Quality Audit of the Port of Rye

Consultancy Report No. CR127

September 1997

SEAFISH

The Sea Fish Industry Authority

Seafish Technology

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Authors: M. Myers
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Summary

This report presents the findings of a Quality Audit of the fishing port of Rye that examined the quality of raw material supplies to the port, standards of physical infrastructure, operating practices and management controls.

The quality of fish assessed in the audit was excellent reflecting the short trip lengths made by the local fleet that land to the port, although improvements in temperature control, gutting and washing are possible.

Major concerns are expressed however with the standards of physical infrastructure and with cleaning and hygiene.

Recommendations are made for improvements that can be undertaken in the short term without major investment, both to structures and practices, and for more major physical improvements that would secure the long term future of the industry.

1. Introduction

The increasing demands of the corporate food sector and the requirements of food safety legislation have given impetus to the need to raise quality and operating standards in the fish industry. This was recognised by the Industry Task Force [1] that identified the ports sector as a potential weak link in the production and distribution chain.

In response to the recommendations of the Task Force, Seafish introduced an initiative targeted at raising standards by means of Port Quality Audits. The audits examine and report on; the quality of raw material supplies to the port, standards of physical infrastructure, operating practices and management controls. Action is then encouraged at a local level as necessary.

The audit covers the operations from landings at the quayside to dispatch of fish from the market after sale. It also includes delivery and reception of landings made to the wholesale fish merchant, D. Grant. It does not cover standards of fishing vessels or fish factories. The report is strictly confidential to the trade and port management and is not for publication.

This report presents the findings of a quality audit of the port of Rye undertaken in July 1997. It was carried out with the full co-operation and participation of fishermen, salesmen/agents, buyers/merchants, port management, ancillary service operators and the Local Authority Environmental Health Department.

[1] Ref: 'Sea Fish Industry Authority Report on the Findings and Recommendations of the Fish Industry Task Force, Seafish, August 1995'.

2. Survey Procedures

A Seafish team of four persons observed the landing and sale of fish at the port over the period 14 – 16 July (Monday – Wednesday). Landings by the fleet (predominantly trawlers) were inspected and an assessment made of; freshness quality, physical damage, washing and gutting. Wherever possible, the assessment was made immediately the boxes were landed. Up to four boxes per vessel were assessed. Freshness quality was judged using the Torry sensory assessment technique (Appendix I). Temperatures were also taken throughout each box and note made of icing practice and the care and technique used in laying out the fish. Discussions were also held with crew members to establish trip length and any vessel operating practices or equipment that could influence fish quality (e.g. fishroom insulation/chilling, fish handling systems, washing/gutting machines etc).

Overall 22 boxes of fish were sampled, mostly of flat fish species from eight vessels.

Assessment of the standards of physical infrastructure and operating practices was undertaken using a structured approach of observations and discussions with; fishermen, salesmen/agents, buyers/merchants and port management.

3. Raw Material Supplies

3.1 Freshness Quality

The overall average freshness of landings was 9.95 on the 10 point Torry assessment scale (for details of Torry scoring and its relationship with eating quality and EC grades see Appendix I). The quality range was 10 down to 9.5.

The results represent excellent standards of freshness as would be expected from a fleet making trips of less than 24 hours.

3.2 Gutting and Washing

Spoilage of fish after death is caused by enzymic and bacteriological action, particularly within the gut cavity. By removing the gut contents and washing the fish, the rate of spoilage is reduced. It must, however, be undertaken efficiently or the bacteria from the gut cavity can be spread to the cut flesh which promotes spoilage.

The overall standards of gutting and washing were generally poor, but varied considerably from boat to boat reflecting skill levels or the care taken by individual boat crews. There was also a degree of damage to the fillet material caused by poor cutting technique in a small number of cases. See Figure No. 1.

Fig. 1 - Poor gutting and washing technique

3.3 Temperature Control

Temperature control is far the most significant factor affecting the rate of deterioration of fish. Typically, whitefish remains acceptable for about 10~12 days after capture when well iced, but this can be reduced to a day or two if left unprotected at summer ambient temperatures.

The average temperature of fish ex-vessel, on landing was 15.1° C in a range 11.9° C up to 18.4° C.

The results indicate that the temperature control exercised by the boats at sea is extremely poor and reflects the fact that the boats do not use ice. At these temperatures the rate of

3.4 Boxing Practice

Standards of boxing practice at sea are also critical to quality. Fish should be aligned within the box to prevent distortion, with belly cavities down to facilitate drainage. To prevent crushing and to allow sufficient ice to cool the fish, the boxes must not be overfilled.

With the short trips made, and the nature of the mixed fishery resource, the fleet have adopted a range of boxes from the standard 75 litre down to 50 litre plastic stack/nest boxes. There were many part-filled boxes and boxes containing mixed species, with no evidence of overfilling. Likewise there was no evidence of physical damage to the fish caused by poor handling or stowage.

4. Physical Infrastructure

4.1 Site

The principal site for fish landings and fish-related activities is a narrow strip of land between the River Rother and the flood defence wall to the east of the Town Salts, some 3 kilometres from the sea (as shown in Figure Nos. 2 and 3). The area is subject to frequent flooding that gives rise to significant concerns for safety and hygiene. Use is also made of the mud flats in the area of Rye Harbour village and the Admiralty Jetty by a number of small fishing craft, mostly, but not all, part-timers.

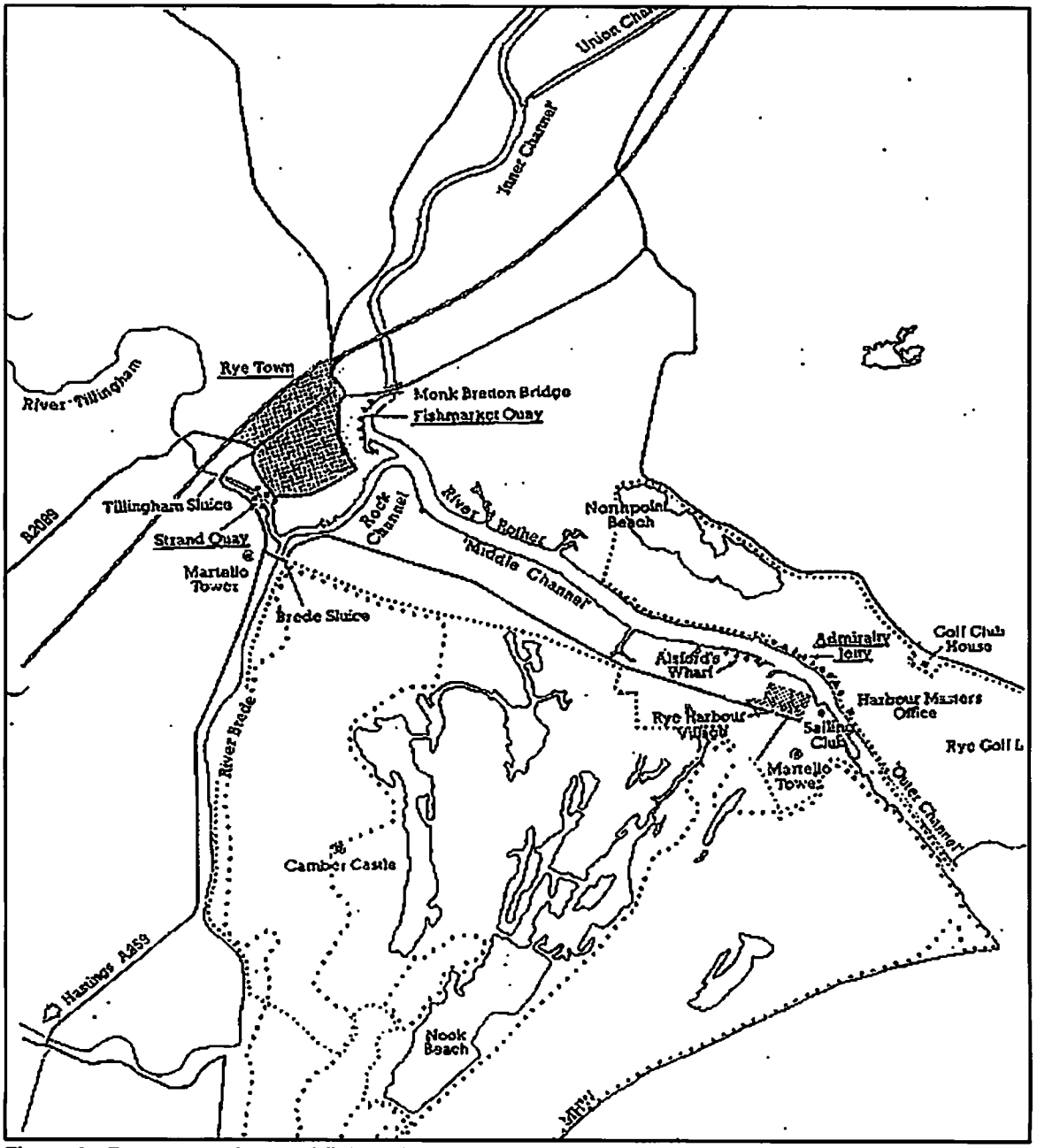

Figure 2 - Rye approaches and fishmarket quay

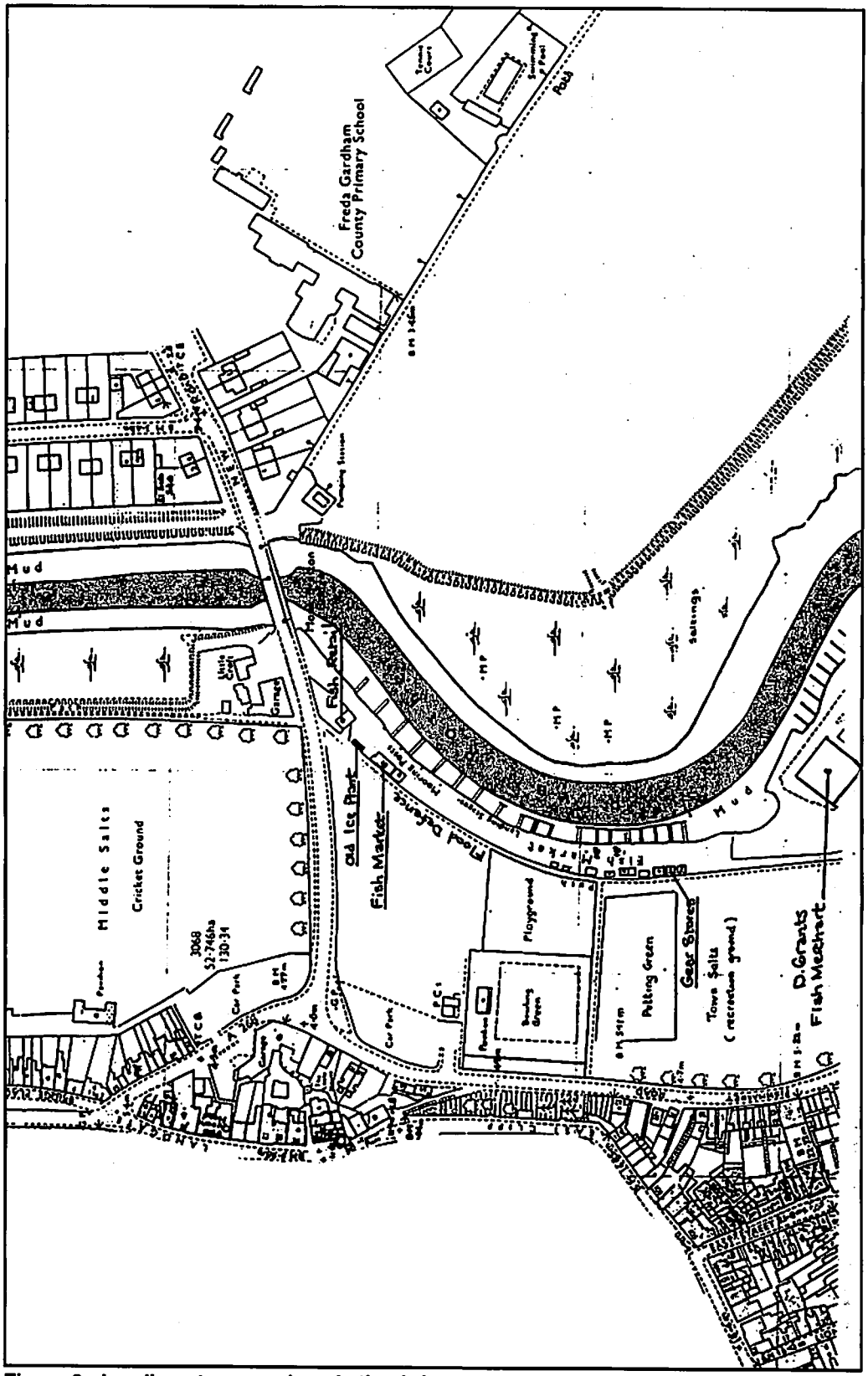

Figure 3 - Landing stages and marketing infrastructure

4.2 Facilities for the Landing of Fish

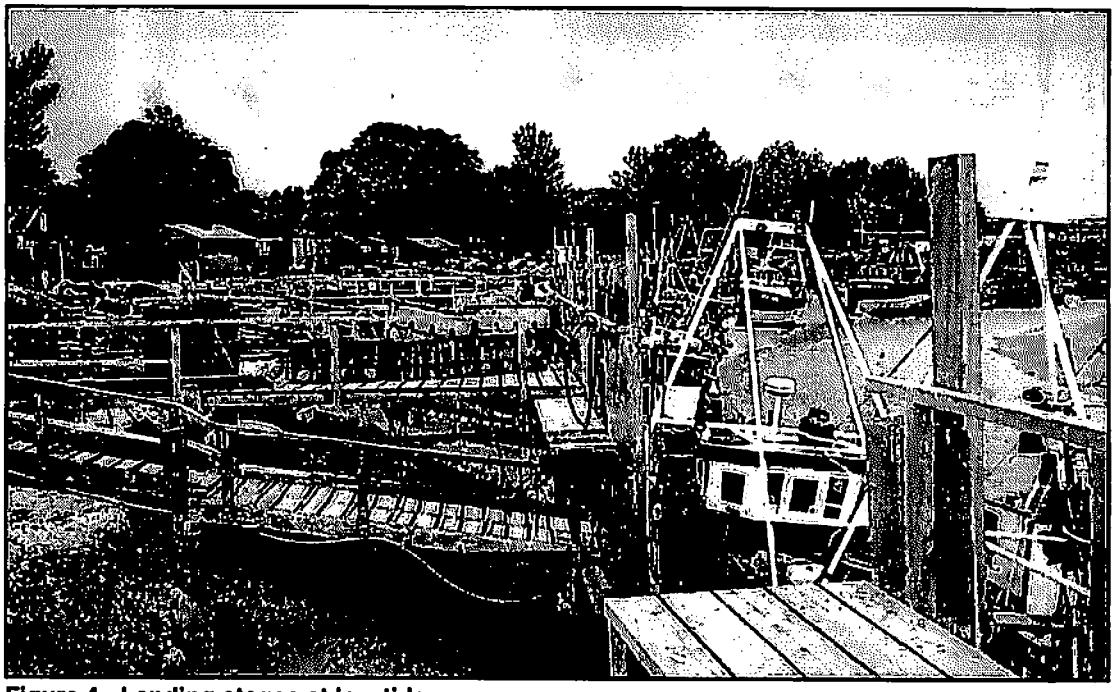

Figure 4 - Landing stages at low tide

Fish landings are made to 15 timber stages that can be accessed approximately 2 hours either side of high water. At low water the boats take the bottom (see Figure No. 4). With double berthing, the stages have capacity for 21 boats of maximum length 12 metres. There is a waiting list for berths at the stages. The condition of the stages and catwalks in some cases (Figure No. 5) is poor, with missing decking and broken/missing hand rails. The only lighting of the area is that provided by two street lights on the public footpaths and a single small floodlight on the fish market. It is very doubtful that the facilities comply with the Loading and Unloading of Fishing Vessels Regulations. At tides in excess of +3.8 metres the stages and access catwalks are submerged, and when the tide drops the whole area is left covered with mud and silt. Video record of this, taken by fishermen, is held on file. A combination of the use of vessels' own gear and manual effort is used to transfer landings from the boats to the stages, and a motley assortment of buggies, etc. (Figure No. 6) is used to transport catches to the fish market. The whole area is rat infested.

Figure 5 - Poor state of one of the stages

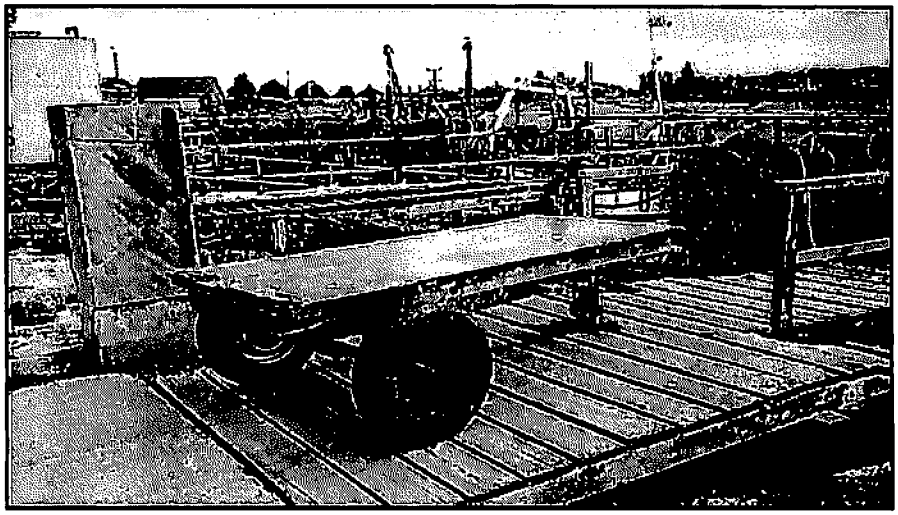

Figure 6 - Handling equipment used for transfer of landings to the market

4.3 Reception and Sale Facilities

On landing, fish is transferred either to the fish market for auction, or direct to the premises of the local fish merchant/processor, D. Grant.

The fish market is of brick construction, part timber clad, with timber doors. It has a profiled sheet roof that is underdrawn internally. The market is show in Figure No. 7. It has a sales area of approximately 6 metres by 4.6 metres.

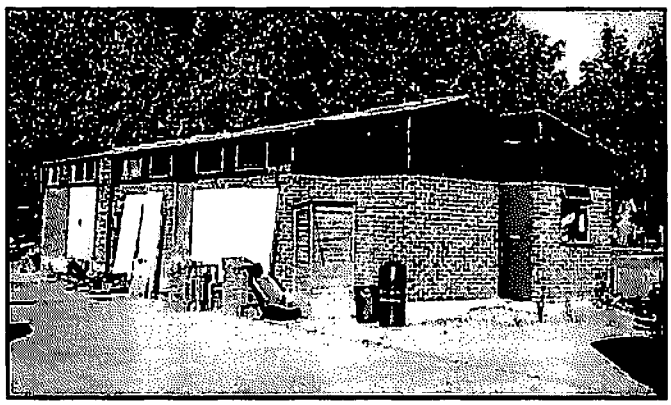

Figure 7 - Fish market

Fishermen have access to the market at all hours by keys issued to them. When landing in advance of the auction sale they may place their fish in the market chill store, which has capacity for approximately 150 (x 75 litre) boxes. Ice can be kept in the chill for icing fish before placing in the chill.

The market lacks any staff facilities, including toilets, and is generally in poor condition. The nearest toilets are public facilities on the Town Salts adjacent to the Bowling Green (Figure No. 3). It has no internal drainage and water from washing down is hosed/brushed towards a hole in the wall to an external gulley that runs along the rear of the building. The market floor is raised approximately 0.3 m above the surrounding quay but is still subject to flooding. The market cannot be said to comply with the standards required by hygiene/food safety legislation. However, the owner and salesman, Mr. B. Drew, has plans to upgrade and extend it, and is seeking grant support.

Facilities for the reception and holding at the premises of D. Grant are first class, although work is still ongoing with some aspects of building work following the recent transfer of the business to the site. The premises are immediately south of the landing stages some few hundred metres from the fish market. Fishermen have access (by key) to a new chill store of approximately $90m^3$. Specification and build is to a high standard.

4.4 Plant and Equipment

Within the fish market handling operations are undertaken manually. For washing, grading and weighing of fish a stainless steel sink, table and mechanically operated weigh scale of hygienic design are provided.

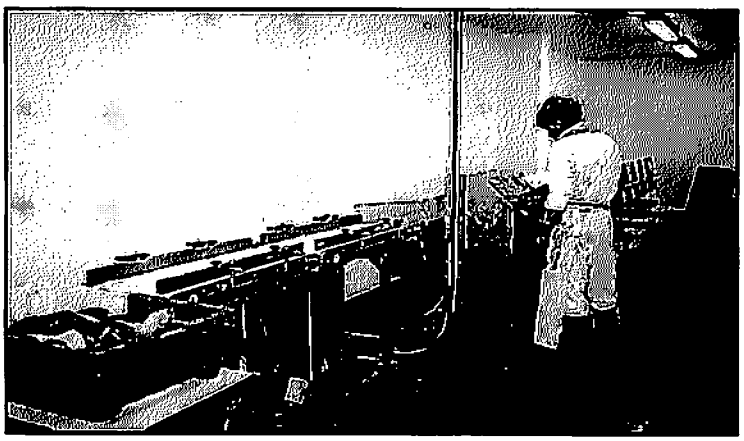

Figure 8 - Grading equipment in the premises of D. Grant

D. Grant provides electronic check weigh platform scales and a Scanvaegt automatic and computerised grading and weight totalising system. See Figure No 8.

4.5 Cleaning Equipment and Waste Facilities

No facilities are currently available for the washing of plant, equipment, boxes or the concrete surfacing around the fish market, other than a hose pipe, see figure 9. In the past a pressure washer was provided in the fish market but it was stolen in a break-in to the premises. Water supply is provided at four points adjacent to the landing stages for use by the boats but there are reported to be intermittent problems with supply pressure.

Work is ongoing with the installation of an automatic box washing machine in the premises of D. Grant, and this should shortly improve the standards of box cleaning.

An open skip is provided convenient to the landing stages for trade waste generated by the fleet, etc. As access to the area is relatively unrestricted, its use is, however, commonly abused by local residents for disposal of domestic and garden waste.

Figure 9 - Washing of fish boxes

4.6 Road Access and Parking

Road access to the landing stages and the fish market is by a narrow concrete surfaced road. There is no through route and all traffic is required to turn and exit the same way. Parking on site is limited and further restricted by the clutter of fishing gear and abandoned plant and equipment. See Figure 10. During high water floods, the fish market may be cut off from access by road vehicles.

Figure 10 - Abandoned plant and equipment

A card-operated security barrier restricts access to authorised vehicles but it can presently be by-passed by driving through the yard of D. Grant. The road surface between the security barrier and Fish Market Road is pot holed and generally in poor condition.

4.7 Transport

Vehicles used for dispatch of fish from the market were predominantly unrefrigerated panel vans owned by small merchants/retailers. B. Drew operates a refrigerated van for local deliveries and D. Grant operates a number of larger insulated and refrigerated wagons. Fish destined for export is usually collected from D. Grant's factory by contracted transport. The vehicle used to transport fish from the market and boats to D. Grant's premises (Figure No. 11)

Figure 11 - Transport used for delivery of landings to merchants premises

is in an appalling state of repair and cleanliness, having recently been vandalised.

4.8 Ice Supply

Figure 12 - Ice plant in market

Ice is available on the market for icing fish on landing, etc. but is not used by the fleet at sea. The 'Scotsman' machine (Figure No. 12) can produce approximately ¾ tonne/24hr. A previous plant operated by the Fishermen's Co-operative (Figure No. 10) is defunct and derelict. D. Grant also has a machine capable of 5 tonnes/24 hr. but it is restricted to factory use.

5. Operating Practices

5.1 Landing and Preparation for Sale

The operations of landing and handling into the chills at the market and D. Grant's premises were undertaken with the minimum of delay, but under conditions, and using equipment unsuited to a food industry.

Although most boats top-iced their boxes on landing prior to storage in the chills, temperature control overall must also be regarded as poor, as top-icing cannot effectively cool the fish in a box at temperatures averaging over 15°C at the time of the audit.

At no time during the landing, transfer or grading/weighing operations, etc. were fish seen to be subjected to any physical damage caused through rough handling, throwing, etc.

5.2 Sale and Dispatch

Fish is sold in the market using the Dutch system, whereby the salesman offers fish starting at a high price and dropping until a buyer is found. The buyer may nominate to buy any number of boxes. The salesman may also support the market by buying on his own behalf for local wholesale/retail or for export.

The sale and removal of fish from the market was conducted efficiently and promptly.

5.3 Cleaning and Hygiene

Figure 13 - Leakage from fuel tank

The general standards of cleaning, hygiene and waste control are unacceptable and require immediate attention. The site is cluttered with fishing nets, gear and abandoned plant and equipment. At least one of fuel stores shows signs of leakage and contamination of the river bank (Figure No. 13). The boundary of the site along the public footpath is littered with rubbish. Vegetation and weed growth, and poor surfacing restrict efficient cleaning of the site, although there is very little evidence of any being regularly performed.

Dogs also cause nuisance on the site and there is a problem of rat infestation on the river bank. The standard of cleaning of the fish market building, fish boxes and equipment is poor. Standards of personal hygiene were also poor, with regard to dress and the consumption of tea and coffee, etc. in the market. Regulations restricting smoking and eating on the market were generally complied with.

6. Organisation and Management

The management of the Harbour of Rye is the responsibility of the Environment Agency, having been transferred from the National Rivers Authority. Powers and responsibilities are established under the Harbour of Rye Revision Order, 1976, that also provides for representation of trade, leisure and Local Authority interests. Locally, it is managed by a Harbour Master and his assistant.

The relationship between the harbour management and the fishing industry has not always been harmonious, but has recently been much improved by the efforts of the Harbour Master, and R. Simmons of Rye Fishermen's Association to the benefit of all parties.

The Agency is responsible only for the basic infrastructure, with the ownership of the market, ice plant, processing and ancillary services, etc. in private hands.

The Agency has an internal management plan, but there exists no strategic plan for the development of the fishing industry or the protection of its long term interests and of those who depend upon it. There is no 'code of practice' that sets overall standards for the port and its operation in respect of quality control, no agreement on standards of hygiene and no written cleaning schedules. There does exist a formal waste management plan in draft form, but at present it exists only on paper. There is a fundamental lack of discipline by the trade and of checks and enforcement by those responsible for food hygiene legislation.

7. Recommendations

7.1 That the Environment Agency call a meeting of trade interests and the local Environmental Health Department to consider this report and agree a programme to implement actions as they consider necessary and appropriate.

The programme should consider what is possible in the short term without major investment, but also consider development plans that would address fundamental problems of flooding, physical infrastructures and use of space to secure the long term future of the industry.

7.2 Short term physical improvements that should be considered are:

(a) the removal or rubbish, waste and abandoned plant and equipment, etc.;
(b) the removal of fuel storage tanks;
(c) demolition of the old ice plant and making good the paved surface;
(d) repairs to road access;
(e) repairs to hand rails and decking of landing stages;
(f) improved security to restrict public access;
(g) the removal of vegetation and weed growth on the site;
(h) drainage from the fish market;
(i) improved lighting of the landing stages.

7.3 That improvement is made with respect to the following standards of practice:

(a) the cleaning of fish boxes, equipment and the fish market building;
(b) cleaning of the site;
(c) the standards of personal hygiene on the market;
(d) with the care of the catch at sea with regard to gutting and washing, and of temperature control;
(e) improved pest control measures.

7.4 That a strategic plan be developed for the industry that would consider more major physical improvements appropriate to the needs and scale of the industry and the available financial resources to support it. It should involve the Environment Agency, the trade and the Local Authority. It might consider:

(a) the replacement of the landing stages with a sheet piled quay and surfaced access and working areas above flood levels:
(b) a new or substantially upgraded fish market building and ice plant;
(c) new facilities for the storage of nets and gear;
(d) improved security fencing/wall.

8. Acknowledgements

The assistance of the following is gratefully acknowledged, plus that of the buyers, skippers and crews, etc.:

Mr. Carl Bagwell	Environment Agency
Mr. Shaun Plummer	Environment Agency
Mr. Ron Simmons	Rye Fishermens' Association
Mr. Duncan Grant	D. Grant, Fish Merchants
Mr. Bill Drew	Fish Merchant/Salesman
Mr. Richard Comport	Environmental Health, Rother District Council
Mr. Trevor Bryant	Fisherman
Mr. Bob Fenton	Fisherman
Mr. Mick Caister	Fisherman

APPENDIX I

Torry Freshness Assessment Scoring System

Torry Freshness Assessment Scoring System

The Torry Freshness Scoring System judges freshness quality using external appearance and odours as indicators of freshness on a scale zero to ten. Figure 14 overleaf shows the relationship between Torry Score, the number of days the fish is held in ice and eating quality.

The Seafish Guidelines for Fish Processors recommend that the fish they purchase should preferably be of Torry Score 8 or above (EU freshness Grade E), in order that their products have a good chance of retaining sweet, desirable flavours when they reach the consumer and the fish should be no lower than Torry Score 7, so that their products should not have undesirable sour or bitter flavours by the time they the consumer.

Note that temperature control is by far the most significant factor affecting the rate of deterioration of fish and that at temperatures above that of melting ice, spoilage is greatly accelerated, see Figure 15. overleaf.

Typically white fish remains acceptable for about 10-11 days after capture if well iced, but this can be reduced to a matter of a few days if left unprotected at summertime ambient temperatures.

APPENDIX I

Torry Freshness Assessment Scoring System

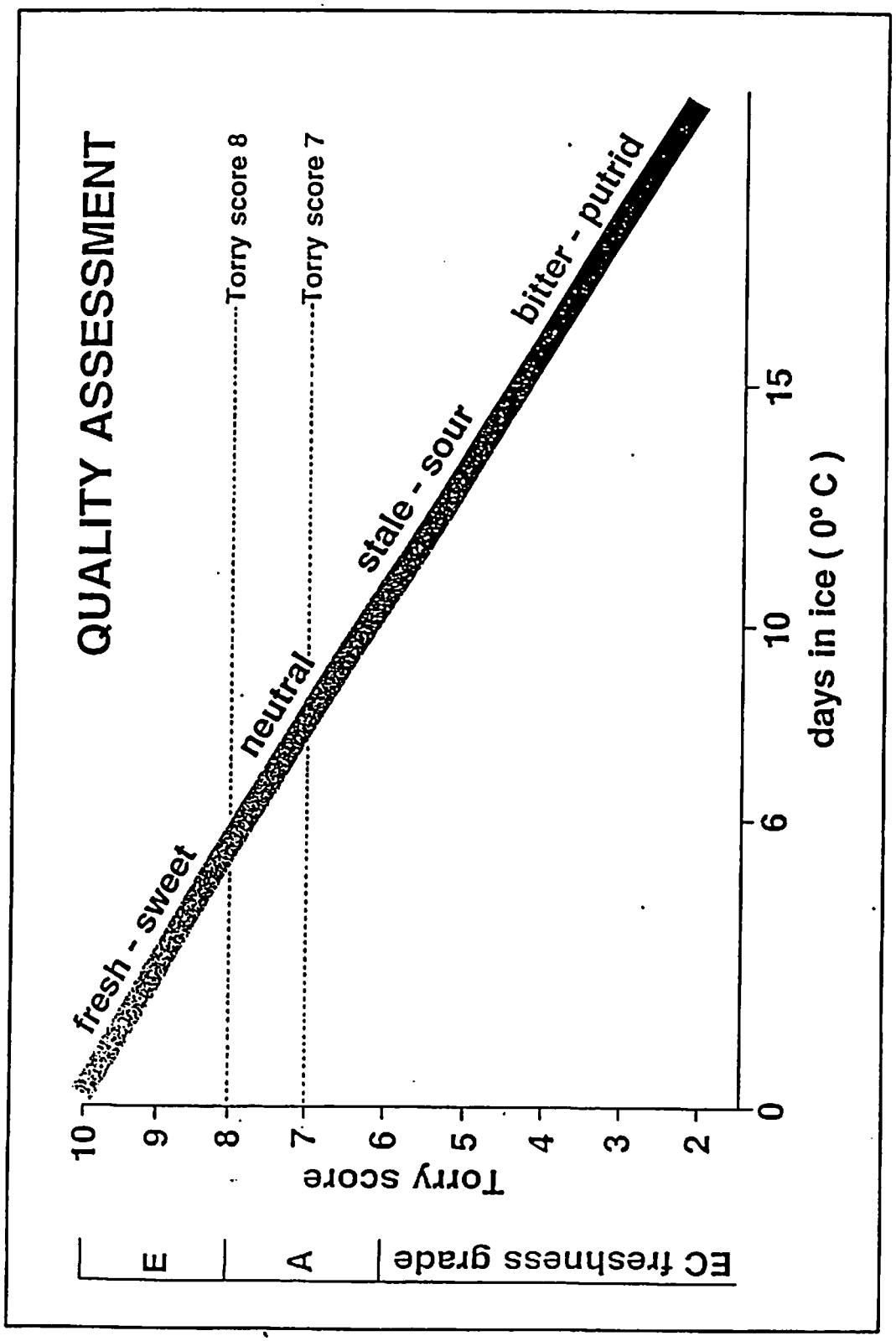

Figure 14 - Freshness quality assessment

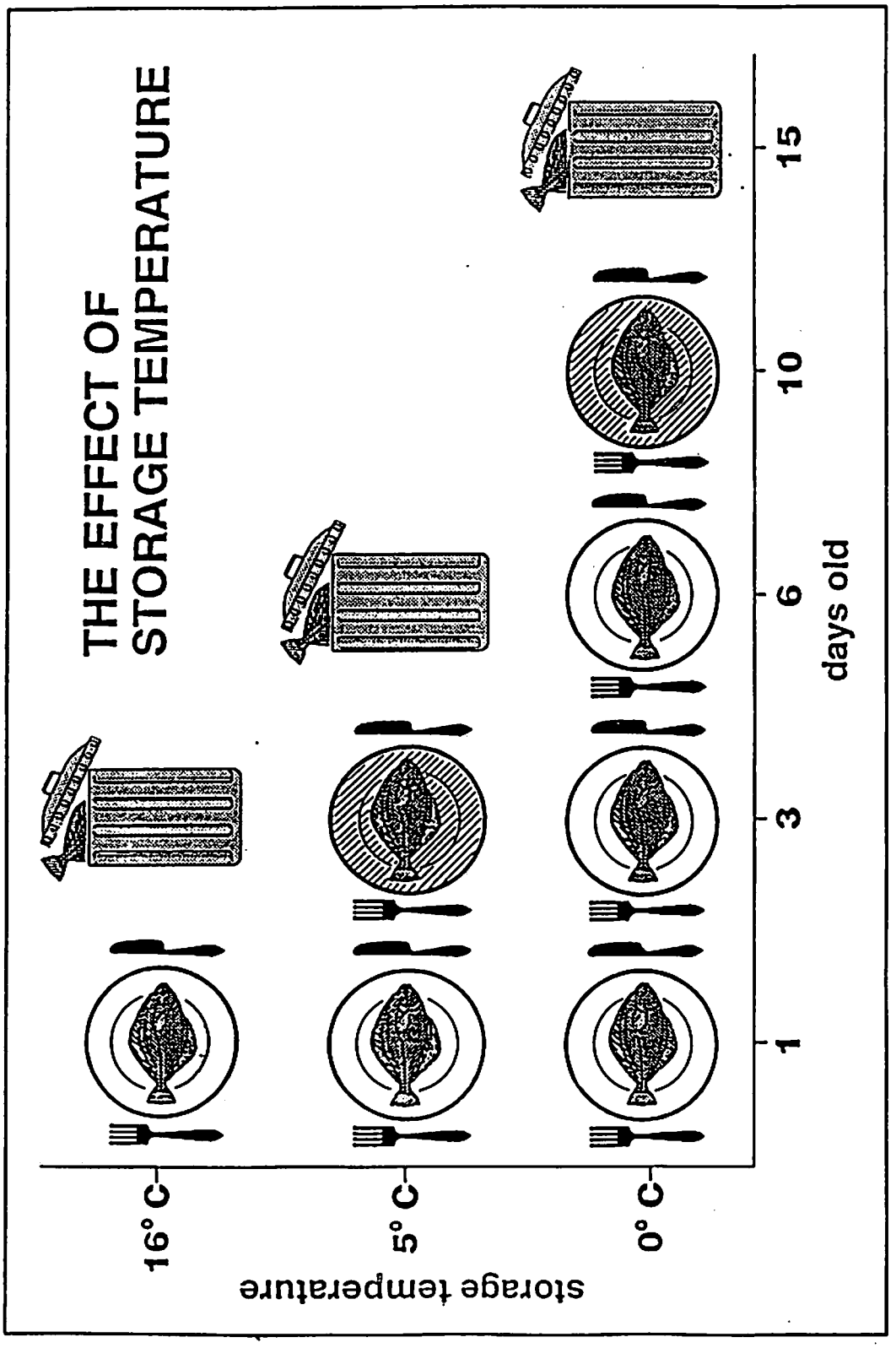

Figure 15 - The effect of storage temperature