Quality Audit of the Port of Eyemouth

Consultancy Report No. CR126

August 1997

SEAFISH

The Sea Fish Industry Authority

Seafish Technology

Quality Audit of the Port of Eyemouth
June 1997

Consultancy Report No. CR126

Authors: M. Myers,
M. Emberton,
P. Prout,
I. Milligan,
E. Nicholls
August 1997

SEAFISH

The Sea Fish Industry Authority

Seafish Technology

Quality Audit of the Port of Eyemouth
June 1997

Confidential Report No. CR126

Authors: M. Myers,
M. Emberton,
P. Prout,
I. Milligan,
E. Nicholls
August 1997

Summary

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

The quality of fish and prawns (Nephrops) assessed in the audit was generally good with the exception of the oldest fish from a white fish boat that made a nine day trip. Recommendation is made for greater care in washing and boxing whitefish and in icing of prawns.

The existing market does not meet EU hygiene requirements and will be replaced by a new market in a development that includes the creation of a new deep water basin. Recommendation is made to provide staff facilities at ground floor level in the new market.

Temperature control on landing and standards of cleaning are particularly good given the nature of the existing facilities. Recommendation is made for Cleaning Schedules and Waste Plans on transfer to the new market.

Recommendation is also made in support of the appointment of a Development Officer to oversee the port development and the promotion of its use.

Table of Contents

Page No.

Figures

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 within 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 (or overlanded deliveries to the market) to the despatch of fish from the market after sale. It does not cover standards on fishing vessels or within fish factories. The report is confidential to the trade and to the Harbour Trust and is not for publication.

This report presents the findings of a quality audit of the port of Eyemouth undertaken in June 1997. It was carried out with the full collaboration and participation of fishermen, salesmen, buyers/merchants, harbour trust, operators of ancillary services and the Scottish Fisheries Protection Agency.

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

[1] 'Sea Fish Industry Authority Report on the findings and recommendations of the Fish Industry Task Force, Seafish, August 1995'

2. Survey Procedures

Over the nights/mornings of the 24th-26th June, a small Seafish team of fish technologists and quality assurance officers monitored the landing and sale of fish on the market. Due to low landings caused by bad weather during this week, the exercise was repeated the following week over the period 1st-3rd July to include 'trip' boats and improve the data collected.

Up to four boxes of fish from each vessel were examined with samples taken from the first caught fish to last caught from the trip. Fish samples were taken from throughout each of the boxes and assessment made of; freshness quality, gutting, washing and physical damage. Wherever possible, the assessment was made as the boxes were landed. Freshness quality was assessed using the Torry Sensory Assessment systems (Appendix I). Temperatures were also taken throughout each box and note made of icing practice and of the care and technique used in laying out the fish. The quantities of fish and remaining ice in each box were separately weighed and recorded. Note was also made of the trip length and any vessel operating practices or equipment that might affect fish quality (e.g. fishroom insulation/chilling, fish handling systems, washing/gutting machines etc).

Fish was examined from eight vessel landings direct to market plus two consigned landing to market from Seahouses and Blyth. In total 35 boxes were assessed of which 15 were haddock, 7 cod, 7 Nephrops and 6 other.

3. Raw Material Supplies

3.1 Freshness Quality

The average freshness quality of whitefish supplied to the market was 9.0 on the Torry sensory assessment scale (for detail of Torry scoring and its relationship with eating quality and EC grades see Appendix I). The quality range measured was 10.0 down to 6.2 Torry Score, the lower figure being for 9 day old gutted small haddocks.

The average figure is an excellent result but must be treated with caution due to the restricted sample size (28 boxes) caused by weather conditions during the audit, and the short trips made by most of the fleet.

The average freshness quality of Nephrops was 4.96 on the Torry sensory assessment scale (maximum of 5.0) in a range of 5.0 down to 4.75. Again the result, of a very limited sample, is excellent, but note should be made of the high average temperatures (see 3.3) on landing for a species that is susceptible to rapid deterioration.

3.2 Gutting and Washing

Spoilage of fish after death is caused by enzymic and bacteriological action, particularly in 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.

Because of the low sample numbers and the high level of landings of 'rounders', it is not possible to present an accurate picture of the overall standards of washing and gutting by the fleet. Of 28 boxes sampled, 12 were ungutted and 4 regarded as having an unacceptable level of poorly gutted fish, either having scraps of liver or gut left in them, or by damage to the fillet material of the flesh that adversely affects yield. 8 boxes from the samples were regarded as having been poorly washed. It should be noted however that conditions on deck on fishing vessels for part of the week were reported as atrocious.

All samples of Nephrops were judged to be well washed.

3.3 Temperature Control

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

The average temperature of fish on landing was 2.5° C in a range of 0.1° C to 5.3° C. This represents good standards of temperature control particularly as some fish from vessels undertaking short trips could still be in the process of cooling.

The average temperature of Nephrops on landing by the two day boats sampled was 10.7° C due to no ice being used at sea. This practice is illogical and unsatisfactory. The range of temperatures was 8.2° C to 12.8° C.

3.4 Box Filling

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 or prawns, the boxes must not be overfilled.

Fish and prawns are supplied to the market in 70-75 litre capacity stack only boxes. The agreed market weight is 50 kilo for fish, which is the maximum recommended. The average weight of fish landed to the market was 60.1 kg, in a range of weights 45.1 to 70.2 kg. Overfilling was predominantly of small round haddocks (see Figure 1). The small haddocks also tended not to be aligned in the boxes and showed some signs of crushing and distortion caused by the combination of overfilling and non-alignment in the box.

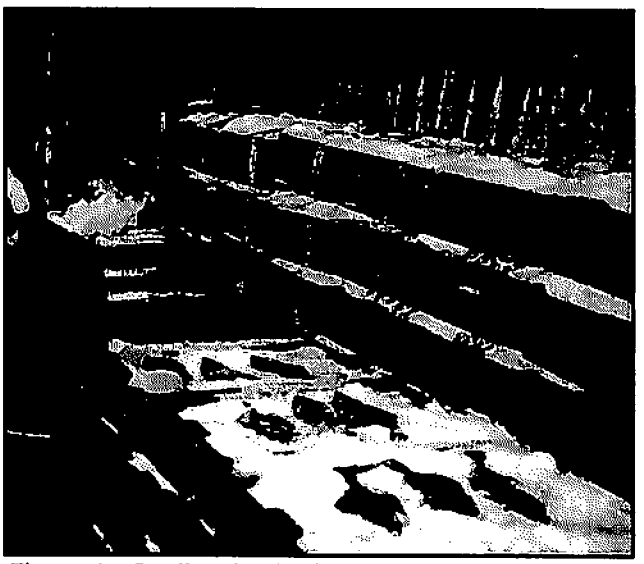


Figure 1 - Quality check of raw material supplier, note over filling of boxes

There was very little physical damage of prawns, although average box weights at 21 kg were slightly above the recommended weight of 19 kg for the box.

4. Physical Infrastructure

4.1 Background

The existing harbour (Figure 2) completed in 1965 was designed for the class of vessel in the inshore fleet at that time. Since then trends to larger vessels has led to problems of restricted access to the larger classes of vessel due to limited depth of water in the harbour and its approaches. It is also vulnerable to bad weather from the north that can close the port. To overcome these problems and the requirement to upgrade the fishmarket to meet hygiene legislation, the Harbour Trust has embarked on a programme of development that will see the creation of a new deep water basin, fish market and associated infrastructure. Comment is made in the following sections on the existing infrastructure and in Section 5 on the proposed development.

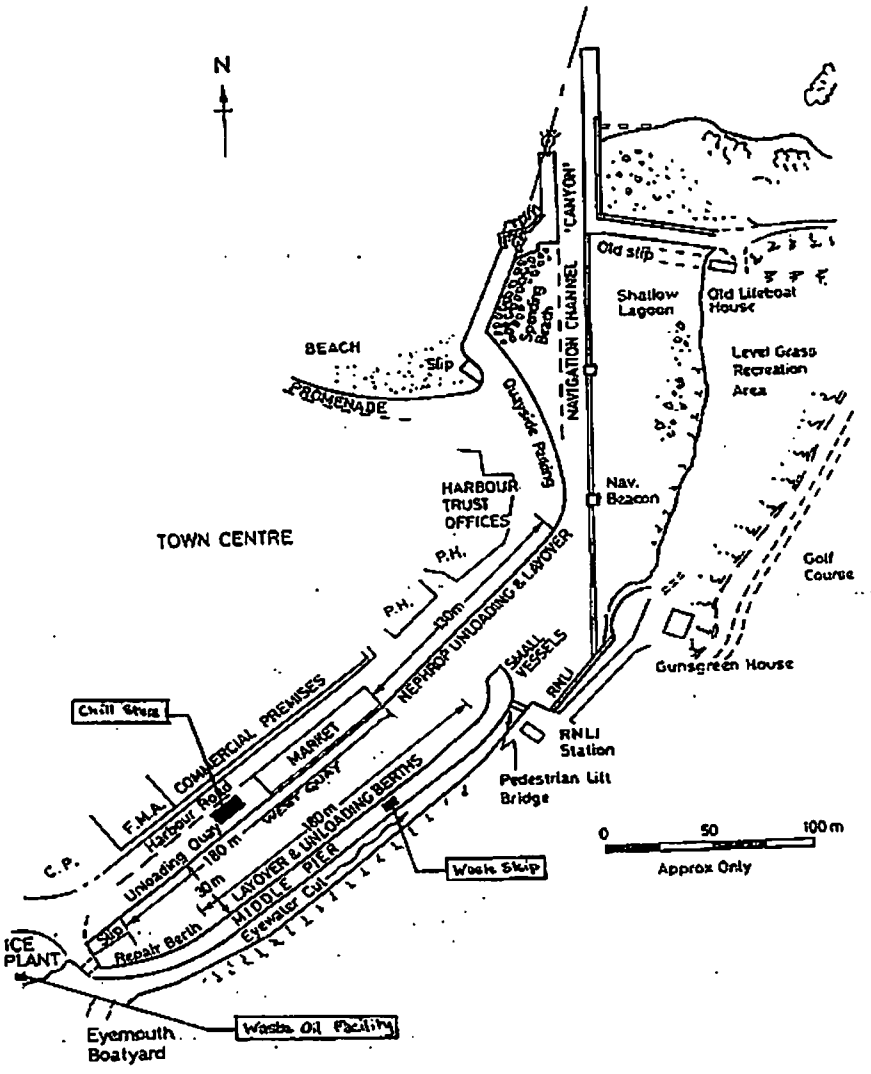


Figure 2 - Existing harbour layout

4.2 Unloading Quays and Equipment

The West Quay provides some 300 metres of quayside designated for unloading, inclusive of that at the market. The quay surfaces are in fair condition but drain direct into the dock. They are adequately lit. On the south-eastern side, the middle pier provides 180 metres of quay, designated as layover, but which may be used for unloading, with transfer of landings by forklift truck. Landings are made using the vessels own gear.

There are around 78 fishing vessels nominally based at Eyemouth but, dependent on the grounds being fished, many may land to other ports. Landing operations are not normally a problem, but given the tidal windows of operation, congestion can occur, particularly on spring tides and at weekends.

4.3 Fish Market

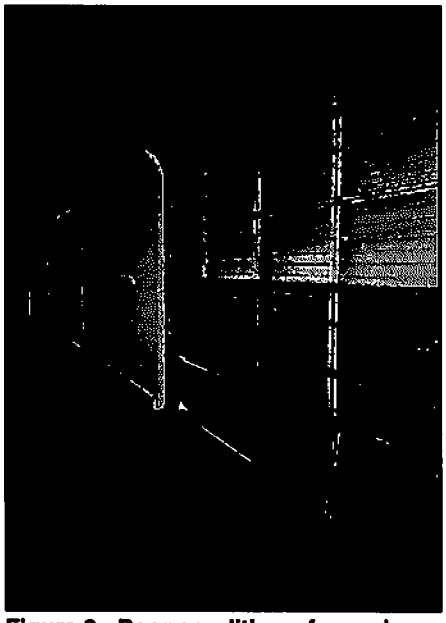


Figure 3 - Poor condition of rear doors of market

The existing fish market comprises a concrete portal-framed structure with roofing of profiled metal cladding. It is open-fronted on the dock side and has continuous up-and- over metal doors on the landward side. The doors are in poor condition (Figure No. 3) and do not appear to be used, with all fish being despatched through large wooden sliding doors in the gable end. Canvas screens that can be drawn across the open-fronted bays of the market are used in an effort to protect fish on display from exposure to the elements (Figure No. 4).

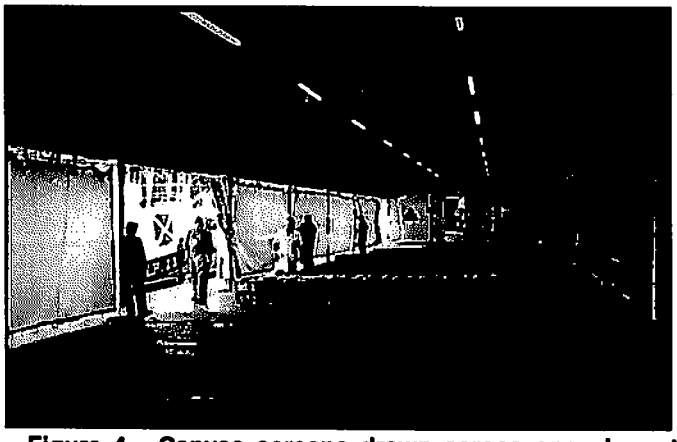


Figure 4 - Canvas screens drawn across open bays to protect fish from the elements

The concrete floor is in good condition but drains direct into the dock. Two recessed hose connections provide fresh water for wash down purposes. Lighting is provided by suspended fluorescent tubes protected by plastic diffusers, but the level of lighting intensity is rather poor. No washhand basins, toilets, staff facilities, or Environmental Health Officer (E.H.O.) accommodation is provided on the market. Public toilets are provided at the harbour car park opposite the end of the landing quay. They are

normally locked at night but the Harbour Master and other personnel have keys for access outside opening hours. Security is good with all doors locked out of hours of operation and access along the quay restricted by steel gates. Security cameras operate within the market and town CCTV cameras cover other areas of the harbour. The market fronts directly onto a public highway. It has capacity for five hundred boxes laid out in a single tier. By modern standards the existing market is totally inadequate and fails to meet legislative requirements of Food Safety (Fish Hygiene) Regulations. Its problems of course are well known to the Harbour Trust and are addressed by the ongoing development programme. The existing market is subject to extended derogation subject to the building of a new market.

Some of the deficiencies of the existing market are overcome by a chill facility on the quay adjacent to the market (Figure No. 5), which may be used by vessels landing well in advance of the sale. It is an excellent facility, particularly in a port with tidal access and provides protected storage for landings made well in advance of the sale. It has capacity for up to 700 stacked boxes. F.M.A also has a smaller chill that can be used to hold fish landings prior to transfer and sale on the market.

Figure 5 - Landing chill store

4.4 Market Equipment

Handling of boxes from the market quay into the market is usually undertaken manually using steel hooks to drag individual boxes. Two gas powered fork lift trucks are used for landings made other than at the market and for loading of road vehicles on despatch from the market. There are also two hand operated pallet trucks available for use on the market quays and in the chill store.

Two-way plastic non-reversible pallets are provided by the harbour trust for use on the market and in the chill. They are purpose designed for the stacking boxes used. There is no equipment provided for sorting, grading or weighing on the market as currently all fish is sold by the box.

4.5 Cleaning and Waste Facilities

A skip is provided by the Harbour Trust on the middle pier for non-degradable trade waste and a tank for disposing of waste lube oil is located to the rear of the ice plant. The fish market and chill are washed using fresh water hoses and a detergent power washer as required.

4.6 Road Access and Parking

Parking of vehicles used in the despatch of fish from the market is confined to on road parking on Harbour Road, a narrow public highway. It is not possible to back rearloading vehicles up to the rear of the market without blocking the road to traffic. To avoid this, fish is transferred by forklift truck along the length of the market to vehicles on Harbour Road which involves more handling time and effort than would otherwise be necessary. There is parking for crew buses etc. along Harbour Road and adequate access for landing direct to road transport for fish that is consigned to other markets.

4.7 Transport

Figure 6 - Hawkers and merchants transport

Transport used in the despatch of fish from the market was broadly either, small vans used by hawkers, or larger fixed-axle vehicles operated by merchants (Figure No. 6). The standard of vehicles used was good both with regard to hygienic design and temperature control. The two larger merchants' vehicles were both insulated and refrigerated and one of the four hawker vans was also refrigerated. No open flat-bed vehicles were observed in use during the audit.

4.8 Ice Plant

Adequate supplies of ice are available to boats and merchants from a plant operated by a non profit making co-operative of vessel owners and the F.M.A. It is a plate-ice plant having capacity of approximately 50 tonnes per day. The original plant is now 17 years old, but it has been extended and refurbished over the years and is reported to still give good service.

Ice is delivered to fishing vessels by modified cement lorries that is both expensive and time consuming (Figure No. 7).

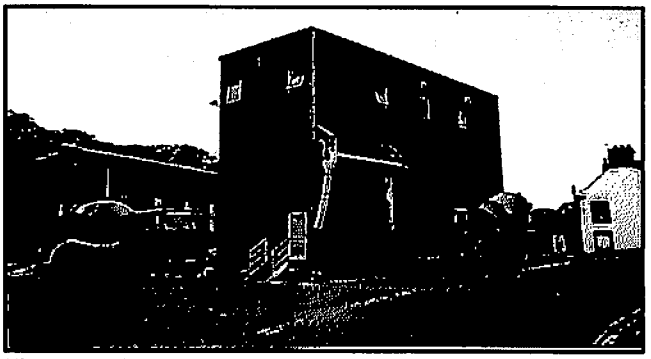


Figure 7 - Ice Plant

4.9 Box Washing and Storage

Box washing and storage is provided by Eyemouth F.M.A who operate a three stage tunnel washing machine by Newsmiths (Figure No. 8). It has capacity for approximately 100 boxes per hour depending on the degree of soiling. Badly soiled boxes may be put through the machine two or three times.

Figure 8 - FMA box washer

5. Port Development

Many of the problems associated with the existing infrastructure are of course well known to the Harbour Trust and are addressed in a major development that is currently ongoing. Work is well advanced with the first phase which will deepen the entrance to the harbour by 2 metres and create a new deep water basin 150 m long x 55 m wide, with minimum depth of 3.6 metres (Figure No. 9). The next phase of work will see the construction of a new market built to high standards meeting EU Health Regulations. It will have a sales floor area of approximately 430m^2 of which 140m^2 will be mechanically chilled and have capacity for approximately 500 boxes displayed one box high. The plans allow for a new ice factory and other ancillary services. The development is shown in Figure No. 10. During the preparation of the plans for the market, Seafish were consulted and some minor amendments made to the design, but would still question the lack of staff facilities (toilets, wash rooms etc.) at ground floor levels on the grounds of convenience and security.

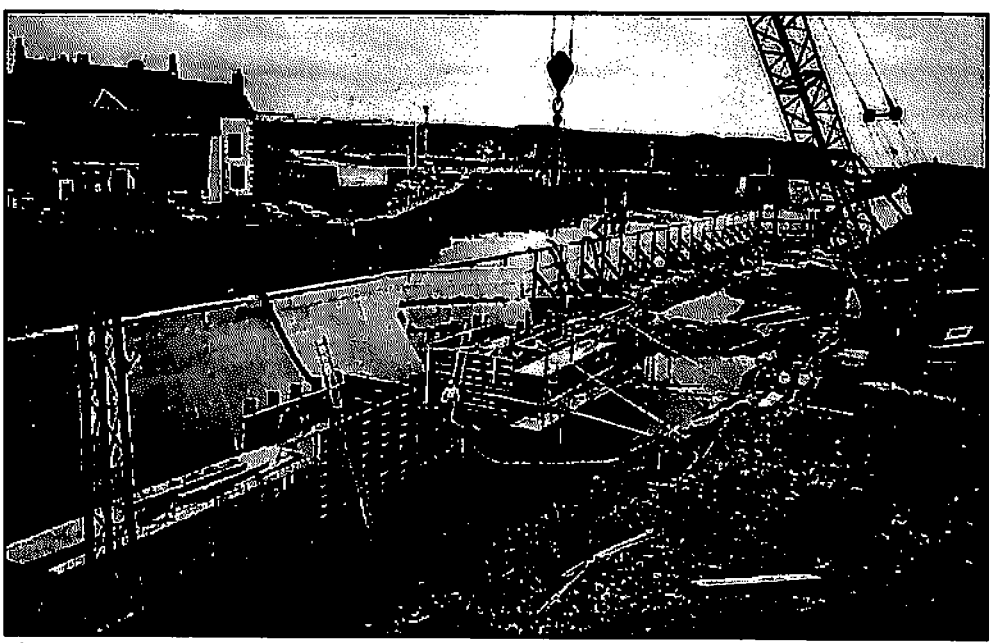


Figure 9 - Excavation of new deep water basin

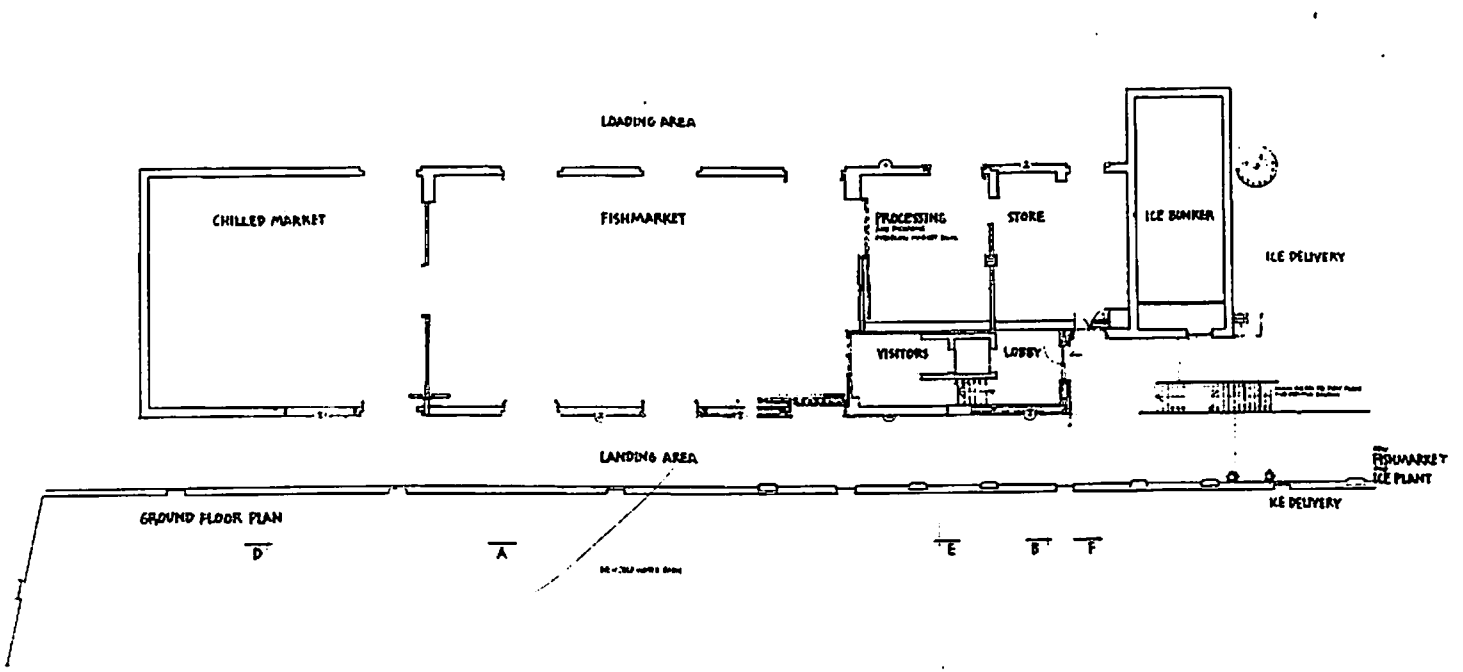


Figure 10 - Plan of proposed new market

6. Operating Practices

6.1 Landing and Handling

Methods of landing and handling generally cause no problems, with landings made direct into the market or transferred by fork lift from other quays with little delay or exposure to contamination. Lack of local buying power and whitefish processing infrastructure has led to a situation where as much as 80% of whitefish landings are consigned to North East or Humber markets for sale.

Where landings are made well in advance of the sale time. fish may be stored in either the market or F.M.A chills.

Although they only provide limited protection from the elements good use is made of the PVC screens along the market front to keep the morning sun off fish on display (Figure No. 11).

Figure 11 - Use of plastic curtains to protect fish from sun

Vessels intending to land to the market are encouraged to communicate details in advance to the Harbour Master either direct or via the F.M.A. This information is then made available to merchants/hawkers by means of a recorded message accessed by telephone. It is updated as information is received.

6.2 Preparation for Sale

Fish is laid out for sale approximately 10 to 12 boxes deep across the market with access walkways left between rows for inspection. They may be laid out in a single tier or stacked two high. No sorting, weighing or re-icing is undertaken on the market. Protective papers covering fish in boxes are removed prior to sale and fish is graded and labelled to EU size/quality standards. Nephrops are landed through the F.M.A and are not sold by auction.

6.3 Sale

The auction sale is conducted by the F.M.A, the sole sales agency represented in the port. They may also support the market by buying and wholesaling or consigning. Until recently the sale was conducted in the afternoon but was changed to 07.30 hrs as it better suited the fleet.

On the days of the audit the speed of sale was quick and purchases removed from the market promptly.

6.4 Hygiene and Cleaning

Overall the standards of hygiene and cleaning are good, particularly so in the circumstances of the planned new market and the limited expenditure (understandably) on the existing market.

Cleaning of the walls and floors of the building is performed efficiently but there was a slight odour in the market chill probably from the porous floor surface[2]. There is some evidence of birds roosting in the market but none of rodents or other infestation. The other quays and middle pier were also mostly kept clear and clean.

Minor infringements of smoking and drinking were observed on the market and standards of dress could be improved. There was no walking over boxes or tipping of boxes for inspection by merchants. The standard of box cleanliness was good.

[2]Since the date of the audit the cause of this problem has been identified as coming from the drainage over a concrete apron which dries out. A new drainage system is being installed.

7. Organisation and Management

Eyemouth is a Trust port with a board that comprises a maximum of twelve nominated trustees. There are currently nine trustees that represent the fish trades, local businesses and the Local Authority. The Trust employs a full time Harbour Master, a part time assistant and one other full time employee to undertake the duties of running the harbour on a day to day basis.

There is also an active and effective advisory group called the 'Port Meeting' that provides representation of sectoral interests on matters related to; port development, port charges, quality control, training, safety, maintenance and marketing etc.

There is no 'Code of Practice' as such that sets quality standards for the port and its operations, but Fish Market Rules are posted within the market that regulate operations on the market (Appendix II). The rules deal specifically with standards of hygienic practice (except standards of dress), but do not cover quality control measures (for example icing practice and temperature control).

There is no formal Waste Management Plan as recommended by the Merchant Shipping Notice M1659/MARPOL 73/78, no written cleaning schedules and no formal policy with regard to pest control.

At the time of the audit no strategic or business plan was available for the development of the port, although some progress is understood to have been made in this regard by the Secretary of the Harbour Trust. It should be realised that the ports sector of the industry is subject to similar competitive pressures as is any other sector, and to have no plan for the future is to plan to have no future.

At meetings of the Port Committee, Seafish listened to arguments put forward by The Scottish Border Council and Scottish Borders Enterprise for the appointment of a Port Development Officer whose brief would broadly be to co-ordinate the development of the port and to promote its interests. Draft terms of reference are given in Appendix III.

The Authority strongly supports the concept of a Development Officer or Commercial Manager, to develop the port along business lines. It shares however the concern of the trade, if the introduction of a box levy to fund the appointment, were to significantly increase costs to the industry. The Authority also has reservations with regard to the terms of reference for the Port Development Officer. With regard to (1) we would consider it more appropriate that the Development Officer report to the Harbour Trust. It should also be clear that the Strategic and Business Plans etc (2) be for development of the physical infrastructure and services provided (or potentially provided) by the Harbour Trust. (It would not be realistic to prepare business plans etc. in any detail for other sectors of trade). The plans would seek to secure the long term future of the local fishing fleet, fish trades and ancillary services. It could include a review of all assets, their use and of commercial opportunities (fuel, ice, estate

management etc.). It is suggested that (6) be limited to seeking out and progressing opportunities for business development of the harbour in support of the local industry.

The Authority also shares the concerns expressed at the Port Committee Meeting of finding a suitably qualified, experienced and committed individual to undertake a two year contract.

By focusing the work on the promotion and development of the port and its facilities rather than the more ambitious terms of reference suggested in Appendix III, it might be possible to find a suitable person from within the industry, if by doing so the task could be performed part time and integrated with other responsibilities.

Note. Since the date of the audit the 'Port Meeting' has agreed that it would undertake the role suggested of the Development Officer including the development and strategic plan, cleaning schedules, waste plans. etc.

8. Recommendations

8.1 That the Port Committee consider this report and agree a programme to implement action as they see necessary and appropriate.

8.2 That the catching sector be encouraged to take greater care where necessary with standards of washing and boxing white fish. Likewise that greater effort be made to improve the cooling of prawns at sea.

8.3 With regard to the design of the new market, that consideration be given to the provision of staff facilities at ground level.

8.4 That cleaning schedules be developed and agreed in advance of the transfer to the new market.

8.5 That a formal Waste Plan be developed and lodged with the M.S.A. in accordance with the Merchant Shipping Notice M1659/MARPOL 73/78.

8.6 That the Harbour Trust/Port Committee consider the fixed term appointment of a Development Officer as suggested in Section 7.

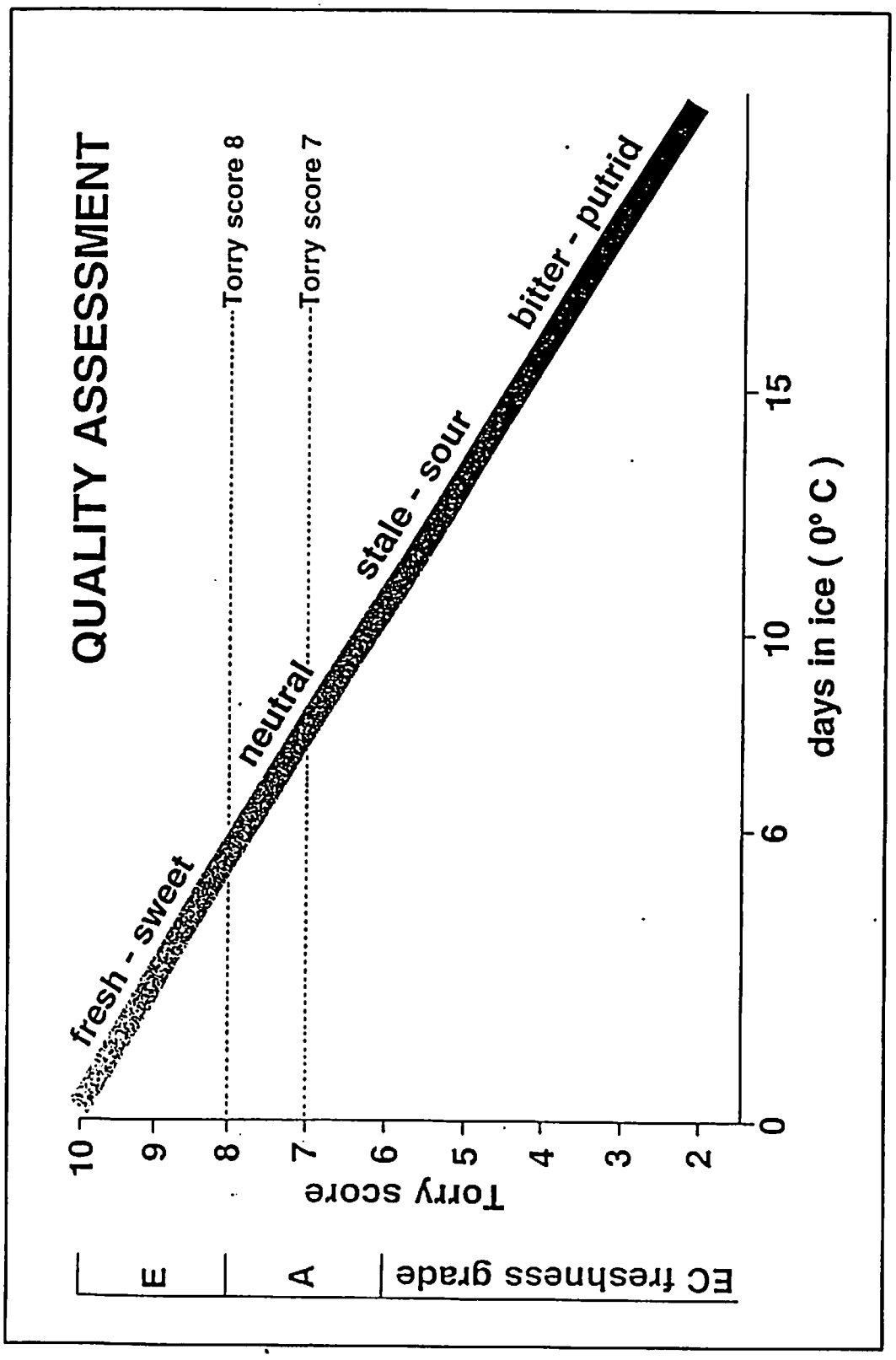
9. Acknowledgements

The assistance of the following is gratefully acknowledged, plus the many other skippers, crew, merchants and buyers, etc.

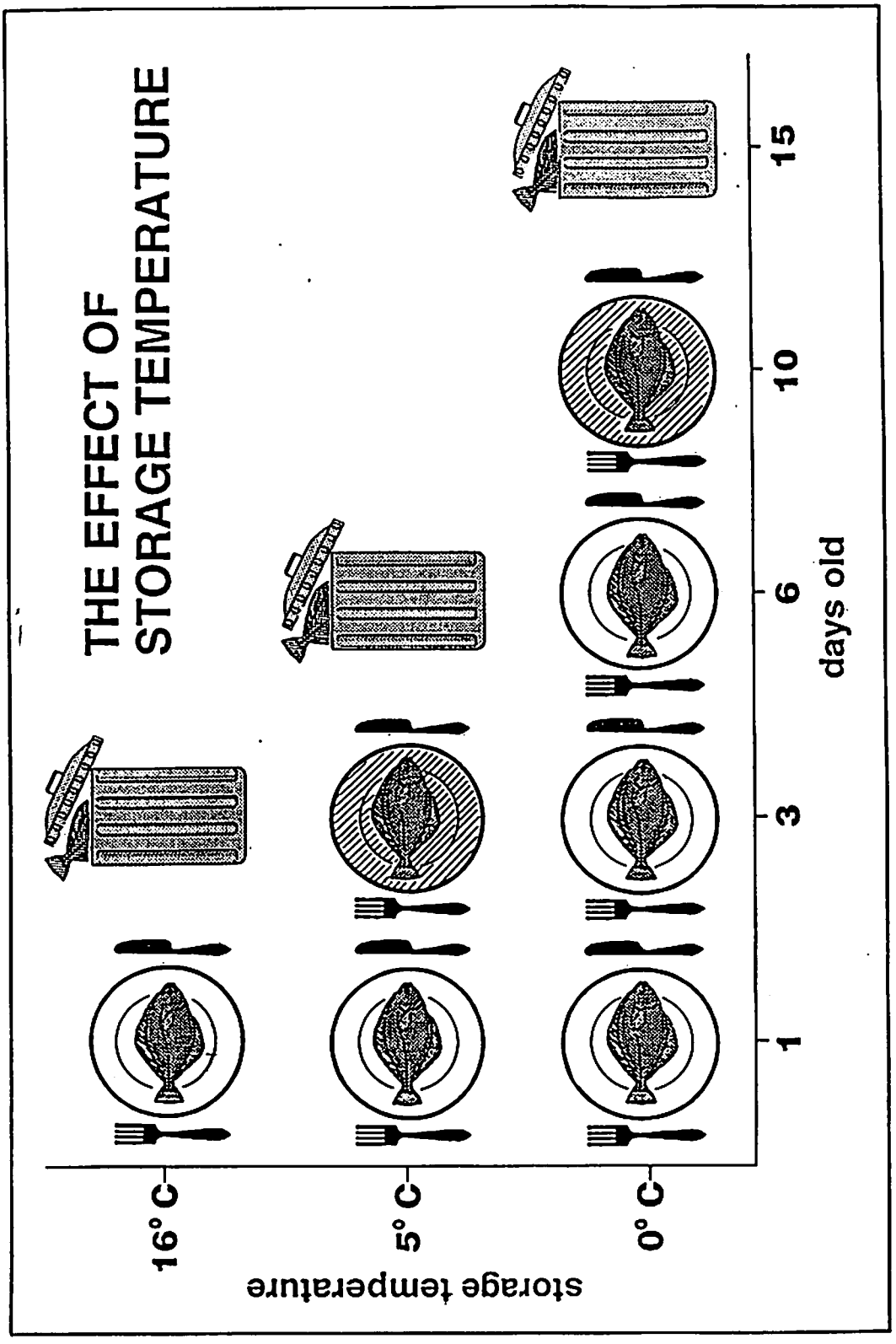
Mr. J. Evans	Eyemouth Harbour Trust
Mr. A. Craig	Eyemouth Harbour Trust
Mr. J. Johnstone	Eyemouth Harbour Trust
Mr. A. Swan	Bain, Swan, Architects
Mr. R. Walker	FMA
Mr. S. Griffin	SFPA
Mr. S. Watson	SBE

Appendix I

Freshness Quality Assessment



Freshness quality assessment



The effect of storage temperatures

Appendix II

Fish Market Rules

1. Fish sales must be conducted in the 'closed' part of the market.

2. Users of the market shall comply with all the hygiene regulations governing the landing, storage, sale and handling of fish products in the United Kingdom.

3. Fish boxes and equipment shall be clean to the standard required by the hygiene regulations.

   Standing on fish boxes is prohibited.

4. Vehicles whose exhaust may impair the quality of fish products are prohibited.

5. Smoking, Eating, Drinking and Spitting are prohibited.

6. Access by animals is prohibited.

7. Entry to the fishmarket shall be restricted to authorised market personnel, representatives of Environmental Services Dept, boat crews and servicing persons.

8. Fish Products contaminated under the terms of hygiene regulations shall be removed from the market by placing in the container provided.

9. Unauthorised use of the fishmarket for purposes other than the sale of fish is prohibited.

10. No gear or machinery permitted.

December 1992

Appendix III

Draft Terms of Reference for Port Development Officer

1. To be responsible and report to the Port Meeting.

2. To construct and Manage Strategy, Business Plan and Marketing Plan for the Eyemouth and District Fishing Industry.

3. To co-ordinate the various non public sector organisations with an interest in the Port of Eyemouth.

4. To help the co-ordination of the physical infrastructure development, including development of project/business appraisals, progressing applications for funding, consulting with and liaison between the various interested parties/agencies.

5. To promote the Port of Eyemouth and it's facilities within the Fishing Industry to market the port, its facilities and its products with a 'brand' image.

6. To seek out and progress all opportunities for business development for all sectors of the local fishing industry. To give assistance to existing businesses, exploration/development of new markets and products for home and export markets.

7. To liaise with agencies and organisations within the Fishing Industry and within Government (EU, national and local) and to access to support and structure funds for the Industry.

8. To work with catchers and merchants in order to co-ordinate supply and demand of fish.

9. To carry out such other duties as required to promote the Port of Eyemouth.