Fish Intake Training Pack

See also: www.seafish.org and www.seafoodacademy.org

ACKNOWLEDGEMENTS

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Ruth Elliot	-	Dawnfresh Seafoods
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Patrick McDaniel	-	Resource Initiatives
Des McMenamin	-	Pinneys Ltd

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- Patrick McDaniel - Resource Initiatives
- Des McMenamin - Pinneys Ltd
- Lee Cooper - Seafish

INTRODUCTION

This manual has been devised as a guide to instructors delivering the fish intake course. Instructors are expected to adapt the materials provided to meet the exact needs of the organisation, the teaching situation and the needs of participants.

The Manual comprises a series of parts, providing instructors with the information they require for successful delivery the Fish Intake course. It introduces the content of the presentation and provides a background to help facilitate the delivery process. The guide is made up of three parts.

Part 1 - About This Course – A Trainer's Guide
Providing instructors with an overview of the Fish Intake course together with guidance on the preferred methods of delivery

Part 2 - Facilitator Notes – Fish Intake
Providing instructors with a printout of the PowerPoint presentation slides and their associated guidance notes

Part 3 - Course Handouts
This section contains a number of handouts that have been designed to support the delivery of the course

PART 1 - ABOUT THE COURSE

Course aim and objectives
The aim of the course is to provide learners with the knowledge and skills required to support the intake of fish into a fish processing operation.

It is expected that on completion of the course learners will be able to:

- Understand the importance of Intake to fish processing operations
- Understand the quality standards that apply at Intake
- Assess the quality of fish and fish products
- Understand product traceability and control

Structure of the course
The course is structured to provide a general introduction and then technical content based around four main sessions.

- Session 1: The role and importance of Intake
- Session 2: Fish quality recognition
- Session 3: Intake processes
- Session 4: Control and traceability

Course delivery
This course is designed to be delivered using a combination of the PowerPoint presentation slides and practical hands on activities. It can be delivered over one day as detailed below, or can be broken down and delivered on a number of different occasions to fit in with organisational resource requirements.

Course timings
As instructors you will need to develop your own session plans to show how you intend to implement your training. However, detailed below is a guide providing suggested timings that will be required to support the course. It is important that instructors take these suggested timings and develop a detailed course timetable to meet the needs of learners on individual courses.

Session	**Suggested timing**
Introduction	15 min
Session 1 The role and importance of Intake	45 min
Session 2 – Fish quality recognition	1hour 15min
Session 3 – Intake processes	1hour 15min
Session 4 - Control and traceability	1hour

About the Presentation
It is possible to run the presentation straight from the CD, however, it is recommended that the total presentation is downloaded onto the computer hard drive and run from there.

Open the slide show and simply run through the slides. The slides are set-up in a logical sequence starting with the course aims.

Features of the presentation:

- The presentations are formed into a series of sessions, each starts with a title page.
- The slides all have a heading supported by some basic content to help facilitate and control the presentation.

The navigation required to move around the presentation has been kept very simple, relying mainly on the functions available within the PowerPoint programme itself. For example:

1. To go forward through the presentation simply click your mouse or remote.
2. To go back to the previous slide simply press 'shift' + 'p'.
3. To exit any of the presentations simply press the Esc button.

Remember, it is important to fully test the presentation before using it, so that you are happy with both the content and the navigation!

Presentational tips
In addition to background information, the notes section also contains tips on possible approaches to be taken by the instructor. For example, suggesting when and where discussions and activities should be used to support the delivery of the course.

Resources
The following list of resources is recommended as essential to support the delivery of this course. This list should not be seen as exhaustive and trainers are free to add resources to support the delivery of the course as appropriate.

1. Company intake policies and procedures
Instructors should obtain copies of the following:

- Organisational procedures for the control of non-conforming products
- Organisational procedures on labelling and traceability
- Sample organisational work instructions
- Sample organisational specifications
- Organisational check weighing procedures
- Organisational sampling procedures
- Organisational procedures relating to the methods used to monitor temperature.

- Organisational intake procedures
- Organisational quality specifications
- Company specific vehicle inspection procedures and documents
- Organisational procedures relevant to fresh fish quality inspection

2. General resources

Throughout the presentation a number of practical activities are suggested for instructors to complete with learners. It is anticipated that the following resources will need to be made available if these presentations are to be effectively implemented.

NB. **Activities will need to be planned by instructors well in advance of the training.**

Activity	**Suggested resource/ resource access**
Vehicle inspection	• Access to a fish delivery vehicle
Fresh fish quality	• Whole fish and fresh fish products of different qualities
Frozen product quality	• Frozen products illustrating different qualities
Shellfish quality	• Shellfish samples of different qualities
Recording temperatures	• Temperature probes
Sampling	• Actual product • Access to intake area
Organoliptic assessment	• Sample of products of different quality. • Cooking and tasting facilities
Intake records	• Intake records
Product traceability	• Actual products should be developed to illustrate the passage of product through the organisation

PART 2 - FACILITATOR NOTES – FISH INTAKE

Introduction

The aim of these notes is to provide instructors with information on how to use the PowerPoint presentation to support the course delivery.

Each PowerPoint slide is printed, together with a copy of the instructor notes. These notes give details of the information that should be used to support the various slides. Instructors can supplement this material with their own expertise and the use of further resources, as they feel appropriate. The use of additional resources is seen as an important consideration when adapting the materials to meet the specific needs of organisations.

Please note that both the main presentation and Torry assessment presentations are included in this section.

PART 3 - Course Handouts

The following section contains course handouts - fact sheets. These simple fact sheets have been put together to support the some of the common features of the course. They should be photocopied and handed out to learners during the course. It is recognised that in addition to these handouts instructors will need to create organisational specific handouts to support the delivery of the course. Copies of these materials can be added to this manual as appropriate.

Fish Intake
Presented by:

Course aim

This course aims to provide learners with the knowledge and skills required to support the intake of fish into a fish processing operation.

Objectives

On completion of the course you will be able to:

- Understand the importance of Intake to fish processing operations
- Understand the quality standards that apply at Intake
- Assess the quality of fish and fish products
- Understand product traceability and control

About the day

- Session 1: The role and importance of Intake
- Session 2: Fish quality recognition
- Session 3: Intake processes
- Session 4: Control and traceability

Session 1

The Role and Importance of Intake

Intake – The Importance

Why is Intake important to fish processing?

- Intake is essential to **quality**.

- Remember:
  Poor quality in - Poor quality out!

Intake – Critical control points

What are the food safety hazards?

Contamination:

- Chemical
- Physical
- Biological

Critical control points

- Inspection and testing
- Temperature control
- Supplier documentation

Intake processes – vehicle inspection

Vehicle inspection – What should be checked?

Vehicles must be:

- Appropriate to the task
- Clean
- Of an appropriate temperature
- Free from taints
- Free from pest infestation
- Free from damage

Intake processes – Product specifications

Product specifications – What is included?

Will include requirements such as:

- Temperature – temperature ranges
- Size and/or weight
- Counts
- Storage conditions
- Appearance and characteristics
- Labelling and product information

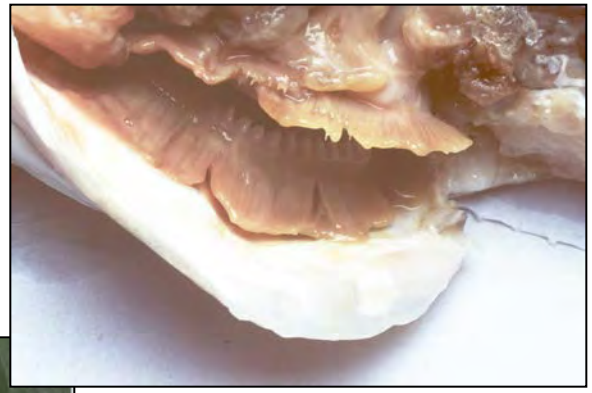
Session 2

Fish Quality Recognition

Fish spoilage

What causes fish to spoil?

- Bacteria
- Enzymes
- Rancidity



Quality recognition – fresh fish

Assessing quality of fresh fish - What is acceptable?

- Eyes should be bright and clear
- Skin should be bright with a good sheen
- No dents, discolouration or slime
- Gills should be bright blood red
- Flesh should be smooth, firm and springy to touch
- A fresh, pleasant sea weedy smell should be present

Sensory quality assessment

Quality assessment methods:

- Torry Schemes
- EU (EAB) Scheme
- Quality Index Method (QIM)

Torry assessment

Quality recognition – frozen products

Assessing quality of frozen fish – What is acceptable?

- Visual appearance
- Texture/firmness
- Drip loss

Quality recognition - shellfish

Assessing quality of shellfish – What is acceptable?

Common causes of quality problems

Causes of quality problems:

- Poor hygiene
- Inadequate icing/temperature control
- Inappropriate storage facilities
- Inappropriate packing/packaging
- Poor handling

Freezer burn

Inappropriate storage

Session 3

Intake Processes

Preparing fish intake areas

How must intake areas be prepared?

Preparations should consider:

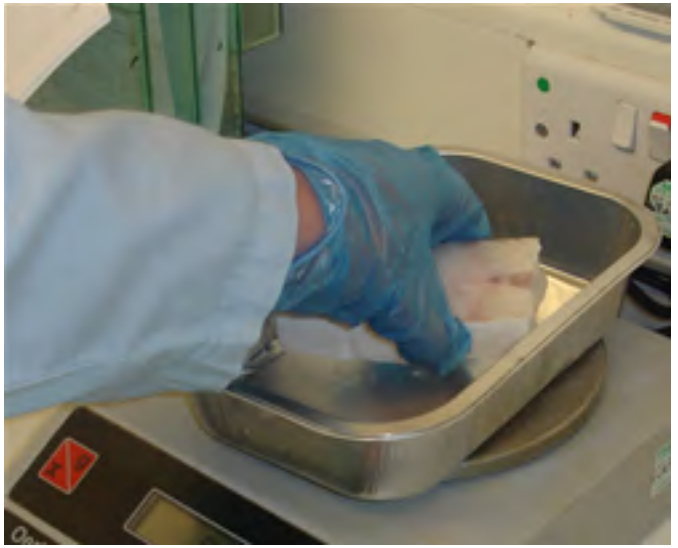
- Hygiene and cleaning
- Access to storage facilities
- Equipment and resources

Handling fish at intake

What should be considered during the intake of fish?

Handling should be:

- Hygienic
- Careful
- Accurate



Inspection methods - temperature

Temperatures can be checked using:

- Temperature gauges
- Thermometers/temperature probes
- Observation (icing)

Inspection methods - sampling

Samples must be:

- Representative
- Securely stored
- Labelled accurately
- Recorded accurately

Intake processes – check weighing

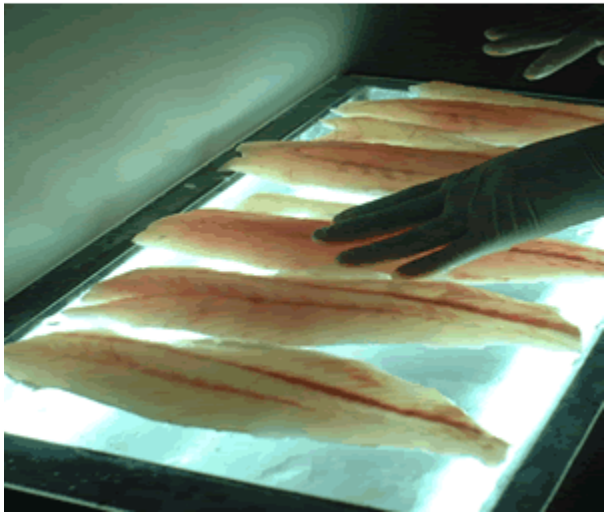
Check weighing should:

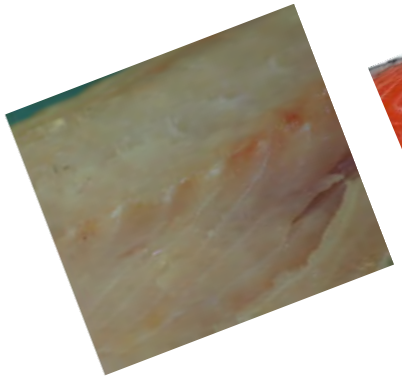
- Be implemented accurately
- Be recorded accurately

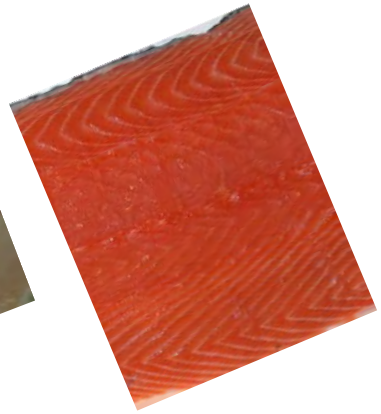
Inspection methods - organoliptic assessment

Assessing fish flesh against recognised quality standards:

- Appearance of raw flesh
- Appearance of cooked flesh
- Odour of cooked flesh
- Flavour of cooked meat
- Texture of cooked meat selected







Session 4

Control and Traceability

Control – intake procedures

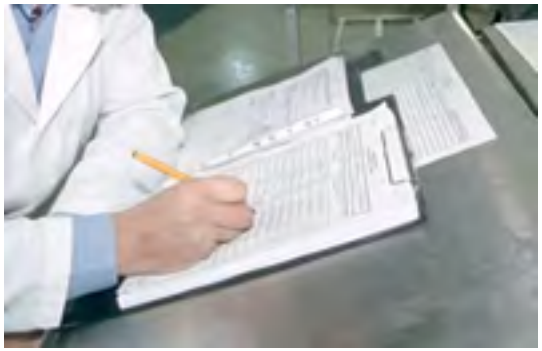
Documented procedures incorporating:

- Work instructions
- Specifications

Control – intake records

Records completed at intake will record:

- Supplier
- Delivery times
- Product and codes
- Delivery data (temperatures, product quality, quantity)
- Person completing inspection
- Codes allocated



Product control – labelling and traceability

Labelling facilitates:

- Batch control
- Traceability

Intake

Decant

Process

Pack

Despatch

Product flow

Control

Non-conforming product must be:

- Controlled
- Segregated
- Labelled

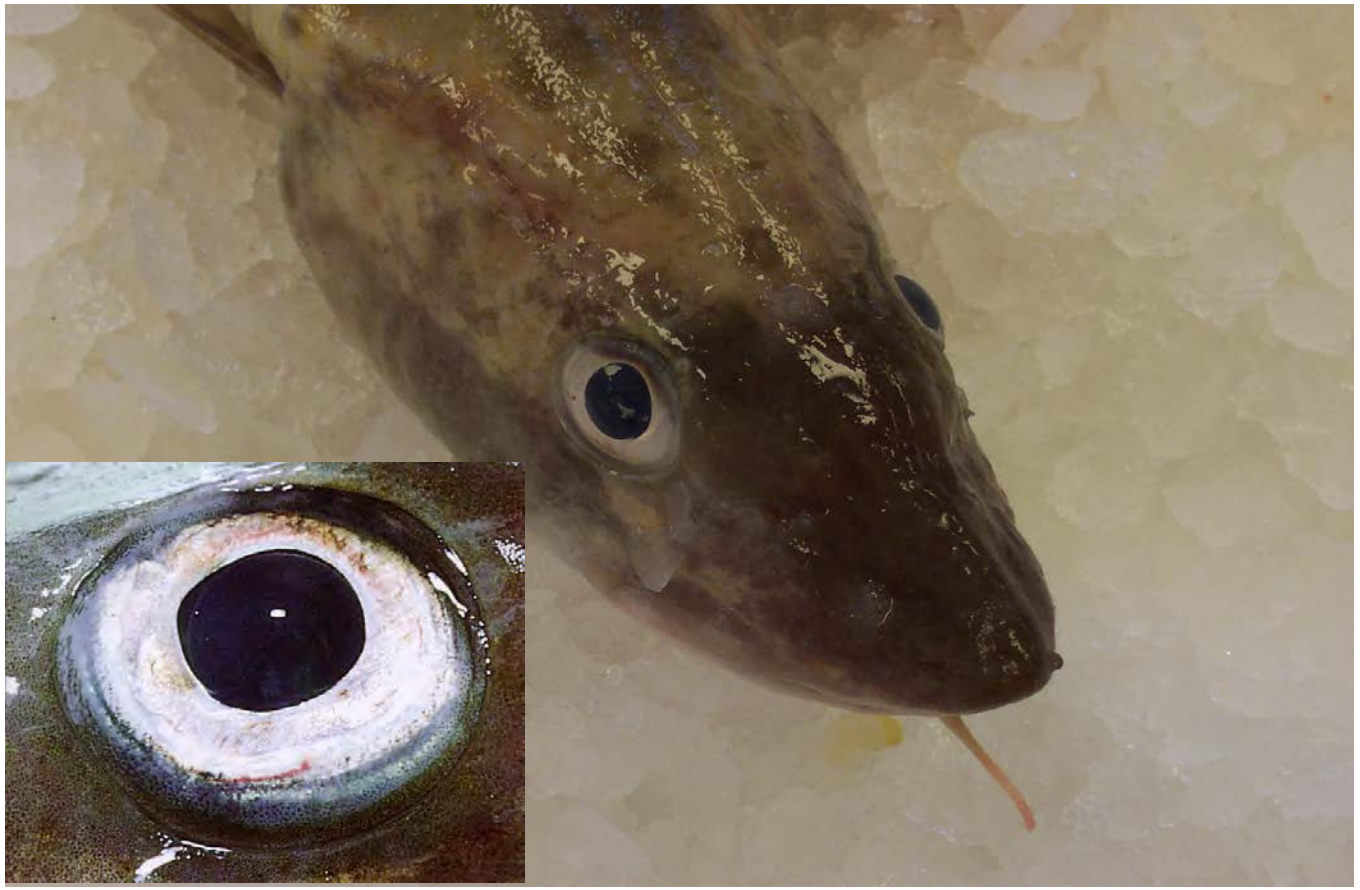
Quality assessment
Fresh Fish: Cod

Torry scale - eyes

10	Eye bulging & convex. Pupil black. Cornea crystal clear
9	Eye still convex. Pupil black. Cornea slightly less clear
8/7	Eye slightly flatter. Pupil slightly grey. Cornea less brilliant
6/5	Eye slightly sunken. Pupil grey. Cornea slightly opalescent
4	Eye sunken. Pupil milky white. Cornea opaque

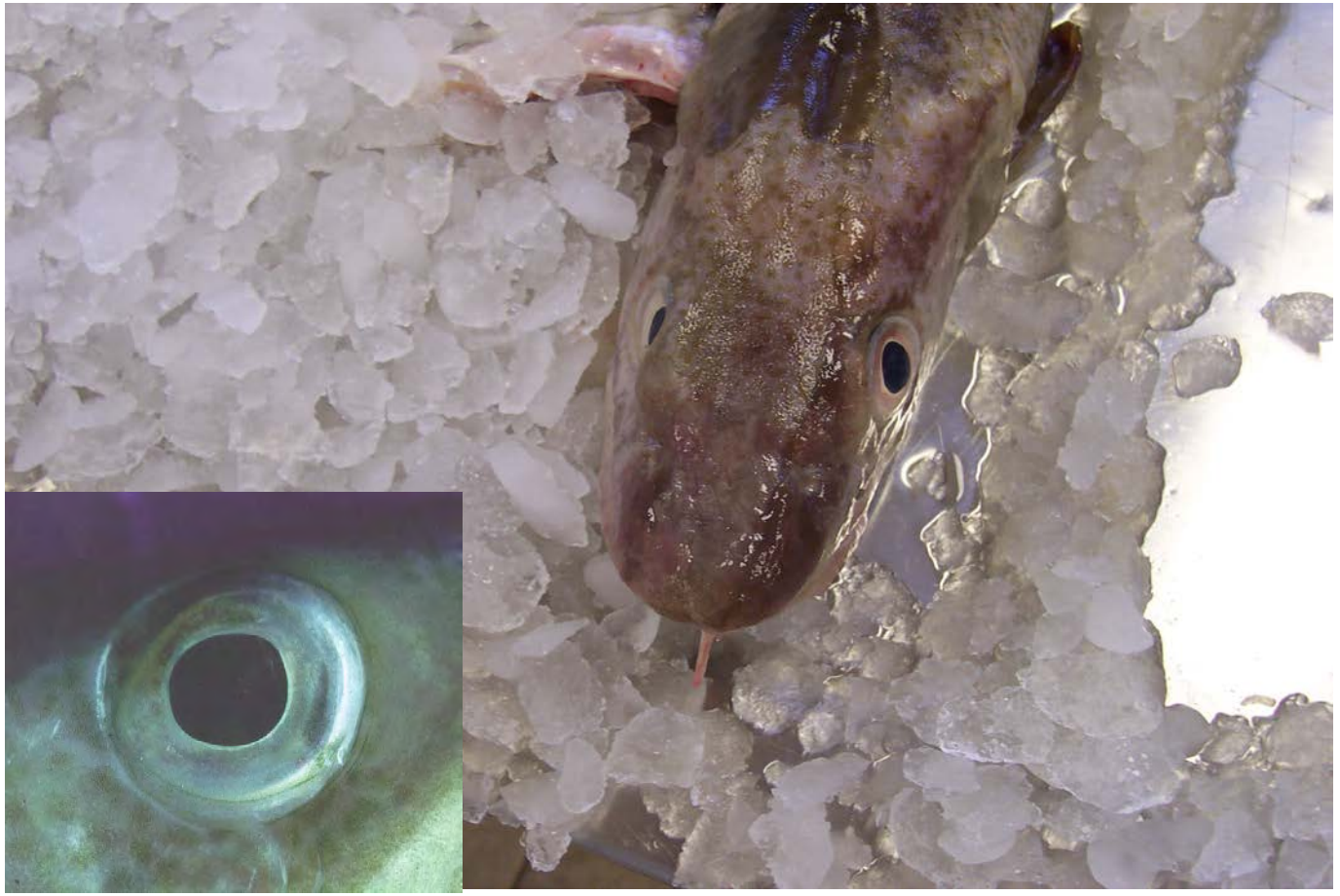
Torry scale – What grade?

Torry 10/9



Torry scale – What grade?

Torry 7



Torry scale – What grade?

Torry 5/4

Torry scale – What grade?

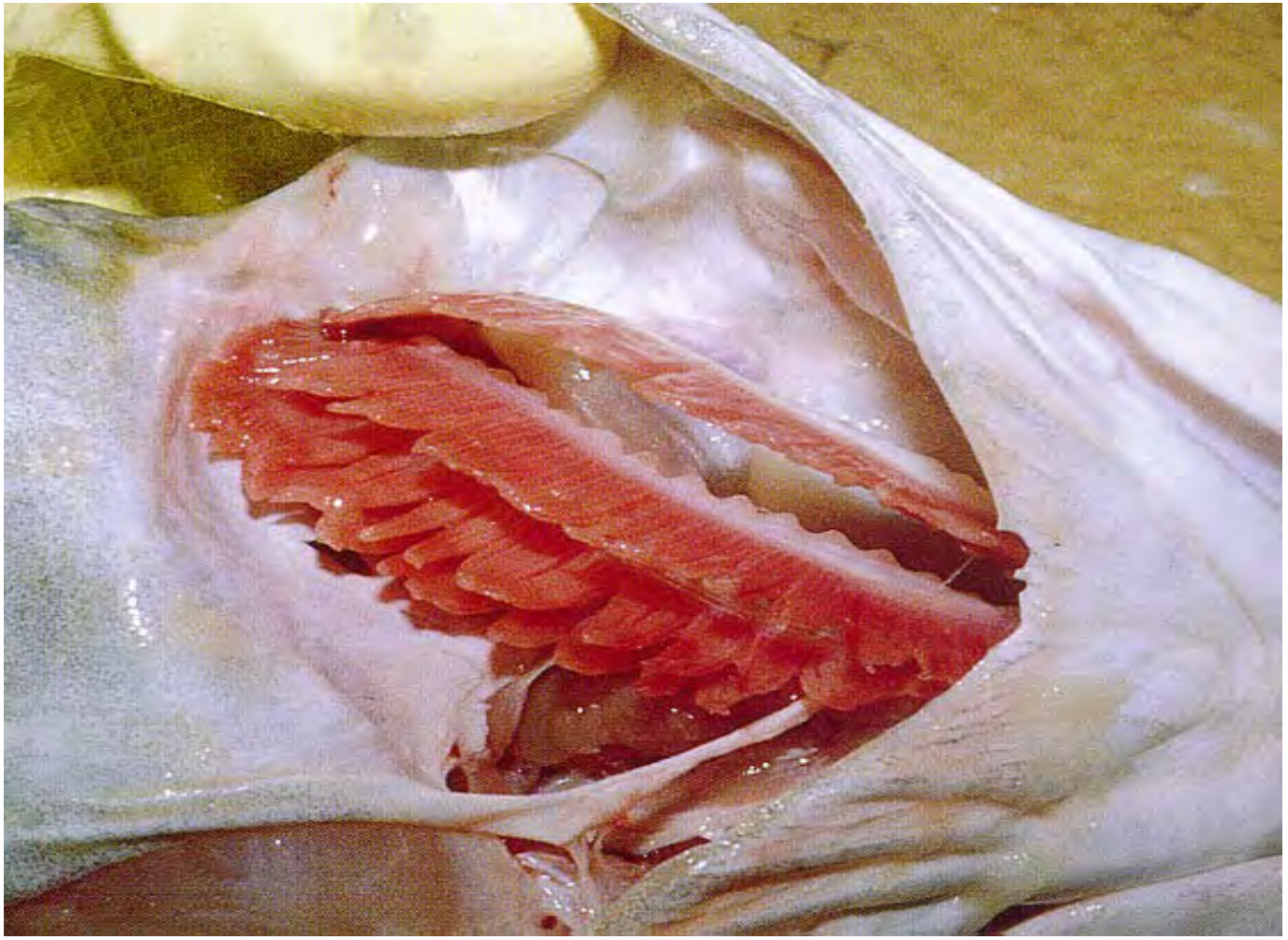
Torry 4/3

Torry scale - Gills

10/9	Gills glossy and bright red or pink. Mucus clear
8/7	Gills less glossy and bright. Slight loss of colour
6/5	Gills discoloured/brown. Mucus cloudy
4	Gills bleached. Mucus brown

Torry scale – What grade?

Torry 10/9



Torry scale – What grade?

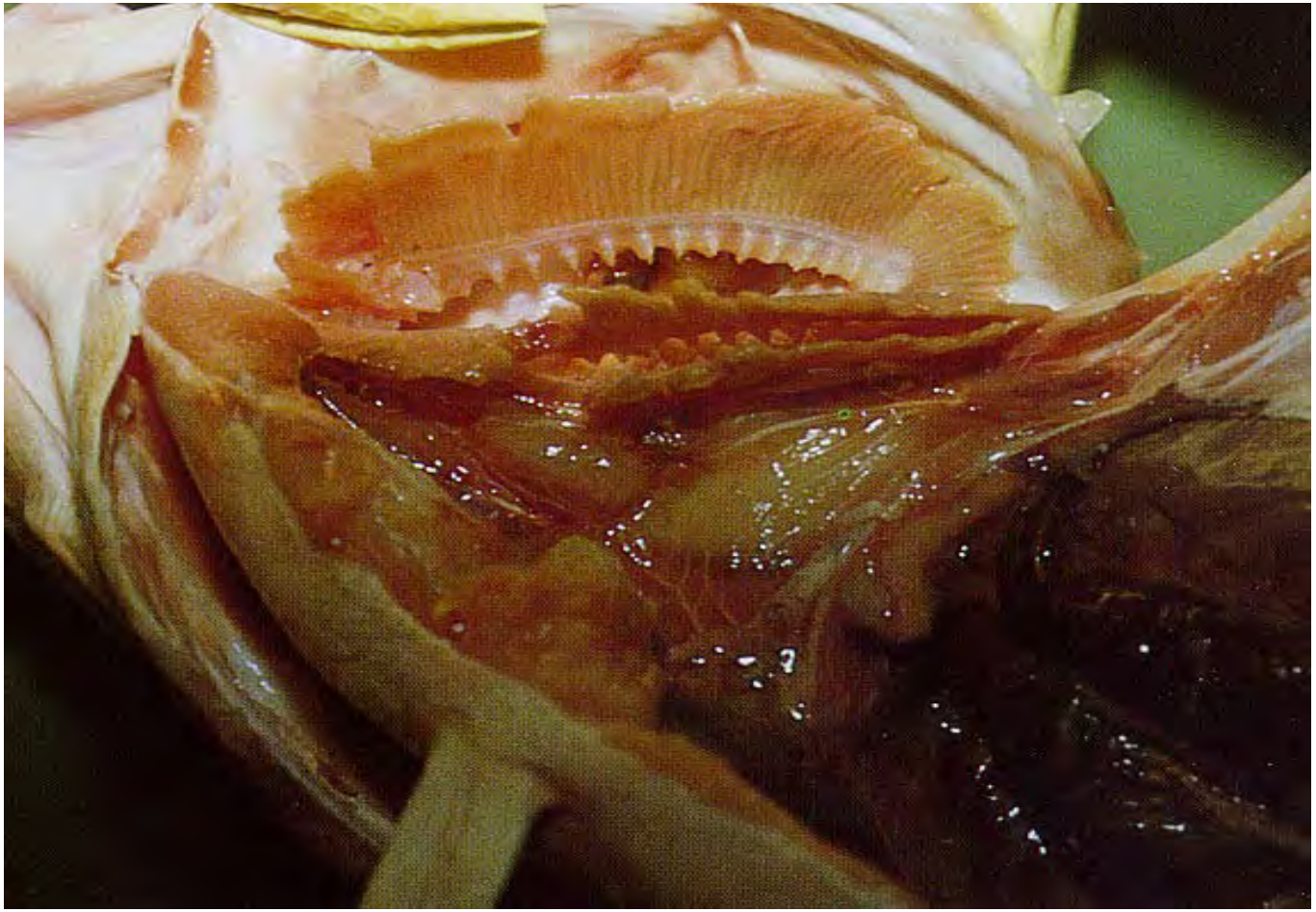
Torry 7

Torry scale – What grade?

Torry 5

Torry scale – What grade?

Torry 4



Torry scale - Smell

10	Very little odour, increasing to sharp, iodine, starchy, metallic odours
9	Less sharp, seaweedy or shellfish odours
8	Fresh cut grass. Seaweedy and shellfish odours just detectable
7	Slight mousy, musty, milky or caprilic odours
6	Bready, malty, beery, yeasty odours
5	Lactic acid, sour milk or oily odours
4	Acetic acid, composted grass, ‘old boots’ odours

Torry scale - Appearance

10/9	Colours are bright and well differentiated. Slime glossy and transparent
8/7	Colours less brilliant. Slime turning slightly milky
6/5	Colours fading and less well differentiated. Slime milky and opaque
4	Further loss of skin colours. Slime thick and knotted and yellow. Skin on nose wrinkled

Torry scale – What grade?

Torry 10/9

Torry scale – What grade?

Torry 7/6

Torry scale – What grade?

Torry 4/3

10	Cut surface stained with blood. Bluish translucency around backbone
9	White with bluish translucency
8/7	White flesh with some loss of bluish translucency Slight yellowing of cut surface of belly flaps
6/5	Flesh has waxy appearance. Reddening around kidney region. Cut surfaces of belly flap brown and discoloured
4	Some opacity. Reddening along the backbone, and brown discolouration of the belly flaps

Torry scale – What grade?

Torry 4/3

10	Flesh firm or elastic. Body in rigor or pre-rigor
9	Flesh firm or elastic. Muscle blocks apparent. In or just passing through rigor
8/7	Flesh firm, elastic to the touch
6/5	Softening of the flesh - finger indentations retained. Some grittiness of skin near the tail
4	Softer flesh. Definite grittiness of skin near the tail

Handout 01

About Quality

Why quality?
The fish processing industry produces a huge range of different products for the consumer. It carries out a range of different processes to prepare products for people to eat. It is important that these products are produced in a consistent manner and to an agreed standard. This is so the consumers get what they want and what they are paying for. This includes making sure that the end product is safe to eat. It is therefore essential that the company produce a product of the correct quality.

Some useful facts about quality

1. A commonly accepted definition of quality is: Quality = 'Fitness for purpose'

In fish processing *this means products that should:*

- be made of the specified ingredients
- look right
- taste right
- be safe for people to eat

2. Quality Assurance (QA)
This is a way of working that makes sure the required quality is being achieved. It means that all the jobs completed to produce a product are completed in such a way that the required product quality is achieved.

3. Quality Control (QC)
This is the process of checking that the quality of a product is what it should be. It relates to the actions and systems that are used to check the quality of products and procedures, against the "standard" or product specification.

4. Quality standards
Good quality standards will maintain customer satisfaction, whereas poor quality standards can have a range of potential implications for fish processing companies. It can lead to:

- Customer complaints
- Dissatisfied customers
- Returned goods and wastage
- Lost orders
- Prosecution

Dissatisfied customers can have a major impact on food and drink businesses.

- On average one dissatisfied customer will tell **nine** other people.
- It costs five times as much to get a new customer as it does to retain an established customer!
- Poor quality can cause financial losses.

Handout 02

Controlling Food Safety

Controlling food safety
For those with the responsibility of receiving fish into a fish processing operation, having an awareness of potential food safety hazards and their control methods is essential.

1. Food safety hazards
Food safety hazards will vary depending on the type of product being received, but typically they can include the following:

- **Chemical contamination** from such things as cleaning agents, diesel, oil, treatments in farmed fish, algal toxins in shellfish
- **Physical contamination** in the form of flaking paint, wood, plastic, hair, mud, stones, metal, wire, pest droppings etc
- **Biological contamination** in the form of bacterial contamination coming from the environment, pests, human influences and emphasised as a result of incorrect product shelf lives and temperature abuse.

2. Critical control points
These are controls that are seen as critical to the maintenance of food safety. Their effective implementation is therefore seen as essential to the maintenance of food safety.

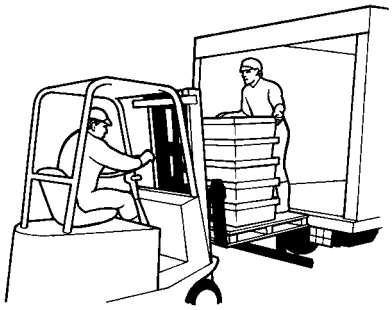
2.1 Inspection and test procedures
These will form the basis of the intake procedures incorporating visual inspections and the use of analytical testing as appropriate to the products being received. Typically analytical testing is used to determine the presence of food poisoning organisms, and chemical contaminants.

2.2 Temperature control
With the majority of fish products temperature is crucial to food safety. Systems to monitor and control temperature are likely to be an integral part of intake procedures. Temperature monitoring is likely to involve vehicles, intake areas, and the products themselves.

2.3 Supplier documentation
In certain situations suppliers will provide assurances about the safety of their fish. For example; farmed fish that has been treated will not be supplied until the withdrawal period for the treatment has been achieved. In this case a supply of fish will be accompanied by details of testing programmes, results and product specifications. This helps to ensure the quality of the produce and ensure food safety.

Handout 03

Transport



Vehicle Inspections
The fish processing industry relies on the use of temperature controlled transport for the supply of raw material in the form of bulk fresh or frozen fish and/or fish products. The quality of the product received at the point of intake, is dependent on the condition of the delivery vehicle. It is therefore essential that the vehicle is checked against the specified standards.

Vehicle inspections
It is recommended that the following vehicle checks are made at point of intake.

1. The vehicle must be appropriate to the task
It should be designed to carry temperature controlled products and capable of preventing the fish from being contaminated. It must be dedicated to the task and not used for the transport of other materials

2. The inside of the vehicle must be at the required temperature
For chilled product 0 – 5^{o}C
For frozen product -18^{o}C or colder

3. The vehicle must be clean
It must meet the required standards of cleanliness to minimise the opportunities for bacterial contamination during the journey.

4. The vehicle must be free from taints
Fish can be tainted by odours resulting from ineffective cleaning, inappropriate cleaning agent usage, inappropriate paints usage, fuels spillages etc.

5. The vehicle must be free from signs of pest infestation
There should be no signs to indicate that pests had accessed the vehicle. For example: droppings and foot prints.

6. The vehicle must be free from damage
The vehicle should be free from damage that may impact on the integrity of the vehicle and/or contaminate product with debris of any kind.

Handout 04

Fish Quality Assessment

Assessing quality
For those with the responsibility of receiving fish into a fish processing operation, being able to judge the quality of fish at a glance is essential. Detailed below are the basic principles of quality assessment for fresh fish, frozen fish and shellfish.

1. Fresh fish

Use your senses; look, smell, and touch as indicators of freshness, including:

- Eyes should be bright and clear
- Skin should be bright with a good sheen
- No dents, discolouration or slime
- Gills should be bright blood red
- Flesh which is smooth, firm and springy to touch
- A fresh pleasant sea weedy smell should be present

2. Frozen fish

Use your senses including looking and touching as indicators of freshness.
You should check the following:

- Colour should be consistent with no white patches (freezer burn)
- No ice crystals on its surface (thawing and refreezing)
- Flesh should be solid to the touch (not defrosted)

3. Shellfish

Use your senses including looking and touching as indicators of freshness.
You should check the following:

- Molluscs should remain closed or shut rapidly when tapped and have a fresh sea weedy smell
- Live crustaceans should smell fresh and sea weedy and be quite active when touched