GUIDELINES

Selecting and packing quality-labelled whole Skrei and fillets

plus a little info on onboard processing

A useful resource for internal training both on and offshore.

By the Norwegian Fishermen's Sales Organization in partnership with the Norwegian Seafood Council

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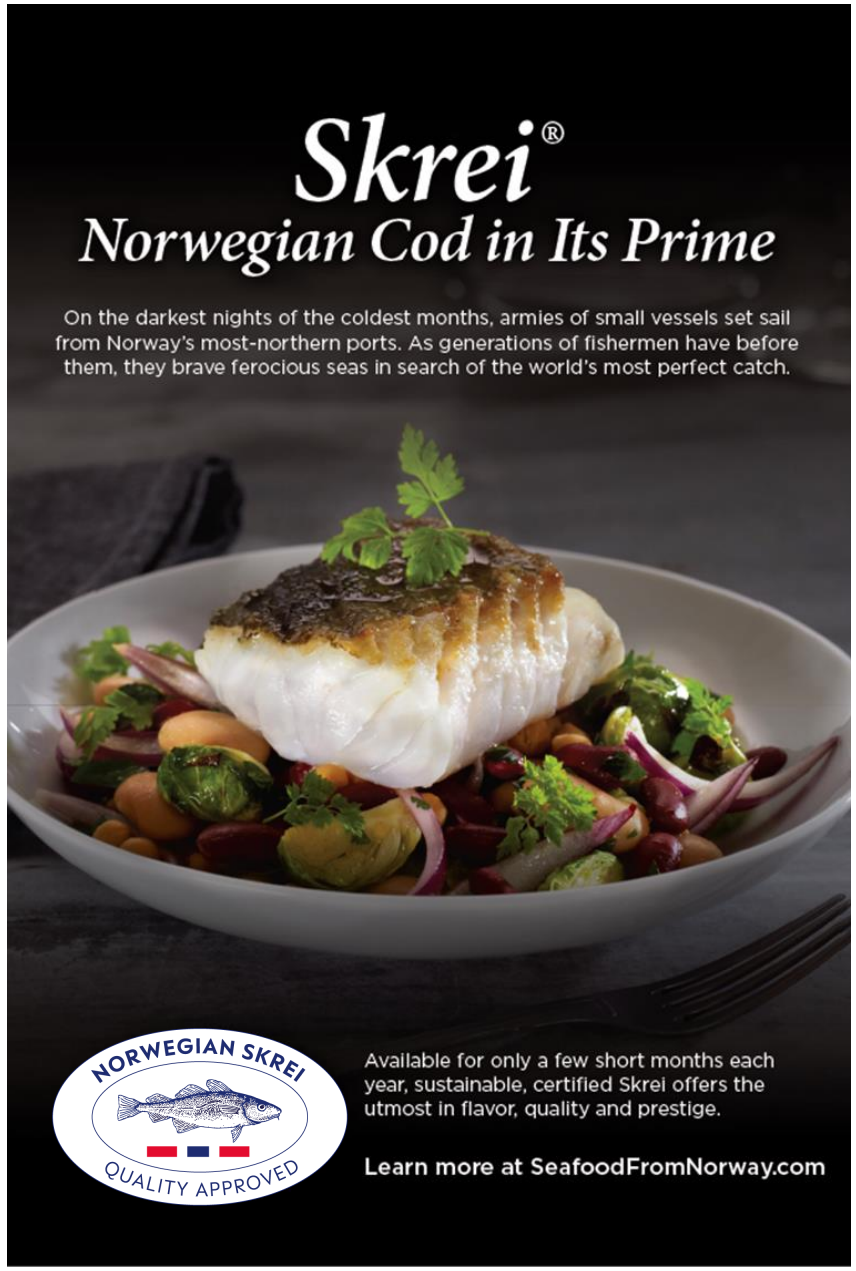


QUALITY-LABELLED SKREI

Norwegian Standard NS 9406:2022

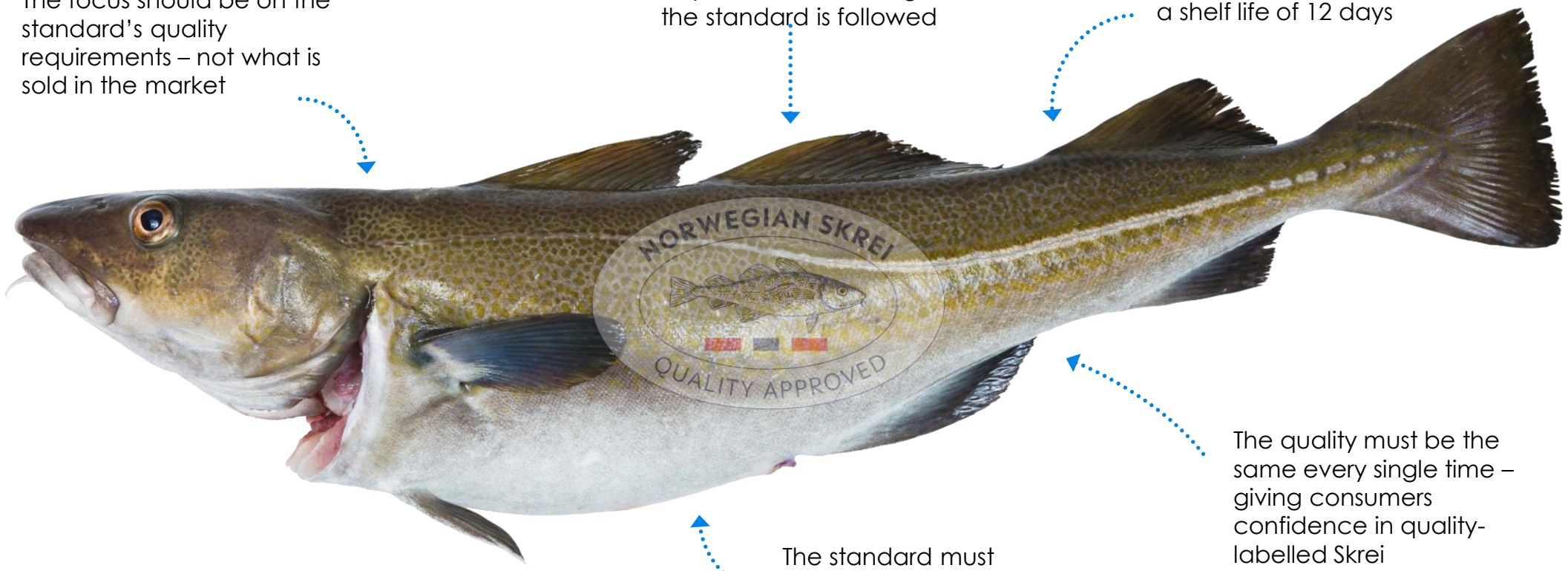
The flagship fresh fish for human consumption

SEAFOOD FROM NORWAY

The focus should be on the standard's quality requirements – not what is sold in the market

Packers are the ones responsible for making sure the standard is followed

The product must have a shelf life of 12 days



The quality must be the same every single time – giving consumers confidence in quality-labelled Skrei

The standard must guarantee consumers fresh, high-quality skrei

WHAT IS THE COMPANY RESPONSIBLE FOR?

Any complaints that arise are directed to the company

- Choice of supplier and raw material – talk to the fishermen!
- Ensuring that the quality of what is being packed meets the standard
- Training for those who pack quality-labelled Skrei
- Stopping packing of quality-labelled Skrei if the fish is unlikely to have a shelf life of 12 days.

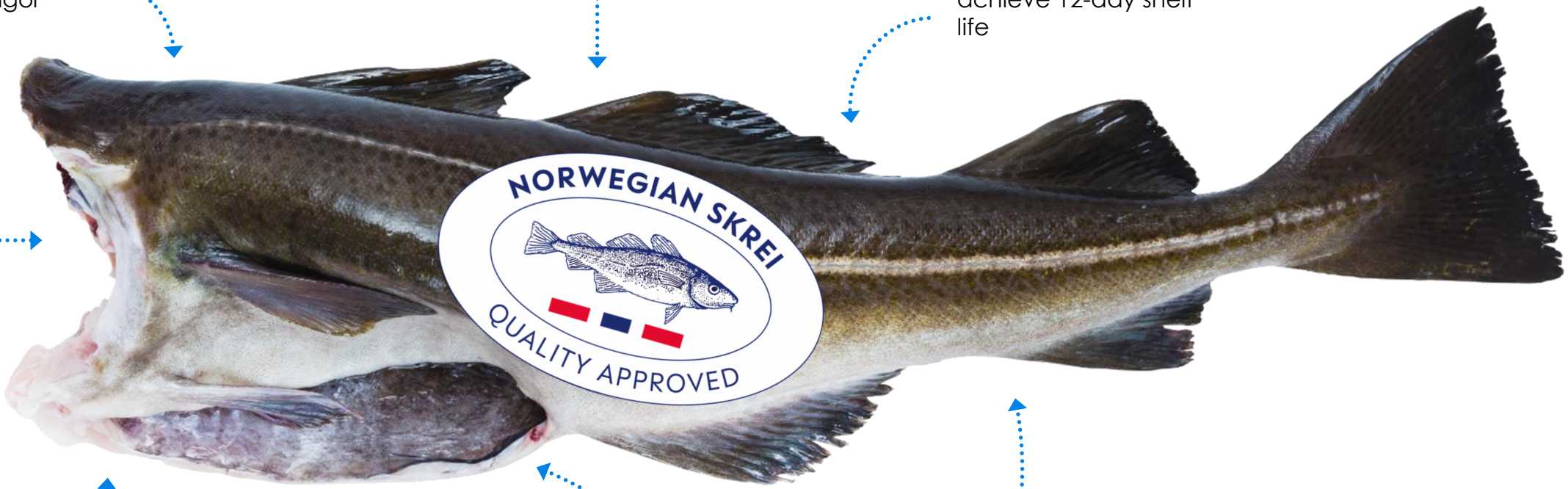
You should not **think** the quality will last, you must **guarantee** that it will!

If doubts about the quality are justified – pack the cod under the company's own name/label

QUALITY CRITERIA for the Skrei label

No doubts:
It's up to standard!

SEAFOOD FROM NORWAY



Fish in pre rigor (before rigor mortis)

Chilled to below 2°C

Of sufficient quality to achieve 12-day shelf life

Fish over 2 kg gutted and headless

Smooth and fine neck cut

Straight abdominal cut

Properly cleaned of guts

Properly drained of blood

HOW IS "SKREI" QUALITY ACHIEVED?

Skrei quality is a tall order for fishermen!

The fish must be bled while still alive...

... and bleed out in chilled circulating sea water or ice water

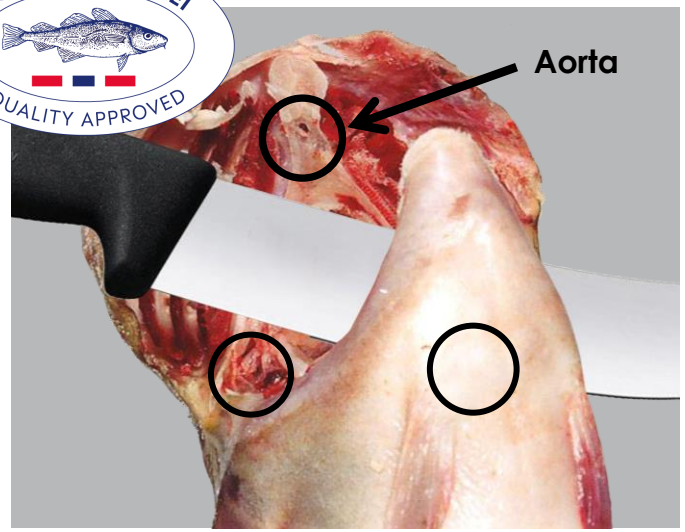
... and then stored in prechilled, clean sea water

The fish must be treated gently, so avoid hitting or crushing them

Without dialogue or prior agreement, fishermen will be unaware of how important this is to meet the requirements of the standard!

ABOUT ONBOARD PROCESSING

QUALITY STARTS WITH BLEEDING AT SEA



Take the knife across and through the throat, and so far down that the aorta, the main artery from heart to gills, is cut open.

Throat cutting is easiest to check because you can see that the throat has been cut.

Stabbing and/or tearing with a gaff are not approved bleeding methods.

Nothing is more important for the quality of Skrei than rapid slaughter and good bleeding out.

NB!
Good bleeding out is only achieved if the fish are bled while still alive!

GOOD BLEEDING OUT, QUICK CHILLING AND GOOD CLEANLINESS
together provide the foundation for optimum shelf life

Fish stored in stagnant bloody water violates the standard.

The best way is to allow fish to bleed out and then place in clean, chilled sea water.

The sea water should be this colour on delivery!

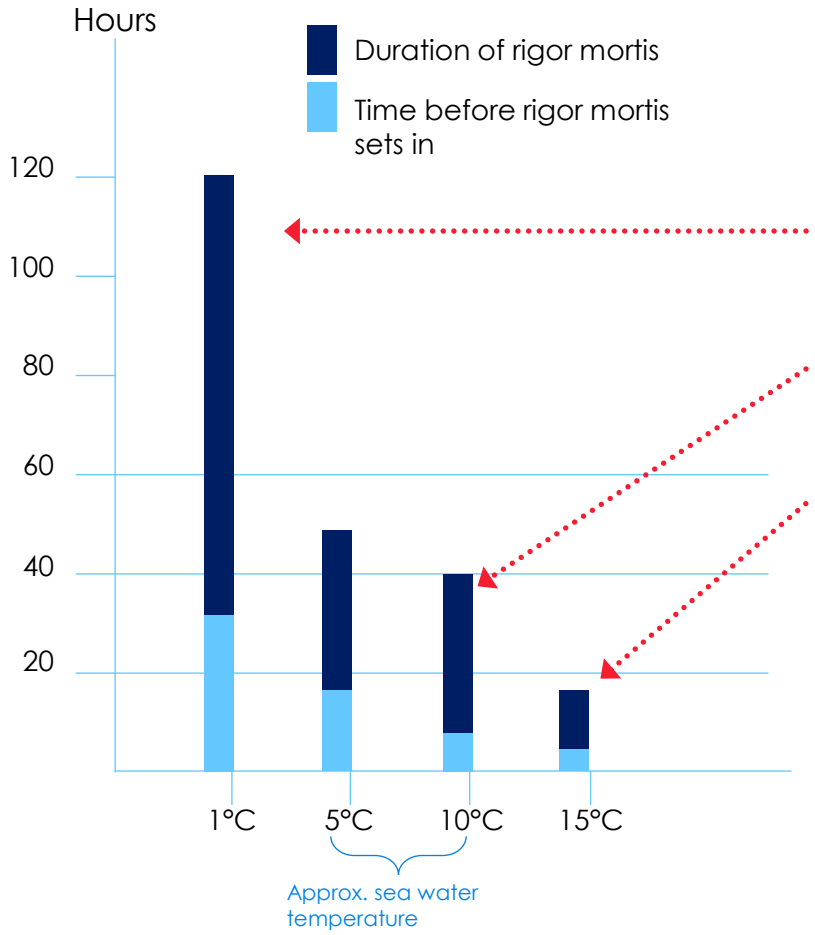
1. Bleeding
– Correct method and live fish

2. Bleeding out
– In circulating sea water

3. Storage/chilling
Clean, chilled sea water – down to 0°C

TAKE A LOOK AT THE IMPACT CHILLING HAS ON SHELF LIFE

Normal sea water is not cold enough for storing fish
– even in winter!



See what a "huge" effect lowering the temperature to 0°C has. It maximises the shelf life.

Sea water is normally between 5°C and 10°C.
At this temperature, decomposition is quite rapid.

At 15°C, fish decompose extraordinarily fast (leading to an extra short shelf life).

Remember that metabolic and physiological processes in fish take place at about 5–7°C.
Which is the same as the sea temperature.

The graph is from the Norwegian Directorate of Fisheries.
The basis for the data is extremely good raw material processing.

Low temperature delays:

- Pre rigor phase: before rigor mortis sets in
- Rigor mortis: death stiffness
- Autolysis: self-decomposition
- Bacterial development

In practice, it is also true that as long as the fish is stiff it doesn't change very much.

ASSESSING RAW MATERIAL FOR PACKING AS SKREI

Gutting and bleeding out

Gutting cuts:

- Fine neck cut
- Fine abdominal cut
- Well cleaned

Bleeding out

- Light neck and abdominal cuts
- No bruising
- Properly drained of blood

ASSESSING GOOD BLEEDING OUT

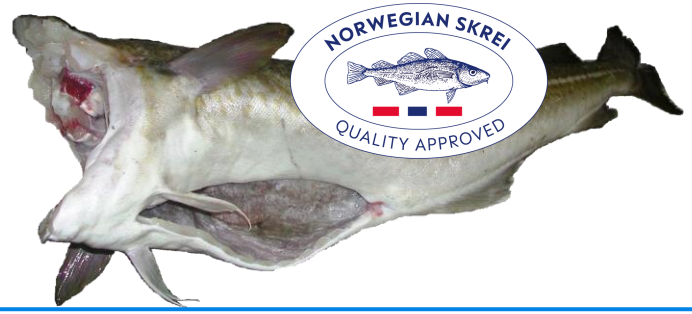
1. Round, ungutted fish:

No blood in fins and few red spots or bruising in or on the skin.

2. Gutted and headless:

No blood in neck joint or abdominal cut.

Abdominal arteries should be clear of blood;
check by scraping the black membrane away.

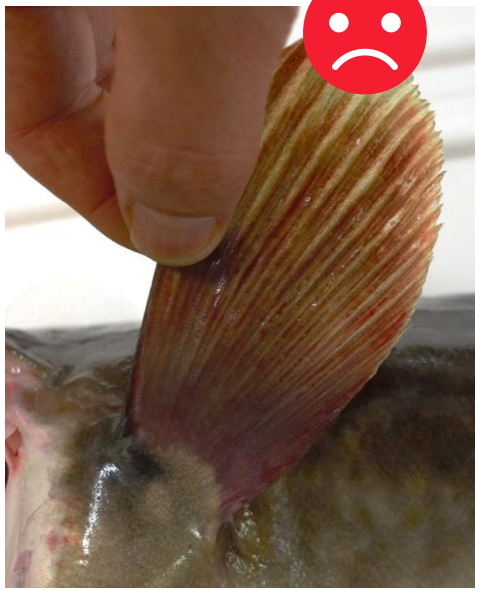


3. Open fish (filleted or cut down the centre):

Light and delicate fish flesh.

Blood should not trickle out from veins or spine, and the spinal column should not contain any blood.

FRESH BUT POORLY BLED OUT FISH
– unsuitable for packing as quality-labelled Skrei



Common characteristics of poorly bled out fish:

- Red necks
- Red areas in fish flesh
- Red pectoral fins
- Red abdominal cuts

FISH GUTTED IMMEDIATELY ARE UNSUITABLE FOR PACKING AS QUALITY-LABELLED SKREI

Because:

- Rather than the fish bleeding out, they "dry out"
  – bleeding out is uneven
- Rigor mortis sets in earlier
- Appearance deteriorates more quickly
- Shelf life is reduced by up to 40%,
  from 12 days to about 5 or 6 days

The type of equipment used makes no difference!

HEAD REMOVAL

Ragged neck flesh is unattractive and has adverse effects – the fish goes off faster

Example of long neck

Fine, smooth-cut neck so that flesh/skin from the head is not included

PACKING AND LABELLING

Fish packed as quality-labelled Skrei should be chilled to 0°C and packed within 12 hours of being caught!

PACKING

GOOD FISH – WELL ICED:
5 cm of ice at the bottom, plenty of ice in the necks, no ice on top of the fish

USE ICE ONLY IN THE NECK AND THE BOTTOM OF THE CRATE – not on top of the fish

White spots after ice on top of the fish has melted. Fish with spots do not sell as well at fish counters

The neck is pushed up against the polystyrene wall, leaving no room for ice – use the correct size crate!

The fish ends up looking bumpy and unattractive when placed on its side on top of the ice

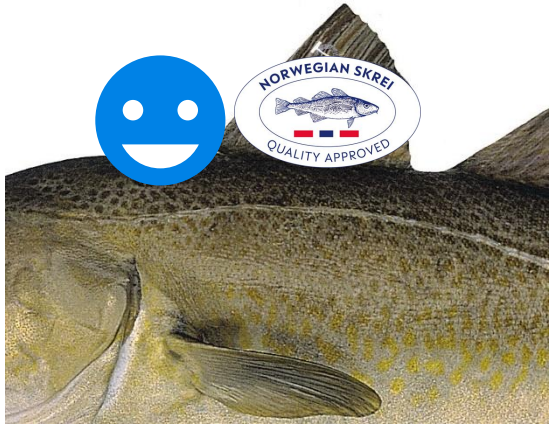
CHECK THE TEMPERATURE

The fish should be chilled to a temperature below 2°C when packed!

Fish with bruising from hooks etc.
MUST NOT BE PACKED AS SKREI

HOW TO PLACE TAGS

Arrow tags should be positioned along the length of the fish, in front of the dorsal fin so that the fillet is not damaged!



SPECIAL CRATE FOR LARGE FISH

Crate for fish weighing between 12 and 15 kg

As long as the fish is in rigor mortis, many biochemical processes are kept in check
– don't straighten out fish in rigor mortis!

Place the fish in the crate as it is, or swap it for another one.

QUALITY-LABELLED SKREI – READY FOR A LONG JOURNEY

Well-wrapped crates with attractive labels and cold fish
ready for dispatch

Ice does not last long if the fish are too warm when packed. Poorly bled out fish produce red melt water

SKREI FILLET PRODUCTS

Examples of fillets that meet the standard for Skrei!

The temperature of raw material for fillets and finished packaged products should be below 2°C

SKREI FILLET PRODUCTS

- Fresh fillet products are as follows:
  Fillets, loins and tails, both skin on and skin off
- Raw material should be a minimum of 2 kg gutted and headless
- Minimum weight for loin and tail pieces is 125 g
- Fillets should not have nicks

Examples of minimum product weight

based on conversion factors defined in Regulation J-216-2021:

Fillet type	Conversion factor	Round weight[a)] (kg)	Product weight (kg)
A fillet: skin on and bones intact	2.65	3	0.566
B fillet: skin off and boneless	3.25	3	0.462
C fillet: skin on, boneless and no abdominal flap (J cut)	3.16	3	0.475
D fillet: skin off, boneless and no abdominal flap (J cut)	3.43	3	0.437

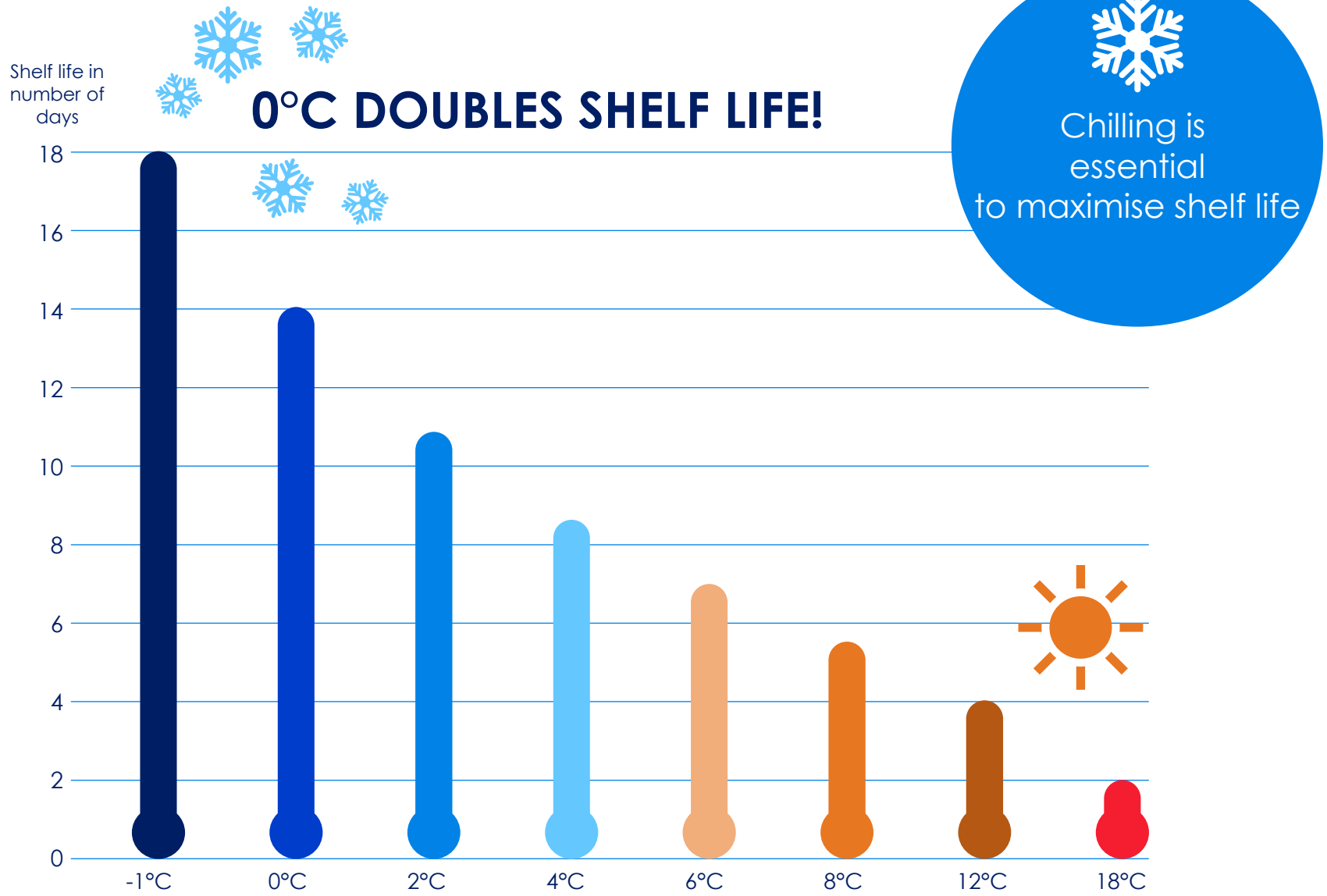
[a)] Skrei with a round weight of 3 kg is equivalent to skrei which is 2 kg when gutted and headless.

SEAFOOD FROM NORWAY

ICE-COLD FACTS

- Quick chilling or icing onboard
- Chilling in landing and production
- Unbroken cold chain in distribution

These all mean a longer shelf life, less waste and better profitability



Chilling is essential to maximise shelf life

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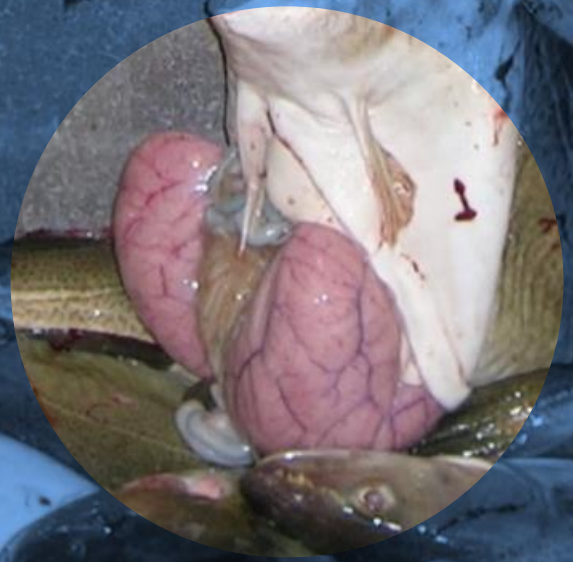
BY-PRODUCTS

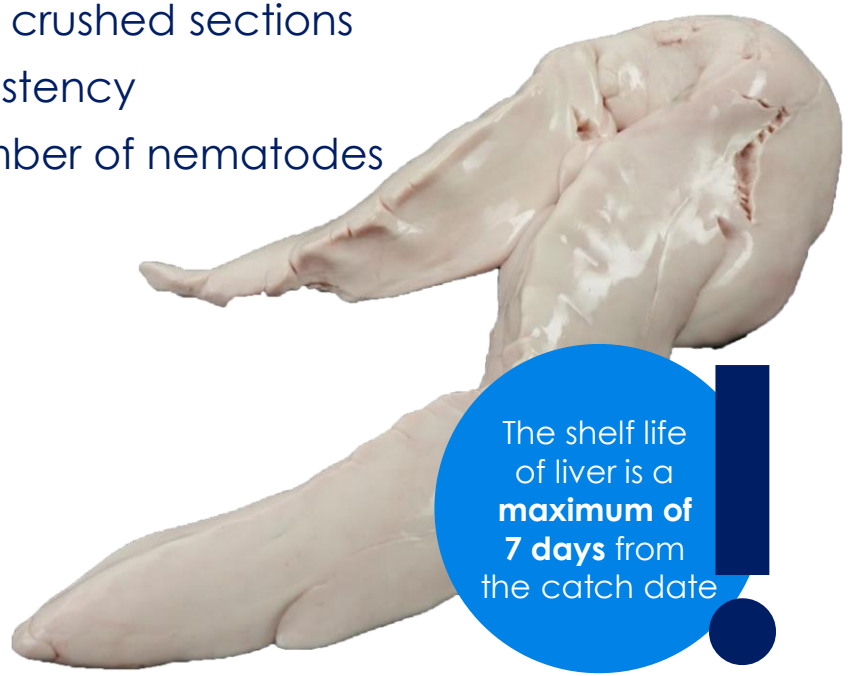
All by products must be packed **within 24 hours** of capture



LIVER – A KEY INGREDIENT IN TRADITIONAL DISHES

Characteristics of a good liver:

- Light and delicate appearance
- Shiny membranes
- Intact, no crushed sections
- Firm consistency
- Small number of nematodes
- Mild smell



The shelf life of liver is a **maximum of 7 days** from the catch date

Blood-filled liver (unsuitable)

Bile-coloured liver (unsuitable)

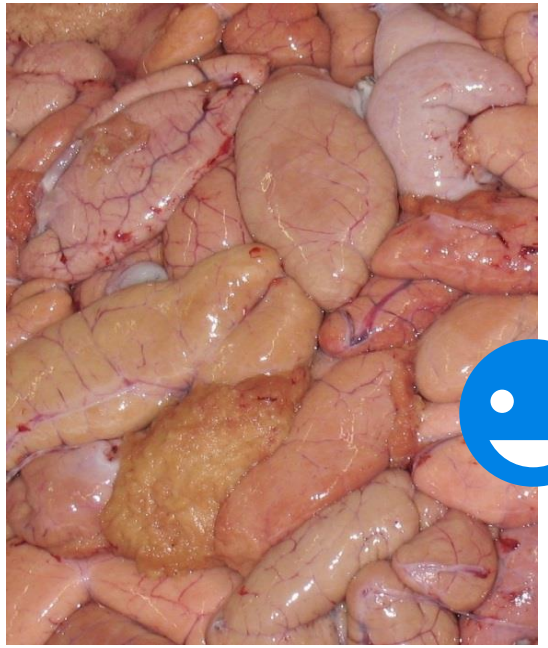
Liver with nematode infestation (unsuitable)

GENTLE TREATMENT INCREASES SHELF LIFE OF LIVER

Early chilling – and chilling until the fish counter – is essential!

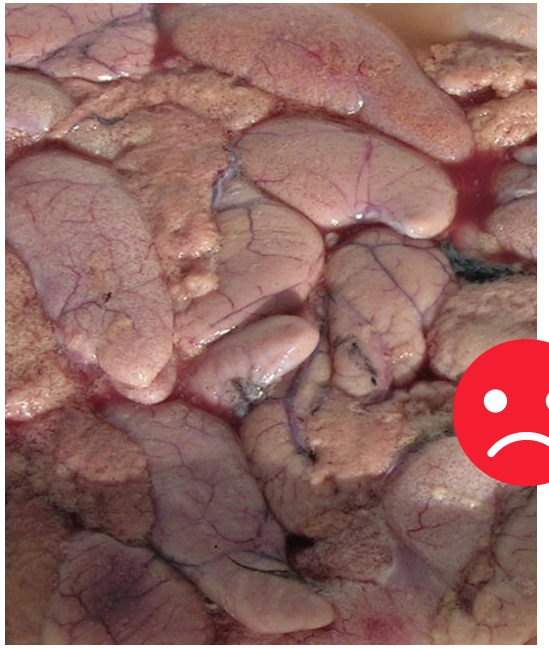
- Good hygiene
- Quick chilling
- Avoid squashing the liver into pieces during weighing and packing. Cut it with knife a during weighing etc.
- Protect the liver from light and air
- Avoid putting pressure on the liver

ROE QUALITY



- Firm consistency
- No black membrane
- Neutral smell
- Intact, not cut into pieces

The shelf life of roe is no more then **10 days** from catch day

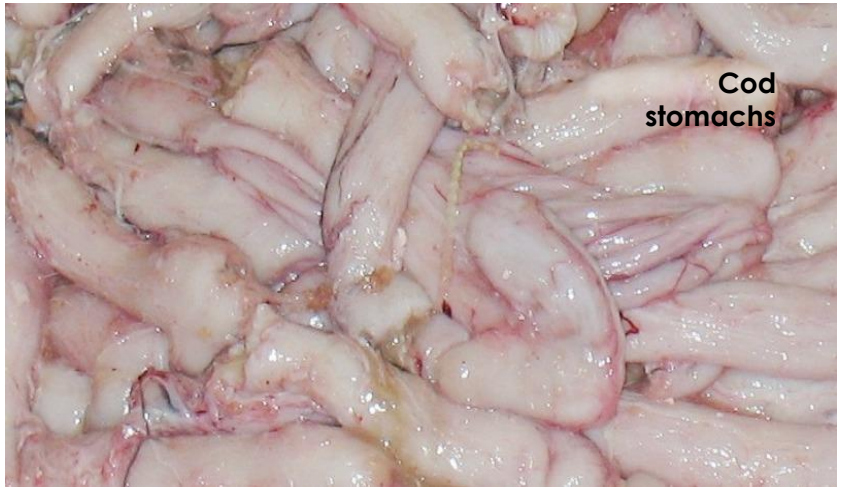


- Loose consistency – floppy
- Roe grains visible
- Pale in colour
- Cut into pieces

SEAFOOD FROM NORWAY

SKREI HAS SO MUCH TO OFFER...

The shelf life of jaws and tongues is a maximum of **12 days** from catch day



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TRAINING POINTS
for fishermen and packers involved

The company's general manager reviews regulations, tolerances and practical measures with the operators before the start of the season.

It is important for staff to be monitored and to receive correction and encouragement on a regular basis.

Must know about:

1. The Skrei label – quality requirements
2. Their responsibility for selecting raw material for Skrei products
3. Why to avoid fish gutted immediately
4. Why appearance is so important
5. Why bleeding out is so important
6. The impact temperature has on shelf life
7. Why to avoid hitting and squashing
8. Why fish in rigor mortis should not be straightened
9. Why ice should not be placed on top of the fish
10. Important hygiene requirements

Must be able to:

1. Work efficiently and gently, hygienically and keep things tidy
2. Select the right quality to meet the standard
3. Put the right amount of ice in the bottom of crates
4. Lay fish straight in crates
5. Add ice in neck and ends of crates
6. Operate tag equipment correctly
7. Operate strapping machine
8. Place labels correctly
9. Position crates correctly on pallets, as well as applying labels and securing in place

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