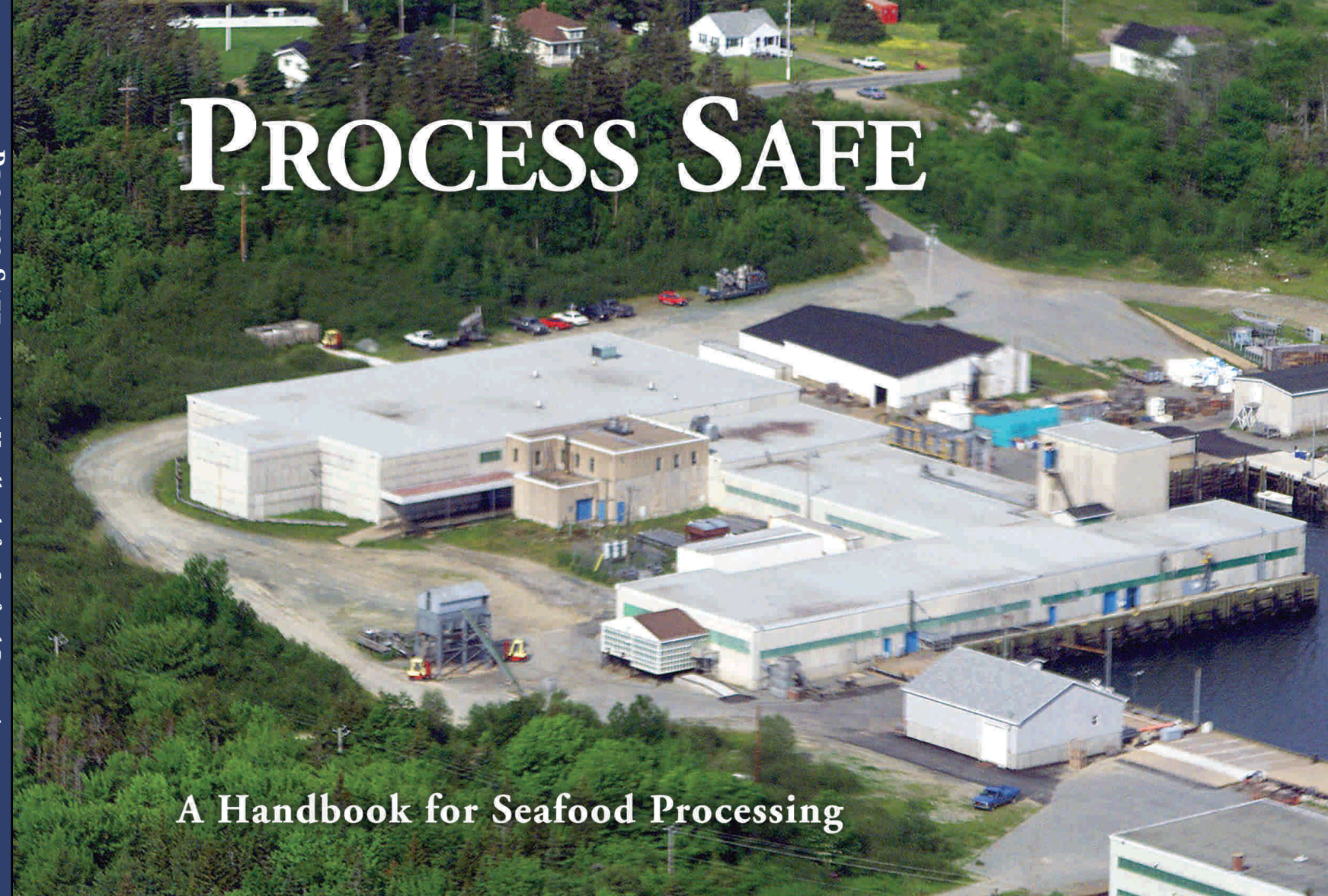


PROCESS SAFE

A Handbook for Seafood Processing

PROCESS SAFE

A Handbook for Seafood Processing





PROCESS SAFE

A Handbook for Seafood Processing

© Nova Scotia Fisheries Sector Council, 2008

We would like to acknowledge the contribution of the following Advisory Committee Members who provided expertise and recommendations in the development of this handbook:

Nathan Blades-
Sable Fish Packers (1988) Limited

Phil LeBlanc-
IMO Foods Ltd.

Mike MacLean, Lionel Enslow-
Clearwater Seafoods Limited Partnership

Steve Muise-
Highliner Foods Inc.

Sergio Greguoldo-
Occupational Health & Safety Division
Nova Scotia Department of Labour & Workforce Development

Lisa Anderson, Jennifer Mosley-
Nova Scotia Fisheries Sector Council

Barb Neis, Angela Drake-
SafetyNet Centre for Occupational Health and Safety Research

Tommy Harper, John Banks-
Workers Compensation Board of Nova Scotia

Financial Contributors:

Nova Scotia Department of Labour & Workforce Development
Public Health Agency of Canada through:
SafetyNet Centre for Occupational Health and Safety Research,
Memorial University of Newfoundland.

The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the Public Health Agency of Canada.

Consultants:

Peter Norsworthy -
Pisces Consulting Limited

Paul Fahie -
PCF Consulting

Gary O'Connell -
Gary O'Connell Creative Design & Illustration

Special thanks to those seafood processors from across the province who invited our researchers into their processing facilities to collect data for this project. Your wisdom and hospitality are greatly appreciated.

Table of Contents

Introduction	1
Terms Used	2
Know the Risks, Share the Responsibility	2
Common Injuries	3
Hazard Identification and Control	4
Section 1: Workplace Safety	5
Process of Prevention	6
Safety Checklist	7
Safety Committee	8
Safety Committee Meeting	9
Emergency Planning	10
Plant Signs	11
Personal Protective Equipment (PPE)	12
Protect Yourself from Job Hazards	13
Understand the Hazards	13
Forklift Safety	14
Fall Protection	15
Equipment Maintenance	16
Hazardous Materials	17

Section 2: General Safety	19
General Safety	20
Unloading Safety	21
Climbing on Vessels	21
Working on Decks	22
Using Hoists	22
Wharf Safety	25
Receiving and Storage	28
Unloading Fish at the Plant	28
Transporting Product into the Plant	29
Lifting and Carrying Containers	31
Storage in Coolers and Freezers	33
Dry Storage	36
Processing	38
Physical Hazards	38
Plant Maintenance and Repairs	43
Equipment Maintenance and Repairs	45
Cleaning the Plant	48
General Safety on the Processing Line	49
Loading Fish onto Processing Line	53
Packaging and Labeling	54
Chilling and Freezing	55
Palletizing the Product	57
Storage, Cold Storage and Shipping	59

Section 3: Processing Safety	65
Processing Safety	66
Groundfish - Fresh and Frozen	67
Salt Fish	70
Pelagics - Herring, Mackerel, Capelin	73
Canned	75
Value-added	77
Shellfish	80
For More Information	86

Introduction

Nova Scotia has a long, rich history in the fishery. We have an ocean coastline of more than 6,500 km and nowhere in our province can you get more than 60 km from salt water.

The seafood processing sector is an essential part of the fishery in Nova Scotia. Our processing plant workers have a long and distinguished history, but their history has also had many tragedies through workplace injuries.

Up to 5,000 Nova Scotians work in seafood processing plants. We all depend on our experience, equipment, and each other to stay safe. We depend on safety procedures and response planning when we get in trouble.

This handbook is about staying out of trouble when we can and being prepared for trouble when it comes, despite our best prevention efforts.

**Please use this handbook,
and WORK SAFELY.**

Recent information indicates that workplace injuries in the seafood processing sector have declined. But with almost 10% of workers getting injured in some way each year, there is still room to improve.

N.S. Workplace Injuries (number of occurrences)



Terms Used

Words used in this handbook.

Many different terms in the seafood processing industry mean similar things. For the purpose of this handbook, the following terms will be used; alternate terms are provided.

CSA - Canadian Standards Association

Fish - Shellfish, groundfish or pelagics

Hoist - Derrick, boom, or crane

Manager - Supervisor, lead-hand

MSDS - Materials safety data sheets

OH&S - Occupational health and safety

Plant - Processing plant

PPE - Personal protection equipment

Shellfish - Crab, lobster, scallop or shrimp

Vessel - Boat or ship

Wharf - Quay, pier, jetty, landing or dock

WHMIS - Workplace hazardous materials information system

Know the Risks, Share the Responsibility

Each year hundreds of Nova Scotians are injured while working in the seafood processing industry. This sector has one of the highest rated incident/injury rates of all industry sectors in the province. Many of these incidents could be prevented with proper training and equipment.

Improving our safety record is a shared responsibility. All companies and individuals in the sector share the cost of incidents and injuries. Working together to improve our safety record will be a benefit to everyone.

By following some simple procedures, using equipment properly and being more aware of hazards, we can prevent many more injuries and deaths.

Common Injuries

The most common injuries and their causes in the seafood processing sector are as follows:

- **Lifting injuries** - improper lifting, lifting heavy items and lifting above shoulder height.
- **Slips, trips and falls** - slippery floors, improper footwear and not wearing fall restraint gear.
- **Shoulder injuries** - lifting above shoulder height and improper lifting.
- **Sprains and strains** - improper lifting, improper footwear, slips and falls, repetitive motions.
- **Finger injuries** - cuts from knives and pinch points.

The sources of many of these injuries are knives, metal items, floors and stairs, particles, machines and pallets.

The parts of the body which are injured most frequently include:

- Back
- Fingers
- Shoulders
- Multiple regions
- Arms
- Wrists
- Foot and ankle
- Hands
- Knee

When employers and employees are aware of the most common injuries and their causes, they can work together to develop plans to prevent these injuries.

Hazard Identification and Control

In order to reduce injuries, hazards to workers must be identified, the risk of these hazards causing injury must be reduced, and workers must be made aware of hazards. There are numerous potential hazards in the workplace, which include:

- **Safety hazards** - machines and equipment such as forklifts, conveyors, conveyor belts and facilities such as cold storages.
- **Ergonomic hazards** - poorly designed workspaces, transport equipment or tools.
- **Physical hazards** - heat, cold, humidity, noise, or vibration.
- **Chemical hazards** - cleaners, ammonia, freon and fish toxins.
- **Biological hazards** - diseases carried and transferred by humans, insects and animals.
- **Stress** - production deadlines, verbal or physical threats.

Hazard control is the process of reducing the likelihood of injury, illness, disease, and property damage in the workplace. It also requires having in place a means of measuring the success of those controls. The methods of identifying and controlling hazards in the workplace normally include:

- Establishing a safety committee.
- Keeping safety committee meeting minutes, developing action items with timelines and identifying people responsible.
- Training all personnel in safety procedures for their specific job.
- Developing and practicing an evacuation plan for fire and chemical hazards.
- Ensuring all workers use appropriate personal protection equipment.
- Posting warning signs in all risk areas and on equipment.

Section 1: Workplace Safety



Process of Prevention

There are three ways of preventing incidents from occurring. These are:

Primary - The best way to ensure worker safety is to build safety into the plant, equipment and process flow design. This may include:

- Ensuring plant design includes adequate alarms, fire extinguishing equipment, and evacuation routes.
- Ensuring equipment setup protects workers from potential hazards. Installing guards over screw conveyors, posting signs which warn of danger and having easily accessible shutoff switches are some ways of reducing hazards.
- Ensuring process layout design provides adequate floor space around work areas for transport of materials and movement of workers. Also, workstations should be designed to reduce the need for lifting, reaching, twisting and moving products.

Secondary - Identifying and resolving possible hazards. This requires effective policy and procedures, communication and reporting.

- Workers must notify managers when a hazard is identified.
- Safety inspections must be completed regularly to verify that the systems in place are effective.
- Safety committees must review inspection findings and worker complaints, and recommend actions to management.
- Managers must act on recommendations from the committee.

Tertiary - This provides effective management of known risks. For example, it ensures workers in certain areas have personal protection equipment to reduce their risk of injury.

Safety Checklist

Completing inspection checklists provides a number of benefits to both the employee and employer:

- **Identifies hazards** - Regularly inspecting each department identifies unsafe conditions that can be corrected before they cause injury or harm.
- **Reveals unsafe practices** - Completing an inspection identifies whether or not safety procedures are being followed.
- **Provides records** - Providing records so that the inspector can ensure all unsafe conditions have been addressed.
- **Provides feedback** - Completing checklists provides feedback to the safety committee, workers and the employer.
- **Provides preventative measures** - Supporting organized ways for all workers to participate in incident prevention.

Safety Inspection Checklist

Department: *PACKAGING STORAGE*

Date: *JANUARY 1, 2008*

Satisfactory (✓)

Unsatisfactory (X)

Fire Protection

Extinguishing equipment	✓
Hoses, sprinklers and valves	✓
Exits, stairs and signs	✓
Storage of flammable material	✓

Housekeeping

Aisles, stairs and floors	✓
Storage and piling of materials	X
Light and ventilation	✓

Personal Protection Equipment

Goggle or face shields	✓
Proper footwear	✓
Gloves	✓

Inspected by: *[Signature]*

Safety Committee

In Nova Scotia, a safety committee is required if there are 20 or more people employed at the workplace.

The committee size is determined by the employer but half the committee members must be non-management employees. The employee representatives are to be selected by the employees. People selected for the committee should have a commitment to health and safety, good communication skills, experience in the workplace and some health and safety training.

The committee should meet at least once a month. The committee or member activities should include:

- Exchanging information regarding health and safety concerns.
- Providing recommendations to the employer regarding safety issues in the workplace.
- Determining inspection report frequency and content.
- Reviewing inspection reports.

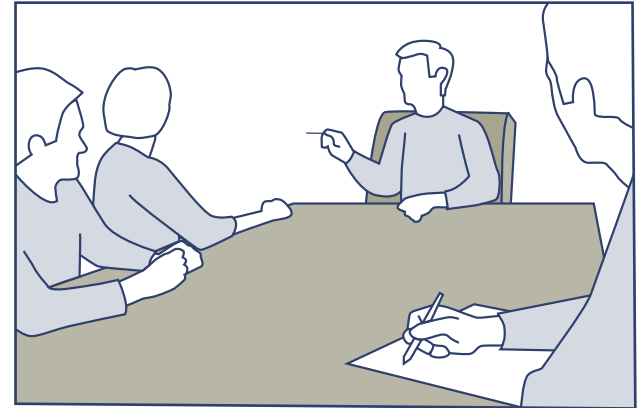
- Reviewing incidents and investigations.
- Reviewing reports related to occupational health and safety.
- Monitoring training program attendance required by regulation, or necessary to carry out functions as a committee.
- Developing meeting agendas; recording and publishing meeting minutes.
- Prioritizing hazards into categories including:
 - A - **Critical:** severe injury, illness or property damage.
 - B - **Moderate:** non-serious injury, minor illness or property damage.
 - C - **Low:** minor injury.

	Severity of Hazard		
	Critical	Moderate	Low
Probability of Occurrence	Death, permanent disability, limb loss	Serious injury or illness, temporary disability	Cuts, soft tissue injuries, sprains
Likely to occur	Truck accident	Refrigeration leak	Filleting, trimming
Possibly occur	Limb loss in machine. Fire in plant.	Plate freezer injury	Packing, freezers
Unlikely to occur	Locked in freezer	Forklift collision	Packaging preparation

Safety Committee Meeting

Recommended ground rules for meetings are:

- Review agenda previous to meeting.
- Review previous meeting minutes and any related reports referenced in the agenda.
- Post meeting minutes in the workplace.
- Be prompt and regular in attendance.
- Participate in all discussions.
- Give freely of your personal experience.
- Listen attentively, and take accurate notes.
- Appreciate the views of others.
- Provide constructive feedback.
- Receive feedback willingly.
- Stick to the topic of discussion.



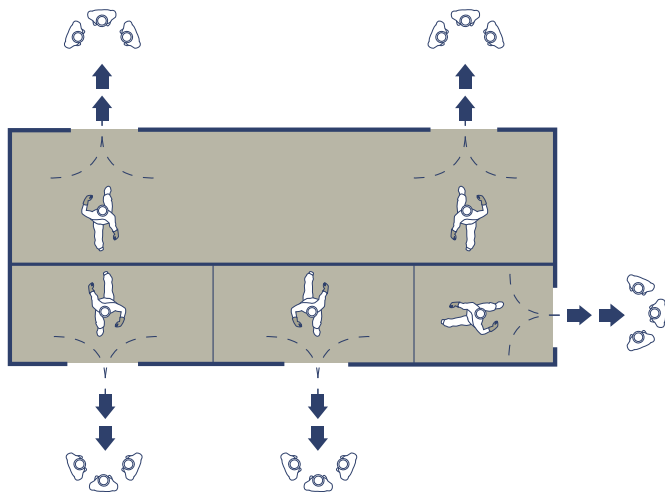
Sample Safety Committee Meeting Agenda:

1. Determination of quorum.
2. Approval of minutes from last meeting.
3. Outstanding items from previous minutes.
4. Health and safety complaints.
5. Review of incidents.
6. Update on health and safety training.
7. Input on design of new processing line and recommendations to management.
8. New business.
9. Date and time of next meeting.
10. Adjournment.

Emergency Planning

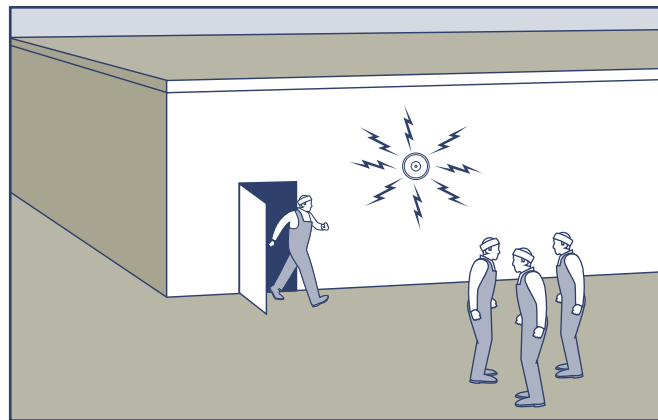
Evacuation Plan

Each plant should have an evacuation plan in case of a fire, chemical spill or refrigerant leak. All workers must know and practice the evacuation plan. The evacuation plan should be posted in each processing area so that workers know which exit(s) should be used.



Muster Stations

During evacuation safety drills, workers leaving each exit should go to a designated muster area. This permits assigned safety officers to quickly complete a count and determine if anyone is remaining in the plant.



All evacuation exits should be clearly marked and visible to all workers in the processing area.

**FIRE
EVACUATION
ROUTE**

Plant Signs

Plants should use signs to both inform and remind workers about safe work practices.

Information signs should be posted in common areas of the plant where workers gather, such as lunchrooms or locker rooms. These signs include:

- Occupational Health & Safety Division contact information.
- Names and contact numbers for all members of the plant safety committee.

Signs specific to certain work areas should be posted at all worker entrances to that process area; for example, “Personal protection equipment required beyond this point.”

Equipment specific signs, such as warning signs or lock-out procedures should be placed on the equipment and be visible from where workers are located.

All chemical and pressurized lines in the plant such as ammonia, freon or gas should be identified. Direction of flow should be indicated, and shutoff valves should be clearly visible.

Other signs such as first aid station, eye wash station, decontamination showers and the location of personal protective equipment should be clearly visible from processing areas.



Personal Protective Equipment (PPE)

Foot Protection

Footwear should be selected according to the job hazard. High cut boots offer superior ankle support, and thick soles offer insulation from cold and more support to the lower legs. If there is risk of punctures or impact then steel soles and toes are recommended.



Hand Protection

Finger and hand injuries are very common in plants and protective gloves are worn in most jobs. Rubber and cotton gloves insulate from cold and heat, thick rubber gloves provide improved grip, and steel mesh gloves protect from cuts.



The most suitable glove that protects from temperature extremes and risk of injury should be selected for the job.

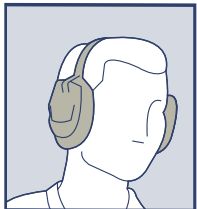
Head Protection

Hard hats or bump hats are designed to protect from bumps, falling objects, harmful substances and contact with energized objects. A hard hat should be bright in colour so it is visible. It should also be inspected frequently for cracks or excessive wear.



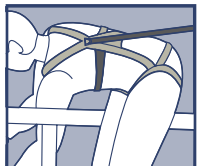
Hearing Protection

Hearing protection is required when sound exceeds 85 decibels; however, a rule of thumb is that if you cannot carry on a conversation hearing protection should be used. Ear plugs are adequate for low noise levels and earmuffs are more suitable for noisier work areas.



Fall Protection

An anchored fall restraint with a shock absorber should be used when working over anything that could cause injury or when more than 3 metres above a safe surface.



Protect Yourself from Job Hazards

Following proper procedures and staying focused and alert helps to ensure a safe environment. Whether you are on a wharf, boarding a vessel, or in the plant, working conditions can be safe if everyone involved in the operation is committed to safe working practices.

Understand the Hazards

Some of the common serious job hazards in seafood processing plants include **forklift hazards**, **risk of falling**, **equipment maintenance injury** and **hazardous materials**.

These serious hazards pose grave physical risk, and can result in death if proper procedures are not followed.

More common but less physically serious hazards are slips, falls, strains, sprains, and cuts.

Wearing proper protective equipment, being well trained for the job you are performing, and being careful with everything you do in the workplace all reduce the opportunity for injuries to occur.



**HARD HAT
AREA**



CAUTION
**HEARING
PROTECTION
REQUIRED**



CAUTION
**WATCH FOR
WORK VEHICLES**



Forklift Safety

All forklifts should be inspected regularly, records maintained, and all necessary certifications for both the equipment and the operator must remain current.

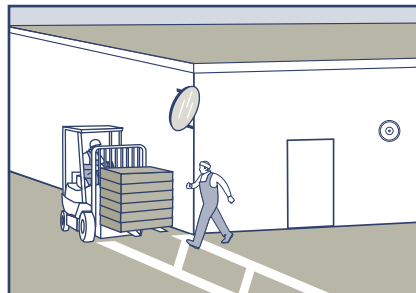
Forklifts should be equipped with strobe lights on the rear.

Internal combustion (gas/propane) forklifts are not permitted to operate in areas where combustible gases or dust may be present, or in enclosed structures unless adequate ventilation for gases exists.

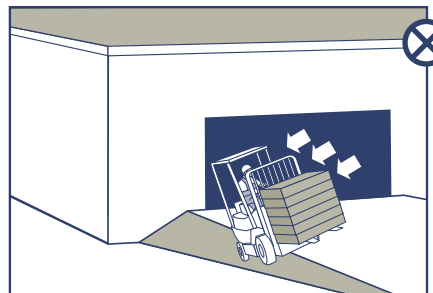
Forklifts should have designated alleyways with a width of maximum load plus 600mm for a one-way aisle, and 900mm clearance for a two way aisle.

All workers should be aware of designated forklift aisles and check carefully before crossing an aisle, to avoid collisions.

Painting aisles, marking designated crossing areas, and installing mirrors at intersections will help reduce the possibility of collisions.



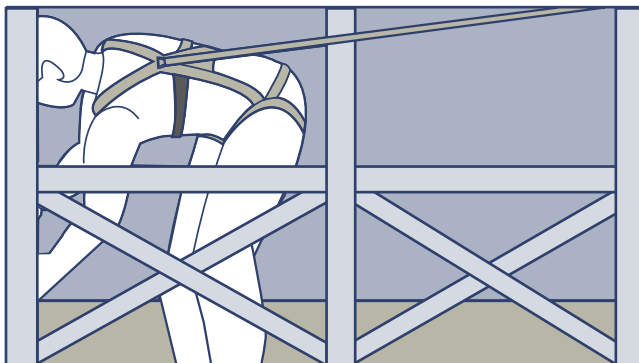
Forklift drivers must remain aware of potential hazards such as slopes, wharf edges and obstructions. Protective guardrails should be erected where forklift upsets and collisions with fixed equipment or piping may occur.



Fall Protection

Workers require a fall arrest system when exposed to a fall hazard. Fall hazards are present when working;

- 3 meters or more above a safe surface.
- Above a surface or thing that could cause injury upon contact.
- Above an open pit, vat or tank containing hazardous materials.



There are three components to a fall arrest system:

- **Anchor point** - The anchor point should be able to support 4,000 pounds or more. Ideally an anchor point is located above the shoulder of the worker.
- **Lanyard** - A CSA approved lanyard which will prevent a free fall greater than 4' and is attached to an anchor point. Lanyards longer than 4' are permitted if a shock absorber is used.
- **Harness** - A CSA approved full body harness that is adjustable to fit the worker. This harness consists of leg and shoulder straps and an upper back suspension unit which will distribute and reduce the impact force of any fall.

Equipment Maintenance

Many injuries occur when cleaning, maintaining and repairing processing equipment. These injuries are caused by a number of hazards including tool slippage, contact with sharp parts, being injured when equipment is turned on, and exposure to energy.

Lockout procedures should always be used to protect workers from hazardous energy during regular servicing or maintenance of equipment.

Whenever completing equipment maintenance proper eye, hand and foot protection devices should be used. Using rubber gripped tools will reduce the opportunity for the tool to slip while in use.

Energy hazards which may be encountered include power, steam, hydraulics, pneumatic, gravity, and any other item or substance that may be under pressure. Chemical hazards such as cleaning agents, cooking oils or refrigerated liquids also pose hazards.

Recommended Lockout Procedures

All cleanup and maintenance personnel should be trained in lockout procedures for all equipment they may encounter. Also, plant workers should know what a lockout procedure involves. A lockout procedure is comprised of the following steps:

1. Stop all energy flows by turning off power supplies, valves and supply lines.
2. Place locking mechanisms on switches and valves.
3. Secure the machine in a de-energized state. This may require blocking the machine or draining lines.
4. Place signs or tags on switches and valves indicating they are currently locked out.
5. Test to ensure equipment is de-energized prior to commencing cleanup, repair or maintenance.
6. Before restarting equipment ensure that all guards are in place.
7. Remove all lockout devices and check to ensure all workers are away from the equipment before re- starting.

Hazardous Materials

There are six classes of controlled hazardous products categorized under WHMIS. All workers who use or come in contact with these products should be WHMIS certified.

Class A: Compressed Gases

- Heat - explosion.
- Rupture - rocket.



Class B: Combustible and Flammable

- Flame - ignite or explode.
- Water - combustible upon contact.



Class C: Oxidizing

- Heat - may cause combustion.
- Flame/friction - may cause combustion.



Class D: Poisonous & Infectious

Immediate and Serious

- Gas, vapour - nausea, dizziness or death.
- Skin contact - burning, nerve gas.
- Swallowing - nausea, vomiting, or death.
- Eye contact - irritation, burning, blindness.



Materials Causing Other Toxic Effects

- Repeated exposure - chronic affects which may include allergies, skin or lung irritation, or cancer.



Bio-hazardous Infectious Material

- Skin contact - irritation, infection or disease.



Class E: Corrosive Material

- Skin or eye contact - severe irritation or tissue damage.
- Inhalation - lung irritation or damage.



Class F: Dangerously Reactive Material

- Mixing - release of gas or combustion.
- Water contact - release of gas or combustion.
- Heat/flame/friction - combustion.



Section 2: General Safety



General Safety

There are many hazards and dangers associated with the preparation of seafood products. From the time that the raw materials arrive at the processing facility, either by vessels or by carriers, the products must be transported and handled in a quick manner to prevent spoilage. All of these activities require workers to use specialized equipment in an environment that can pose potential dangers.

From the time the fish arrives at the wharf or the plant door, it must be rapidly placed into controlled storage. From storage to processing to final shipment, the fish are handled, transformed to the final state, packaged and labeled pending shipment to customers. Workers must perform repetitive tasks using specialized equipment to complete these activities. Potential dangers and hazards require workers to be constantly aware of their duties and surroundings.

Although there are numerous categories of processing, many of the hazards are common to all fish processing operations. There are operating practices that protect both the employees and the product. These are included in the plant sanitation programs and worker hygiene programs.

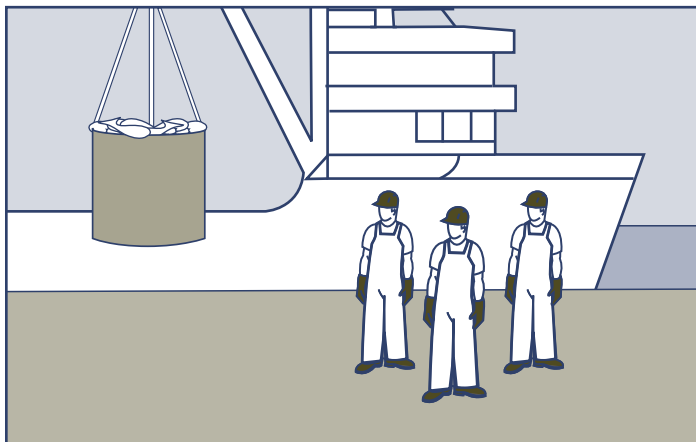
The role of workers is to perform their duties following company policies and procedures and, most importantly, to carry out their duties in a safe manner. A few common practices that all employees can follow to assist in maintaining a safe workplace are:

- Know your job and the dangers that are associated with tasks you perform.
- Report all instances of unsafe practices or work conditions.
- Follow established company procedures.
- Be alert to the dangers or safety hazards of your job.

All workers must remain attentive while in the workplace in order to reduce the chance of causing injury to themselves or co-workers.

Unloading Safety

Unloading fish from vessels or trucks presents a number of hazards that can be prevented. Following safety practices, knowing how to use equipment, and being aware of hazards all help reduce safety risks.



Climbing on Vessels

Vessels and wharves vary in size and design. There are some basic rules to follow when boarding a vessel.

Always look where you are putting your hands and feet. Watch for and report uneven docks, rotten boards, and protruding hooks and nails. Wear boots or shoes with good traction to avoid slipping.



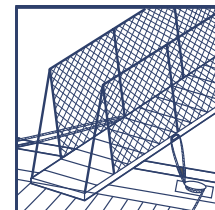
Make sure the ladders and gangways used to board the vessel are in good repair and free of ice, snow and debris. Make sure gangways and ladders are not missing boards or rungs.



Maintain a three point contact when boarding.



Install safety netting below gangways.



Secure gangways to both the vessel and the dock.

Working on Decks

A rocking vessel deck can pose a number of hazards that can result in slipping and falling.

The following precautions can reduce the occurrence of injuries:

- Keep the deck clear of unnecessary equipment and debris to prevent slipping and falling.
- Be aware of open hatches and loose decking.
- Install guards around open hatches.

Using Hoists

Hoists lift heavy things such as equipment from the vessel and fish tubs. Always stand clear when a hoist is in operation. Hoists are dangerous to be around because:

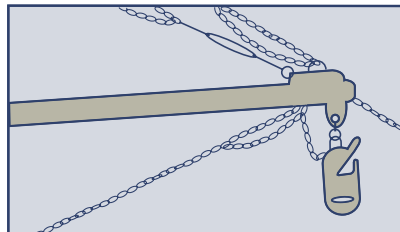
- Heavy loads may be suspended over people's heads.
- Chains, blocks, and other gear are suspended over people's heads.
- Heavy objects are in motion above workers.

Before starting to unload a vessel ensure that:

- Only authorized people required to help unload are present.
- A visual check of the unloading system, including ropes, blocks, chains and so forth has been done.
- Those present have protective equipment including a hard hat and foot protection.



- Power blocks are secured with a safety chain to limit boom swing and ensure the load cannot go past the area targeted.



Hazard**Load hitting a person.****Danger**

Head Injuries; knocking person down or overboard.

Precaution

Inspect hoist regularly.

Precaution

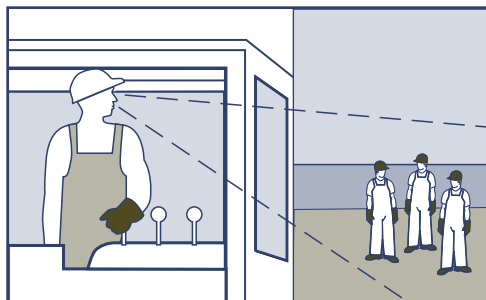
Use a spotter where visibility may be impaired.

Precaution

Check to see if the area is clear of people other than those required to unload.

Precaution

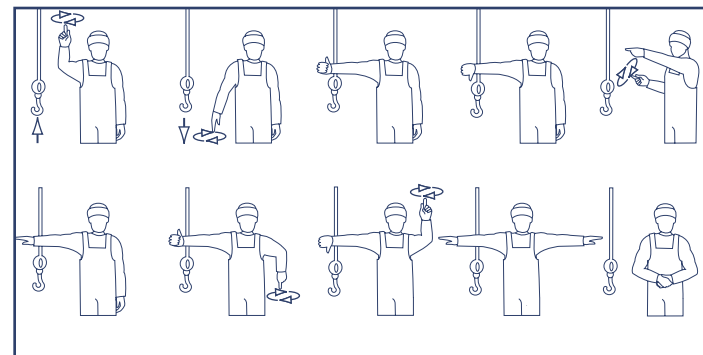
Ensure the emergency shutoff device is within easy reach of the hoist operator.

**Precaution**

Only operate a hoisting system if you are trained to do so.

**Precaution**

Train the hoist operator and the loading crew in communication systems or signals.



Hazard**Load falling.****Danger**

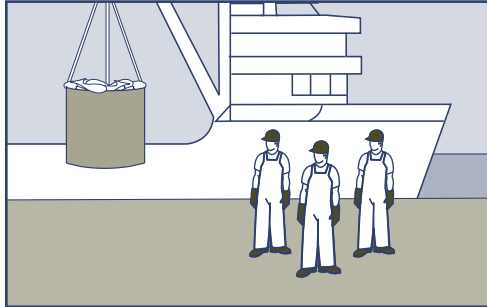
Physical injury.

Precaution

Stand clear while the hoist is in operation.

Precaution

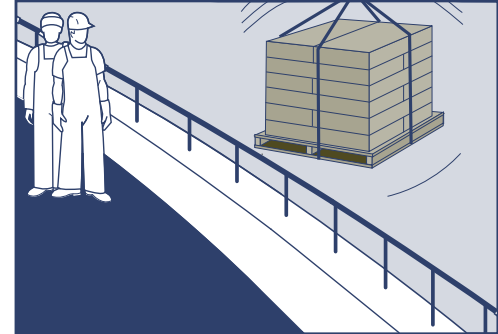
Wear a hardhat and foot protection.

**Precaution**

Keep the operator informed of what is happening on the deck and the wharf.

Precaution

Check that the load is secured and the equipment is in good repair before lifting. Properly maintained and operated equipment ensures control of the load.



Wharf Safety

When working on or around wharves, workers must be aware of their own activities and the activities of others. The wharf can be busy with forklift and vehicle traffic all operating in the same limited space. Signs should be posted identifying the need for awareness due to forklift and truck traffic.

The most common injuries on wharves are caused by vehicles colliding with workers, workers falling on slippery or cluttered surfaces, and workers being struck by moving tubs/buckets or falling boxes.

Hazard

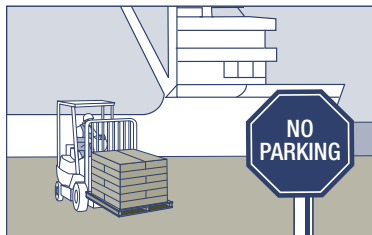
Vehicle traffic.

Danger

Physical injury or death.

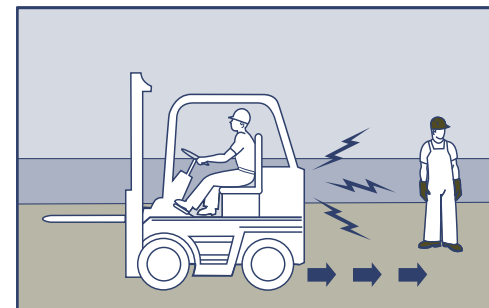
Precaution

Use designated parking spaces away from wharf area to reduce traffic flow on the wharf.



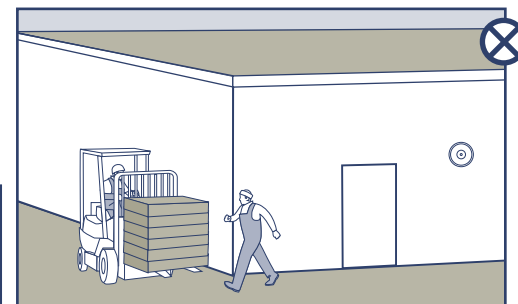
Precaution

Use backup alarms on forklift and trucks to warn of moving vehicles.



Precaution

Be aware of forklift and truck routes and check carefully before entering the wharf area, to avoid collisions.



Hazard

Slippery or cluttered wharfs.

Danger

Falling under equipment, falling in water, physical injury.

Precaution

Wear good boots with good treads to prevent slipping.



Precaution

Keep the wharf area clear of debris and unused equipment. Routine maintenance and cleanup of the wharf makes for a safe work area.



Hazard

Slipping, sliding or physical strain.

Danger

Sustaining a lower back injury or dropping objects on your foot.

Precaution

Use proper lifting techniques. See chart below.

Safe Lifting Tips

- Get as close to the object as possible before lifting
- Clear all obstacles then slide the object towards you
- Avoid twisting
- Get help carrying or pulling heavy or awkward objects
- Place heavy objects on surfaces that are knee high to avoid lifting from the floor or forklift to the processing lines
- Stack or lift heavy objects no higher than shoulder level, when possible

Precaution Wear foot protection that has a good grip to prevent slipping.

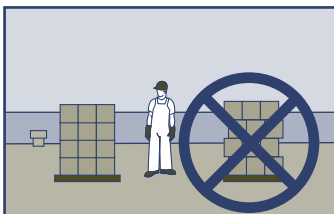
Precaution Clean the work areas regularly and immediately after spills.



Hazard **Improperly stacked totes or wharf boxes.**

Danger Physical injuries.

Precaution When stacking totes and wharf boxes make sure they are securely stacked to prevent falling over.



Hazard **Working in slippery conditions.**

Danger Slipping on surfaces.

Precaution Be aware of weather conditions, fish slime, and activities on the wharf.

Precaution Keep area clear of ice, snow and fish offal.

Precaution Wear proper footwear.



Receiving and Storage

Fish arrives at the processing plants either from the vessels or by truck. Once the cargo arrives, fish must be stored in a chill room quickly to prevent spoilage. The workhorse for the unloading, storage and transportation activities in the plant is the forklift. Forklift use presents dangers of which all workers need to be aware.

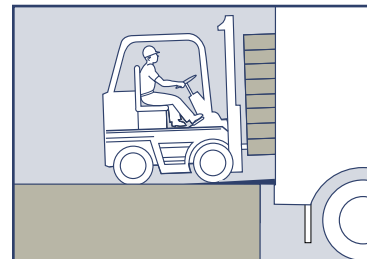
Unloading Fish at the Plant

Dangers associated with unloading cargo from trailers:

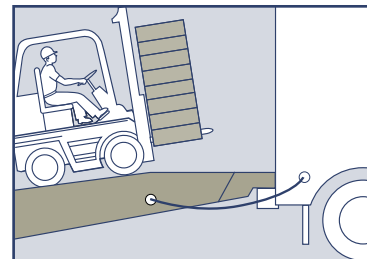
- Forklift toppling over
- Forklift sliding off of loading ramp
- Pinning people between load and trailer
- Falling off equipment
- Back injuries from lifting boxes onto pallets
- Forklift collisions when transferring products
- Inhaling diesel fumes from trucks
- Trailer or loading ramp moving

Precautions to take when unloading cargo from trailers:

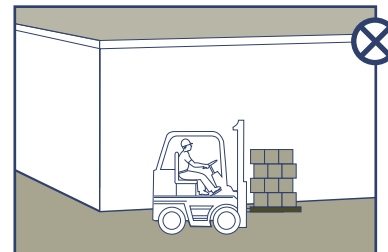
Check that the transport trailer is parked tight to loading doors before driving a forklift into the trailer. Place chocks in front of rear tires.



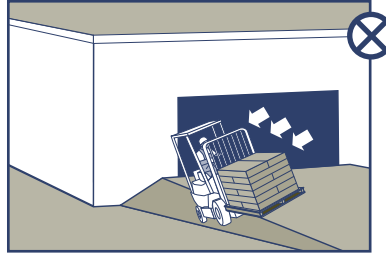
Ensure ramps are secured to trailers before use.



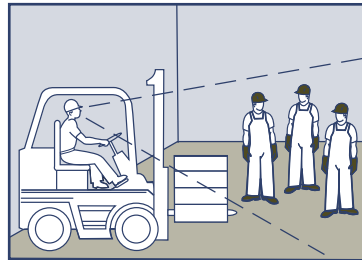
Make sure the load is even and securely placed on the forklift.



Drive carefully on sloped roadways, and install guardrails where there is risk of the forklift toppling over.



Check for the location of co-workers when loading or unloading cargo.



Never stand or step on forks of a forklift while it is moving.



Transporting Product into the Plant

Many collisions between workers and forklifts occur when workers or drivers are not paying attention. When moving a load to areas where people are working, drivers must proceed slowly and carefully and workers must be alert to the activities around them.

Hazard

Forklift colliding with workers when transporting product.

Danger

Physical injuries; death.

Precaution

Check any mirrors for oncoming traffic.

Precaution

Stop and sound forklift horn before entering doorways and blind spots.



Hazard Not being able to see potential safety hazards due to low lighting.

Danger Physical injuries from tripping over clutter, bumping into machines or equipment.

Precaution Check that all lights are functioning and are able to light the work area well.

Precaution Replace burnt out lights before commencing work.

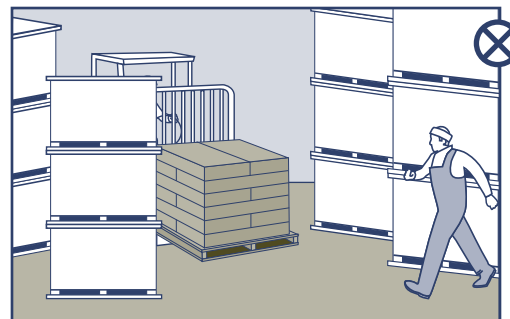
Precaution Remove clutter and unnecessary materials and equipment from the work area.

Precaution Use rear forklift lights if available.

Hazard Forklifts running into workers or equipment.

Danger Serious physical injuries.

Precaution Be aware of other people's activities and equipment when working in close quarters.



Precaution Stop and sound horn before entering doorways and blind spots.

Precaution Place mirrors at blind intersections.

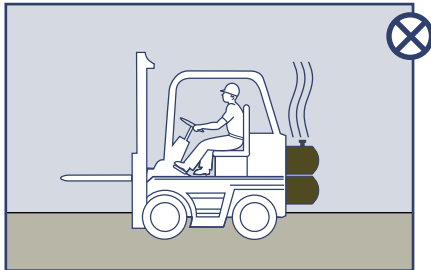
Precaution Check doorways before walking or driving through. When walking through doorways, walk to the side of the entrance, not the center.



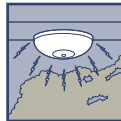
Hazard Emissions from equipment or forklifts.

Danger Choking or lung damage from toxic gas vapours.

Precaution Adequately ventilate all work areas, especially if propane is in use. Routinely check all tanks and lines for leakage.



Precaution Place detection gauges in high risk areas.



Precaution Post signs of chemical dangers.



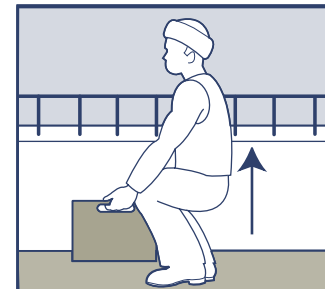
Lifting and Carrying Containers

Most seafood processing operations are very labour-intensive. Raw materials - fish, packaging materials, cleaning supplies - when received must be sorted, moved and stored. Lifting and carrying of containers is a common activity in all areas of the operation.

Hazard Physical strain.

Danger Back strains and pulled muscles.

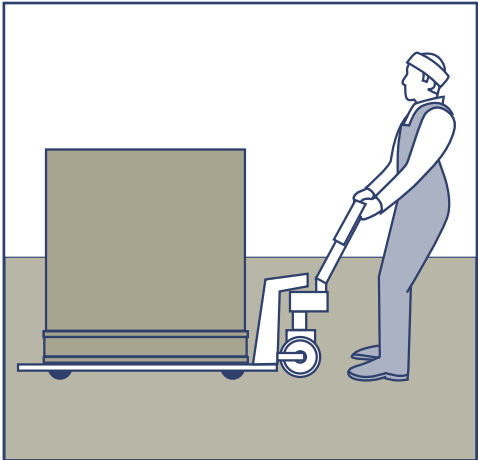
Precaution Use proper procedures when lifting objects. (See Safe Lifting Tips, pg. 26)



Precaution Lift only what you are capable of lifting.

Precaution

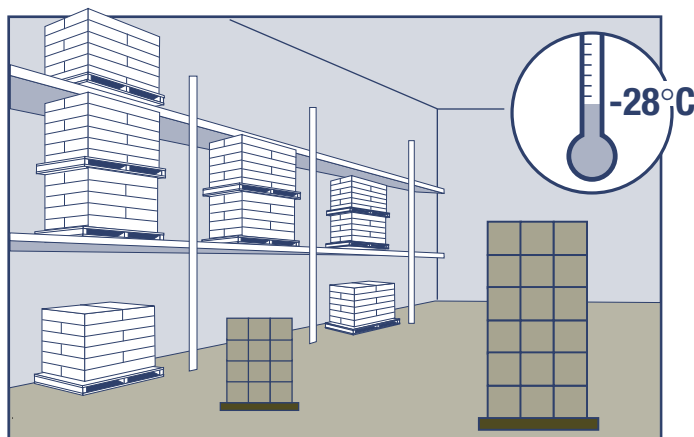
Use equipment such as pallet jacks to move heavy containers.



Hazard	Catching hands or clothing when loading boxes or containers onto or near moving belts and equipment.
Danger	Injuries to hands and arms.
Precaution	Ensure machines are properly guarded.
Precaution	Report any missing guards.
Precaution	Keep focused on the work you are doing. Inattentiveness can result in work errors and incidents.
Precaution	Do not wear loose fitting clothing.
Precaution	Use mechanically assisted lifting aids.

Storage in Coolers and Freezers

The activities in refrigerated rooms are usually limited to forklift operation and a few workers handling containers. The most common injuries are from slipping on wet or ice covered floors and from being struck by falling boxes or containers. The colder temperatures necessitate use of protective clothing.



Hazard

Slipping and falling on slippery floors.

Danger

Back, head and leg injuries.

Precaution

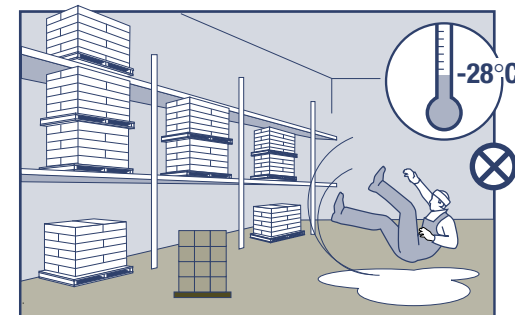
Wear safety boots with good treads.

Precaution

Keep the floor clear of debris. Routine cleanups are needed to provide an uncluttered environment.

Precaution

Use in-floor heating, if available, in freezers to reduce ice build-up.



Hazard

Boxes stacked too high or are not secured.

Danger

Boxes falling on the workers causing physical injuries.

Precaution

Make sure the boxes are securely nested and not stacked too high.

Precaution

Install racking systems to keep containers stable.



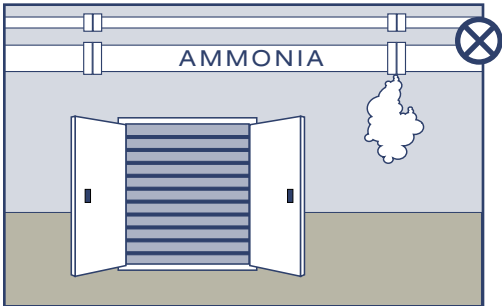
Precaution

Wear safety shoes and hard hats.



Hazard

Ammonia leaks in freezer units.



Danger

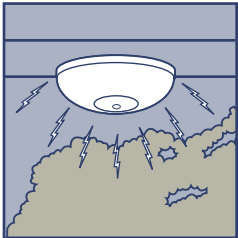
Workers exposed to harmful gases.

Precaution

Evacuate the area until the problem is resolved.

Precaution

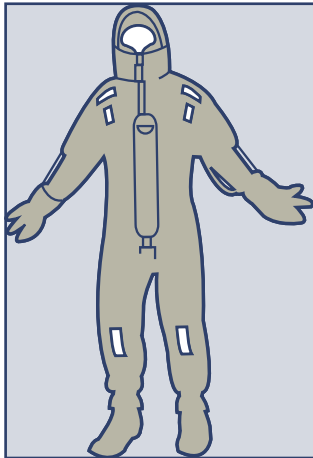
Install sensors and alarm systems.



Hazard **Temperature in freezer and cold storage rooms.**

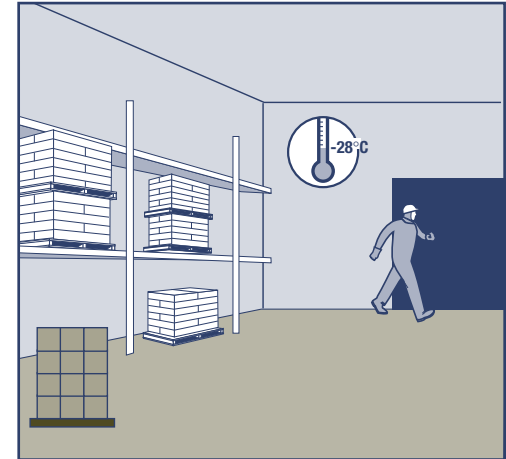
Danger Prolonged exposure to cold temperatures can affect workers' coordination and reaction times.

Precaution Wear cold weather clothing.



Precaution

Take scheduled breaks in order to maintain your internal body temperature.



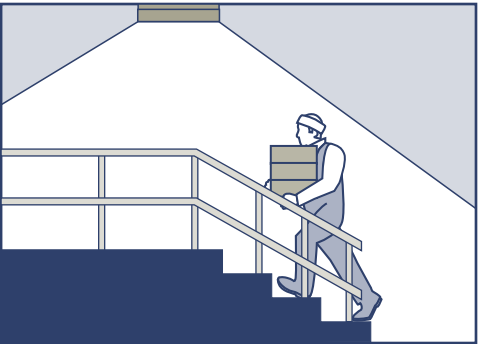
Dry Storage

The storage of packaging materials, chemicals, cleaning equipment and/or ingredients is located away from the processing areas and, in many instances, on different floors. Storage and movement of these products to processing areas presents potential dangers and hazards to workers.

Hazard	Vision impairment.
Danger	Visibility is limited, and maneuvering on stairs can result in trips and falls.
Precaution	When carrying light but bulky materials do not stack the materials so high that your visibility is impaired.

Precaution

Provide good lighting in stairways and ensure stairs are in good repair.



Precaution

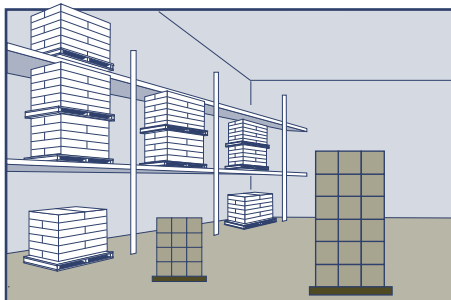
Check doorways and passageways before entering.



Hazard Materials loosely stacked and not properly secured can result in containers or boxes falling on workers.

Danger Physical injury.

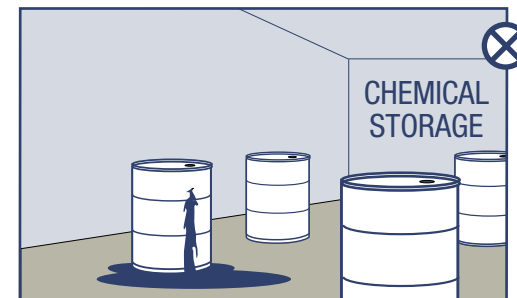
Precaution Store the supplies on racks uniformly stacked to prevent them from falling.



Precaution Remove damaged or unnecessary materials from the storage areas.

Hazard Broken or punctured chemical containers, chemical burns, toxic fumes.

Danger Harmful chemicals may spill or seep into the environment or come in contact with workers.



Precaution Do not handle chemicals and cleaning agents unless you have WHMIS training.

Precaution Make sure that the WHMIS data sheets for chemicals in storage are available and current.

Precaution Store chemicals in a safe and controlled environment. Remove all chemicals that are no longer needed.

Processing

Although there are many different categories of processing, many of the hazards are common to all fish processing operations. There are operating practices that protect both the employees and the product. These are included in the plant sanitation programs and worker hygiene programs.

Workers need to be aware of the risks and dangers that are inherent in their jobs. Many jobs require workers to be in cold environments, working near hot oils and steam, standing on concrete floors, working from heights and walking on slippery floors.

The activities taking place in a plant require the use of forklifts that are constantly moving in and out of the work area. Some equipment has sharp blades, knives, or moving parts and much of the equipment is pressurized.

In addition, maintenance and general house cleaning are required to ensure that the equipment and the facilities are in proper working order.

All of these activities present potential dangers and hazards which workers must remain aware of in order to prevent injury to themselves and others.

Physical Hazards

Lifting, slipping, repetitive motions, and reaching.

Slippery floors, confined spaces, and lifting and carrying boxes and containers are common activities in fish processing plants. These also result in the majority of injuries.

Safe Lifting Tips

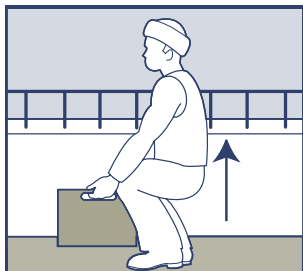
- Get as close to the object as possible before lifting
- Clear all obstacles then slide the object towards you
- Avoid twisting
- Get help carrying or pulling heavy or awkward objects
- Place heavy objects on surfaces that are knee high to avoid lifting from the floor or forklift to the processing lines
- Stack or lift heavy objects no higher than shoulder level, when possible

Hazard**Lifting objects.****Danger**

Sustaining lower-back injury or dropping an object on your foot.

Precaution

Use proper procedures when lifting objects. (See Safe Lifting Tips, pg. 38)

**Precaution**

Wear foot protection.

**Hazard****Slippery floors and walkways.**

Oil, grease, fish slime, water and salt can be present in fish plants and make surfaces very slippery.

Danger

Slips and falls.

Precaution

Use footwear with good grips.

**Precaution**

Clean up spills right away.

Precaution

Clean floor surfaces regularly.

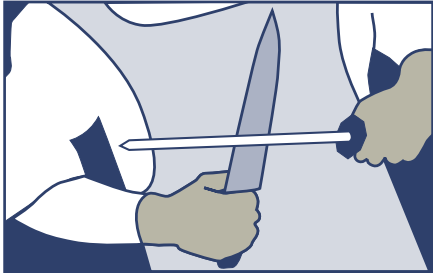


Hazard **Repetitive work activities-lifting and carrying, filleting fish, making boxes, and continuous standing.**

Danger Soft tissue injuries such as tendonitis and carpal tunnel syndrome.

Precaution Never put undue strain on your back. Lift with the power coming from your legs. Use cushioned mats at your workstation.

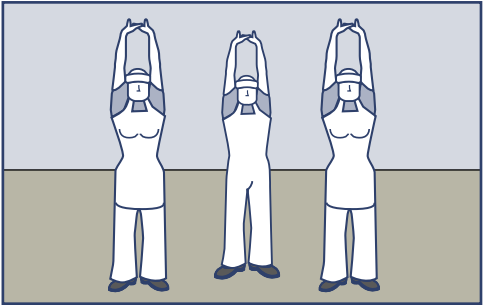
Precaution Keep your equipment in good repair. For example, knife steeling keeps a sharp edge on your knife, which reduces effort and provides greater productivity; lift jacks with smooth working wheels reduce strain in pushing and pulling the load.



Precaution Vary any repetitive movements to relax your muscles.

Precaution If possible implement a job rotation program.

Precaution During break periods, perform stretching exercises to relieve strain.



Precaution Workstations should be adjustable to fit different worker heights.

Precaution Workstations should minimize reaching for, or lifting product.

Precaution Review work processes and redesign as necessary.

Hazard**Reaching and twisting.****Danger**

Back and soft tissue injuries.

Precaution

Adjust your work method to reduce the amount of stretching that is required. Do not extend yourself when lifting objects overhead. Wherever possible, use mechanical assistance when lifting heavy objects.

Precaution

Avoid twisting at the waist. Move your whole body when turning.

**Hazard****Airborne contaminants.****Danger**

Respiratory illness; blackouts; allergic reactions.

Precaution

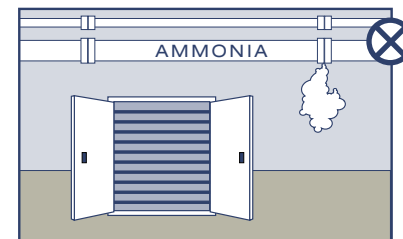
Hood and ventilate all processing equipment that emit vapours.

Precaution

Ensure there is adequate and appropriate ventilation when working in closed areas. Ventilate away from the breathing zone.

Precaution

Report any instances when propane or ammonia odours are suspected.

**Precaution**

Routinely check equipment to ensure that all fittings are properly secured.

Precaution Do not handle or prepare cleaning solutions unless you are trained in WHMIS.



Precaution Advise management if you have any sensitivities or allergies to chemicals or products being used in your work area.

Precaution Wear respiratory protective equipment when working in areas where there is excessive dust or where there are gaseous or toxic substances.

Precaution Use appropriate masks as defined in the MSDS, and ensure protective masks fit properly.

Precaution If you become dizzy or weak, leave the work area immediately.



Plant Maintenance and Repairs

Routine inspection along with scheduled maintenance ensures the building and equipment are in good operating condition. Failure to have a safe facility can lead to injuries and unscheduled downtime.

Management and staff, consistent with the OH&S Act and Regulations, must jointly attempt to identify the precautions needed to ensure that the workplace is safe. They should also detail safety requirements when working in specialized areas such as electrical, refrigeration or boiler rooms.

Maintenance in fish plants requires specialized labour and the ability to work in a variety of environments. Each has its own potential hazards that can affect the safety of the worker. There are some common practices workers can use to reduce the risk of incidents.

Hazard

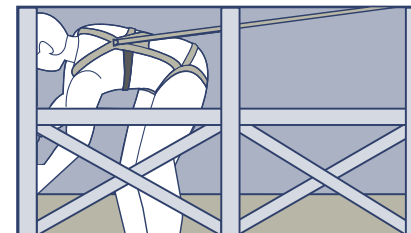
Working from heights using a variety of equipment - ladders, lifts, and scaffolding - to carry out maintenance and repairs.

Danger

Falls resulting in injury or death.

Precaution

When working from high heights (greater than 3 meters), use scaffolding or a fall protection harness.



Precaution

Use sturdy ladders that do not exceed 30 feet in height. Use ladders that have safety feet and are in good repair.

Precaution

Do not climb on “makeshift” devices such as chairs, crates, totes or wharf boxes.

Precaution If using a forklift as a workstation, ensure a work cage is properly secured to the lifting forks.



Hazard Using power tools, heavy equipment or pressurized hoses to do repairs on the facilities.

Danger Injuries to limbs, eyes or hearing.

Precaution Wear hard hats and safety footwear when carrying out any repairs.



Precaution Use the right tool for the right job.

Precaution Wear eye protection to protect from flying objects, particles or splashing liquids.

Precaution Wear ear protection to reduce noise to a comfortable level.

Precaution Wear gloves, hand pads, sleeves or wristlets to protect the hands from injury.



Precaution When working from high heights (greater than 3 meters), use scaffolding or a fall protection harness.

Equipment Maintenance and Repairs

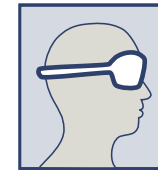
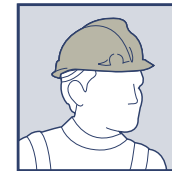
The operation of a fish plant requires the use of a variety of equipment. Some is specific to a particular process. However, there is equipment that is common to all operations such as tables and processing lines, freezers, packing machines, conveyor belts, pallet jacks, forklifts, knives and cutting machines.

Routine maintenance to equipment prevents injury or harm to the workers who will be using the equipment.

Hazard	Working on equipment while plant is in operation.
Danger	Physical injury to employees or self.
Precaution	Advise all employees in the immediate area before starting any equipment repairs.
Precaution	If possible, remove equipment from the work area to carry out repairs.

Precaution

Wear appropriate protective equipment (hard hats, eye protection, gloves, mask) when working on any pressurized pipes and valves.



Hazard

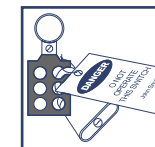
Working on equipment that has moving parts and/or cutting edges.

Danger

Electrical shock; injuries to limbs.

Precaution

Before working on any mechanized equipment ensure that the energy source is shut off, any residual energy is eliminated, and a lockout tag is affixed to the control panel.



Precaution

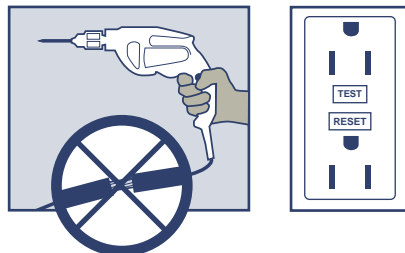
Do not remove any guards that have been installed to protect a moving part of the equipment unless you are trained and authorized to do so.



- Precaution
- Never overload an outlet with too many plugs.
- Precaution
- Do not wear loose clothing, including gloves, when working around moving machinery.

Hazard	Tripping on cables, hoses or cords on floor.
Danger	Physical injury.
Precaution	Cover or securely tape all cables, hoses or cords that are located in any walk or passageway.
Hazard	Using hand tools and power tools for repairs.
Danger	Cuts and electrical shock.
Precaution	Use the right tool for the right job.
Precaution	Check tools before use to ensure they are not damaged.

Precaution Make sure all electrical cords are in good repair and are properly grounded.

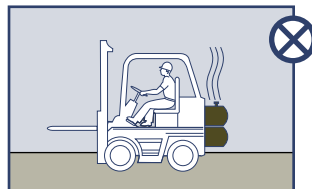


Precaution Use ground fault interrupt devices with all power tools.

Hazard **Propane or gas leaks.**

Danger Explosion or fire.

Precaution Only trained personnel should replace or repair propane or gas cylinders.



Precaution Use proper tools for tightening all tank fittings.

Precaution If a leak is suspected put soapy water on joints to identify leak.

Hazard **Inadequate lighting.**

Danger Physical injuries from tripping over clutter, bumping into machines or equipment.


Precaution Check that all the lights are functioning and light the work area well.

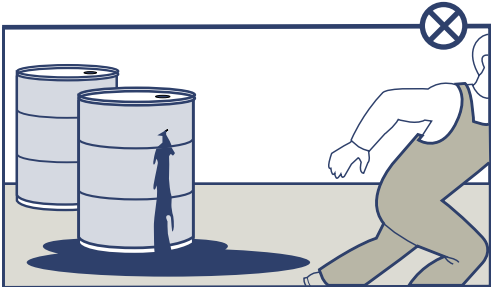
Precaution Replace burnt out lights before commencing work.

Precaution Remove clutter and unnecessary materials and equipment from the work area.

Cleaning the Plant

A clean and uncluttered workplace is a safe workplace. The cleaning process exposes workers to a variety of chemicals, posing potential risks.

Hazard	Use of chemicals.
Danger	Cleaning chemicals can cause illness, burns, eye and respiratory irritation. <div></div>
Precaution	Only trained workers should be involved in the cleaning and sanitation program. Training must include WHMIS training.
Precaution	Do not use any chemicals that are not labeled, or are not on the MSDS sheets.
Precaution	Follow all mixing and application instructions. Do not vary the procedures.

Hazard	Toxic or explosive cleaning chemicals.
Danger	Explosion or poisonous gases.
Precaution	Do not mix or use cleaning chemicals unless you are trained in their use. Mixing of some chemicals may cause explosive reactions or produce toxic gases.
Precaution	If you notice anything unusual, leave immediately, allow fresh air to circulate. Do not re-enter the room until the air is deemed safe. <div></div>
Precaution	Sound alarm, notify emergency response team as necessary.

Hazard**Cluttered work areas.****Danger**

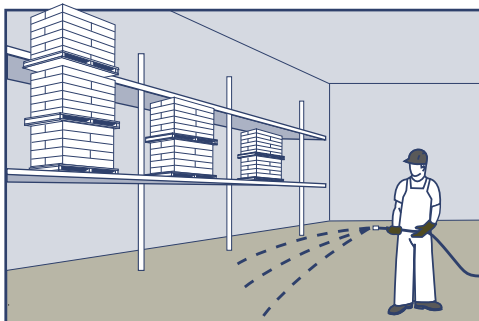
Injuries from spills and falls.

Precaution

Remove unnecessary equipment and debris from the work area.

Precaution

Store all equipment, including cleaning equipment, in its proper place.

**General Safety on the Processing Line**

There are some work areas that are common to all processing plants. Workers must be aware of any hazards associated with these operations to protect themselves and others from injury.

Hazard**Slippery floors.****Danger**

Injury to back and limbs.

Precaution

Wear footwear with good grips.

**Precaution**

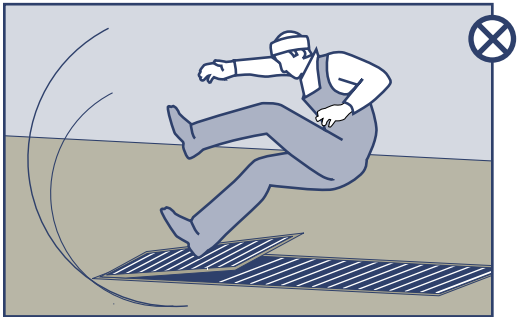
Clean up spills immediately.

Hazard

Open or slippery floor drains.

Danger

Injury to back and limbs.



Precaution

Make sure that drain covers are properly installed and in good repair.

Precaution

Wear footwear with good grips.

Hazard

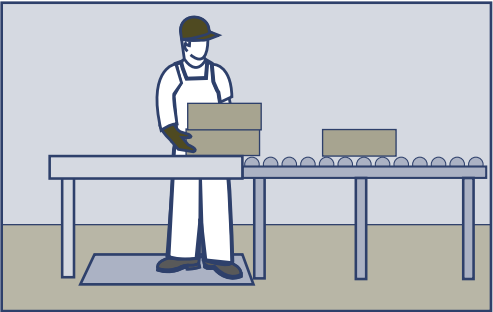
Working on processing lines.

Danger

Soft tissue injuries such as tendonitis or carpal tunnel syndrome.

Precaution

Use cushioned or anti-fatigue mats at your workstation.

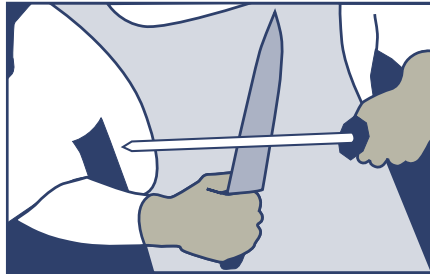


Precaution

Adjust the height of your workstation to reduce the need for lifting product or equipment.

Precaution

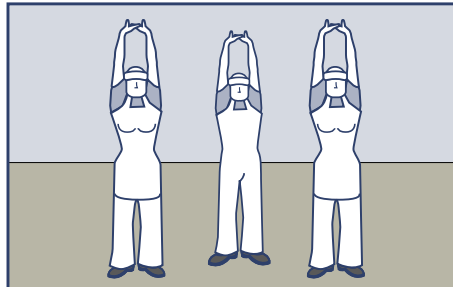
Keep your equipment in good repair - e.g. knife steeling.

**Precaution**

Vary your repetitive movements to relax your muscles. If possible implement a job rotation program.

Precaution

During break periods, perform stretching exercises to relieve strain.

**Hazard****Cuts from knives and fish bones.****Danger**

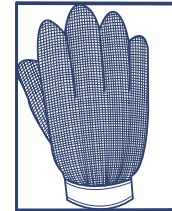
Injury to hands; bacterial infections.

Precaution

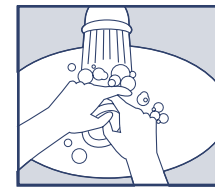
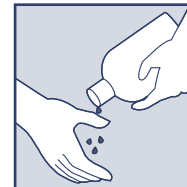
Exercise caution and good techniques when using knives.

Precaution

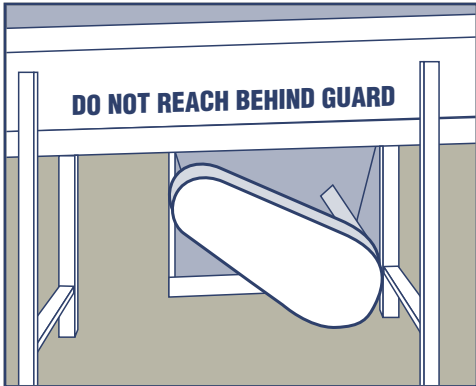
Wear protective gloves.

**Precaution**

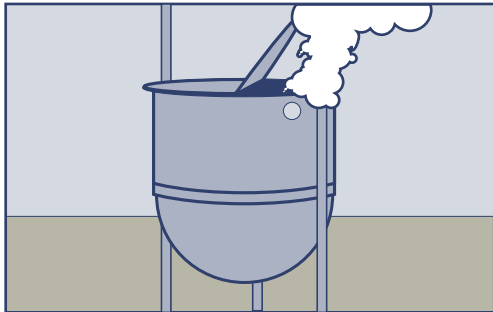
Wash and disinfect cuts from knives or bones.



Hazard	Moving parts, conveyors and belts.
Danger	Injury to hands and limbs.
Precaution	Do not wear loose clothing.
Precaution	Keep hands clear of all moving parts.
Precaution	Do not reach behind, around or remove any guards.

A diagram showing a conveyor belt system with a white guard. A warning sign on the guard reads "DO NOT REACH BEHIND GUARD". A hand is shown reaching behind the guard, and a red arrow points to the warning sign. The background is a light blue wall and a grey floor.

Hazard	Hot water and cookers.
Danger	Burns and scalding from steam and liquids.
Precaution	Ensure steam hood or vents are functioning properly.
Precaution	Exercise caution when opening and closing cooking vats.
Precaution	Vent steam away from workers.
Precaution	Use gauges to monitor the temperature and pressure.

A line drawing of a large, rounded cooking vat or boiler. It has a horizontal band around its middle and a small circular gauge or vent on its side. A thick plume of white steam is rising from the top of the vat. The vat is supported by a stand and is set against a background that is light gray above and tan below, representing a wall and floor.

Loading Fish onto Processing Line

When in production, there is a need to move fish as quickly as possible from storage through the processing line and then to the finished product. Speed and labour intensive activities can lead to accidents and injuries.

Hazard **Lifting and moving containers.**

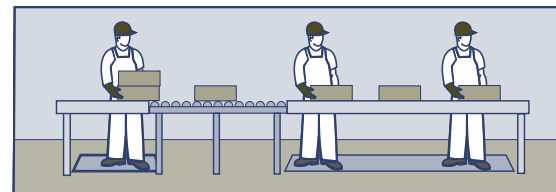
Danger Use proper procedures when lifting objects.

Precaution Do not attempt to lift oversized containers.

Safe Lifting Tips

- Get as close to the object as possible before lifting
- Clear all obstacles then slide the object towards you
- Avoid twisting
- Get help carrying or pulling heavy or awkward objects
- Place heavy objects on surfaces that are knee high to avoid lifting from the floor or forklift to the processing lines
- Stack or lift heavy objects no higher than shoulder level, when possible

Precaution Use mechanical stands or rollers to move containers horizontally.



Hazard **Loading fish blocks onto mechanical cutting machines or conveyor belts.**

Danger Injury to hands or arms.

Precaution Keep hands away from any moving cutting knives or screw conveyors. Do not by-pass any guards that are in place.

Precaution Shut off the equipment if it is necessary to dislodge any stuck product. Before attempting to dislodge the product, place a lockout on the control panel.

Precaution Be alert and conscious of your job at all times.

Packaging and Labeling

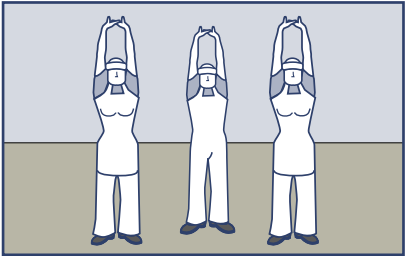
The common injuries in this area result from the type of equipment used and the repetitive nature of the work activities.

Hazard	Repetitive motion.
---------------	---------------------------

Danger	Soft tissue injuries such as tendonitis or carpal tunnel syndrome.
---------------	--

Precaution	Vary your repetitive movements to relax your muscles.
-------------------	---

Precaution	During break periods, perform stretching exercises to relieve strain.
-------------------	---



Precaution	Lift with your legs, not your back.
-------------------	-------------------------------------

Hazard	Strapping and stapling machines.
---------------	---

Danger	Hand injuries.
---------------	----------------

Precaution	Keep hands clear of the moving parts of the equipment.
-------------------	--

Precaution	Wear properly fitted clothing to avoid getting caught in the machinery.
-------------------	---



Chilling and Freezing

Hazard **Injuries in icehouse.**

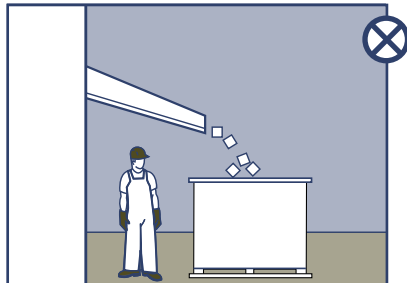
Danger Injuries to back or limbs.

Precaution Wear footwear with good grips.

Precaution Advise others if you are working alone.
Have a co-worker on the outside when you are working in the icehouse.

Precaution Keep limbs clear of moving parts.

Hazard **Ice from chutes falling on workers.**



Danger Injury to the head and back.

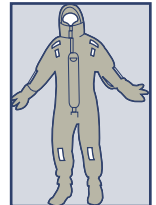
Precaution Do not stand under an ice chute. Be aware of the location of the chute whether in the hold of a vessel or in an icehouse.

Precaution Wear hard hats when there is risk of things dropping from overhead.

Hazard **Prolonged exposure in a cold and freezing environment.**

Danger Hypothermia, reduced reaction times, frostbite.

Precaution Wear cold weather clothing.



Precaution Take scheduled breaks in order to maintain your internal body temperature.

Hazard

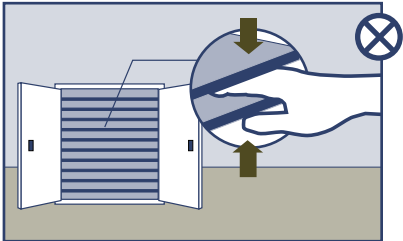
Freezers.

Danger

Injuries to hands or arms from plate freezers.

Precaution

Do not activate the compression of the plates until all people are clear of the plate freezer.



Precaution

Always use solid spacers between plates to limit compression.

Hazard

Ammonia leakage.

Danger

Asphyxiation and burns from ammonia gas.

Precaution

Evacuate all personnel from the area.

Precaution

Monitor equipment for leaks, broken parts, or other problems.

Precaution

Report any instance of ammonia leakage.

Hazard

Lifting boxes and freezer pans.

Danger

Back strains and pulled muscles.

Precaution

Use proper procedures when lifting objects. (See Safe Lifting Tips, pg. 53)

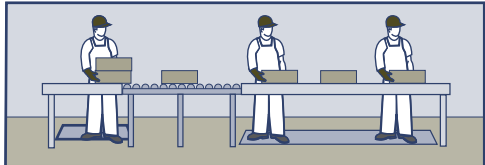
Precaution

Lift only what you are capable of lifting.



Precaution

Use equipment to move the containers horizontally.



Palletizing the Product

Hazard

Lifting and twisting.

Danger

Back strains and pulled muscles.

Precaution

Use proper procedures when lifting objects. (See Safe Lifting Tips, pg. 53)

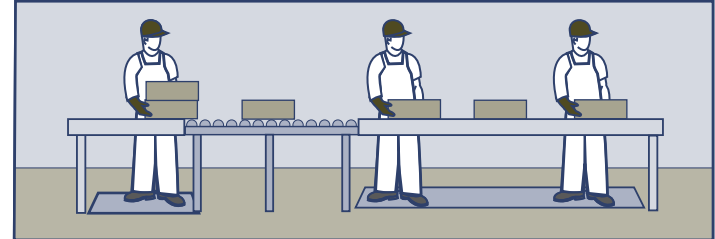
Precaution

Lift only what you are capable of lifting.



Precaution

Use equipment to move the containers horizontally not vertically.



Hazard

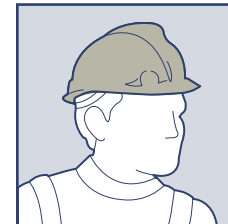
Getting struck by falling containers.

Danger

Injury to head, legs or feet.

Precaution

Wear hard hat and safety footwear.

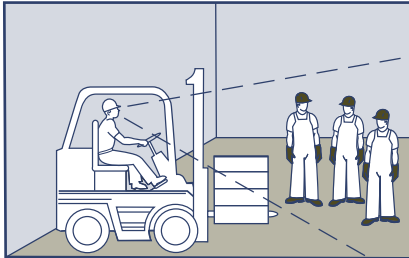


Hazard**Injuries from forklifts or pallet jacks.****Danger**

Physical injuries from forklifts could include bruising, broken bones or death.

Precaution

Operate the forklift at slow speeds in congested work areas. Workers should be aware when forklifts are in operation.

**Hazard****Physical strain.****Danger**

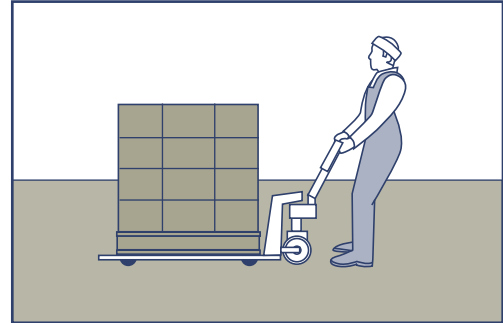
Back injuries from pushing or pulling a pallet jack.

Precaution

Make sure the pallet jacks are in good repair and that the lift and wheels move freely.

Precaution

Do not overload the pallet to the point that it's difficult to move.



Storage, Cold Storage and Shipping

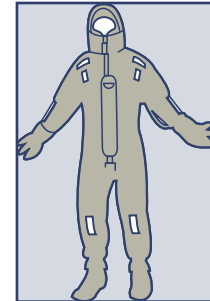
In storage areas, boxes are commonly placed on pallets which are then piled on top of one another or placed on racks. There are usually limited personnel working in these areas and vehicle traffic can be fast and busy at times. Due to the confined environment, there is an increased risk of persons being struck by a forklift or by objects falling from overhead. If the area is a cold storage area, there is also the added danger of prolonged exposure to the cold.

Hazard **Working alone in a cold storage.**

Danger	Hypothermia; frostbite; death.
Precaution	Install signage on the locks that work is in progress to prevent someone from locking the door while workers are inside.
Precaution	Advise co-workers whenever there is a requirement to work alone in the cold storage.

Hazard **Working in a cold environment.**

Danger	Hypothermia; reduced reaction times.
Precaution	Wear proper clothing when working for extended periods in a cold storage.
Precaution	Take scheduled breaks.



Hazard **Physical injuries.**

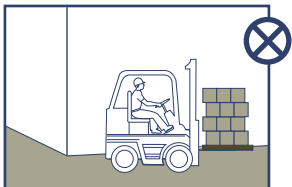
Danger	Back strains and pulled muscles.
Precaution	Use proper procedures when lifting objects. (See Safe Lifting Tips, pg. 53)

Precaution

Lift only what you are capable of lifting.

**Precaution**

Use equipment such as the forklift to move containers vertically.

**Hazard**

Physical injuries.

Danger

Injury to back and limbs.

Precaution

Wear footwear with good grips.

**Hazard**

Falling containers.

Danger

Physical injury.

Precaution

Check that the load is secured and the forklift is in good repair before lifting.

Precaution

Wear a hardhat and safety footwear when working in a cold storage.

**Hazard**

Inadequate lighting.

Danger

Physical injuries and damage to the facilities.

Precaution

Immediately report or fix any burnt out light bulbs.

Hazard

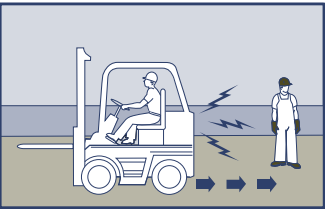
Forklift traffic.

Danger

Physical injury or death.

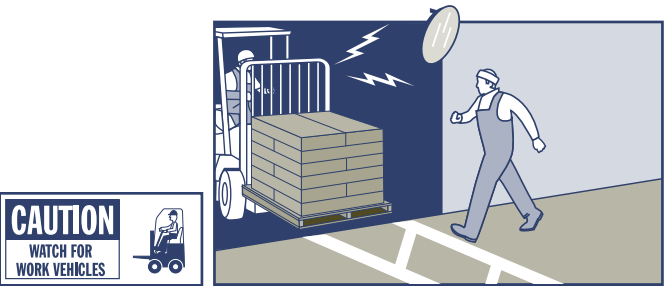
Precaution

Use backup alarms to warn of moving vehicles.



Precaution

Be aware of forklift routes and check carefully before entering the storage area, to avoid collisions.



Hazard

Icy, slippery or cluttered floors.

Danger

Falling under equipment, slipping on the floors, other physical injury.

Precaution

Be aware of ice buildup on floors.

Precaution

Wear boots with good treads to prevent slipping.



Precaution

Clear debris away from the work area before commencing work. Do not store unnecessary equipment or supplies in the storage areas.



Hazard **Slipping, sliding or physical injury.**

Danger Sustaining a lower back injury or dropping objects on your foot.

Precaution Never put undue strain on your back.

Precaution Lift with the power coming from your legs.



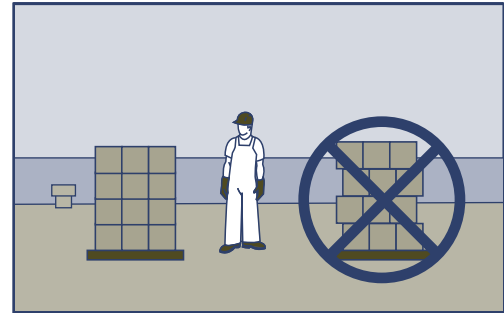
Precaution Wear foot protection that has a good grip to prevent slipping.

Hazard **Improperly stacked or placed totes or wharf boxes.**

Danger Boxes and containers falling on workers causing physical injuries.

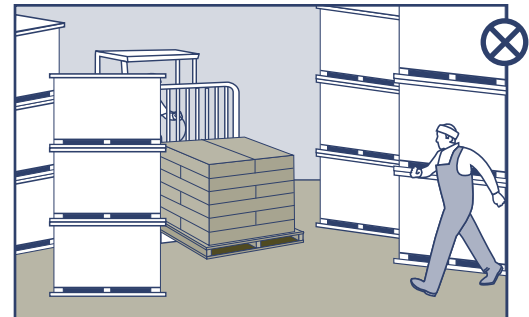
Precaution

When stacking totes and wharf boxes make sure they are placed and secured to prevent falling over.



Precaution

Keep passage ways open to prevent collisions with forklifts. Always look before walking from behind stacked containers.



Danger

Loading cargo onto trailers:

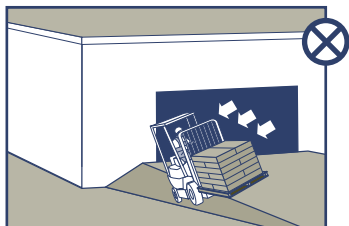
- Forklift toppling over.
- Forklift sliding off of loading ramp.
- Pinning people between load and trailer.
- Falling off equipment.
- Back injuries from lifting boxes onto pallets.
- Falling on slippery surface.
- Trailers or loading ramp moving

Precaution

Make sure the load is evenly and securely placed on the forklift.

Precaution

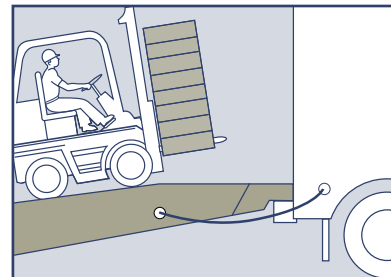
Drive carefully on sloped roadways.

**Precaution**

Check that the trailer is parked tight to loading and unloading doors.

Precaution

Make sure any ramps are secured before driving the forklift on or off trailers, and that wheel chocks are in place.

**Precaution**

Check the location of co-workers when loading or unloading cargo.

Precaution

Never stand on the bucket, forks, or other accessories, especially while they are moving.



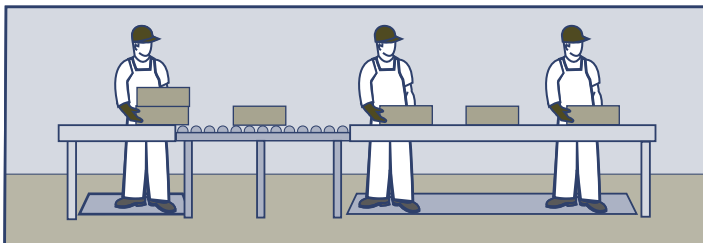
Section 3: Processing Safety



Processing Safety

Each process type - Groundfish, Salted, Pelagics, Canned, Value-added or Shellfish - is unique in its operations and poses specific hazards to workers. All processing operations use a combination of mechanical and manual activities, and many processes use specialized equipment. Workers require specialized training for some equipment operation to avoid injury.

The processing of all fish products is repetitive in nature and workers need to remain aware when carrying out repetitive and sometimes routine activities. There is a need for workers to “stay alert” and keep in mind that there are potential hazards to themselves and those working around them. Not being attentive and not concentrating on the work at hand can contribute to workplace injuries.



Safe lifting techniques are also important in all types of processing and are outlined in the chart below.

Safe Lifting Tips

- Get as close to the object as possible before lifting
- Clear all obstacles then slide the object towards you
- Avoid twisting
- Get help carrying or pulling heavy or awkward objects
- Place heavy objects on surfaces that are knee high to avoid lifting from the floor or forklift to the processing lines
- Stack or lift heavy objects no higher than shoulder level, when possible

Groundfish - Fresh and Frozen

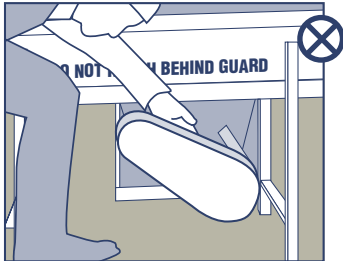
The hazards of groundfish processing are associated with equipment used for cutting, slicing, scaling and/or skinning the fish.

Hazard **Using skinning, filleting, scaling machines.**

Danger Cuts from sharp blades; severe damage to, or loss of limbs, physical injuries.

Precaution Do not operate equipment unless properly trained.

Precaution Obey safety signs on equipment. Do not reach behind safety guards.



Precaution

Do not reach into or stretch over moving parts.

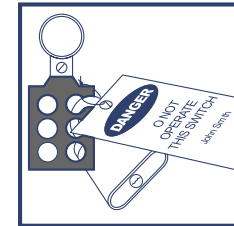


Precaution

Wear properly fitted clothing to avoid getting caught in the machinery.

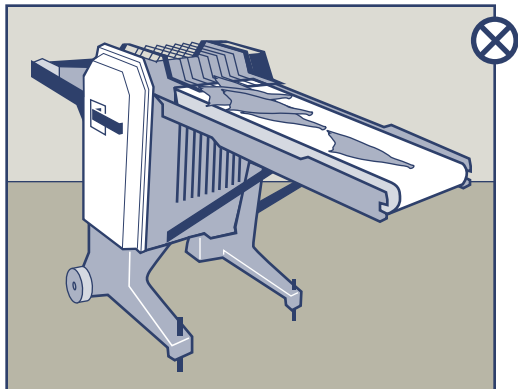
Precaution

Shut down equipment and install a lock out device BEFORE reaching in or around moving parts.



Precaution Adjust work methods to reduce lifting and twisting when moving trays or boxes.

Precaution Be aware of the limitations of the equipment. Do not exceed manufacturers operating guidelines.



Hazard

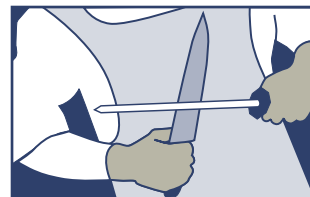
Use of knives.

Danger

Soft tissue injuries such as tendonitis or carpal tunnel syndrome.

Precaution

Maintain a sharp knife. Steeling often and correctly will keep the knife sharp and you will then require less effort for making your cuts.

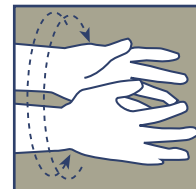


Precaution

Safely store your knife in a sheath between uses.

Precaution

Exercise your wrists during breaks.

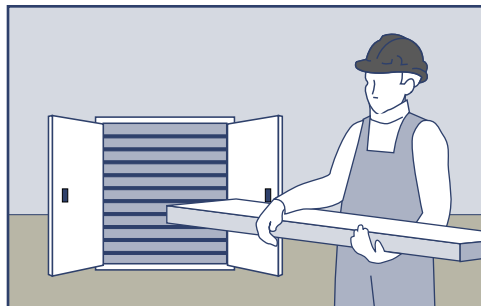


Precaution If possible, implement job rotation.

Hazard **Loading and unloading freezers and plate freezers.**

Danger Physical injury.

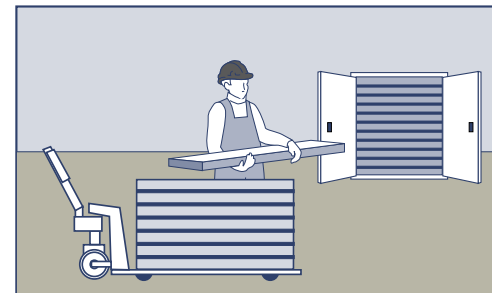
Precaution Use proper lifting techniques when loading the freezers and plate freezers.



Precaution Avoid twisting when lifting pans or trays.

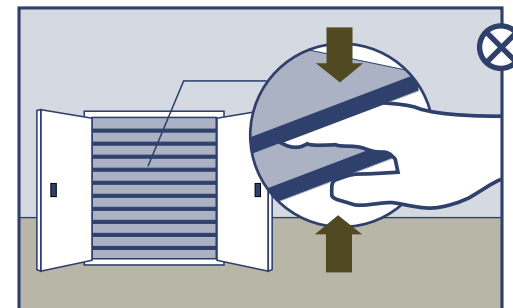
Precaution

Use mechanical aids when stacking pans or trays to heights above your waist.



Precaution

Check that co-workers are clear of the plate freezer BEFORE lowering the plates.



Salt Fish

Salt fish preparation requires workers who are skilled in the use of knives and specialized splitting and skinning machines. Workers are also required for moving boxes and trays from one workstation to another.

Hazard

Loose salt on the floors.

Danger

Sprains and strains, slipping or sliding.



Precaution

Keep the floors clean of debris, especially loose salt.

Precaution

Wear boots with good grips.

Hazard

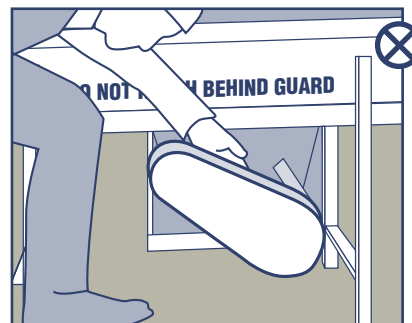
Using heading, splitting and skinning machines.

Danger

Cuts and physical damage to hands and arms.

Precaution

Keep hands clear from all moving parts of the machines.



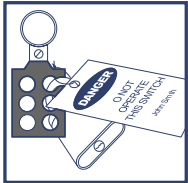
Precaution

Do not reach around or near cutting blades.

Precaution

Routinely inspect all machines to ensure that any guards are in place and that automatic shut-off devices are working.

Precaution Shut down equipment and install a lock out device BEFORE reaching in or around moving parts.



Hazard Loading and unloading curing tanks.

Danger Slipping, sliding, bending or lifting and repetitive movements.

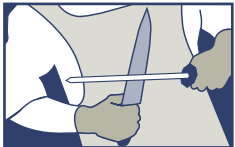
Precaution Use caution when climbing in or out of curing tanks. The loose salt and water causes the floors and tanks to be slippery.



Precaution When loading, unloading and salting the fish in the tanks, turn with your whole body to avoid twisting.

Hazard Hand gutting and splitting of fish.

Danger Cuts from knives, bone punctures and carpal tunnel syndrome.



Precaution Wear metal re-enforced gloves.

Precaution Keep your knife sharp and re-steel often.

Precaution Immediately treat all knife cuts or bone punctures with basic first aid. If severe, seek medical assistance.

Precaution Exercise wrists and hands to reduce tension.



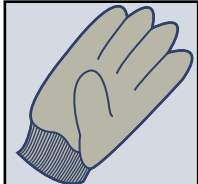
Hazard	Loading and unloading dryer racks.
Danger	Back injuries.
Precaution	Use proper procedures when lifting objects.
Precaution	Work with a partner when loading the rack into the dryer. Share the load.

Safe Lifting Tips

- Get as close to the object as possible before lifting
- Clear all obstacles then slide the object towards you
- Avoid twisting
- Get help carrying or pulling heavy or awkward objects
- Place heavy objects on surfaces that are knee high to avoid lifting from the floor or forklift to the processing lines
- Stack or lift heavy objects no higher than shoulder level, when possible

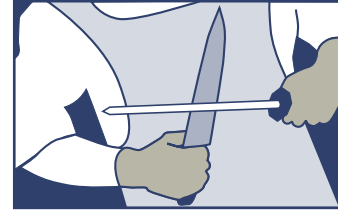
Pelagics - Herring, Mackerel, Capelin

Preparation and processing of pelagics usually involves handling and moving large volumes of fish. The use of conveyors to move the fish along the processing line presents hazards specific to this type of operation. As with most fish processing, there are repetitive work activities that require that the workers remain alert at all times.

Hazard	Hand gutting and splitting of fish.
Danger	Cuts and bone punctures; carpal tunnel syndrome.
Precaution	Wear metal re-enforced gloves.
	

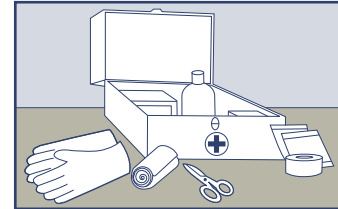
Precaution

Keep your knife sharp and re-steel often.



Precaution

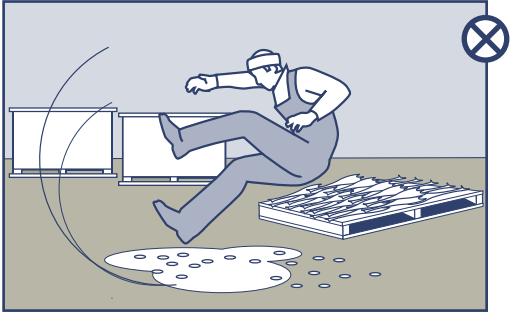
Immediately treat all knife cuts or bone punctures with basic first aid. If severe, seek medical assistance.



Precaution

Exercise wrists and hands to reduce tension.



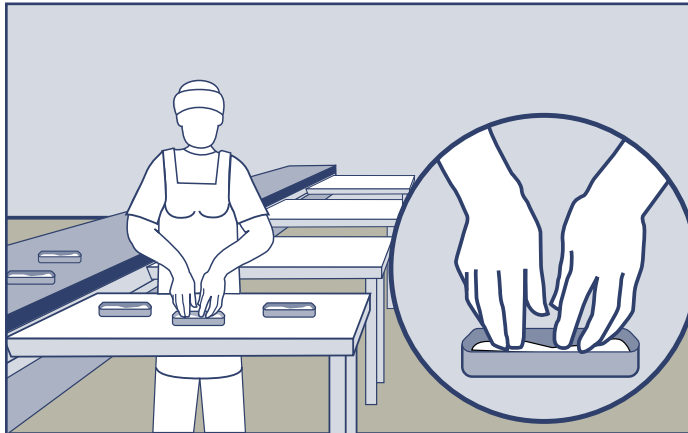
Hazard	Loading and unloading curing tanks.
Danger	Physical - Slipping, sliding, bending or lifting and repetitive movements.
Precaution	Use caution when climbing in or out of curing tanks. The loose salt and water causes the floors and tanks to be slippery.
	
Precaution	When loading, unloading and salting the fish in the tanks, turn with your whole body to avoid twisting.
Precaution	Use mechanical aids when stacking pans or trays to heights above your waist.

Hazard	Working on catwalks and over conveyor belts.
Danger	Physical injury from falls or collisions.
	
Precaution	Wear footwear with proper treads.
Precaution	Maintain a secure 3-point contact when climbing ladders or climbing steep stairs.
Precaution	Check that walkways and ladders are clear of debris or equipment (hoses, ropes).
Precaution	Wear a hard hat when working or climbing between equipment and conveyors.

Canned

Canning of fish products requires the use of specialized equipment which should be operated by trained personnel. Trained and certified retort operators are the only personnel permitted to operate the pressurized retorting equipment.

Canning also requires workers to perform repetitive tasks in a timely fashion. Workers must be aware of the hazards associated with the hand packing and movement of large quantities of cans.



Hazard

Packing product into can.

Danger

Soft tissue injuries such as tendonitis or carpal tunnel syndrome.

Precaution

Adjust work methods or work station to avoid bending.

Precaution

Stand on rubber or anti-fatigue mats.

Precaution

Exercise wrists.

Hazard

Handling cans and baskets.



Danger

Physical - Slipping, sliding, bending or lifting.

- Precaution** Check that the wheels of the retort baskets are operating smoothly.
- Precaution** Push retort basket using your legs. Do not try to pull or move the baskets with your upper body.
- Precaution** Check that your route is clear of debris or obstructions.

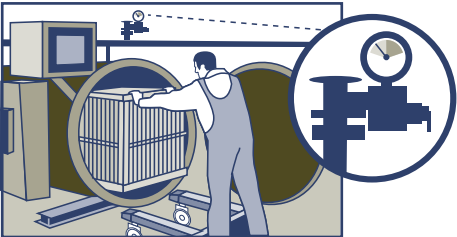
Hazard Loading and unloading retorts.

- Danger** Bending or Twisting.
- Precaution** When loading or unloading a retort use a hoist to lift and move baskets.

Hazard Retort pressure.

- Danger** Explosion, steam release.
- Precaution** Only certified retort operators should use equipment.

- Precaution** Pressurized equipment should be metered and have automatic shutoffs or bleed valves when target pressure is exceeded.



Hazard Noise.



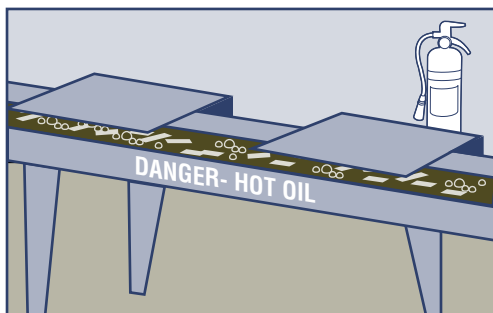
- Danger** Hearing injury or loss.
- Precaution** Wear earplugs in noisy areas.
- Precaution** Wear ear covers in areas such as high-pressure washing.

Value-added

In preparing Value-added fish products, raw materials are processed into consumer and institutional portions. Ingredients may be added to enhance the presentation and, in some cases, partial or full cooking takes place.

Workers are required to operate equipment that cuts the product into portions and cook using heat or oils. The repetitive nature of fish processing along with the use of specialized equipment presents specific hazards for workers.

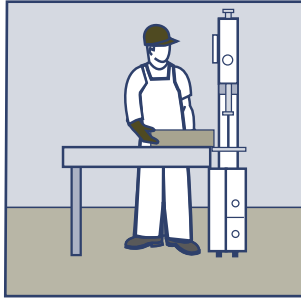
Hazard Working near cooking oils.



- Danger** Burns and scalding from hot oil; fat fires.
- Precaution** Wear protective clothing and eye wear when working around cooking oils.
- Precaution** Use caution when opening any cooking vats. Contents may be under pressure and steam or oils may escape.
- Precaution** Immediately report any suspected malfunctions of the cooking vats or lines.
- Precaution** Be aware of the locations and operations of any fire extinguishers for the control of fat fires.
- Precaution** Have adequate hooded and vent areas to remove steam and fumes from the process area.

Hazard

Using block cutting machines (saws, slicers, presses).

**Danger**

Physical injury to hands and arms.

Precaution

Keep hands away from the cutting blades.

Precaution

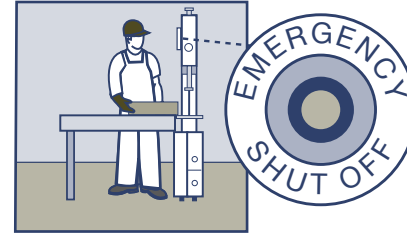
Make sure all guards are in place and properly working.

Precaution

Wear properly fitted clothing to avoid getting caught in the machinery.

Precaution

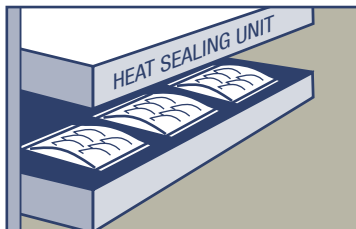
Know the location of the automatic shut off cords, bars or buttons, and test them.

**Precaution**

Lift with your legs when loading blocks onto the cutting tables or lines.

Precaution

Maintain your balance at all times when operating block cutting machines and saws. Do not over-extend or stretch when cutting the blocks.

Hazard**Automatic packing and sealing equipment.****Danger**

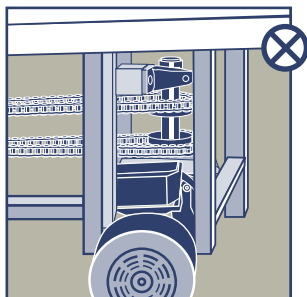
Physical injury; burns to hands or arms;
breathing problems.

Precaution

Keep hands away from the hot elements of
the sealing mechanism.

Precaution

Make sure all guards are in place and properly
working.

**Precaution**

Wear proper fitting clothing to avoid it being
caught in the machinery.

Precaution

Be familiar with the location of all automatic
shut-off switches or buttons, and test them.

Precaution

Vent fumes from sealing equipment away
from workers' breathing zones.

Shellfish

Shellfish processing can take many forms- live, cooked whole, cooked portions and minced. In some cases, such as lobster, the live product is held in holding tanks or pounds until it is ready to be distributed.

The equipment used for cooking or extraction of meats from shellfish varies with the specific species and the final product form. The equipment and environment in some of these operations may present hazards that need to be addressed to ensure the workers are protected from incidents and illness.

Hazard Loading and unloading holding tanks.

Danger Drowning, slipping, sliding, bending or lifting.



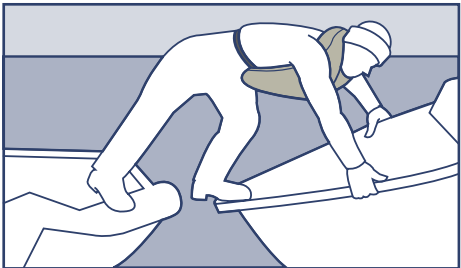
Precaution Wear approved flotation devices where there is a risk of drowning.

Precaution Use caution when climbing in or around holding tanks. Excessive water causes the floors and tanks to be slippery.

Precaution Use footwear that has proper grips.

Precaution When loading and unloading the holding tanks, turn with your whole body to avoid twisting.

Hazard Working around open holding pounds.



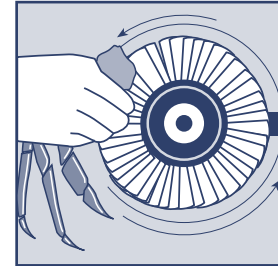
Danger Drowning; slipping, sliding, bending or lifting.

- Precaution** When boarding a skiff use a three point boarding procedure.
- Precaution** Use caution when reaching over the sides of the skiff. Establish a good balance and do not reach too far.
- Precaution** Inspect the hoisting system for operational problems and condition of equipment before use.
- Precaution** Whenever possible, work in pairs or groups.

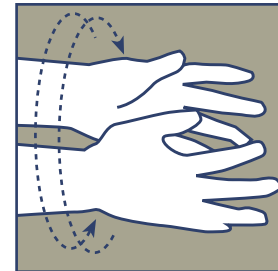
Hazard **Butchering table.**

- Danger** Soft tissue injuries such as tendonitis or carpal tunnel syndrome.
- Precaution** Ensure cleaning brushes spin away from the breathing zone of workers.

- Precaution** When butchering shellfish, keep your fingers and hands to the sides of the brushes.

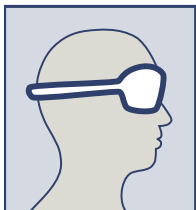


- Precaution** Exercise your wrists regularly to relieve any tension that may develop.



Precaution

Wear safety glasses to protect your eyes from flying debris.

**Precaution**

Use any respirators that are provided for the exposure in your specific work area.

**Hazard****Exposure to shellfish allergen.****Danger**

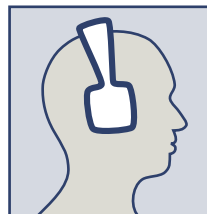
Occupational asthma.

Precaution

Ensure that all ventilation systems are operating and in good repair. All components of the system, cookers, crushers, and other related items should be hooded, vented away from the workers, and routinely maintained.

Precaution

Advise your supervisor if you have allergies to shellfish proteins.

Hazard**Noise.****Danger**

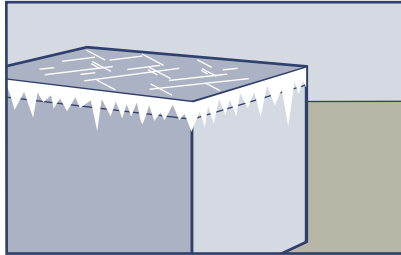
Hearing injury or loss.

Precaution

Wear earplugs or ear muffs in noisy areas.

Precaution

Wear ear covers in areas such as butchering and high-pressure washing.

Hazard Brine freezer.


Danger Skin damage from freezing; physical injury.

Precaution Do not climb on the edges of the brine tank.

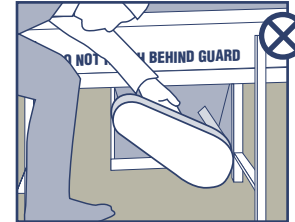
Precaution Wear MSDS approved protective clothing, gloves and eye protection when working in the area.

Precaution Use lifting devices or obtain assistance if adding salt to brine tank.

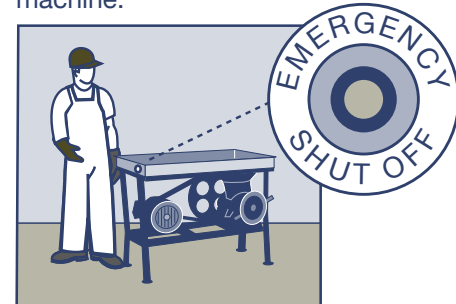
Hazard Mincing machine.

Danger Physical injury to hands; bending or lifting.

Precaution Keep hands clear of the blades and mincing augers of the machine. Do not reach around any guards that are in place.

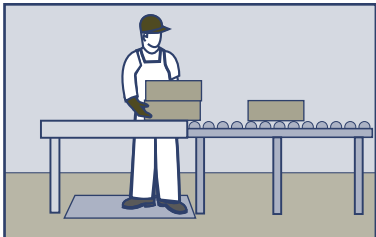


Precaution Know the location of all emergency shut-off buttons or devices for the specific machine.



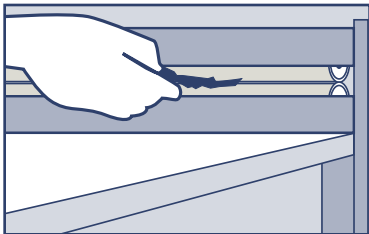
Precaution Wear properly fitted clothing to avoid getting caught in the machinery.

Precaution Use anti-fatigue mats when standing for long periods of time at the machine.



Precaution Use proper lifting procedures when loading materials into the machine.

Hazard **Leg roller.**



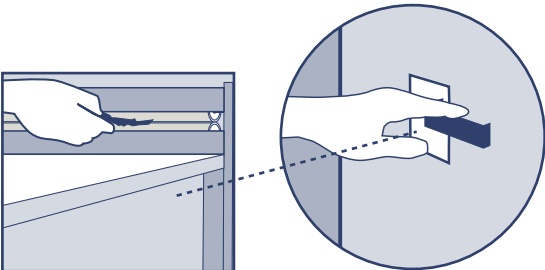
Danger Broken or crushed fingers or hands.

Precaution Install guards near rollers to restrict the ability to place fingers in rollers.

Precaution Be alert when putting product into the leg rollers. Keep hands as far from the rollers as possible.

Precaution Know the location of the emergency shut-off buttons or devices for the leg-rolling machine.

Precaution The emergency shut-off must be within reach of the operator.



Precaution Wear properly fitted clothing to avoid getting caught in the machinery.

Workplace safety is a shared responsibility. All companies and individuals in the sector share the personal and financial cost of accidents and injuries. By using this handbook and working together to improve safety, everyone will benefit.



For More Information

This handbook, **Process Safe**, has given an overview of how we can work together to improve safety.

If you would like additional copies of this handbook, please contact;

Nova Scotia Fisheries Sector Council

Tel: 1-902-742-6167

www.nsfsc.ca

For more information on occupational health and safety laws, regulations and safety prevention, please contact;

Workers Compensation Board of Nova Scotia

Tel: 1-902-491-8002

www.wcb.ns.ca

Nova Scotia Department of Labour & Workforce Development Occupational Health & Safety Division

Tel: 1-902-424-5400 or

Toll Free: 1-800-952-2687

www.gov.ns.ca/lwd/healthandsafety

SafetyNet Centre for Occupational Health and Safety Research

Tel: 1-709-737-7233

Toll Free: 1-866-6SAFETY (672-3389)

www.safetynet.mun.ca

For copies of the knife sharpening video and manual used for reference in this handbook please call 1-866-6 SAFETY

For information regarding shellfish OH&S, visit

www.shellfishohs.ca