimum training with the content specified in the program referred to in Annex V and whose development will last no less than 300 hours, that is to say, hold the title of intermediate level of prevention of occupational hazards.

The aforementioned regulation does not indicate the number of minimum hours of training that the crew member of a ship should receive in terms of risk prevention, indicating exclusively that it should be specifically focused on the job.

In the Spanish fishing sector, training in occupational risk prevention has a duration of 10 teaching hours its name is: *Introduction to Occupational Risk Prevention in the Maritime and Fishing sector*. This training is mainly developed through two training methods: face-to-face and distance learning, as well as a combination of both in some cases.

- Face-to-face training is developed by an accredited technician in occupational risk prevention specialized in the fishing sector. It's developed with traditional mechanisms, both on board and in the classroom, focusing mainly on general and specific risks of the fishing gear in

question and without using specific audiovisual media for lack of this type of resources. Once this course is taughtt, each crew member receives a training certificate.

- Distance training is taught by an accredited technician in occupational risk prevention specialized in the fishing sector, to each crew member. It is done by using a training manual on the prevention of occupational hazards in the fishing sector which includes a questionnaire referring the contents of the manual. Once the crew member approves the questionnaire, he/she receives a training certificate. Later, when the opportunity comes up, a face-to-face training is given to the crew member, since it is considered a more appropriate training for the development of their work on board a fishing vessel.
- Blended learning in a method that combines the two previous modalities, the occupational risk prevention technician establishing the breakdown of classroom and distance hours according to the circumstances of the worker at the moment, such a last minute hiring or an imminent departure of the ship to the sea.

Netherlands (EUROPECHE partner)

In the Netherlads every job with a safety duty on board requires a training on job safety. This training is made in classroom, includind theoretical and practical lessons.

This course has a duration of 50 hours, for which is mandatory to attend at least 41 hours. It is made by an expert trainer in issues of safety at sea, who should be working for a training institute recognized by Dutch authorities to provide this training. The contents include the three main types of safety issues:

- General risks
- Specific risks for positions
- Emergency cases

The topics of the trainings are:

- Training contents for prevention (general risks and specific risk of each workplace):
- Risk prevention on board
- Fire prevention and fire fighting
- Personal survival techniques
- Protection of the marine environment
- Medical first Aid

- Organisation on board and systems management of relations

The pedagogic technologies and support used are both traditional training (written materials) as well as audiovisual tools

Besides this general training, there are safety trainings for specific groups. Examples of these trainings are medical Care, proficiency in survival craft other than fast rescue boats and advanced fire fighting.

Trainers in this sector consider that languages is always an issue in fisheries and it becomes more and more important o provide training in several languages due to the internationalization of the crews.

France

The list of the current "fishing" trainings in France is the following:

- Captain 200 fishing
- Certificate of Fishing Lieutenant
- Fishing boss certificate
- Fishing Master certifcate
- small-scale fishing command suitability certificate
- Seaman's Certificate of Qualification
- Certificate of Maritime Professional Studies in Fishing
- Bac. Professional: Conduct and Management of Maritime Enterprises
- BTSM PGEM
- Fishing installation module
- Professional fishing training course on professional foot

For each of these courses there is a volume of teaching hours dedicated to occupational safety. Most of these hours are integrated into a technical training course and do not constitute a module dedicated to work safety. For example, when manoeuvring fishing gear, knowledge of safety rules is transmitted. It is clear that for a « fishing master's certificate », these rules are very precise as regards the stability of the vessel, flooding by the water of the vessel, coordination of the crew's actions, and respect for the wearing of personal protective equipment. For the lowest qualification (Seaman's Certificate of Qualification), the simplest messages to be conveyed (presentation of risks and

preventive measures, compliance with instructions, wearing of personal procedural equipment). The same is true for all activities: treatment of catches, machine work, landing of fishing... Teachers can therefore use the tools offered by SAFEFISHING to illustrate their messages on occupational safety. As the transmission of knowledge is integrated into the professional training, the courses in training is named after the activity: manoeuvres of fishing gear, treatment of catches...

Teachers of these trainings are usually former fishermen. They are responsible for the technical training during which they pass on the "safety at work" messages. The course repository draws their attention to safety rules. It is up to them to carry out the pedagogical work by searching for the supports adapted to their audience.

Concerning the subjects of the courses, for example, for a sailor's certificate the technical required knowledge is: Description of the vessel, navigation, maneuvering, seamanship, stability, safety, survival, first aid, oceanography, fishing techniques, marine and auxiliary machinery, workshop and professional environment.

For a Bac. *Professional: Conduct and Management of Maritime Enterprises,* the same technological knowledge is required with the following subjects in addition: Ship safety, means of drainage, drôme of rescue, fire-fighting detection equipment, conduct in the event of an emergency, ergonomics and safety at work, statistics on maritime accidents at work, prevention of risks associated with activities common to all types of ships, the sea administration, the ship, the seaman, the maritime commercial law, seafarers' social regime and maritime hazards.

What concerns the length and the cost of the courses, the minimum course to be able to fish as a seaman has a total duration of 300 hours (3 months). In this course, it is possible to know the number of hours reserved for each technological knowledge (maneuvering, treatment of catches...). However, the time spent on safety aspects of work varies from one teacher to another.

Only the modules "Medical education" and "Basic safety certificate" in the stcw-f standard have a formalized and known duration. However, it is not strictly speaking a question of occupational safety, but of procedures to be applied in an emergency situation on a ship (fire, care of an injured person, techniques for surviving at sea, etc.).

For longer courses, such as the three-year "Bac Professional: Conduct and Management of Maritime Enterprises", the duration of courses such as: ergonomics and safety at work; statistics on maritime accidents at work; prevention of risks linked to activities common to all types of ships. Are known. (see www.ucem-nantes.fr under the heading "fishing").

There are different courses depending on the responsibilities exercised on board. So there are different levels of courses.

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Everyone is obliged to take the courses. No person may work on board a fishing vessel without having completed a minimum of hours devoted to work safety. The more the function performed on board the fishing vessel is responsible, the more the number of course hours devoted to occupational safety increases.

In addition, the transcription into French law of the EU-E framework directive on occupational health and safety requires each employer to organize safety training when welcoming a new seafarer. This training covers the specifics of the ship on which the seafarer is going to work in terms of occupational safety.

Responsibility for marine safety training rests with the services of three different ministries:

- The Ministry in charge of transport through its Directorate of Maritime Affairs
- the Ministry of National Education
- the Ministry of Labour.

The courses leading to certificates/certificates (mattresses, mates, mates, skippers, fishing masters), which include occupational safety modules, are provided in state-owned maritime vocational high schools (public training centres). State-approved private training centres can provide safety modules to international stcw-f standards.

All these training courses allowing you to occupy different positions on board a fishing vessel in France (navy, lieutenant, chief engineer, skipper, captain...) are recognised at European and international level.

Italy

In Italy the Decree that regulates job safety at sea is the 271 of 1999. This decree was to be replaced in 2008 by Decree 81 "Consolidated Law on Health and Safety at Work", which, as regards the fishing sector, should have emanated of the implementing decrees. From 2008 to date, these decrees have not yet been emanated and the Decree Law 271 of 1999 remained the only reference for seafarers.

To this decree, is added another Decree of 1999: the Decree 298.

Unfortunately, these two reference Decrees do not specify what the minimum duration is and what the contents of safety training are.

The only boats that have safe training programs with a specified duration are those over **24 meters in length**.

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On the other hand, for boats with **length less than 24 meters**, the decrees merely state that, prior to embarking, the master and/or the shipowner must ensure that the sailors receive adequate training on safety on board. However, the duration of the course and the program to be followed are not specified.

Extract from Decree 271/99

"*The shipowner and the captain have to ensure that each engaged sailor receives adequate information on:*

a) risks for safety and health associated with the sea shipping;

b) measures and protection activities adopted;

c) specific risks to which the worker is exposed in relationship with the activity carried out on board, the safety regulations and the shipowners' provisions on the matter;

(d) the risks associated with the use of dangerous substances and preparations on board;

e) procedures concerning first aid, firefighting, ship abandonment;

f) the person which is responsible of the prevention and protection service on board and the competent doctor."

"*The shipowner and the captain of the ship are obliged to:*

g) provide the workers with the necessary individual safety and protection devices, compliant with current regulations and maintaining them in the best efficiency conditions;

h) inform the workers about the procedures to be implemented in cases of emergency, particularly for the fire on board and the abandonment of the ship;

i) train the workers in the field of hygiene and safety of the workplace on board, setting up specific manuals for an easy consultation;

l) request the observance by workers of hygiene and safety rules and the use of the individual protection devices made available to them.;"

In Decree 271/99 the training that should concern the captain is not specified in any way.

Passing to Decree 298, for workers it is specified that:

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Extract from Decree 271/99

"*Workers training.*

The shipowner must ensure that workers receive appropriate training:

*(a) as regards safety and health on board fishing ships, with particular reference to fire-fighting and the use of life-saving and survival equipment (**Annex 1**);*

*b) as regards first aid and medical assistance on board in accordance with current legislation (**Annex 2**);*

c) in relation to the used equipment and to the traction equipment, as well as to the different methods of signaling, especially of the gestural one."

Regarding the captain formation, it is specified that:

Extract from Decree 298/99

"*Training of the fishing vessel captain.*

The shipowner ensures that the captain receives in-depth training concerning in particular:

a) the prevention of illnesses and accidents at work on board and the measures to be taken in case of accidents;

b) the stability of the ship and the maintenance of the same stability under all foreseeable conditions of loading and during the fishing operations;

c) navigation and radio communications, including procedures."

Prevention and Protection Team

Decree 271/99 also specifies that each vessels of less than 24 meters in length must have a **Prevention and Protection Team**. The team can be create both on board (and the team staff chosen among the crew members), or on the land (in this case the team members can be nominated within the staff belonging to the land shipowning structure). The **Prevention and Protection Team** have a boss, that is the **Prevention and Protection Team Manager** (**PPTM**).

The duties of the team are specified in the Decree 271/99 and concern the management of vessel safety and compliance with the hygiene, health and safety of workers regulations.

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Extract from Decree 271/99

"*The Prevention and Protection Team:*

a) collaborates with the captain and with the ***Prevention and Protection Team Manager*** *on board of the unit, in order to implement the rules on occupational hygiene and safety on board prepared by the shipowner;*

b) reports to the ***Prevention and Protection Team Manager*** *the deficiencies and anomalies found that may compromise the hygiene, health and safety of work on board;*

c) identifies the risk factors related to the work performed on board;

d) identifies, in collaboration with the shipowner, the hygiene and safety measures of the workplace, for the purpose of prevention and protection against the identified risks;

e) examines, together with the ***Prevention and Protection Team Manager****, the injuries that affected workers on board, in order to report all injuries at the land shipowning structure;*

f) informs the crew about the problems concerning the hygiene and safety of work on board;

g) proposes training and information programs for boarded fisherman."

Extract from Decree 271/99:

"*The* ***Prevention and Protection Team Manager*** *must:*

a) sensitize the crew to the application of the directives on occupational hygiene and safety on board;

b) check the application state of the specific provisions on health and safety at work, by carrying out checks on the hygiene and safety of the workplace on board;

c) report to the ship's captain the deficiencies and anomalies found that may compromise the hygiene, health and safety of work on board;

d) evaluating, in agreement with the captain, the type of accidents occurring to the workers on board, in order to identify new measures to prevent accidents."

To perform all these tasks, the **Prevention and Protection Team Manager** (PPTM) have to attend necessarily a course on maritime safety. The Decree, however, does not specify precisely what the course is, who should provide it and what the duration is.

To overcome this gap (gap that had to be filled by the implementing Decrees of the Decree 81/2008) in the Italian fleets, for vessels with length less to 24 meters, the **Prevention and Protection Service**

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Manager must attend a course with a training program (**Annex 3**) similar to the PSSR (Personal Safety and Social Responsibilities), as specified also in **Circular number 09/SM**.

Extract from Circular n. 09/SM

"*With regard to the provision contained in paragraph 5 of the art. 12 of the Decree 271/99, or the possibility of setting up the Prevention and Protection Team not on board but at the land shipowning structure, it is considered appropriate to point out that, in any case, the designated staff must have adequate training and certification according to the provisions of the aforementioned Ministerial Decree of 19 June 2001 "PSSR" and, for fishing vessels with a length of less than 24 m, training with content similar to the provisions of the aforementioned Decree.*"

IMO STCW international courses are mandatory for all fishing vessels over 24 meters in length.

IMO STCW courses

- Basic and advanced firefighting
- Survival and rescue
- Personal security and social responsibilities (PSSR)
- Normal observer radar and automatic data detection radar (A.R.P.A.)
- First Aid certificate released by the Ministry of Health pursuant to Ministerial Decree of 25 August 2007

Annex 1: Program

Duration: 8 hours

Contents:

- Combustion and the principles of combustion
- Combustion of solid, liquid and gaseous substances and their classification of fires
- The trigger sources
- The triangle of fire
- The physical parameters of combustion
- The products of combustion
- The dynamics of fires

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- Extinguishing substances in relation to the type of fire
- Fire prevention
- Specific fire prevention measures
- Behavioral measures to prevent fires
- Control of work environments
- Verifications and maintenance on firefighting devices
- Fire protection
- Passive protection measures
- The active protection measures
- The emergency plan in case of fire
- Personal protective equipment

Annex 2: **Program**

Duration: 8 hours

Contents:

- Notes on the cardiovascular and respiratory system
- General rules on the conduct to be taken in the case of a medical problem:
- The difficulty in breathing, the chest pain, fainting, convulsion.
- Notes on Cardiopulmonary resuscitation
- General rules of conduct to be held in the case of a trauma
- Techniques for collecting and transporting a person after an accident
- Techniques for temporary immobilization of limbs and joints
- Techniques for the control of a hemorrhage
- Burns and other injury from physical agents (cold, electricity, chemicals)
- Ocular lesions
- Theory and exercises on basic airway management and lateral safety position
- Cardiopulmonary resuscitation exercise

Practise:

- Collection and transport of an injured person
- Temporary immobilization of limbs and joints
- Control of a hemorrhage
- Treatment of burns.

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Annex 3

Duration: 50 hours

1 – **Course Contents**

- Training and information on safety and health of workers on board

1.2 – Professional technical contents

- National, international and community legislation
- Community rules and international conventions on the safety and health of workers on board; minimum standards; fields of application (SOLAS Convention, STCW, ..)
- The Legislative Decrees 271/99, 298/99
- Mandatory documentation
- Workers obligations
- New figures: roles and responsibilities, main obligations of the subjects involved

Prevention of risks on board

- Risks present on board related to the production process; damages related to those risks; limits of exposure to polluting factors;
- Evaluation of ongoing and foreseeable short-term changes in the fishing sector; impact on the safety of the working place and on the health of workers; accidents; analysis of critical situations (process anomalies);
- Prevention and protection rules and procedures; analysis of protection tools; correct use and maintenance

Emergency and first aid techniques

- Emergency management
- First aid notes
- Initial examination
- Emergency health communication methods
- First aid intervention techniques
- Immediate control of the vital functions of the injured person
- Cardio-pulmonary breathing

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- Major occupational diseases and stress
- Prevention methods
- Elements of understanding and differentiation between stress, mobbing and burn out;

On-board organization and relationship management systems

- Communications management in different work situations
- On-board documentation
- Information and Training on board
- Communication methods, techniques and tools
- Information sources on health and safety on board
- Methodologies for a correct information on board
- Information tools and materials

1.3 – Types of tests for Final Evaluation

- Simulation
- Colloquium
- Written test
- Other

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Turkey

In Turkey the mandatory course to be done in work safety to work at the sea is called *Safety and Social Responsibility Course*. It's a mandatory course with a length of 40 hours. Whoever who wants to work on Merchant Shipping and Fishing Vessels is obliged to take it.

The subjects of the courses tackle some issues such how to prevent the pollution of the sea with liquid and solid pollutants discharged from the ship and how to take action against the ship's operational and emergency dangers.

The public institution responsible of work safety at the sea is the Ministry of Labour and Social Security of the Republic of Turkey, but the entity responsible to teach these courses is the Undersecretariat of Maritime Affairs, who sets the guidelines of the course.

However, there are other institutions who can teach them, such Special Education Institutions Providing Maritime Vocational Training and Maritime Universities. This course is not recognized at European or international level

CONCLUSIONS ON TRAINING REGARDING THE PREVENTION OF LABOUR RISKS TO EUROPEAN LEVEL:

One of the main features of this sector that affects the organization of the training are the long periods that professionals spend at sea, hampering their teaching in training centers. Luckily, the training contents that are taught in the participating countries are similar, being easy to develop a joint and standardized training content. Thus, audiovisual training will provide an alternative solution to this problem of delivering training as often as necessary for a suitably qualified professional

a) The pedagogic methodology implemented in the countries participants in the project is varied:

- In some countries, training is class-based and external but in others it is only in *classroom*
- Also, in some countries, training is *theoretical and practical* but in others it is only *theoretical*
- The training hours vary greatly between countries. Some countries allow 4 hours for theory and 2 for practice whereas other countries teach 50 hours of theory.

b) The Training contents taught in the participating countries in the project are very similar. All countries teach about the following matters:

- Basic contents about Safety and Health at Work
- Training contents as for prevention (general risks and specific risks of each workplace)
- Risk prevention:
    - ☐ Maritime and fishing activity
    - ☐ On board

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- Emergency techniques and first aid.
- Organisation on board and systems management of relations.
- Maritime safety (fire, man overboard, via water, flood, abandon….)

In addition, these contents, Italy teaches about:

- European, International and National legislation

c) In most countries, the **pedagogic system on the training is traditional** with the use of written contents

Information Source: Annexes: III of each partner

ROADMAP FOR ADAPTATION OF THE PREVENTION PROCEDURES IN EUROPE AND IDENTIFICATION OF NEEDS

As conclusion of the activities 8 and 9 taking as reference the Spanish Preventive Procedures in order to adapt and improve them to the rest of countries to promote the development of a Program of Training Standardized to European level, partnership should:

- ☐ **Adapt the current training contents** of each country (Italian, Turkish, Belgian and French) taking the Spanish training contents as reference.
- ☐ **Improve current training contents** in Spain with the experience transferred by other countries
- ☐ **Develop the methodology of the new activities identified in the Preliminary Study (A.8)** (Spanish, Italian, Turkish, Belgian and French)
- ☐ **Identify the occupational hazards for the new activities identified in the Preliminary Study (A.8)** (Spanish, Italian, Turkish, Belgian and French)
- ☐ **Develop the preventive measures for the new activities identified in the Preliminary Study (A.8)** (Spanish, Italian, Turkish, Belgian and French)

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The **training on prevention** requires a specific format, it is not a common training format, ***training on prevention is developed as measures for prevention addressed to the occupational hazards*** identified in ***each workplace and equipment used*** in the job´s development.

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ROADMAP FOR ADAPTATION OF THE PREVENTION PROCEDURES IN EUROPE AND IDENTIFICATION OF NEEDS

1st: MARE, RTEU, EUROPÊCHE and IMP ***will analyze their specific training contents on prevention of their respective countries and compare them with the Spanish reference***.

For this, MARE, RTEU, EUROPÊCHE and IMP will compare their training contents with the conclusions obtained and included in the PRELIMINARY STUDY OF THE SECTOR ON PREVENTION TO EUROPEAN LEVEL: tasks and occupational hazards *(see 2nd epigraph of this report)*

As result of this comparison, MARE, RTEU, EUROPÊCHE and IMP:

- Will extract the preventive measures of the activities (*) and jobs (**) analyzed which aren´t currently included in their training contents
- Will extract the preventive measures of the activities (*) and jobs (**) analyzed which are included in their training contents currently but with some difference and particularities.

☐ (*) Tasks involved in the following procedures *(see epigraph 2 of this report):*

- *Procedure:* **Equipment**
- *Procedure:* **Navigation to fishery**
- *Procedure:* **Catch**
- *Procedure:* **Processing**
- *Procedure:* **Stowage**
- *Procedure:* **Navigation to port**
- *Procedure:* **Unloading**

☐ (**) Jobs:

- **Cook**
- **Sailor**
- **Engineer**
- **Boatswain**

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- **Deck Crew + Officer**
- **Fishing Ship Master**
- **Coast Ship Master**
- **Captain**

It will be developed in English

2nd: MARE, RTEU, EUROPÊCHE and IMP will ***adapt*** the risks and preventive measures which wouldn´t be in their countries to their current training contents respecting the following structure:

- ☐ Task---occupational hazard---preventive measure
- ☐ Job---occupational hazard---preventive measure

It will be developed in English

3rd: ARVI will review its current training contents and ***improve*** them with the experience transferred by another countries

It will be developed in English

4th: ARVI, MARE, RTEU, EUROPÊCHE and IMP will develop the ***methodology of the new activities*** identified in the preliminary studies (especially IMP due to the newest activities being included by IMP).

For this, is necessary explain for each new activity *(see conclusions epigraph 2 of this report):*

- ☐ Procedure
- ☐ Equipment and trawlers used (images)
- ☐ Particularities to keep in mind
- ☐ Jobs

It will be developed in English

5th: ARVI and SGS will ***identify the occupational hazards for the new activities***. The rest partners will give support to ARVI and SGS checking the risks and taking photos/videos, so giving all information needed.

It will be developed in English

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6th: ARVI and SGS ***will identify the preventive measure*** for the occupational hazards indicated in action 5. The rest partners will give support to ARVI and SGS checking the risks and taking pictures/videos, so giving all information needed.

It will be developed in English

7th: With all information (training contents adapted, new training contents and improved training contents), all partners ***will develop a Program Standardized to European level for the management of the prevention of labour risks in the trawling fishing sector*** with the following structure:

PROGRAM STANDARDIZED TO EUROPEAN LEVEL FOR THE MANAGEMENT OF THE PREVENTION OF LABOURRISKS IN THE TRAWLING FISHING SECTOR			
PROCEDURE	**TASK**	**EQUIPMENTS**	
……	……	Identification: - -	Image:
Occupational Hazard	**Preventive Measure**	**Job** *(Workplace in which is associated this occupational hazard)*	**Specific particularities per country** *(if is applicable)*
Occupational hazard 1: ……	Preventive Measure 1: …… Preventive Measure 2: …… Preventive Measure n: ……		Country:…… Particularity: …… ……
Occupational hazard 2: ……	Preventive Measure 1: …… Preventive Measure 2: ……		Country: …… Particularity: …… ……

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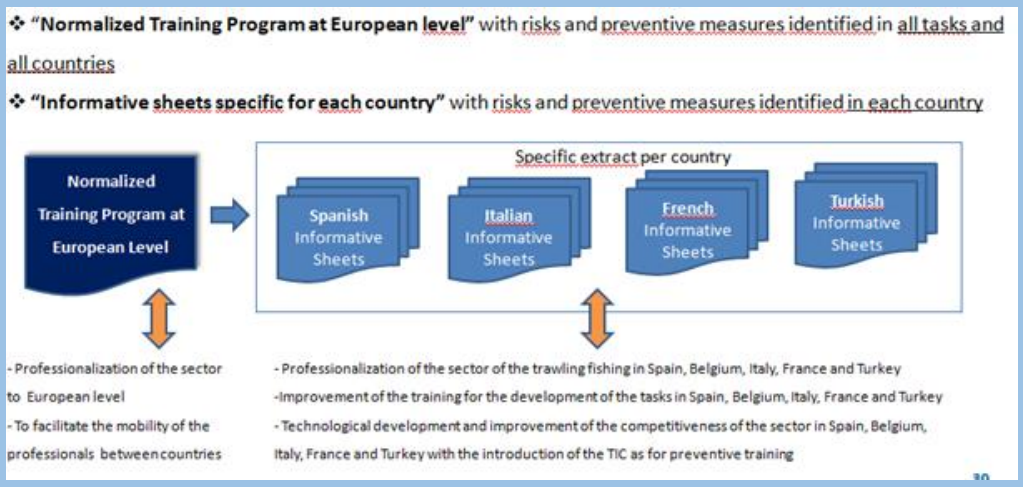
	Preventive Measure n: ……..		
Occupational hazard 3: ……..	Preventive Measure 1: …….. Preventive Measure 2: …….. Preventive Measure n: ……..		Country: ……. Particularity: …….. ……..

It will be developed in English

RTEU will realize the first pedagogic ***review of the Training Program in order to verify if the training Program is in concordance with the activity and target.***

8th: Once the full Training Program is complete, partners ***will develop another materials more specific for each country:***



- ☐ The Standardized Training Program (***) will be the Program developed in the action 8. *It will be developed in English*
- ☐ The Specific Training Program per country (****) will be developed by each partner developing the specific information of each country in Informative Sheets format. *Each Sheet will be developed in the specific language of each country.*

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- ☐ Both, the Standardized Training Program (***) and Specific Training Program (****) will be developed in digital format to include in the DVD in order to be downloaded.

9th: For the Audiovisual Prototype development will be necessary to develop a script for the film. Before this script is developed, all partners will ***select the contents to include in the DVD:***

- ☐ All contents.
- ☐ Part of them and in this case, which criteria to select the contents (risks most dangerous, risk most common…) *It will be developed in English*

10th: Once selected the contents, partnership ***will realize the scripts*** with *the following structure (or another* if is asked by the external provider):

SECTION	TEXT (voice heard during its reproduction)	MEDIA (Images, photo, 3D, sentence or words written)	DESCRIPTION

It will be developed in English

11th: An external company ***will produce the DVD*** with the scripts developed in action 10. ARVI will give support to external company and the rest partners will give support to ARVI with pictures/videos, so giving all information needed

It will be developed in English

12th: SGS and RTEU **will realize the second pedagogic reviewing of the audiovisual in order to verify if the audiovisual has a suitable pedagogical language and use of the ICT.**

13th: ARVI and SGS ***will translate to the content into Spanish, MARE will translate it into Italian, RTEU will translate it into Turkish, EUROPÊCHE and IMP will translate it into French***

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