Plymouth
Port Quality Audit

Confidential Report No. CR 148

September 1998

Sea Fish Industry Authority
Seafish Technology

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Summary

This report presents the findings of a Quality Audit of the new fishing complex at Sutton Harbour, Plymouth. The audit examined the quality of fish supplied to the market, standards of physical infrastructure, operating practices and management controls.

The freshness quality of the fish supply was very good, reflecting the high standards of gutting, washing, boxing and with the exception of some day boats, temperature control.

The standards of physical infrastructure and equipment were generally excellent. However, the success of the port since the opening of the new complex and the resulting growth in business, is beginning to cause acute space shortages, both on the market and the dock estate. Consideration now needs to be given as to how to make the best use of the facilities and space available to adequately support high levels of trade.

The report identifies acute problem areas and a number of minor defects requiring attention. Recommendations are made with regard to market operation and ancillary services.

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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 that identified the port 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 fish supplies to the port
- physical infrastructure
- operating practices
- management controls

Recommendations for improvements are made and action is then encouraged at local level.

The audits focus primarily on the workings of the fish market. They cover the operations from landings at the quayside (or overland deliveries to the market) to the despatch of fish from the market after sale. They do not cover standards on fishing vessels (other than in the quality of fish supplied to the market) or within fish factories. They do however report where conflicts arise between the activities of different sectors within or around the environs of the fish market, its quays and roads. The report is confidential to the trade and is not for publication.

This document presents the findings of a quality audit of the port of Plymouth Sutton Harbour undertaken during May 1998. It was carried out with the full co-operation and participation of catchers, salespersons, buyers, merchants and the managers, Plymouth Fisheries Limited.

2. Survey Procedures

The survey took place over a period of five days: 9-14 May. Fish quality assessment was carried out by a small team of Seafish technologists.

All of the fish sampled were for sale on the fishmarket. Wherever possible, the assessment was made as the fish were first received into the fishmarket building. Other samples were from fish which had been held in the chill. Fish were taken from throughout each box and assessment was made of:

- freshness (using the Torry Sensory Assessment System (Appendix 1))
- gutting and washing
- temperature and icing practice
- box weights and filling practice
- damage to fish

Note was also made of the trip length and any vessel operating practices or equipment which may have affected quality (e.g. fishroom insulation/chilling, fish handling systems, washing/gutting machines, etc.).

Assessment of the standards of physical infrastructure, operating practices and management controls was undertaken using a structured approach. This included observations on site and discussions with a wide range of port staff and users.

3. Raw Material Supplies

3.1 Sampling Achieved

In all, 17 vessel landings and 9 overland consignments were sampled. These were made up of fish caught by a wide variety of gears outlined in Table 1.

Table 1 - Range of gears selected for fish samples during the audit

Number of Vessels	Gear
4	Beam Trawl
12	Single Trawl
1	Twin Trawl
1	Scallop Dredge
4	Static Net
2	Handline
2	Rod and Line

A total of 84 boxes were examined. These included a wide variety of species as outlined in Table 2.

Table 2 - Range of species sampled during the audit

Boxes Sampled	Species
14	Lemon Sole
14	Plaice
11	Mixed
7	Dover Sole
6	Whiting
32	Others

The vessels sampled worked a range of trip lengths from less than one day to ten days as shown in Table 3.

Table 3 - Range of trip lengths from which fish were sampled

Number of Vessels	Days at Sea
13	Less than 1
3	2
4	3
1	4
2	5
1	6
2	10

3.2 Freshness Quality

The average freshness quality of fish supplied to the market was 8.9 on the Torry sensory assessment scale (for detail of Torry scoring and its relationship with eating quality and EU grades see Appendix 1). The quality range measured was 10 down to 7.5 Torry Score.

Freshness quality is closely related to days since capture. These are excellent results and they highlight one of the main benefits of the short trips worked by most of the local fleet. However, even the beamers working the longest trips delivered fish which scored a very high average of 8.6.

3.3 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 done efficiently or the bacteria from the gut cavity can spread to the cut flesh and promote spoilage.

70 of the 84 boxes sampled contained gutted fish. Gutting scored well with 84% rated as good and 16% as average. No fish were found to be badly gutted. Washing also scored well : 86% rated good, 12% average, and only 2% rated as poor.

3.4 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 well iced. However this can be reduced to 1-2 days if left unprotected at summer ambient temperatures. The audits are deliberately conducted during the summer months when warm temperatures help to reveal any weaknesses in fish handling practices. The ambient temperatures in the market hall at the time of the audit were 17-20° C. The seawater was found to be 13.6° C.

Seafish research on icing at sea has proven that ice is most effective if it is applied to the top, middle and bottom layers of the box (Ref. 1). Table 3 below, shows the results for icing practice observed during the audit:

Table 4 - Icing practice observed during the Plymouth audit

Number of Boxes	Icing Practice
10	No ice
16	Top only
58	Top and bottom only
0	Top, middle and bottom

Ten of the 84 boxes were un-iced. The remaining boxes were either top iced only, or top and bottom iced. No boxes were found to be iced in the middle. The average temperature of the iced fish was 0.2°C. These fish were relatively well chilled compared to the un-iced fish which averaged 14.0°C. Some of the beamer fish were found to be partially frozen (below −1°C) due to excessive fishroom chilling. Many buyers dislike fish which is partially frozen as the freezing can make it difficult to eetermine its freshness. In addition, fish in this condition cannot be accurately machine graded prior to auction as the ice adhering to the fish gives a false weight. Care should be taken to monitor

fishroom chilling during a fishing trip and to adjust the controls to prevent partial freezing.

The highest temperature (14.9°C) came from the un-iced day boat samples, and suggests that this fish had actually *risen* in temperature since leaving the water. These fish will have a significantly shorter 'shelf-life' than properly iced fish.

All of the fish sold on Plymouth market were graded and re-boxed prior to sale. After re-boxing the fish were given a light top icing. Temperatures were taken from 8 boxes towards the end of an auction after the fish had been on display for 3-4 hours. Some fish had risen to 15.5°C and the storage life of the fish will have been shortened significantly. This was a major failure in temperature control within the market and heavier icing is required for fish displayed within an un-chilled auction space such as this.

The storage life of fish landed at Plymouth would be improved if all boxes were iced according to Seafish recommended practice.

3.5 Box Filling

The Channel fisheries yield a greater variety of species than are found further north. Consequently in small day boat fisheries, more boxes are required to store species separately. At the time of the audit the day boat fleet generally landed part boxes of fish and box overfilling was not observed. Most of the full boxes sampled came from beamers which had worked longer trips. One of these vessels was found to be overfilling its boxes to nearly 64 kg. This is poor practice. However, the other beamers were found to be stowing between 30-40 kg of fish in a box with plenty of ice. This was rewarded by the very high average freshness scored by the beamers. Seafish recommendations on good box filling practice can be found in (Ref. 1).

4. Infrastructure and Operating Practices

4.1 Background

The development of a new fisheries complex was mainly driven by the need to comply with EU hygiene legislation introduced in the early 90's. The original market building on the Barbican was not suitable for upgrading and was subject to planning constraints. Access and parking were also a constant problem.

As a result it was decided to relocate the market into new premises on reclaimed land at Bayly's Wharf (Fig No.1). Constructed as part of a wider £42 m development scheme for the Sutton Harbour area, the fishing complex cost £3.5 m. The site was developed by the owners, Sutton Harbour Company plc, who established a subsidiary, Plymouth Fisheries Ltd to manage the complex.

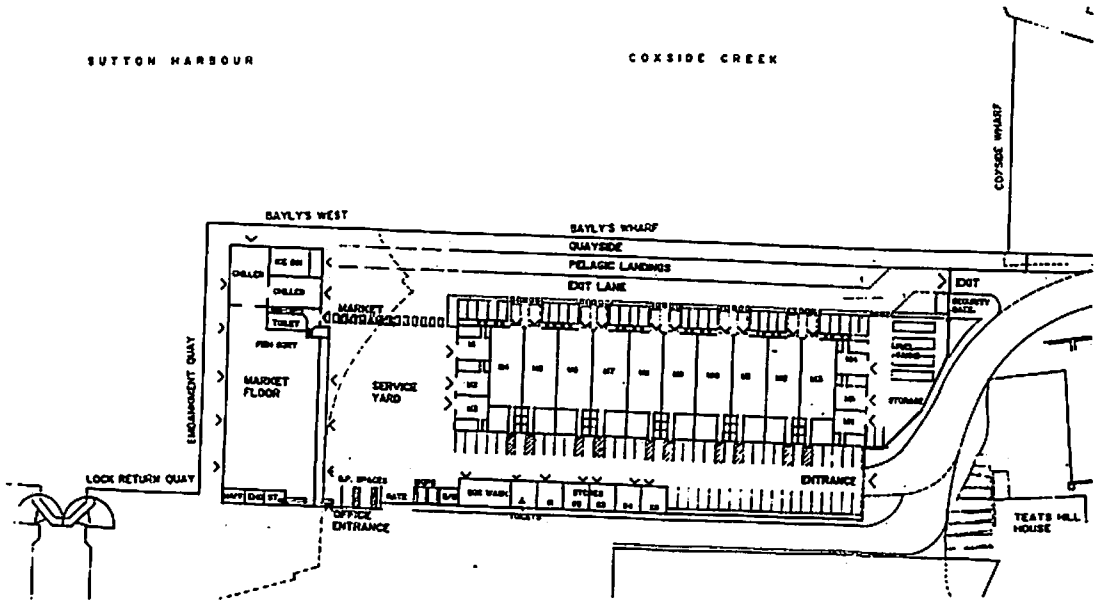


Figure 1 – Map of new fishing complex (some minor changes have been made since these original plans)

Lock gates now allow 24hr access to Sutton Pool. The new facilities included a purpose built fish market and quays, ice plant, fuel and water points, box washer and processors' units. The new EU hygiene regulations also precipitated a move by fish merchants and processors in the Barbican to better premises, and many now rent units within the fishing complex.

It was recognised at the planning stages that the new fishing complex would have to attract increased revenues (as rents and fish landings), in order to be economically viable. The market began trading in early 1995 and turnover has increased dramatically. Both the new market and the ports' reputation for good service have attracted larger visiting beamers, and the local day boat fleet is increasing in size. This success is also attracting

increasing quantities of overlanded fish from other South West ports. The merchants units are now fully occupied.

At the time of the transfer, opportunity was also taken to reform the sales and marketing operations. A single sales agency was formed by a consortium of local catchers who were given exclusive licence for auction sales on the market. Sales are still conducted using the traditional shout auction but consideration is being given to the introduction of an electronic marketing system.

The site is well connected to the UK trunk road and motorway system and Plymouth has direct ferry links to the continent.

The fishing complex is now very busy and trade is flourishing for all of the resident businesses. However, adjacent land originally earmarked to accommodate fish industry expansion has been let instead to the leisure industry. As a result, the fishing complex is now very short of space (even the vacant ground between the market and the lock pit has to be kept clear for the sake of the view from a cafe)(Fig.2).

Figure 2 – The fishing complex is 'cheek by jowl' with the leisure industry

4.2 Landing

4.2.1 The landing quay

The new deep water landing quay is well situated allowing landings directly into the market building. The quay is spacious and well lit. If the main landing quay is busy, boats may also land round the corner by the ice berth on Baylys Wharf. However, the concrete margins on this quay have suffered from impact damage from vessels. The resulting defects are a potential hazard for pedestrians and vehicles (Fig. No. 3).

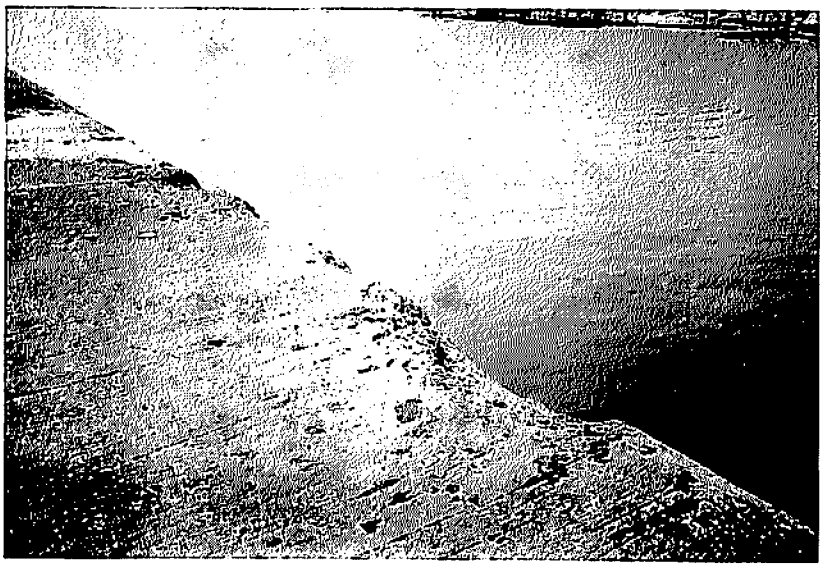


Figure 3 - Damage to edges of quayside

4.2.2 Landing operations and overlanded fish

The landing quay is open 24hrs. During the audit peak activity occurred during late afternoon/early evening when the day boats landed. Landing and reception of overlanded fish were supervised and assisted by Plymouth Trawler Agents (PTA) staff.

Three shore based static electric cranes were available to land smaller vessels. There was a persistent problem with the wire on the winch barrels slipping and causing boxes to fall off the lifting hooks. A poor electrical connection was observed on one of the crane motors (Fig. 4). Larger boats tended to use their own derricks.

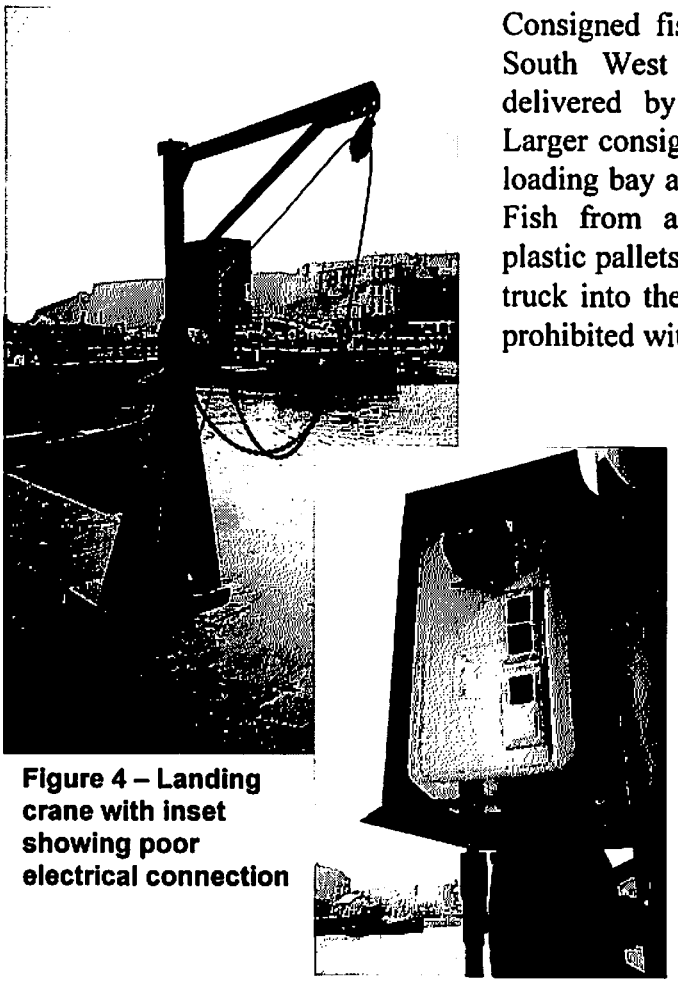


Figure 4 – Landing crane with inset showing poor electrical connection

Consigned fish arrives by road from other South West ports. Small amounts were delivered by truck to the landing quay. Larger consignments arrived by lorry to the loading bay at the inland side of the market. Fish from all sources were loaded onto plastic pallets and promptly moved by pallet truck into the market building (forklifts are prohibited within the market).

The weather during the audit was warm (13-20°C). Although some effort was made to keep the market doors shut, they were often left open unnecessarily after landing. There did not appear to be a clear policy on door usage.

4.3 Fish Market

The new market hall, when compared to its Victorian predecessor is spacious and is one of the most visually attractive markets in the UK (Figure No. 5). It is of hygienic design and construction and meets the requirements of EU Regulation 91/493. The ground floor consists mainly of a market floor, a chill store and a visitors reception area. The market floor has a design capacity of 1100 x 4 stone (800 x 7 stone) boxes laid out unstacked. The first floor houses offices and the ice plant.

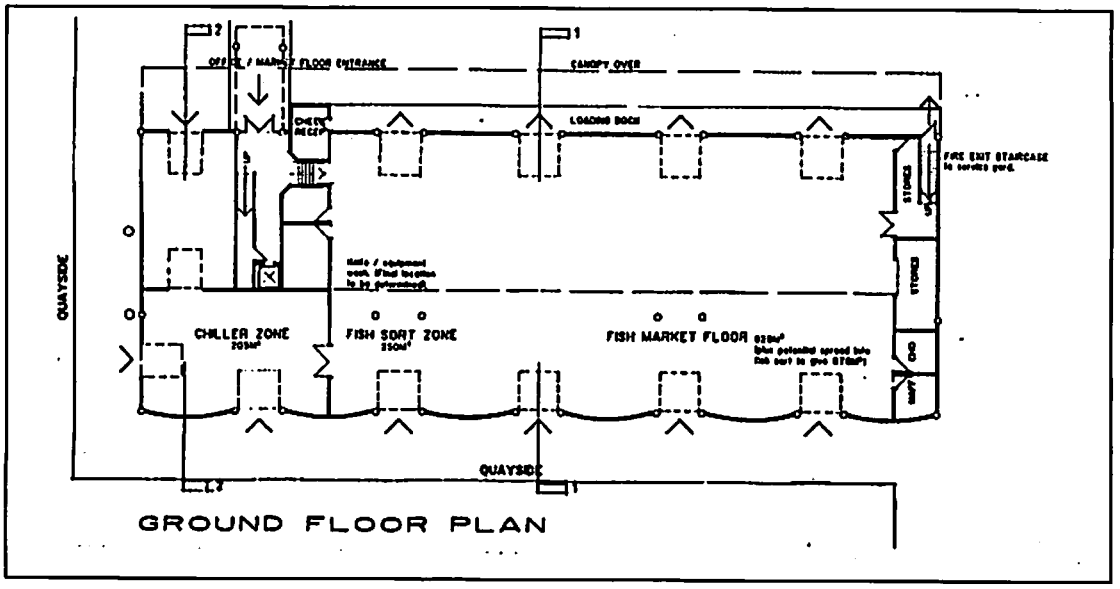


Figure 5 – Plan of ground floor (there were some subsequent modifications to the chiller layout at the construction stage)

There is a small staff room directly off the market hall for the use of PTA grading staff. There are toilet facilities for all market staff and visitors located off the main reception area of the building.

Access to the market floor is restricted to those directly involved in market trade. Other visitors to the market building can view activity on the market floor from a glazed mezzanine gallery which runs the full length of the market building.

4.3.1 The market hall and sorting area

The market hall has been in use for over 3 years. Overall the fabric is performing well but usage is bringing to light a few problems.

The circular window design has proved to be poor. The glazing is set almost flush with the outer skin of the building and as a result it has suffered from breakage. The internal sills are deep and have no drainage. Consequently, they attract litter and also hold water after washing. This latter problem is made worse due to the use of ungalvanised steel which is beginning to corrode (Fig No. 6)

Figure 6 – Litter, personal items and water collect on market window sills

Externally, the building is in good condition. The only noticeable problem was a blocked gutter at the landing side of the market. No roof ladders were built into the design for easy roof access, and we were advised that a hydraulic platform has to be used to clean the gutters.

4.3.2 The chill store

The chill store adjacent to the market floor offers 24hr secure storage, and has proved to be a very useful facility. Again usage has highlighted some problems and shortcomings. The external doors to the chill have no strip curtains and this may cause temperature control problems. Currently temperature control and monitoring are only possible from within the engineers control room (to which chill operators have no access). There is no temperature indicator, recorder, or alarm at ground floor level.

The floor surface has suffered damage from a (prohibited) vehicle and needs repair. The chill is cluttered with spare fish boxes that limit its operational capacity and make cleaning difficult.

4.3.3 Fish handling and preparation for sale

All of the fish sold on Plymouth market is weighed, graded for size and re-boxed prior to sale. These operations are carried out by Plymouth Trawler Agents. Two box pools are in use. One, owned by Plymouth Fisheries is for auction use only. The second, owned by the PTA can be taken to sea.

During the audit, all fish received by PTA staff were firstly tallied (by boxes per vessel) and recorded. Most of the fish were graded and weighed directly after reception. Fish landed at times outside of grading shifts were top iced (if necessary) and stored in the chill. These fish were subsequently taken from the chill for sorting when the grading staff came on duty.

Smaller quantities of fish from day boats were sorted manually using traditional stainless steel grading tables (Fig. 7). Large quantities of single species such as sole or bass were sorted by an automated Scanvaegt grader. The Scanvaegt has proved to be essential for dealing with large quantities of fish quickly. After grading by either method, all fish were re-boxed into Plymouth Fisheries boxes and labelled by vessel and weight. The fish were then top iced. A direct ice supply from the silo had originally been planned for the new market, but this convenient feature was unfortunately never built. Instead, ice has to be brought by bin and pallet truck from the quayside delivery chute. After icing the fish are stored in the chill until laying out for sale.

Figure 7 - Manual grading under way

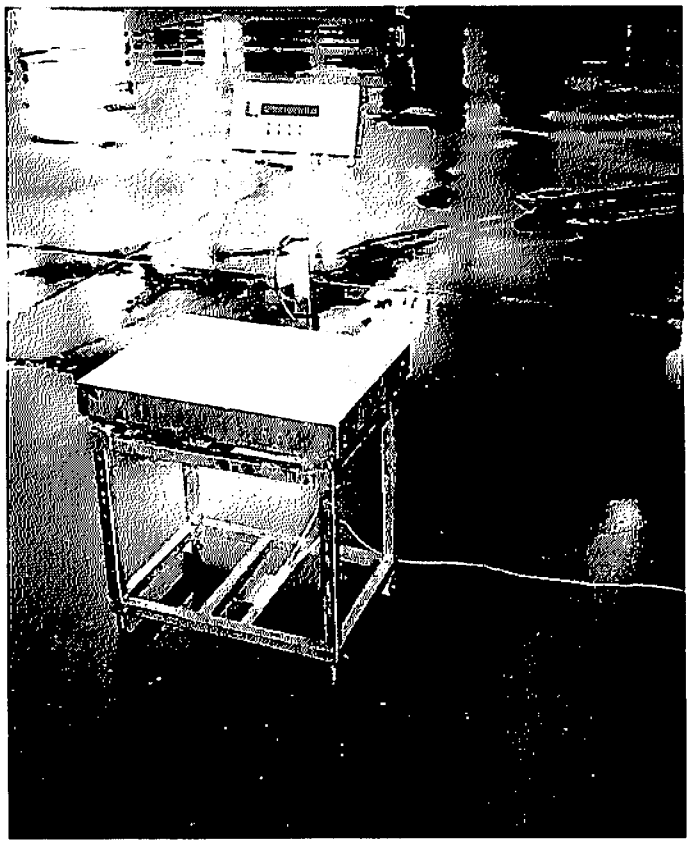


Figure 8 – Cables which prevent passage of pallet trucks

At the old Barbican Market catchers had to do their own grading and weighing. As this service is now provided by the PTA, undoubtedly landing is far easier. However, the increased throughput within the new market has put the initial grading system under stress, particularly when landings are heavy. The layout of the grading equipment caused awkward cross-flows in use. This was made worse when power cables for the electronic scales were allowed to obstruct the movement of pallet trucks (Fig. 8). During the audit landings were relatively light/moderate and the grading and fish handling system was not under pressure. However, it was easy to envisage how heavier landings could put the system under critical strain. As efficient and consistent grading is fundamental to remote electronic sales systems, it is important that Plymouth Fisheries and the PTA ensure that the grading system is able to cope properly with heavy landings.

4.3.4 Laying out for sale

Figure 9 – Floor space taken up by part-filled boxes

Laying out began at 0500hrs. The fish were removed from the chill and set out on the auction floor, grouped by vessel and species. Large single species lots such as Dover Soles from beamers were stacked in batches by size grade on plastic pallets. Small lots (predominantly day boat fish) were laid out unstacked. At the time of the audit most of the auction floor was occupied by unstacked boxes, which in turn were mostly only part filled (Fig. 9). Again, it was easy to envisage how the floor space, if used in this way, could become inadequate during large sales. The potential problem was made worse as some of the market floor was also being used to store unused boxes (Fig. 10) and vessel stores (see Section 4.8).

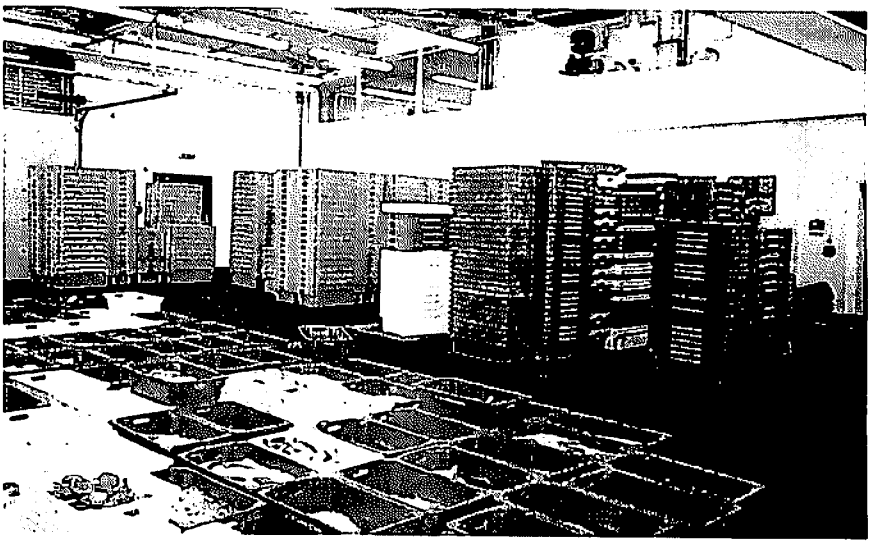


Figure 10 – Spare boxes take up valuable market space

Early viewing commenced at 0530hrs, one hour ahead of the auction. Because Plymouth fish is pre-sorted and weighed, we did not observe any of the box tipping problems so common in other ports. Clearly it was easier for buyers to see what they were buying. However, PTA staff failed to provide adequate walkways between boxes, and buyers were forced to cross boxes by walking on them (Fig 9).

4.3.5 The auction sale

The shout auction was conducted by a PTA auctioneer. During the audit a relief auctioneer was being used and the auction was reportedly slower than usual. Fish at the end of the sale had very little ice left and suffered a considerable rise in temperature (see Section 3. Temperature control).

Dress was generally good but very few participants were wearing hats. Despite recent efforts to improve behaviour, some eating, drinking and smoking was observed. Many buyers were standing on boxes (Fig 11).

Figure 11 – Buyers standing on boxes

4.3.6 Despatch

Removal of fish was permitted as soon as it was sold. Fish were moved by PTA staff to dedicated buyers' stances at the despatch side of the market where their respective purchases are gathered together before onward transport. As Plymouth Fisheries' boxes were not allowed off the site, most of the fish had to be re-boxed and iced prior to transit. Although at the time of the audit there was sufficient space, this re-boxing would take up valuable floor space and time if the market was busier. When ready, fish were taken outside to lorries by buyers or transport staff using pallet trucks. The vehicles used for fish transport were almost all up to proper specification, being covered and chilled (Fig. 12). Market door discipline at this time was particularly poor.

Figure 12 – Fish transport waiting at loading bay

4.4 Cleaning

There is a form of cleaning schedule for the fish market and roads which lists cleaning duties for Plymouth Fisheries staff (see Appendix II). However, the instructions do not contain enough detail and could be improved. There were no written cleaning instructions for PTA staff.

All water for the site is supplied by South West Water. The water company insists on the installation of 'break tanks' to prevent any back-contamination into the main supply. As a consequence water pressure is considerably lower than mains pressure.

4.4.1 Roads and yards

The cleaning of the roads is the responsibility of Plymouth Fisheries. A Bobcat tractor with brushes is used for this. Responsibility for the merchants' yards lies with the respective tenants. However, there is a persistent problem of smelly fish waste from some of the yards running onto the roads. The source of the problem is poor waste storage practice by some merchants' units (Fig 13). The containers used for waste are unsuitable as they allow liquid waste to leak onto the yards and roads. In addition, they are commonly overfilled so that the lids (if they have any) do not close. Odours have been so bad that a leisure business 100 m from the fishing complex reported a suspected gas leak! This is unacceptable from a hygiene point of view, is a public nuisance, and the bad odours project a very poor image to the public. In fairness, the tarmac surface is not ideal for fish industry premises. It is subject to attack from fish oils, and has a porous surface that is difficult to clean. In addition, the waste channel is located on the wrong side of the road for convenient use by the processing units. However the root of the problem lies in poor waste handling equipment and bad practice.

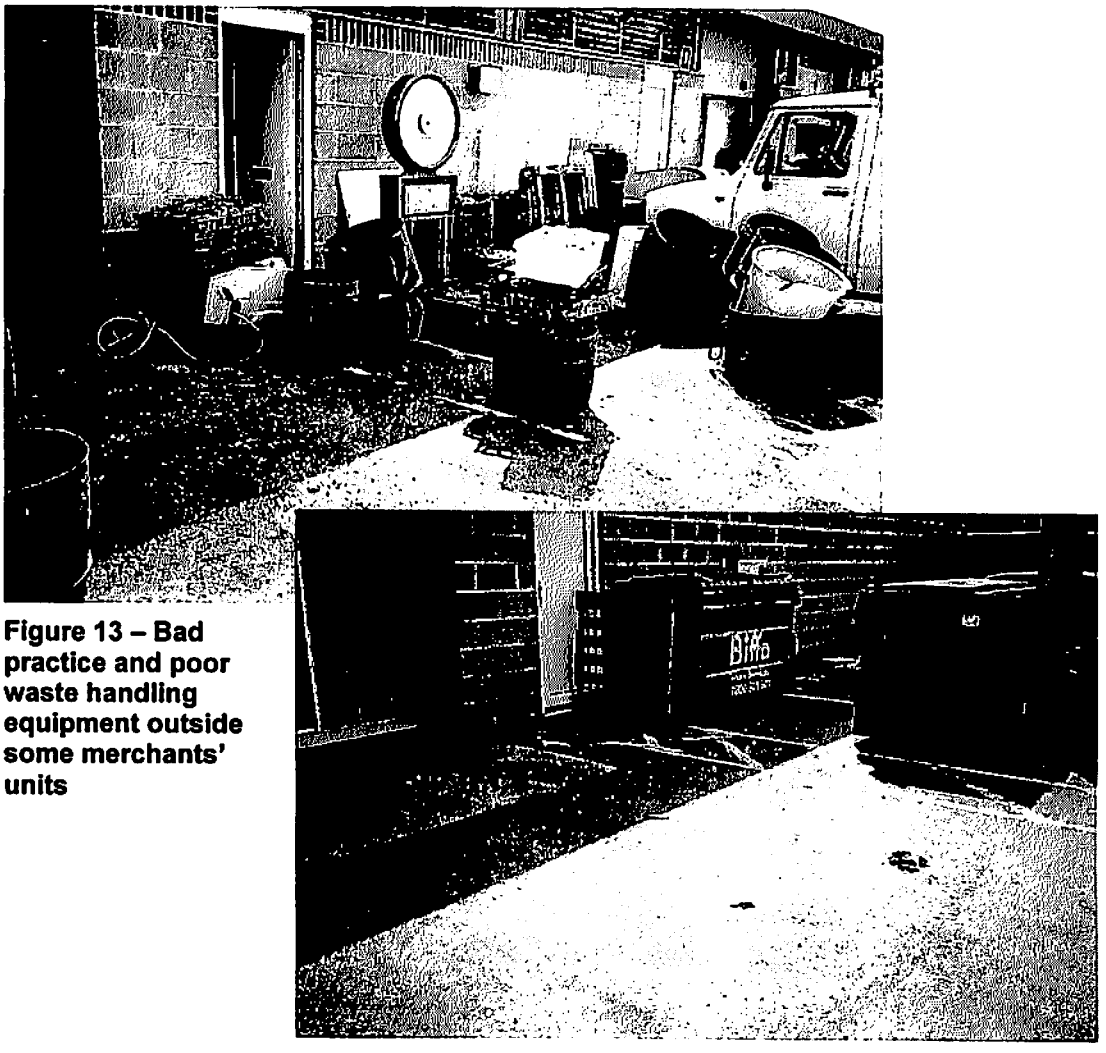


Figure 13 – Bad practice and poor waste handling equipment outside some merchants' units

4.4.2 The market

The PTA are responsible for keeping the grading and handling equipment clean. The general washing of the floors and walls is carried out by Plymouth Fisheries staff. Both organisations clean on a daily basis, using pressure washers, squeegees and brushes. At the time of the audit the grading and handling equipment were found to be reasonably clean. However, some of the electronic scales and pallet trucks were not as clean as they could have been. The blue floor covering of the market was clean but we were told that it was difficult to maintain. It was sluiced down daily using a pallet bin filled with water. This was slowly wheeled across the market with the bung removed in order to deliver sufficient water to rinse the floor. One section of the floor was pressure washed each day on a rota basis, to remove deeper dirt. We were told that the cuttlefish season added further difficulty to cleaning the floors and walls.

It was noticed that the ledges above the shelves used to store vessel tallies were cluttered with litter. The spare boxes and pallets of vessel stores observed in both the market hall and the chill were an obstacle to thorough daily cleaning. Lastly, there was no separate provision to store cleaning equipment off the market floor.

4.4.3 Box washing and storage

Cleaning of both sets of boxes is carried out by Plymouth Fisheries in a separate building across the yard from the fish market. Storage for dirty boxes within the box washing shed is very limited due to the space required for a Bobcat tractor and a row of bins used to soak heavily soiled boxes (Fig 14). The box washing machine is manually fed.

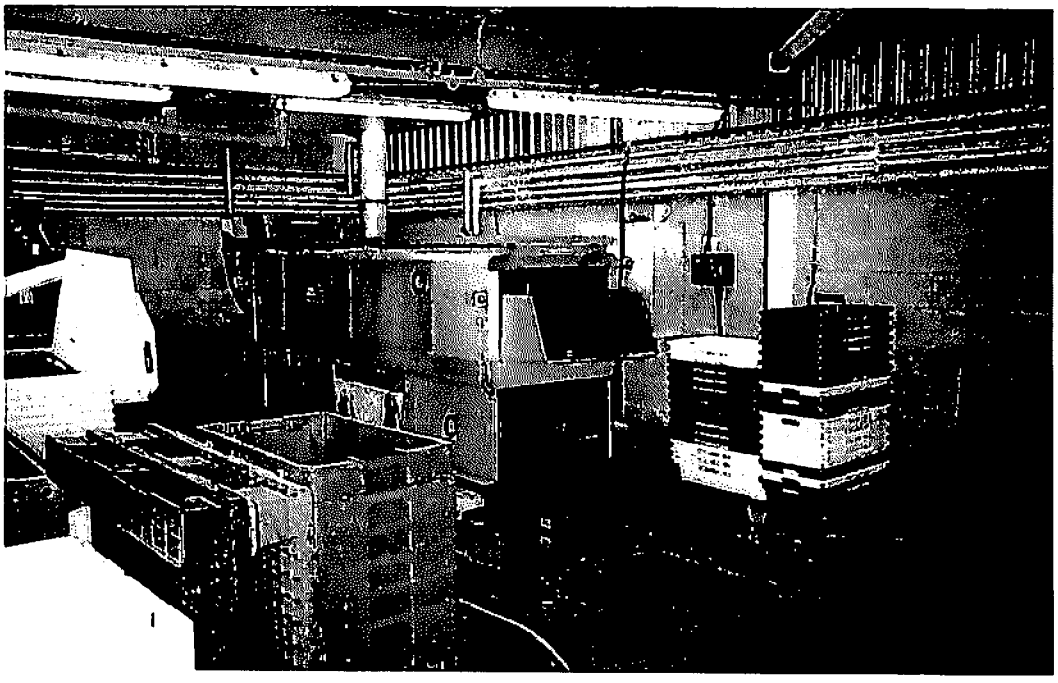


Figure 14 – Space within the box washing shed is limited

The ramp at the entrance to the shed is too steep to allow easy access by pallet truck. Forklifts have been used at times as an alternative to pallet trucks but the door way has suffered damage as a result (Figs. 15 and 16).

Figure 15 – The ramp is too steep for pallet trucks

Figure 16 – Forklift damage to doorway

We were told of serious problems in maintaining a supply of clean boxes when trade was busy earlier in the year. The total number of boxes available was inadequate for heavy markets but we are told that more are being purchased. There were also technical problems with the box washer that have now been overcome. Additionally, we were told that the supply of dirty boxes to the washer had been unnecessarily intermittent and that the machine had been idle at times. This problem was exacerbated by the use of casual labour whose productivity was less than expected. Permanent staff were also called away from the machine by other duties. The cuttlefish season also imposed a high load on the system with many boxes having to be soaked prior to washing. This was made worse as some local day boats used boxes in an ill-considered way and dirtied more than were really necessary.

The only dedicated storage for clean boxes was within an outdoor cage between the box washer and the market (Fig 17). This space was far too small and the market and chill spaces were routinely used to store excess boxes.

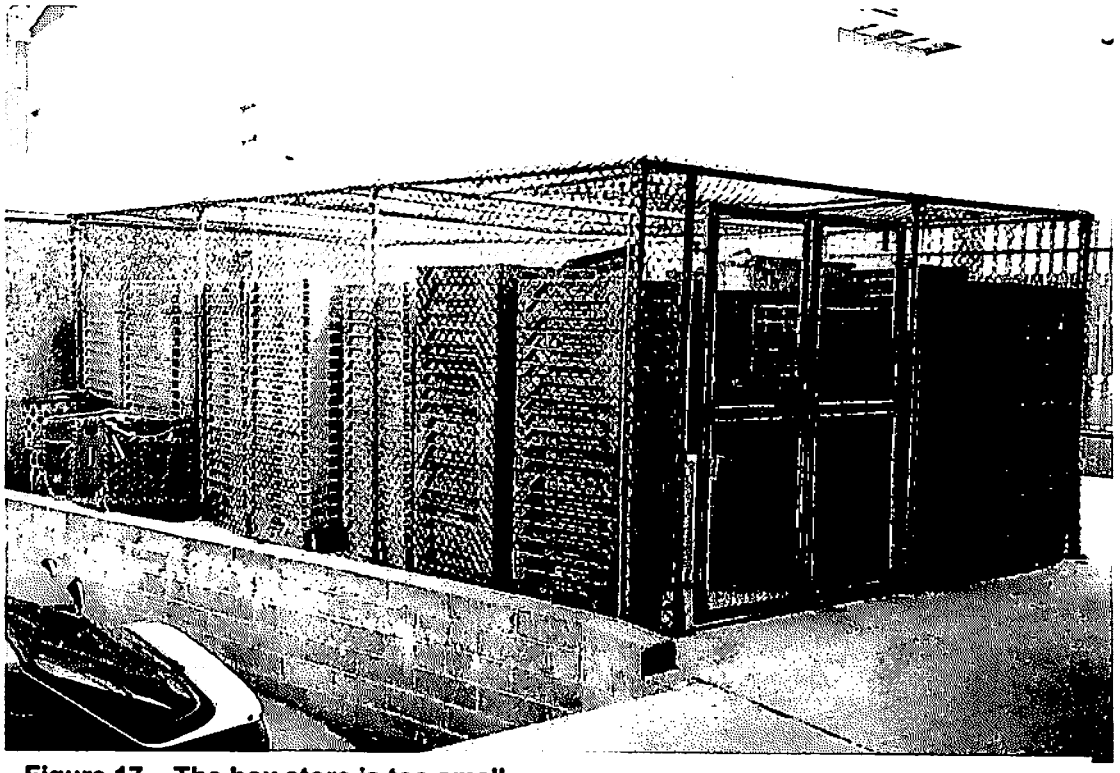


Figure 17 – The box store is too small

4.5 Ice Supply

The ice supply is operated by Plymouth Fisheries. Ice is supplied from an 80 tonne Stancold silo situated within the market building. Production from the Genoglaze ice machine is 38 tonnes in 24 hours. A chain driven scraper transfers ice from the top of the store into an auger system that then delivers the ice via an external chute directly into vessels or bins (Fig 18).

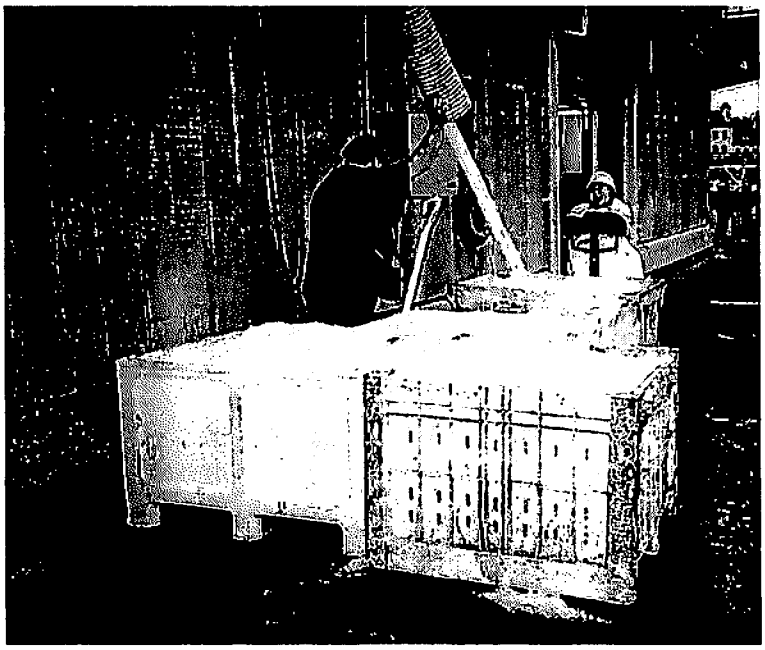


Figure 18 – Ice is delivered into bins for use within the market

As the system always rakes from the top of the silo (where the fresh ice is deposited by the ice machine) older ice tends to compact at the bottom of the silo and becomes useless. This has to be removed occasionally and requires (in a single silo system like this) a temporary halt to production. Unfortunately, it is difficult to forecast the requirement of the fleet (particularly the larger visiting vessels) and the need to close the plant at times is inconvenient.

The quality of ice supplied at the time of the audit was very good. There were some production problems when the plant was first commissioned but these have been cured. There remain some problems with the delivery of the ice. The layout of the flights which rake ice out of the silo is such that small quantities are difficult to dispense accurately. We were also told that if the delivery auger was not completely emptied after each use then it would freeze up in cold weather. This particular problem can be avoided if a time delay is built into the system so that the delivery augers and conveyors purge after each use.

4.6 Water and Fuel

Combined, self-service water and fuel points are located at intervals along Baylys Wharf. Fuel is available using a convenient credit card system. It was noticed that diesel was leaking from the fuel point located by the ice plant (Fig. 19). The spilled diesel had made the quayside very slippery and hazardous to operators and passers-by. A fuel leak at an ice berth also poses a considerable contamination threat. The lack of main's water pressure means that it can take a long time to service vessels with large tanks (as confirmed by visiting beamer skippers). The delivery points are situated along the major berthing quay and this could lead to access problems when the port is busy.

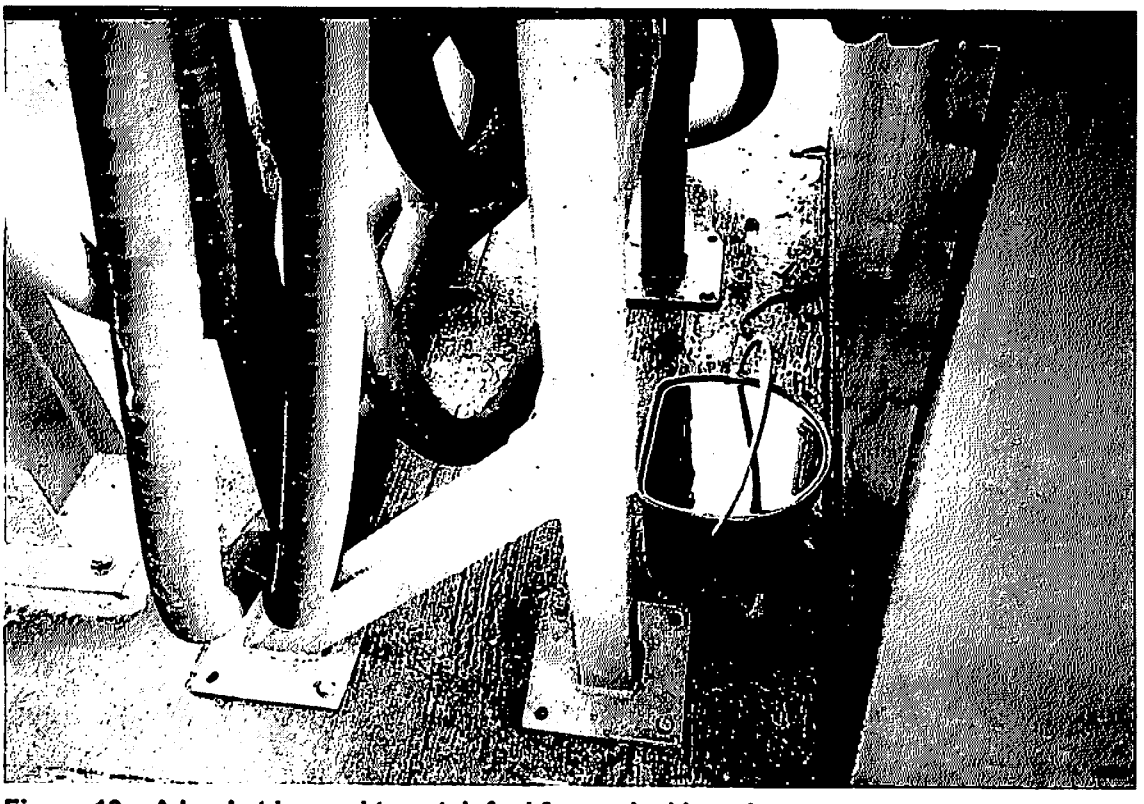


Figure 19 – A bucket is used to catch fuel from a leaking pipe

4.7 Berthing

Berthing is allocated and controlled by Plymouth Fisheries. Since the new fishing complex has opened, the day boat fleet has increased in size and the port is visited by more large beamers. Consequently, current berthing provision is becoming inadequate. As a result, plans are in hand to provide new pontoon berths for the day boat fleet (Fig. 20). This is expected to free up 16 berths for beamers.

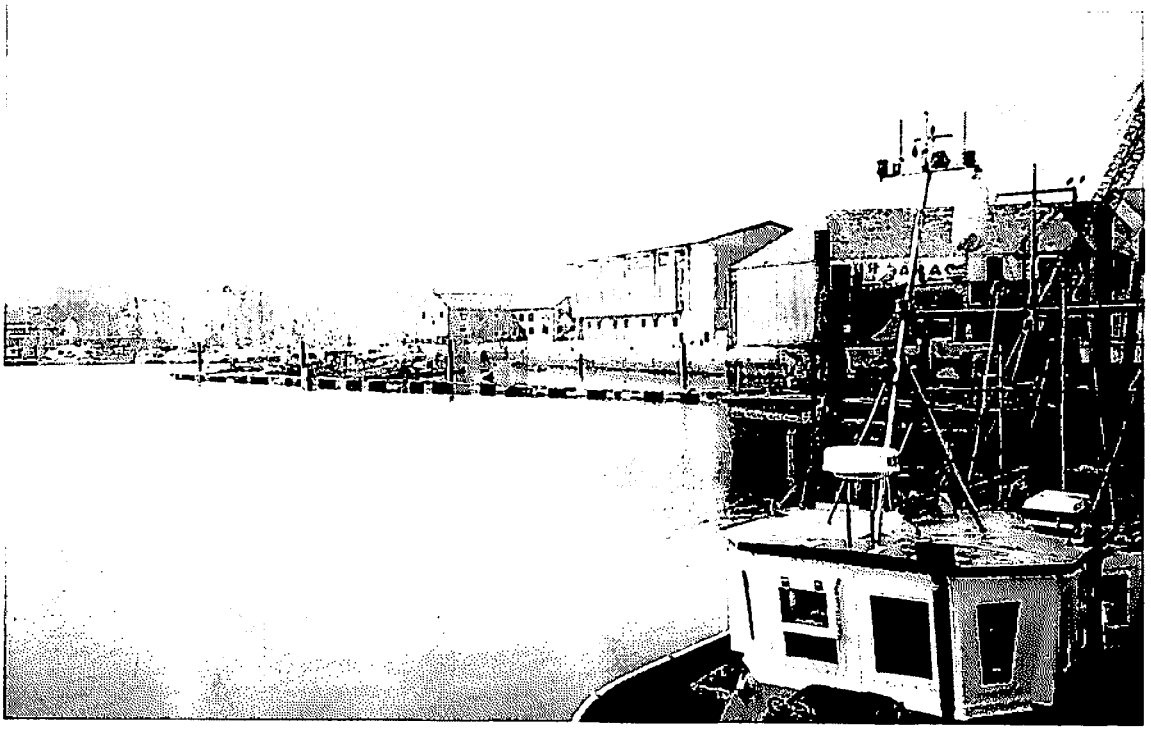


Figure 20 – Pontoon berths for day boats are under construction

4.8 Gear Storage and Mending

The expanding fleet has brought increased demand for gear storage and mending facilities. Unfortunately the dedicated gear stores originally planned were never built, and there is no longer room on site to provide them. At present there is a communal gear cage at the entrance to the complex, but this is inadequate. The increased beamer trade has brought a corresponding increase in heavy gear left on quays (Fig 21). This obstructs quayside access by vessels and service vehicles and has become a major problem. There are bins of static nets cluttering the site (Fig. 22). The fishmarket itself is currently being used as a depot for gear and supplies awaiting collection by vessels (Fig 23).

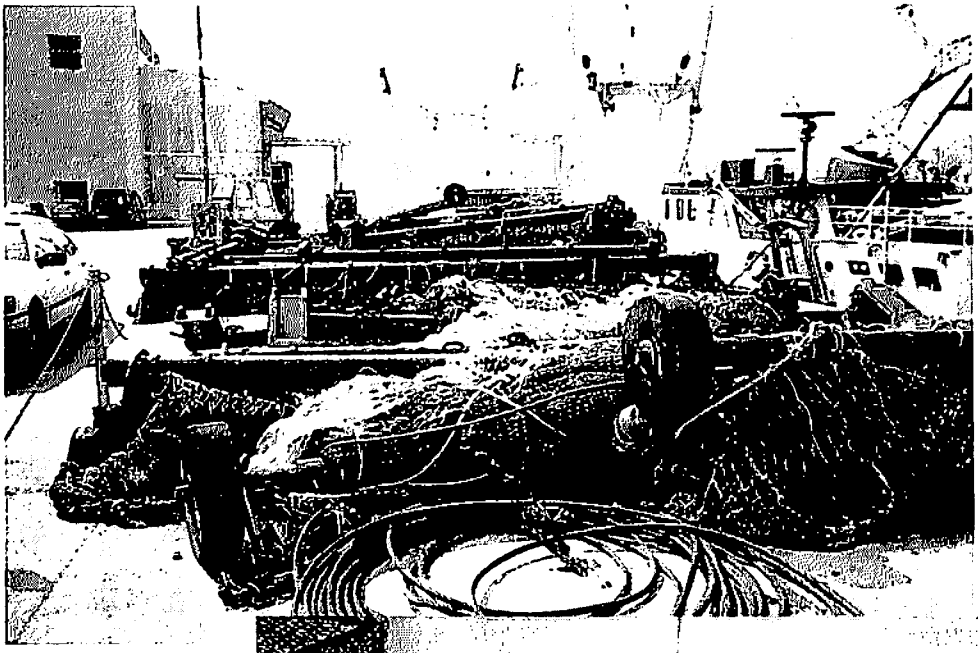


Figure 21 – The increasing beamer trade requires space to store gear

Figure 22 – Bins of nets clutter the site

Figure 23 – The market floor is used as a depot for vessel stores

In response to the lack of mid/long term storage, Plymouth Fisheries plans to provide the dayboats with individual, rentable gear cages on the proposed pontoon berths. It is hoped that this will free up enough space within the main gear cage for beamer gear. A forklift for heavy gear is available on-site from a firm of engineers.

Net mending areas are also at a premium. Vessels can use the landing quay for gear repairs at times when no landings were expected. Plymouth Fisheries also provide dedicated mending space along Lockyers Quay. No gear can be left on this quay due to the close proximity of a new pub.

Plymouth Fisheries have recently opened a fishing chandlery and rigging service in one of the industrial units.

4.9 Access, Parking and Security

Vehicles have 24hr access from the east side via a swipe card security gate. The gate is staffed (0600-1400hrs) by a Plymouth Fisheries security guard. There is also pedestrian access via a gate (soon to be fitted with a swipe card system) at the west end of the site by the lock pit. There are security cameras along the quays and within the market.

Whilst there is unrestricted access by commercial vehicles, private cars are limited to passholders and retail customers of fish merchants. There are 140 permits allocated for private cars, and these then compete with commercial vehicles and retail fish customers for the 90 available parking spaces. A survey conducted during the audit showed that there were 106 private cars, 39 commercial vehicles and 4 lorries competing for the spaces (Fig 24). There has been some accidental damage to cars parked (illegally) too close to vessels. Congestion and parking problems have both become a chronic daily nuisance and a major source of discontent for all site users.

Figure 24 – Private vehicles predominate

The roads and yards are generally in good condition. Some repairs are necessary to damaged bollards and a collapsed drain (Fig 25).

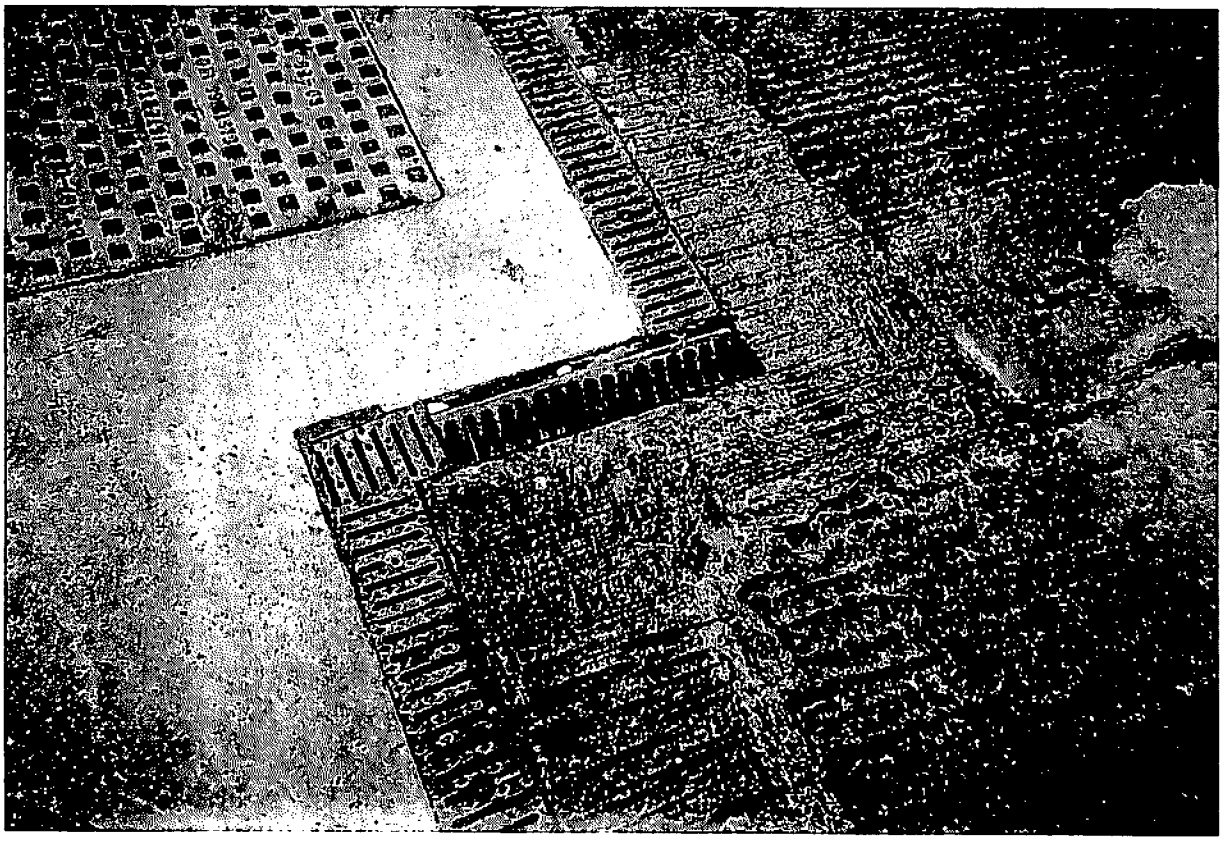


Figure 25 – Collapsed drain cover

5. Organisation and Management

The fishing complex is owned by Sutton Harbour plc. A subsidiary of the company, Plymouth Fisheries Limited, are responsible for the daily running of the site. The fishing complex manager has a small team of staff who undertake cleaning and box washing duties, ice delivery, berthing and site security. Sutton Harbour provide a maintenance engineer who attends daily and carries out repairs under the instruction of the complex manager.

Plymouth Trawler agents Ltd provide landing and grading services and operate the auction.

5.1 Communication

Good communications between the many port users and the management encourage working for the 'common good' and help to avoid disputes. Plymouth Fisheries encourage an open door policy with their tenants to encourage good communication.

5.2 Electronic Sales

Plymouth Fisheries and Plymouth Trawler Agents are currently involved in formulating plans to develop the potential of the port using electronic sales technology.

5.3 Advance Sales Information

Plymouth Trawler Agents have been considering setting up an electronic advance sales information system. Currently, a rough outline of expected landings is made available the day before the sale on a recorded telephone message. On the morning of the sale, once a detailed sale list has been drawn up, the auctioneer telephones the main buyers with details.

5.4 Fish Market Regulations

There is no formal list of fish market hygiene and behaviour regulations. There is a sign within the market hall which clearly prohibits smoking, eating, drinking, spitting and dogs on the market (Fig. 26). Despite recent efforts to enforce prohibition of smoking and drinking, these problems continue.

Figure 26 – Prohibition notice on market floor

5.5 Waste Management

A Waste Management Plan (now a legal requirement under the Merchant Shipping Notice M1659/MARPOL 73/78) is being progressed. Plymouth Fisheries provide a skip for general waste located near the site entrance. A waste oil container is available within the gear cage.

5.6 Pest Control

Pest control is contracted out to a specialist company

5.7 Environmental Health Officer

The EHO usually visits the fishing complex on a weekly basis.

5.8 Maintenance

Faults are reported to Plymouth Fisheries staff who then log them. The maintenance engineer visits the site daily to attend to routine maintenance and other repairs. Due to additional duties on Sutton Harbour properties it is difficult for him to adequately maintain the fabric and systems of the fishing complex.

6. Recommendations

6.1 Preparation for Sale, the Auction and Despatch

- All vessels should use ice at sea and follow Seafish recommended icing practice
- Improve chill store by:
  - ◊ installing strip curtains
  - ◊ installing temperature indicator, recorder and alarm on market floor
  - ◊ removing empty fish boxes etc

- Reconsider layout of grading areas to minimise cross-flows and improve efficiency
- Use battery power for scales to avoid cables on floor
- Remove spare boxes from auction hall to liberate more space
- Consider aggregating part boxes from day boats before sale
- Icing of fish on the market should be improved
- Consider allowing Plymouth Fisheries boxes out of market or amalgamate box pools
- Tighten up market hall door discipline during landing and despatch

6.2 Ice Plant

- Ensure delivery system is purged completely after each use to prevent freezing and blockages. Could be achieved through staff training or installation of delay timer within system

6.3 Boxes and Box Washing

- Consider building a new box wash and box store with direct access from market floor
- Increase size of box pools
- Consider using just one box pool
- Improve supervision of casual labour
- Ensure sufficient staff are available at peak times
- Try to encourage efficient box use at sea during cuttle season

6.4 Fuel and Water Supplies

- Consider the installation of a pump to speed water delivery
- Repair leaking fuel pipe at ice berth delivery point
- Keep at least one self-service point free of berthed vessels and available at all times

6.5 Berths, Gear Storage and Mending

- Carry out plans for new berths and gear storage
- Agree and publish rules for berthing, gear storage and mending
- Enforce the above
- Do not allow vessel stores on the market floor. Provide temporary storage with 24hr access elsewhere

6.6 Parking

- Rationalise parking passes for private vehicles
- Explore off-site parking opportunities for private vehicles e.g. multi-storey car park
- Enforce access and parking rules

6.7 Cleaning

- Plymouth Fisheries and PTA to draw up formal cleaning schedules for their respective cleaning duties
- Ensure staff carry out cleaning duties properly.
- Consider the installation of a pump to increase water pressure
- Remove all unnecessary boxes and stores from market floor
- Provide dedicated storage for cleaning equipment and chemicals off market floor
- Minimise cuttlefish mess in market. Consider dedicating a separate area for cuttlefish handling and sale, and / or a cuttlefish washer

6.8 Hygiene

- Agree and publish a comprehensive set of fish market hygiene rules
- Enforce the above, particularly with regard to smoking and drinking
- Provide adequate walkways between lots of fish on market floor
- Prevent littering of ledges within market hall. This might be remedied by double glazing circular windows and fitting sloping tops to cupboards
- Vessel stores must not be kept on the market floor
- SHC to complete Waste Management Plan
- Environmental Health Officer (EHO) to enforce regulations regarding merchants waste (Plymouth Fisheries to liaise with EHO and waste contractors with regard to suitable containers)

6.9 Repairs and Maintenance

- Chill room floor
- Concrete margins of quays
- Electrical connections on crane
- Solve problem of slipping wires on cranes
- Clear gutters and consider fitting gutter guards
- Repair door opening on box washing shed
- Improve ramp into box washing shed
- Collapsed drain covers
- Damaged traffic bollards
- SHC to provide additional manpower for maintenance duties

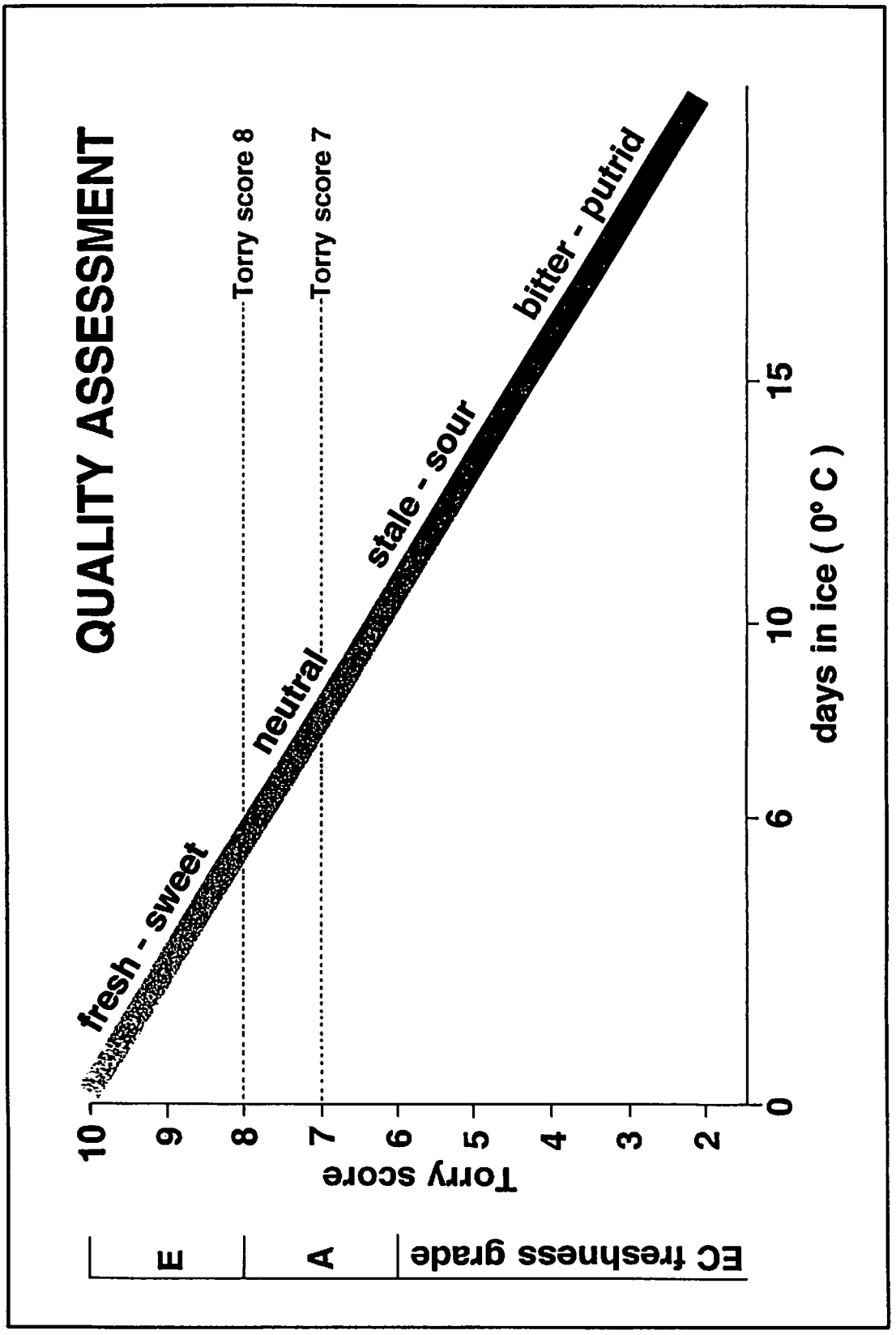
7. Acknowledgements

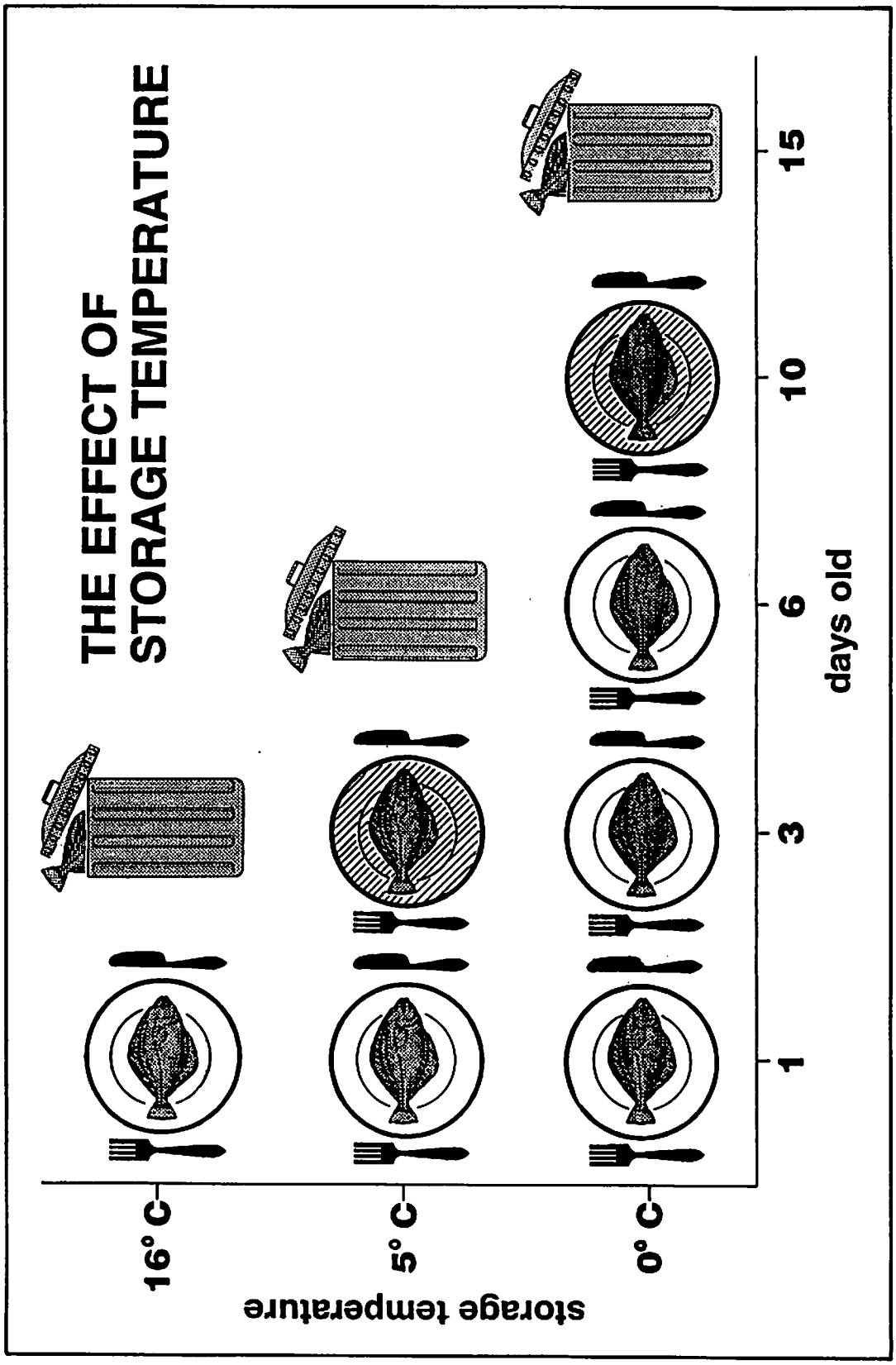
Seafish gratefully acknowledges the contribution and co-operation of Sutton Harbour Company, Plymouth Trawler Agents, Skippers and Crews, Merchants, Local Authority and others who provided assistance to Seafish in conducting the audit.

8. References

1. 1997/01/FT: Fish Handling at Sea: Boxing Practice

Appendix I
Torry Sensory Assessment System


QUALITY ASSESSMENT
Torry score 8
Torry score 7
fresh - sweet
neutral
stale - sour
bitter - putrid
10
9
8
7
6
5
4
3
2
Torry score
0
6
10
15
days in ice (0° C)
EC freshness grade
A
E


THE EFFECT OF
STORAGE TEMPERATURE
storage temperature
16° C
5° C
0° C
1
3
6
10
15
days old

Appendix II
Cleaning Schedule

Cleaning Schedule

Auction Hall – Daily Routine

Time Sheet Code

A. All used market boxes to be washed

B. 20 boxes to be rotated through the chloros tank to maintain a high level of cleanliness

C. All used pallets to be washed

D. Scales and tables must be left in a clean condition at the end of the night

E. Window sills wiped to remove dead flies and water deposits

F. Market walls to be checked for dirt and washed when necessary. Special attention to be paid to the grading areas.

G. Inspect the chillers daily and wash out as necessary. These must be left unwashed for more than two days i.e. over a weekend. This should include doors and walls which must be kept in a visually clean condition at all times.

H. Market floor to be washed after each auction with the floor scrubber and detergent.

I. Areas of the market floor must be pressure washed on a rotational basis to ensure that the whole floor is washed within a fortnightly period.

J. Clean market wash basin daily and empty the used towel bin.

Market Entrance

K. The load bay area, main market door and steps must be swept and washed daily. It is important that the entrance to the market and foyer are kept in a clean condition at all times.

Landing Area

L. The landing quay must be hosed down every night after landing and chloros or a pressure washer used as necessary.

Complex Area

M. Remove old oil drums, pallets etc, that have been discarded and report to PB any further gear found on the quay.

N. Check the fuel bunkers for leaks or spillage and report them to PB.

O. Sweep the yard with the 'bobcat' where practicable and when not a brush and dustcart to be used. **It is important that the complex is kept clean and tidy at all times.**

P. Spillage or leaks from merchants bins must be hosed away as soon as possible to help prevent smells.

Q. In addition to the market and complex cleaning it is also the duty of the market staff to maintain the 'bobcat' in a clean condition, and should time allow it is hoped that it can also be repainted. All mechanical defects must be reported to PM or DM through PB.

R. Inspections of the inside and outside toilets must be carried out daily and stocks of soap and paper, replenished as required.

No member of staff should leave before the official end of their shift if these cleaning procedures have not been completed.