

Scallop Quality - Grit and Its Removal

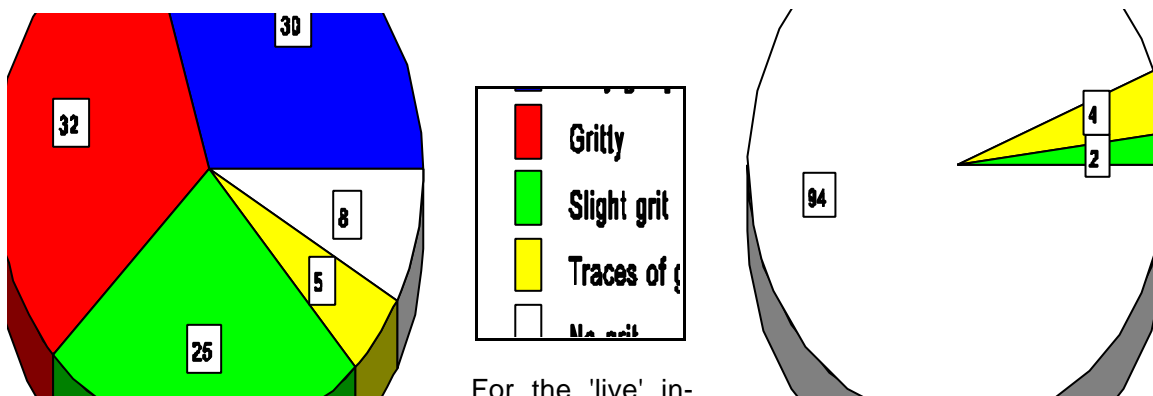
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The King scallop (*Pecten maximus*) is a valuable resource, with the vast majority of scallops caught by dredging. They are mostly destined for processing into a frozen or chilled product. Farmed or dived scallops and some of the dredged scallops are sold as a 'live' in-shell product.

During dredging, the digging action can force 'grit', in the form of sand, mud, and broken shell into the scallops. The amount and type of this contamination is dependent on the sea bed type, the fishing gear and the way in which it is used.



Percentage of Scallops with Grit after Capture

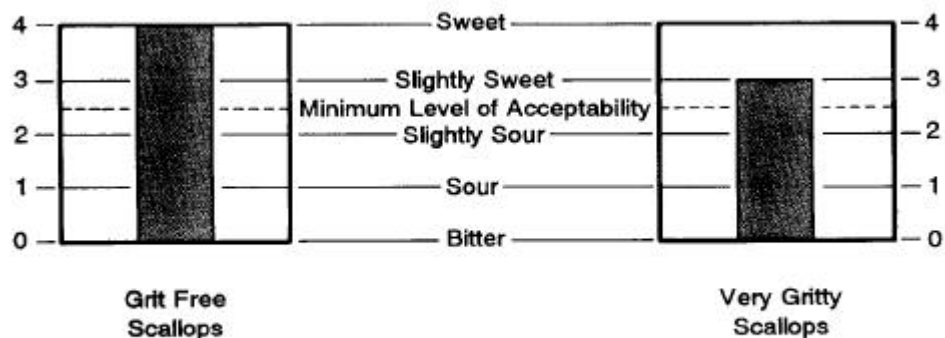


For the 'live' in-shell product the level of 'grit' is reflected in the lower value of dredged scallops compared to dived or farmed scallops. If the 'grit' is removed, the value of the catch can be increased considerably, particularly in respect of access to high value export markets. 'Grit' in dredged scallops is not such a problem for processed products as it is removed during washing of the meats.

This information sheet briefly describes the effects of 'grit' on scallop quality and how this grit can be removed by processing or re-immersion of live undamaged scallops in seawater.

Scallops Destined for Processing

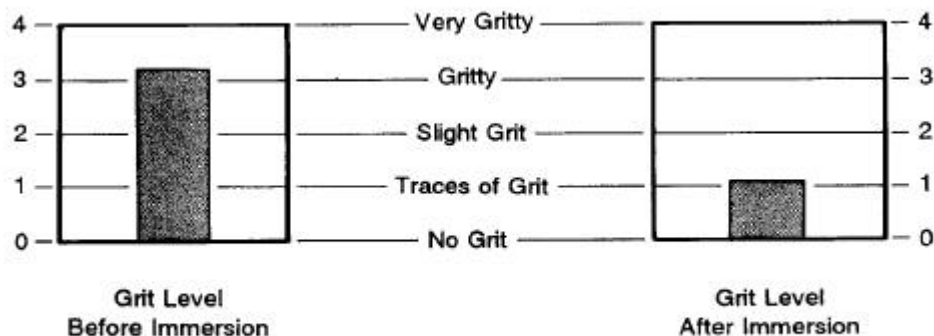
The 'grit' is largely within the shell cavity and possibly the digestive tract of the unprocessed scallops, and not in the muscle and roe. It is rarely present in the processed product as it is effectively removed by the shucking, evisceration and washing processes. However, there are indications that prior to processing, scallops with high levels of 'grit' within the shell soon die and then spoil rapidly. This results in lower cooked flavour scores and lower overall quality than grit-free scallops. There may be several factors at work including tainting by mud or damage to the scallop's internal organs by small shell pieces. Scallops which are known to be very gritty, and particularly



those from muddy seabed areas should be processed as soon as possible to limit the rapid quality deterioration which occurs.

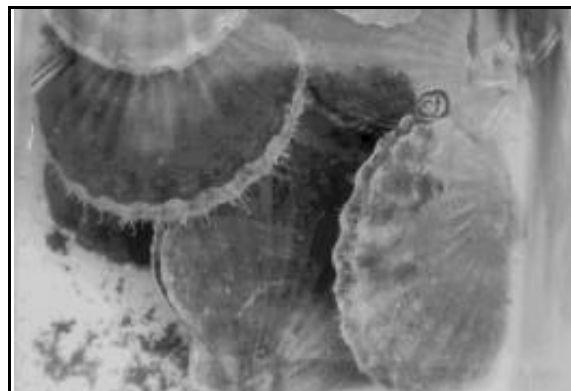
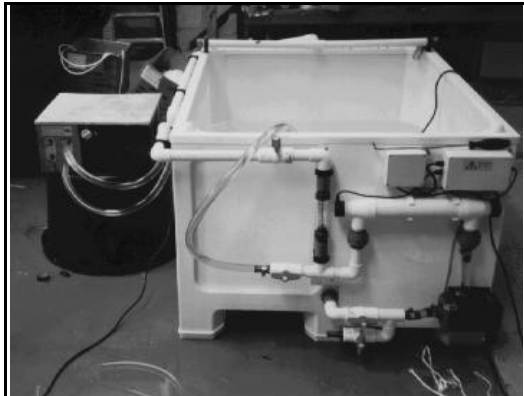
Scallops Destined for 'Live' In-shell Sale

Apart from quality deterioration during the distribution of gritty scallops, this market is highly sensitive to the appearance of its raw material and, depending on the various means of final preparation of products for consumption, there remains a possibility of product contamination. However, Seafish have demonstrated that by a period of re-immersion in controlled conditions in 'purification' type tanks, healthy scallops effectively purge themselves of 'grit'. Starting with gritty dredged scallops, the degrittied scallops are equivalent in appearance to a dived scallop and with no adverse affect on flavour.

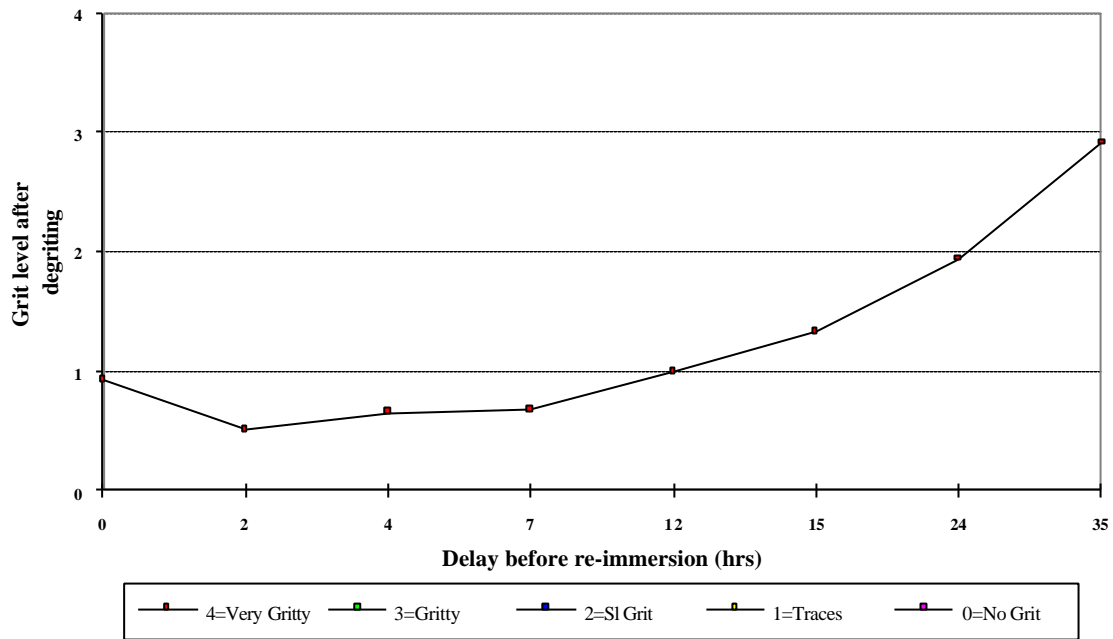


Important Factors in Degritting

The seawater used must be clean, of full seawater salinity, oxygenated and at a suitable temperature to stimulate the activity of the scallops but without being too high and stressing them. A seawater temperature range of 10° C to 18° C is recommended. Purification tank type systems, as described in the Seafish Guidelines for Handling Bivalve Molluscs, are suitable for this. That document also provides further technical details on degritting under the heading 'conditioning'. After re-immersion in suitable conditions, healthy scallops rapidly become active with fully open shells showing the mantle full and gill filaments extended. Some become very active and they may be best held in loosely filled netting bags. A minimum re-immersion period of 10 hours is recommended for effective degritting but with a maximum of 24 hours as scallop mortalities occur after extended re-immersion.



For degritting to be successful, the scallops must not be in a stressed condition. They are 'live' animals and must be carefully handled between capture and re-immersion, without being thrown about. They should be held at temperatures similar to those they experienced in the seawater prior to capture. Direct icing or storage in air temperatures over 20° C kills scallops. A storage temperature within the range 5–15° C is considered acceptable. The time delay between capture and re-immersion should be limited to a maximum of 12 hours.



Summary of Degritting Requirements

Scallops for degritting must not be stressed:

- handle them carefully
- hold them at a temperature of 5 to 15° C
- reimmerge them within 12 hours of capture

Immersion for degritting must be controlled:

- the seawater must be clean, full salinity and oxygenated
- keep the seawater in the temperature range 10 to 18° C
- use purification tank type facilities to provide these conditions
- immerse for 10 to 24 hours

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