



**SEA FISH INDUSTRY AUTHORITY**

**~ QUALITY ASSURANCE ~**

**FISH PURCHASE SPECIFICATIONS**

# Contents

	<b>Page</b>
<b>Introduction</b>	<b>3</b>
<b>Purchase Specifications</b>	<b>4</b>
1 White Fish .....	<b>5</b>
2 White Fish Laminated Products .....	<b>7</b>
3 Smoked White Fish .....	<b>9</b>
4 Oil Rich Fish .....	<b>12</b>
5 Cold Smoked Oil Rich Fish .....	<b>14</b>
6 Hot Smoked Oil Rich Fish .....	<b>16</b>
7 Prawns .....	<b>18</b>
<b>Torry Fish Quality Assessment System</b>	<b>20</b>
Torry Freshness Scoring System for Cod - raw fish.....	<b>21</b>
Torry Taste Panel System for Cod - cooked fillet.....	<b>22</b>
Torry Freshness Scoring System for Plaice - raw fish.....	<b>23</b>
Torry Taste Panel System for Plaice - cooked fillet.....	<b>24</b>
Torry Freshness Scoring System for Herring - raw fish.....	<b>25</b>
Torry Freshness Scoring System for Mackerel - raw fish.....	<b>26</b>
Torry Taste Panel System for Herring - cooked fillet.....	<b>27</b>
Torry Taste Panel System for Mackerel - cooked fillet.....	<b>27</b>
Torry Taste Panel System for Cold Storage Deterioration.....	<b>28</b>
<b>Glossary</b>	<b>29</b>
<b>Quality Assurance Services</b>	<b>30</b>

## Introduction

The objective of this book is to provide businesses, which trade in fish with a broad selection of purchase specifications, encompassing all the main types of fish products. It is intended that each specification is comprehensive and appropriate for use as the basis of a contract.

The prime benefit of using written specifications is that a business can clearly describe its requirements in a manner that avoids ambiguity and aids comprehension. A second benefit is that a valid contract can be formed between purchaser and supplier in which there is documentary evidence of intent in the event of a dispute.

The body of the text makes extensive use of the Torry Fish Quality Assessment System for describing the product as it should *arrive* with the customer. As there will be many people who are not familiar with this method of assessing fish quality, a full breakdown of its main features has been included in the section, which begins on the next page.

Each specification covers a variety of species and product types, allowing them to be individually adapted to suit most circumstances.

The specifications are ring-bound for ease of photocopying and there is no copyright restriction on doing so for purchasing fish.

# **Purchase Specifications**

# Purchase Specification 1

## White Fish

### A: Scope of the Specification

This specification applies to all white fish e.g

Cod ( <i>Gadus morhua</i> )	Coley (Saithe) ( <i>Pollachius virens</i> )
Haddock ( <i>Melanogrammus aeglefinus</i> )	Redfish ( <i>Sebastes spp</i> )
Whiting ( <i>Merlangius merlangus</i> )	South Atlantic Hake ( <i>Merluccius spp</i> )
Pollock ( <i>Pollachius pollachius</i> )	Plaice ( <i>Pleuronectes platessa</i> )
Hoki ( <i>Macruronus novaezalandiae</i> )	Black Halibut (Greenland Halibut)
Lemon Sole ( <i>Microstomus kitt</i> )	( <i>Reinhardtius hippoglossoides</i> )
Dover Sole ( <i>Solea solea</i> )	

### B: Definition of the Product

The type of product should be defined e.g

Single fillet  
Block (butterfly fillet)  
Cutlet (steak)  
Fillet portion (cut form whole fillets)

### C: Specification of the Product as Delivered

<b>Colour (blemishes)</b>	Bruises and blood clots and other localised discolouration which materially affect the appearance and/or eating quality should have been trimmed out.
<b>Bones, skin and belly lining</b>	All of the bones except for the pin bones should have been removed during filleting.  Fish can be supplied either with the skin on or skinless. If it is supplied skinless then there should be no more than 10 sq.cm per 3.2kg (7lbs).  Belly lining should be removed but a tolerance of up to 15 sq.cm per 3.2kg (7lbs) may be allowed.
<b>Worms and other parasites</b>	The maximum tolerance for nematode worms is three worms per 3.2kg (7lbs). No other parasites are permitted.

**Size of fillet** Individual fillets must weigh not less than ( )g/ozs or more than ( )kg/lbs.

**Eating quality** Fillets must not gape or exhibit abnormal textural faults (e.g due to the use of spent or starved fish) nor must they contain abnormal intrinsic odours or flavours such as 'weedy' or 'diesel' flavours common in fish from certain grounds at certain seasons.

The fish must score at least ( ) on the Torry Panel Scoring System for cooked fish.

For frozen fish there should be no freezer defects such as freezerburn and on the Torry Taste Panel System for assessing cold storage deterioration, the scores should not exceed:

Cold store flavour	3.0
Firmness	4.5
Dryness	3.0

**Packaging** Wet fish should be packed in non-returnable, lidded, water-resistant packaging of such material that will not impart a taint to the product. Expanded polystyrene is recommended because of its superior thermal insulation properties.

Frozen fish should be well wrapped and sealed to protect the product from freezer deterioration and also physical damage and contamination.

Products should be packed in units of ( )kg.

**Temperature at delivery** The temperature of we fish at the time of delivery should be in the range of 0°C to +4.0°C.

The temperature of frozen products at the time of delivery should be -18°C. (There is a legal tolerance of 3°C up to -15°C for short periods during delivery).

## Purchase Specification 2

### White Fish Laminated Products

#### A: Scope of the Specification

This specification applies to all white fish e.g

Cod ( <i>Gadus morhua</i> )	Coley (Saithe) ( <i>Pollachius virens</i> )
Haddock ( <i>Melanogrammus aeglefinus</i> )	Redfish ( <i>Sebastes spp</i> )
Whiting ( <i>Merlangius merlangus</i> )	South Atlantic Hake ( <i>Merluccius spp</i> )
Pollock ( <i>Pollachius pollachius</i> )	Hoki ( <i>Macruronus novaezalandiae</i> )
Blue Whiting ( <i>Micromesistius poutassou</i> )	

#### B: Definition of the Product

The type of product should be defined e.g

Portion cut from fillet block

Portion cut from minced fish block

Portion cut from a block containing a mixture of fillet and minced fish.

Portion/finger cut from fillet block and coated (either batter or crumb)

Portion/finger cut from minced fish block and coated (either batter or crumb)

Portion cut from a block containing a mixture of fillet and minced fish and coated (either batter or crumb).

#### C: Specification of the Product as Delivered

<b>Species</b>	The species contained in the block form from which the portions are cut should be specified.
<b>Colour (blemishes)</b>	Bruises and blood clots and other localised discolouration which materially affect the appearance and/or eating quality should have been trimmed out.
<b>Bones, skin and belly lining</b>	<p>There should be no bones present capable of piercing the soft plate.</p> <p>There shall be no bones larger than can be fitted into a rectangle measuring 40mm x 10mm. There shall be no more than one bone which can be fitted inside this 40mm x 10mm rectangle but will not fit inside a 10mm x 3mm rectangle in 1.0kg (2.2lbs) of fish flesh. Any bones which can be fitted inside a 10mm x 3mm rectangle shall not be considered a defect.</p> <p>There should be no more than 3sq cm of skin per 1.0kg (2.2lbs) of fish flesh.</p> <p>There should be no more than 5sq cm of belly lining per 1.0kg (2.2lbs) of fish flesh.</p>

<b>Worms and other parasites</b>	The maximum tolerance for nematode worms is one worm per 1.0kg (2.2lbs). No other parasites are permitted.
<b>Size of product</b>	Individual portions/fingers must weigh not less than ( )g/ozs or more than ( )g/ozs.  Each portion/finger should contain a minimum of ( )% fish flesh.
<b>Eating quality</b>	The fish used must not exhibit any abnormal textural faults (e.g due to the use of spent or starved fish) nor must they contain abnormal intrinsic odours or flavours such as 'weedy' or 'diesel' flavours common in fish from certain grounds at certain seasons.  The fish must score at least ( ) on the Torry Taste Panel Scoring System for cooked fish.  There should be no freezer defects such as freezerburn and on the Torry Taste Panel System for assessing frozen defects they should not exhibit: <ul style="list-style-type: none"> <li>1      Objectionable cold-storage odours and flavours</li> <li>2      Toughness and dryness resulting from cold-storage deterioration</li> <li>3      Gelatinous texture</li> </ul>
<b>Packaging</b>	The products should be well wrapped and sealed to protect the product from freezer deterioration and also physical damage and contamination.  Products should be packed in units of ( )kg.  Each package should: <ul style="list-style-type: none"> <li>a)      Be clearly marked with the name of the product and species.</li> <li>b)      Be clearly marked with the number of portions/fingers and nett weight of the contents.</li> <li>c)      Be clearly marked with the words "If Thawed – Do Not Re-Freeze".</li> </ul>
<b>Temperature at delivery</b>	The temperature of the frozen products at the time of delivery should be -18°C. (There is a legal tolerance of 3°C up to -15°C for short periods during delivery).



Fillets must not gape or exhibit abnormal textural faults (e.g due to the use of spent or starved fish) nor must they contain abnormal intrinsic odours or flavours such as 'weedy' or 'diesel' flavours common in fish from certain grounds at certain seasons.

The fish must score at least ( ) on the Torry Taste Panel Scoring System for cooked fish.

For frozen fish there should be no freezer defects such as freezerburn and on the Torry Taste Panel System for assessing cold storage deterioration, the scores for fillets should not exceed:

Cold store flavour	3.0
Firmness	4.5
Dryness	3.0

**Raw smoked fish quality**

The texture of the raw smoke fish should be firm and springy to the touch.

It must be free from excessive smuts.

It should contain no more than 2.5% by weight of sodium chloride.

**Eating quality**

The cooked product must have a pleasant mild fresh smoked flavour and there should be no acrid, resinous or musty odours or flavours due to the use of unsuitable wood shavings during the smoking process.

The cooked fish must be free from stale odours and must not exhibit any sourness whatsoever and must not be excessively tough or dry.

**Packaging**

Wet fish should be delivered in non-returnable lidded water-resistant packaging of such material that will not impart a taint to the product. Expanded polystyrene is recommended because of its superior thermal insulation properties.

Frozen fish should be well wrapped and sealed to protect the product from freezer deterioration and also physical damage and contamination.

Products should be packed in units of ( )kg.

**Temperature at delivery**

The temperature of wet fish at the time of delivery should be in the range of 0°C to +4.0°C (legal maximum is +8.0°C).

The temperature of the frozen fish at the time of delivery should be -18°C. (There is a legal tolerance of 3°C up to -15°C for short periods during delivery).

# Purchase Specification 4

## Oil Rich Fish

### A: Scope of the Specification

This specification applies to:

Herring (*Clupea harengus*)

Mackerel (*Scomber scombrus*, *Scomber japonicus* or *Scomber colias*)

Pilchards (*Sardina pilchardus*)

Sprats (*Sprattus sprattus*)

### B: Definition of the Product

The type of product should be defined e.g

Whole fish

Single fillet

Block (butterfly) fillet

### C: Specification of the Product as Delivered

<b>Appearance</b>	The appearance of the whole fish skin must be bright, the eyes must not be sunken, the gills should be deep maroon in colour and have a sharp metallic smell and the belly wall must be intact.
<b>Condition</b>	Fish must not be spent and must have at least ( )% fat content.
<b>Worms and other parasites</b>	The maximum tolerance for nematode worms is three worms per 3.2kg (7lbs). Not other parasites are permitted.
<b>Size of whole fish or fillet</b>	Individual fish or fillets must weight not less than ( )g/ozs or more then ( )kg/lbs.
<b>Eating quality</b>	<p>The fish must score at least ( ) on the Torry Taste Panel Scoring System for cooked fish.</p> <p>For thawed frozen fish there should be no freezer defects such as freezerburn and it should be free from the following:</p> <ol style="list-style-type: none"><li>1 Rancid flavours</li><li>2 Toughness and dryness resulting from cold storage deterioration</li><li>3 Yellow discolouration.</li></ol>

**Packaging**

Wet fish should be delivered in non-returnable lidded water-resistant packaging of such material that will not impart a taint to the product. Expanded polystyrene is recommended because of its superior thermal insulation properties.

Frozen fish should be well wrapped and sealed to protect the product from freezer deterioration and also physical damage and contamination.

Products should be packed in units of ( )kg.

**Temperature at delivery**

The temperature of wet fish at the time of delivery should be in the range of 0°C to +4.0°C.

The temperature of frozen fish at the time of delivery should be -18°C. (There is a legal tolerance of 3°C up to -15°C for short periods during delivery).

# Purchase Specification 5

## Cold Smoked Oil Rich Fish

### A: Scope of the Specification

This specification applies to:

Herring (*Clupea harengus*)

Mackerel (*Scomber scombrus*, *Scomber japonicus* or *Scomber colias*)

### B: Definition of the Product

The type of product should be defined e.g

Single fillet

Boned kipper (block or butterfly fillet)

Kipper

### C: Specification of the Product as Delivered

<b>Appearance</b>	<p>The appearance of the product must be glossy and should not exhibit any raggedness.</p> <p>Kidney blood along the backbone, gut pieces and swim bladder must not be present.</p> <p>They may (or may not) be coloured with a permitted food grade dye.</p>
<b>Bones</b>	<p>All of the bones except for the pin bones should have been removed during filleting (except in the case of the kippers, which will contain all of the skeletal bones).</p>
<b>Worms and other parasites</b>	<p>The maximum tolerance for nematode worms is three worms per 3.2kg (7lbs). No other parasites are permitted.</p>
<b>Size of fillet</b>	<p>Individual fillets must weigh not less than ( )g/ozs or more than ( )kg/lbs.</p>
<b>Quality of raw fish</b>	<p>At the time of preparation of the smoked fish, the raw material must meet the following freshness standards:</p> <p>The fish must score at least ( ) on the Torry Taste Panel Scoring System for cooked fish.</p>

For thawed frozen fish there should be no freezer defects such as freezerburn and it should be free from the following:

- 1 Rancid flavours
- 2 Toughness and dryness resulting from cold storage deterioration
- 3 Yellow discolouration

**Raw smoked fish** It must be free from excessive smuts.

It should contain between 1.8% and 3.0% by weight of sodium chloride.

**Eating quality** It must have a pleasant fresh smoked flavour and there should be no acrid, resinous or musty odours or flavours due to the use of unsuitable wood shavings during the smoking process.

The cooked fish must be free from stale odours and flavours and must show no signs whatsoever of sourness, faecal or mouldy odours or flavours.

**Packaging** Wet fish should be delivered in non-returnable lidded water-resistant packaging of such material that will not impart a taint to the product.

Frozen fish should be well wrapped and sealed to protect the product from freezer deterioration and also physical damage and contamination.

Products should be packed in units of ( )kg.

**Temperature at delivery** The temperature of wet fish at the time of delivery should be in the range of 0°C to +4.0°C (legal maximum is +8.0°C).

The temperature of frozen fish at the time of delivery should be -18°C. (There is a legal tolerance of 3°C up to -15°C for short periods during delivery).

# Purchase Specification 6

## Hot Smoked Oil Rich Fish

### A: Scope of the Specification

This specification applies to:

Mackerel (*Scomber scombrus*, *Scomber japonicus* or *Scomber colias*)

### B: Definition of the Product

The type of product should be defined e.g

Single fillet

Block (butterfly) fillet

### C: Specification of the Product as Delivered

<b>Appearance</b>	<p>The appearance of the product must be glossy and should not exhibit any raggedness.</p> <p>Kidney blood along the backbone, gut pieces and swim bladder must not be present.</p> <p>They may (or may not) be coloured with a permitted food grade dye.</p>
<b>Bones</b>	<p>All of the bones except for the pin bones should have been removed during filleting.</p>
<b>Worms and other parasites</b>	<p>The maximum tolerance for nematode worms is three worms per 3.2kg (7lbs). No other parasites are permitted.</p>
<b>Size of fillet</b>	<p>Individual fillets must weigh not less than ( )g/ozs or more than ( )kg/lbs.</p>
<b>Quality of raw fish</b>	<p>At the time of preparation of the smoked fish, the raw material must meet the following freshness standards:</p> <p>The fish must score at least ( ) on the Torry Taste Panel Scoring System for cooked fish.</p> <p>For thawed frozen fish there should be no freezer defects such as freezerburn and it should be free from the following:</p>

- 1 Rancid flavours
- 2 Toughness and dryness resulting from cold storage deterioration
- 3 Yellow discolouration

**Smoked fish**

It must be free from excessive smuts.

It should contain between 1.8% and 3.0% by weight of sodium chloride.

**Eating quality**

It must have a pleasant fresh smoked flavour and there should be no acrid, resinous or musty odours or flavours due to the use of unsuitable wood shavings during the smoking process.

The fish must be free from stale odours and flavours and must show no signs whatsoever of sourness, faecal or mouldy odours or flavours.

**Packaging**

Wet fish should be delivered in non-returnable lidded water-resistant packaging of such material that will not impart a taint to the product.

Frozen fish should be well wrapped and sealed to protect the product from freezer deterioration and also physical damage and contamination. Vacuum packing is recommended to prevent oxidation (rancidity) of the fats occurring.

Products should be packed in units of ( )kg.

**Temperature at delivery**

The temperature of wet fish at the time of delivery should be in the range of 0°C to +4.0°C (legal maximum is +8.0°C)

The temperature of frozen fish at the time of delivery should be -18°C. (There is a legal tolerance of 3°C up to -15°C for short periods during delivery).

# Purchase Specification 7

## Prawns

### A: Scope of the Specification

This specification applies to all prawns (species to be entered) e.g:

Palamonidae	Penaeidae
Pandalidae	Crangon
Nephrops	

### B: Definition of the Product

The type of product should be defined e.g

Whole prawns (cooked)  
Whole prawns (raw)  
Prawn tails (cooked)  
Prawn tails (raw)  
Prawn tails (cooked and peeled)

Prawn tails are prawns that have had the head removed.

Peeled prawn tails are prawns that have had the head and shell removed.

### C: Specification of the Product as Delivered

#### Appearance

The prawns must be uniform in size within the count.

If the prawns are frozen then they should be free flowing and not display clumping.

The prawns must display the characteristic colour of the species.

Black spot or any other abnormal colouration is not acceptable.

If the product is frozen, slight dehydration is acceptable but marked freezer-burn is not and ice crystals on the surface are also not permitted.

The prawns shall have an odour characteristic of the species. Objectional odours such as sour, putrid or ammoniacal are unacceptable.

#### Size of product

They should be of a size to give a count of ( ) per kg/lb.

<b>Eating quality</b>	<p>The flavour of the cooked product should be sweet and characteristic of the species.</p> <p>The texture should be firm.</p> <p>The colour must be white/pink.</p> <p>Sour, bitter or rancid flavours are unacceptable.</p> <p>A soft texture is not permitted.</p> <p>A very slight cold storage flavour is acceptable.</p> <p>The salt content in the prawns should not exceed 2.5%.</p>
<b>Glazing</b>	<p>When frozen, the glazing should be sufficient to minimise oxidation and freezerburn.</p> <p>The water used for glazing shall be of potable quality.</p> <p>The glaze on the prawns must not exceed ( )% of the total weight.</p> <p>No pack may contain excessive ice crystals in the form of clumps or loose crystals.</p>
<b>Packaging</b>	<p>Wet prawns should be wrapped to provide protection from contamination and physical damage.</p> <p>Frozen prawns should be well wrapped and sealed to protect the product from freezer deterioration (freezerburn), contamination and physical damage.</p> <p>Products should be packed in units of ( )g/kg.</p>
<b>Temperature at delivery</b>	<p>The temperature of wet prawns at the time of delivery should be in the range of 0°C to +4.0°C.</p> <p>The temperature of frozen prawns at the time of delivery should be -18°C. (There is a legal tolerance of 3°C up -15°C for short periods during delivery).</p>

**Torry Fish Quality  
Assessment Systems**

## Torry Freshness Scoring System for Cod - Raw Fish

SCORE	EYES	SKIN	TEXTURE AND EFFECT OF RIGOR MORTIS	FLESH AND BELLY FLAPS	KIDNEY AND BLOOD	GILLS - APPEARANCE	GILLS - ODOUR	SCORE
<b>10</b>	Bulging, convex lens, black pupil, crystal-clear cornea	Bright well-differentiated colours, glossy, transparent slime	Flesh firm and elastic. Body pre-rigor or in rigor	Cut surface stained with blood. Bluish translucency around	Bright red, blood flows readily	Glossy, bright red or pink, clear mucus	Initially very little odour increasing to sharp, iodine, changing to less sharp sea-weedy shellfish odours	<b>10</b>
<b>9</b>	Convex lens, black pupil with slight loss of initial clarity		Flesh firm and elastic. Muscle blocks apparent. In or just passing through rigor	White with bluish translucency, may be corrugated due to rigor mortis effect	Bright red, blood does not flow			<b>9</b>
<b>8</b>	Slight flattening or plane, loss of brilliance	Loss of brilliance of colour	Firm, elastic to the touch	White flesh with some loss of bluish translucency. Slight yellowing of cut surface of belly flaps	Slight loss of brightness, some browning	Loss of gloss and brightness, slight loss of colour	Freshly cut grass. Sea-weedy and shellfish odours just detectable	<b>8</b>
<b>7</b>							Slight mousy, musty, milky or caprylic	<b>7</b>
<b>6</b>	Slightly sunken, slightly grey pupil, slight opalescent of cornea	Loss of differentiation and general fading of colours, overall greyness. Opaque and somewhat milky slime.	Softening of the flesh, finger indentations retained, some grittiness near tail	Waxy appearance of the flesh, reddening around the kidney region. Cut surfaces of the belly flaps brown and discoloured.	Loss of brightness, some browning	Loss of brightness, some browning	Bready, malty, beery, yeasty	<b>6</b>
<b>5</b>							Lactic acid, sour milk or oily	<b>5</b>
<b>4</b>	Sunken, milky white pupil, opaque cornea	Further loss of skin colour. Thick yellow knotted slime with bacterial discolouration. Wrinkling of skin on nose	Softer flesh, definite grittiness	Some opacity, reddening along the backbone and brown discolouration of belly flaps	Brownish kidney blood	Brown or bleached	Lower fatty acid odours(e.g. acetic or butyric acids) composed grass, 'old boots', slightly sweet, fruity or chloroform-like	<b>4</b>
<b>3</b>							Stale cabbage water, stale turnips, 'sour sink', wet matches	<b>3</b>

## Torry Taste Panel System for Cod - Cooked Fillet

Score	Odour	Flavour	Texture, mouth Feel and appearance	Score
10	Initially weak odour of sweet boiled milk, starchy followed by strengthening of these odours	Watery, metallic, starchy. Initially no sweetness but meaty flavours with slight sweetness developing	Dry, crumbly with short tough fibres	10
9	Shellfish, seaweed, boiled meat, raw green plant	Sweet, meaty, creamy, green plant, characteristic flavours	Succulent, fibrous. Initially firm going softer with storage. Appearance white and opaque	9
8	Loss of odour, neutral odour	Sweet and characteristic flavours but reduced in intensity		8
7	Wood shavings, wood sap, vanillin	Neutral		7
6	Condensed milk, caramel, toffee-like	Inspid, tasteless as if chewing cotton wool		6
5	Milk jug odours, boiled potato, boiled clothes-like	Slight sourness, trace of 'off' flavours, possibly slight ammonia	Flesh soft becoming very soft and slimy. Appearance becoming discoloured and yellowish	5
4	Lactic acid, sour milk, byre-like	Stronger sourness, slight bitterness, strong 'off' flavours, some ammonia		4
3	Lower fatty acids(e.g. acetic or butyric acids), composted grass, soapy, turnipy, tallowy	Strong bitterness, rubber, sulphide, definite ammonia		3

## Torry Freshness Scoring System for Plaice - Raw Fish

SCORE	ODOUR - (Gills and Belly Cavity)	GENERAL APPEARANCE	FLESH	TEXTURE	SCORE
<b>10</b>	Fresh oil, metallic, roses, freshly-cut grass	Eyes full, bright or very slightly cloudy; Gills bright red or very deep pink with slight clear slime; Slime on body clear to slightly milky	Translucent with blue or pink tinge. Dark purple in backbone	Firm and slimy	<b>10</b>
<b>9</b>	Metallic, oily, earthy, peppery				<b>9</b>
<b>8</b>	Oily, seaweedy, aromatic	Eyes slightly sunken, some opacity; Gills pale pink, slightly bleached with thick opaque slime; Slime on body thick and opaque; Edge of gill cover slightly bleached and pinking and pinking on underside of body	Loss of translucency; Bluish or pinkish white; Slight waxyness. Backbone still purple	Loss of slime but no grittiness	<b>8</b>
<b>7</b>	Oily, citric, musty, mousy				<b>7</b>
<b>6</b>	Oily, bready, biscuity, malty, cut-flower stems	Eyes sunken and opaque; Gills bleached with thick grey or brown slime; Slime on body yellow and watery; Bleaching on back, particularly in head region and gill cover, pinking on underside	Waxy, slight yellowing, slight discolouration of body cavity. Backbone still well coloured (red-blue to purple)	Slight grittiness	<b>6</b>
<b>5</b>	Sour beer, slight rancidity, painty, cod-liver oil				<b>5</b>
<b>4</b>	Muddy, grassy, meaty, stale vegetables, 'old boots', fruity, sweaty, lower fatty acids	Eyes completely sunken or bloated and opaque; Gills very bleached with dirty grey or brown-yellow slime; Slime on body watery with yellow bacterial discolouration; Marked bleaching and pinking on body	Some opacity, yellow or brownish discolouration extending in from fin rays. Reddening in backbone	Grittiness towards the tail	<b>4</b>
<b>3</b>	Rotten cabbages, sour sink, wet matches, rotten meat, rancid butter				<b>3</b>
<b>2</b>	Byre-like, singed hair, ammonia	Eyes totally collapsed; Gills badly bleached and badly discoloured with bacterial slime; Body slime watery or scarce with marked bacterial discolouration, particularly in head region; Gill covers very bleached; marked pinking on the underside	Marked opacity, yellow or brown discolouration and marked reddening in backbone	Marked general grittiness	<b>2</b>
<b>1</b>	H <sub>2</sub> S, strong ammonia, sulphides				Marked discolouration particularly in body cavity. Blood almost completely diffused in backbone
<b>0</b>	Faecal, nauseating, indole		<b>0</b>		

## Torry Taste Panel System for Plaice - Cooked Fillet

Flavour Descriptions	Odour Descriptions	Texture Descriptions	Score
Meaty, shellfishy, earthy	Meaty, oniony, fresh butter or margarine, Worcester sauce, slight caramel	Firm and dry	<b>10</b>
Sweet and meaty (or oily fresh herring-like)	Oily, slightly aromatic, slight peppery, boiled clothes		<b>9</b>
Sweet and meaty with curry, peppery or spice flavour	Curry, oily, peppery, damp clothes, baked smell	Crumbly, short, firm	<b>8</b>
Neutral or bland	Caramel, boiled potatoes, musty, butterscotch		<b>7</b>
Rancid, slightly sour	Metallic, slightly sour acrid, slightly sweaty boiled string	Soft but dry	<b>6</b>
Rancid oil, rancid butter, fish meal	Sour bread, lower fatty acids, rancid butter, singed milk, smoky		<b>5</b>
Sour or bitter	Slight amines, slight ammonia, sour beer, spoiled cheese	Soft and moist	<b>4</b>
Strong sour and strong bitter, rotten fruit	Ammonia, very sour, slightly faecal		<b>3</b>
Very bitter, very sour	Strong ammonia and amines	Very soft and sloppy	<b>2</b>
Nauseating	Very strong ammonia, strong faecal, putrid cheese		<b>1</b>

## Torry Freshness Scoring System for Raw Herring

SCORE	APPEARANCE					ODOUR	TEXTURE	SCORE
	EYES	GILLS	SKIN	FLESH	BELLY WALLS			
<b>10</b>	Slightly convex. Pupil clear and black	Dark red, purple. Clear slime	Bright colours, iridescent. Few loose scales	Glossy, rosy hue. Fresh bright blood on fillet	No belly burst	Oily, marine, fresh blood, sulphide, weak odour	Firm, stiff, smooth	<b>10</b>
<b>9</b>	Flat, slightly convex. Pupil clear and black	Dark red, pink. Slightly faded	Bright, slight iridescence. Few loose scales	Slight translucency, rosy hue. Bright blood on fillet		Oily, marine, fresh fruit sulphide	Loss of stiffness but still firm and smooth	<b>9</b>
<b>8</b>	Flat, slightly convex. Slightly cloudy	Dark red, pink, slightly brown. Slight reddening of gill covers	Loss of brightness, slight bronzing. Some loose scales	Slightly opaque. Slight discolouration of belly flaps	No or very slight belly burst	Oily, musty, slight sulphide	Loss of stiffness, slight softening, smooth	<b>8</b>
<b>7</b>		Red, pink. Slight bleaching and reddening of gill of covers		Slightly opaque. Slightly brown. Slight discolouration of belly flaps				Slight belly burst
<b>6</b>	Flat. Slightly cloudy	Red, pink, brown and reddening of gill covers	Dull, slight bronzing. Some dirty scales	Opaque, dull brown. Reddening on belly flaps	Definite belly burst	Musty, stale fruit, stale grass, malty, sour	Limp, soft, gritty	<b>6</b>
<b>5</b>	Flat, slightly sunken. Pupil cloudy, grey	Pink, brown slime, reddening of gill covers	Dull, bronzing. Dirty Scales					Severe belly burst
<b>4</b>	Flat, slightly sunken. Pupil cloudy, bloodshot, discoloured		Dull, bleached. Brown slime	Opaque brown. Discoloured belly flaps and tail	Sweaty, sour sink stale meat	<b>4</b>		

## Torry Freshness Scoring System for Raw Mackerel

SCORE	APPEARANCE			GILL ODOUR	SCORE
	SKIN AND BODY	EYES	GILLS		
<b>10</b>	Firm body with silky smooth skin. Lateral line and reticulations on upper surface well defined. Body colours iridescent with strong royal blue and turquoise colours on upper surface. Blue and violet on ventral surface with silvery sheen. Passing into rigor or in rigor.	Bulging convex eye with protruding lens. Shiny jet-black pupil with metallic brown iris. Eye-cap water clear	Uniformly dark red with free blood and water-clear slime present	Weak, delicate odours, cloying sweet, sharp, pepper, seaweed, blood	<b>10</b>
<b>9</b>	Loss of colour definition. Some blood stains apparent. Passing out, or out of rigor	Convex eye lens plane with cornea. Pupil less shiny, iris green/ blue. Slight clouding of eye cap	Dark purple/maroon with paler edge. Congealed blood present with opaque slime		<b>9</b>
<b>8</b>	Colours of dorsal surface paler, reticulations grey, ventral surface white with golden tinge. Patchy iridescence			Loss of colour with red/brown slime	More definite odours as above, also fragrant, fresh grass, fruity, metallic, shellfish
<b>7</b>	Washed-out colours, definite golden tinge to skin, patchy iridescence. Body soft with red/brown slime oozing from gill covers. Skin wrinkles on flexing	Browning of gills, patchy bleaching, increased slime and red/brown slime oozing from gill cover	Dull muddy odours, musty, mousy, malty, cardboard, linseed oil, cod liver oil, biscuits, blood		
<b>6</b>	Fish limp and floppy with distinct ice marks. Washed-out colours with mottling or golden tinge			Marked bleaching and browning of gills covered in black slime	Stale odours as above, also butterscotch, wet cardboard, wet dogs
<b>5</b>	Eyeball plane with eye socket. Cloudy lens with silvery iris showing black specks	Mixture of odours from above and below	Sweet-rotten odours, oil sweet-rotten fruit(grapefruit), old grass cuttings, sickly sour		
<b>4</b>	Concave or flattening eye with cloudy pupil			<b>4</b>	
<b>3</b>	Little distinction between upper and lower surfaces. Body very soft. Skin very wrinkled with distinct ice marks			<b>3</b>	

## Torry Taste Panel System for Herring - Cooked Fillet

Flavour and Odour Descriptions (brown and white flesh)	Score
Fresh, sweet, seaweedy flavour	10
Less sweet, seaweedy flavour plus slightly oily flavour	8
Stronger oily flavour; some stale seaweedy flavour and some 'blown oil' flavour	6
Definite 'blown oil' flavour plus stale, seaweedy flavour	5
Strong unpleasant 'blown oil', sweaty or rancid flavour, definitely stale	3
Repulsive flavour	1

## Torry Taste Panel System for Mackerel - Cooked Fillet

Flavour and Odour Descriptions (white and red flesh)	Score
<b>White meat:</b> sweet, starch, astringent, metallic, blood, meaty (cold lean beef), green plant, spicy, lemons, muddy, strong sweet oil <b>Red meat:</b> strong meaty, sweet	9
<b>White meat:</b> sweet, oily chicken (white meat), dull blood, herbs (e.g. parsley), roast meat (cold lamb, pork), starch, astringent, insipid, earthy, mushrooms, onions/lemons <b>Red meat:</b> rich strong meat, apples	8
<b>White meat:</b> sweet, earthy, cardboard, slight curry, bland sweet oil, onions/lemons <b>Red meat:</b>	7
<b>White meat:</b> slightly sweet, weak meaty, just detectable rancidity, musty, wet paper, cardboard, neutral bland oil, new leather <b>Red meat:</b> strong, slightly rancid	6
<b>White meat:</b> neutral bland oil, greasy cold chicken, slight rancidity, sweet/sour caramel, acidic after-taste <b>Red meat:</b> strong meat, rancid, sulphury	5
<b>White meat:</b> slightly sour, rancid, stale roast meat, cold mutton stew, yeast burning sensation on sides of tongue, 'coin-in-mouth' sensation, acrid <b>Red meat:</b> strong rancidity, sulphury	4
<b>White meat:</b> sour, rancid, rotten (sweet sensation), chicken skins, charred paper, sulphides <b>Red meat:</b> strong rancidity, sultry, tasted with difficulty	3
<b>White meat:</b> strong rancidity, bitter, burnt/acrid, strong sulphides, rotten cabbages, rotten fruit <b>Red meat:</b> nauseating rancidity and sulphury	2
Nauseating, ammoniacal, very strong sulphides, tasted with difficulty	1

# Torry Taste Panel System for Cold Storage Deterioration

<b>Score</b>	<b>Cold Store Flavour</b>	<b>Firmness</b>	<b>Dryness</b>
<b>0</b>	Absent	Very soft	Sloppy, watery
<b>1</b>	Very slight	Softer than normal	Juicy (equivalent to 3 day old iced unfrozen fish)
<b>2</b>	Slight	Firm (equivalent to normal 3 day old iced unfrozen fish)	Slightly dry
<b>3</b>	Moderate	Slightly firmer than normal	Dry
<b>4</b>	Strong	Slightly tough	Extremely dry
<b>5</b>	Very strong	Tough	
<b>6</b>		Extremely tough	

# Glossary

**Belly lining/flap** – thin membrane, usually black in colour, but white in salmon and trout, on the inner face of the belly wall, presence of which in some fish products is specified as a defect. Also called black lining, black membrane, black skin, peritoneum.

**Block (butterfly) fillet** – flesh cut from both sides of a fish, the two pieces remaining joined along the back; may be specified as having all bones except pin bones removed. Also called angel fillet, cutlet, double cutlet.

**Blood clot** – defect in the form of a semi-solid lump of coagulated blood.

**Boned kipper** – made from a split herring prepared by the removal of the head, guts and backbone, leaving a double fillet joined down the back surface. The boned herring are then brined, may be coloured with permitted colouring material and smoked with wood smoke.

**Bruise** – blood diffused in the flesh of the fish, caused by bruising soon after capture, that cannot be removed by washing.

**Cold storage odour/flavour** – characteristic undesirable odour/flavour acquired by frozen fish, especially lean fish, as a result of incorrect cold storage.

**Freezer burn** – damage to frozen fish caused by excessive drying cold storage, usually indicated by matt white patches on the surface of the frozen fish, and consequent change in appearance and texture of the thawed fish.

**Gaping** – having gaps between flakes of muscle that spoil the appearance of a fillet or split fish.

**Intrinsic quality** – of fish, quality as reflected by composition, physiological condition and other attributes at the time of capture: dependant largely on age, size, maturity, season, nutrition, disease and pollution. Also called biological quality, condition, initial quality, intrinsic composition.

**Kipper** – a whole herring split down the back, through the head and from which the guts and gills have been removed. The belly walls, head and backbone and fin bones are retained. The fish is subsequently brined, may be coloured with permitted colouring materials and smoked in wood smoke.

**Nematode worm** – a parasite worm that occurs in larval form in the guts and flesh of fish. Also called round worm.

**Permitted food grade dye** – permitted colouring applied as component of brine to some smoked fish.

**Pin bone** - rib bone of a white fish, often cut through by filleting and left in the fillet.

**Sodium chloride** – salt.

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