



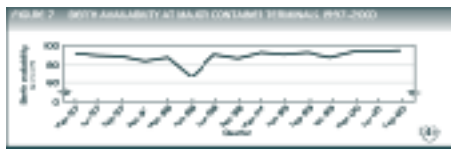
in brief

- The five-port average crane rate was 24.9 containers per hour in the September quarter 2000. This is the highest crane productivity recorded since the series commenced.
- The five-port elapsed labour rate of 28.5 containers per hour was down on the previous quarter's figure, while the ship rate of 38.0 containers per hour was slightly up.
- Berth availability of 95 per cent in the September quarter was the highest achieved since the series commenced.
- In 1999/2000, the overall tonnage of cargo moved under coastal permits increased by 15 per cent compared with 1998/1999.
- Over the past five years, ship-based charges have fallen by 17 per cent in Brisbane, by 25 per cent in Sydney, by 28 per cent in Melbourne, and by 44 per cent in Fremantle. Adelaide ship-based charges have remained unchanged.

at a glance

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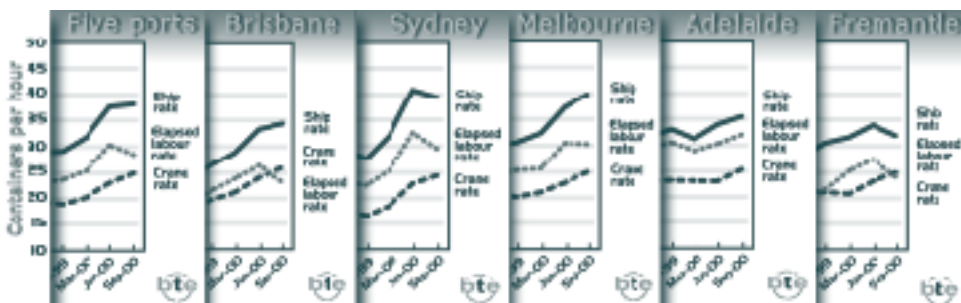
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at a glance

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STEVEDORING PRODUCTIVITY

Table 1 presents the September quarter 1998 to September quarter 2000 indicators of stevedoring productivity at the five major Australian container ports, expressed in *container moves per hour*. Figures 1 to 6 present these data over the December quarter 1995 to September quarter 2000 period. The Brisbane figure is the weighted average for the container terminals operated by P&O Ports, Patrick and Sea-Land. The data for Sydney, Melbourne and Fremantle are weighted averages for the container terminals operated by P&O Ports and Patrick. The Adelaide data is for the Sea-Land container terminal.

Overall, national crane rate productivity in the September quarter 2000, as measured by the five-port average, exceeded the rate attained in any previous quarter. The ship rate increased marginally to a new high, while the elapsed labour rate declined from the June quarter's peak. Crane intensities (the number of cranes used per ship) fell at all five ports during the quarter.

In summary:

- the five-port average *crane rate* (productivity *per crane* while the ship is worked) was 24.9 containers per hour for the September quarter, compared with 23.1 in the June quarter 2000;
- the five-port average *elapsed labour rate* (productivity *per ship* based on the time labour is aboard the ship) was 28.5 containers per hour for the September quarter, compared with 30.3 in the June quarter 2000; and
- the five-port average *ship rate* (productivity *per ship* while the ship is worked) was 38.0 containers per hour for the September quarter, compared with 37.5 in the June quarter 2000.

Compared with the June quarter, the September quarter crane rate increased at eight terminals and remained steady at two.

The *Brisbane* (P&O Ports, Patrick, Sea-Land) average crane rate was 25.8 containers per hour in the September quarter, up from 24.0 in the June quarter. The elapsed labour rate of 23.3 containers per hour was down, while the ship rate of 34.9 containers per hour was up, on the June quarter figures. The average proportion of elapsed time not worked was approximately 33 per cent.

The *Sydney* (P&O Ports, Patrick) average crane rate was 24.3 containers per hour in the September quarter, up from 22.8 in the June quarter. The Sydney elapsed labour rate of 29.6 containers per hour and the ship rate of 39.5 containers per hour were both down on the June quarter figures. The average proportion of elapsed time not worked was approximately 25 per cent.

The *Melbourne* (P&O Ports, Patrick) average crane rate was 25.0 containers per hour in the September quarter, up from 23.0 in the June quarter. Compared with the June quarter figures, the elapsed labour rate of 30.5 containers per hour was marginally down, while the ship rate of 40.1 containers per hour was up. The average proportion of elapsed time not worked was approximately 24 per cent.

The *Adelaide* (Sea-Land) average crane rate was 25.3 containers per hour in the September quarter, up from 23.0 in the June quarter. The elapsed labour rate of 32.1 containers per hour and the ship rate of 35.5 containers per hour were both up on the June quarter figures. The average proportion of elapsed time not worked was approximately 10 per cent.

The *Fremantle* (P&O Ports, Patrick) average crane rate was 24.9 containers per hour in the September quarter, up from 23.3 containers per hour in the June quarter. The elapsed labour rate of 24.1 containers per hour and the ship rate of 32.1 containers per hour were down on the June quarter figures. The average proportion of elapsed time not worked was approximately 25 per cent.

Teus per hour

Table 6 presents the stevedoring productivity indicators in terms of teus per hour. These data are retained in *Waterline* for the purpose of long-term historical comparison; they are not directly comparable with the data in table 1 because indicators based on teus per hour may be affected by changes in the mix of 20-foot and 40-foot containers from one period to the next.

Stevedoring productivity definitions

- Stevedoring performance indicators are calculated for cellular container ships;
- Elapsed labour time is the time between labour aboard and labour ashore, less non-operational delays;


**TABLE I CONTAINER TERMINAL PERFORMANCE INDICATORS—
PRODUCTIVITY IN CONTAINERS PER HOUR**

Port/indicator	Quarter								
	Sep-98	Dec-98	Mar-99	Jun-99	Sep-99	Dec-99	Mar-00	Jun-00	Sep-00
Five ports									
Ships handled	1020	942	942	958	979	933	875	808	840
Total containers	493 502	477 744	448 224	469 742	506 696	557 659	517 533	505 802	531 700
Crane rate	19.1	18.9	19.9	20.3	19.6	19.1	20.4	23.1	24.9
Elapsed labour rate	20.7 ^a	21.9 ^a	23.1 ^a	24.0 ^a	23.1	23.7	25.4	30.3	28.5
Ship rate	24.2	26.9	28.2	29.0	28.9	29.1	31.8	37.5	38.0
Brisbane									
Ships handled	192	180	176	193	224	232	219	178	187
Total containers	70 200	67 691	61 204	71 008	77 914	84 354	77 992	71 679	80 366
Crane rate	18.2	16.8	18.3	18.9	18.6	19.7	21.2	24.0	25.8
Elapsed labour rate	18.7	19.6	21.2	21.4	19.5	21.5	23.8	26.3	23.3
Ship rate	21.9	22.9	24.7	25.9	24.7	26.4	28.9	33.4	34.9
Elapsed time not worked (per cent)	15	14	14	18	21	19	18	21	33
Sydney									
Ships handled	267	230	221	243	259	244	221	218	223
Total containers	160007	155063	142767	154062	170684	195 544	171 164	166 212	173 988
Crane rate	16.5	15.7	17.7	18.2	18.0	16.6	18.6	22.8	24.3
Elapsed labour rate	19.2	18.9	22.6	22.2	23.1	22.5	25.4	32.6	29.6
Ship rate	24.2	24.6	29.5	28.7	29.4	27.6	32.2	40.9	39.5
Elapsed time not worked (per cent)	21	23	24	23	21	18	21	20	25
Melbourne									
Ships handled	309	274	271	282	278	266	247	217	227
Total containers	187 696	170 056	161 894	167 942	183 058	195 723	184 710	178 156	189 306
Crane rate	20.2	21.5	21.5	21.8	20.8	20.3	21.2	23.0	25.0
Elapsed labour rate	21.8	24.3	23.6	25.8	24.5	25.4	25.7	30.7	30.5
Ship rate	24.5	30.7	28.8	31.0	30.2	30.8	32.6	37.6	40.1
Elapsed time not worked (per cent)	11	21	18	17	19	17	21	18	24
Adelaide									
Ships handled	63	74	73	66	62	62	56	56	62
Total containers	21 444	26 319	24 221	24 445	23 969	26 090	21 803	25 245	26 836
Crane rate	23.2	23.2	23.2	23.1	23.0	23.2	23.1	23.0	25.3
Elapsed labour rate	29.0	29.3	28.5	30.0	29.4	30.6	28.9	30.3	32.1
Ship rate	30.3	30.4	30.7	31.1	31.5	33.1	31.2	34.0	35.5
Elapsed time not worked (per cent)	4	4	7	4	7	7	7	11	10
Fremantle									
Ships handled	189	184	201	174	156	129	132	139	141
Total containers	54 155	58 615	58 138	52 285	51 071	55 948	61 864	64 510	61 204
Crane rate	22.2	20.7	21.4	21.7	20.7	21.2	20.9	23.3	24.9
Elapsed labour rate	na	na	na	na	20.4	21.7	25.3	27.5	24.1
Ship rate	23.8	25.5	25.6	26.6	28.0	30.7	31.8	34.1	32.1
Elapsed time not worked (per cent)	na	na	na	na	27	29	21	19	25

na not available

a. Four-port average only as Fremantle elapsed rate data were not available.

Notes 1. Data from the Sea-Land terminal at Brisbane are incorporated from the December quarter 1999 onwards.

2. The data in this table are expressed in containers (ie. lifts or moves) per hour and therefore are not directly comparable with the teus per hour data in table 6.

3. Elapsed time not worked is the difference between ship rate and elapsed rate as a percentage of ship rate.

Sources Patrick, P&O Ports and Sea-Land.



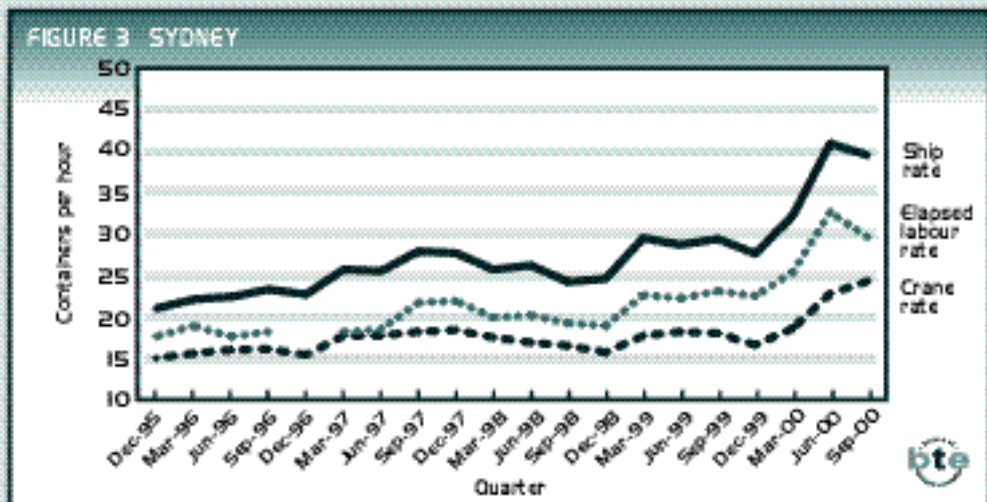
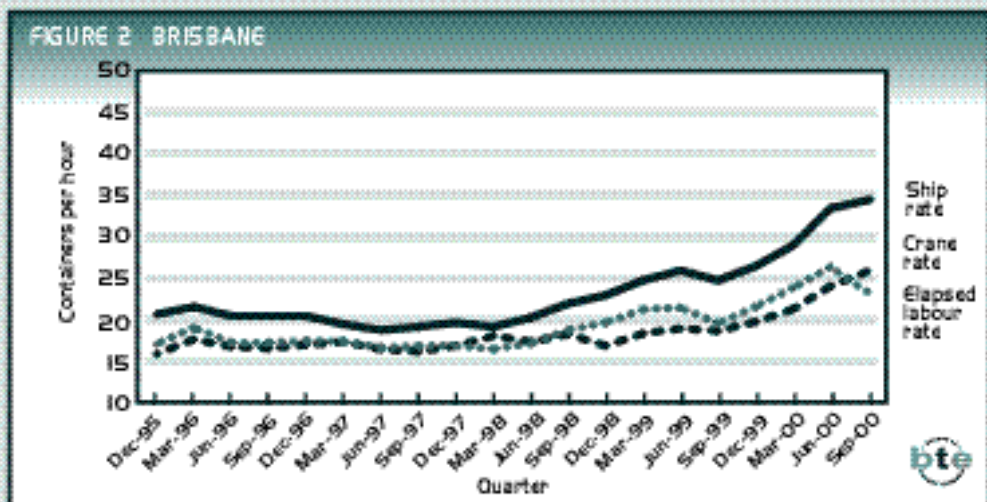
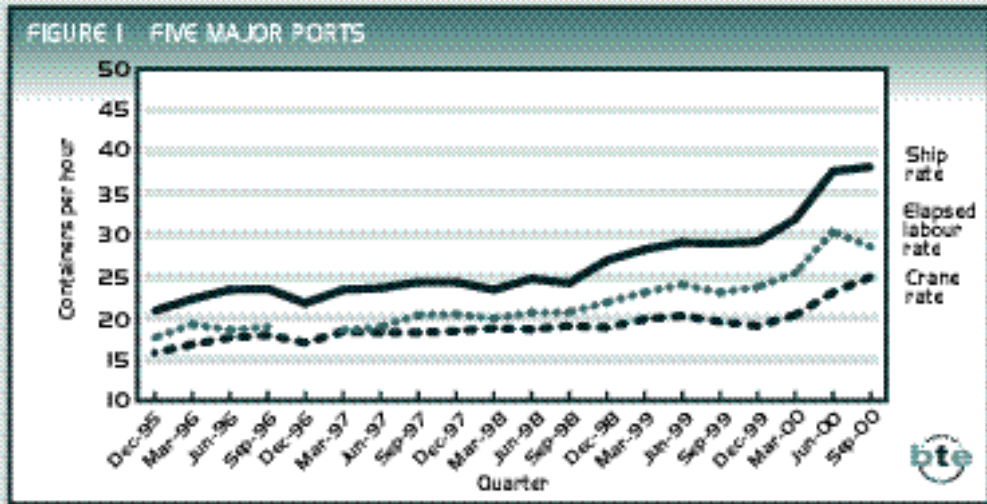
- Ship time is the elapsed labour time less operational delays; and
- Crane time is ship time divided by crane intensity.

As soon as the aligned set of definitions has been ratified by all container stevedoring operators, the BTE will publish a comprehensive list of definitions in *Waterline*.





CONTAINER TERMINAL PRODUCTIVITY



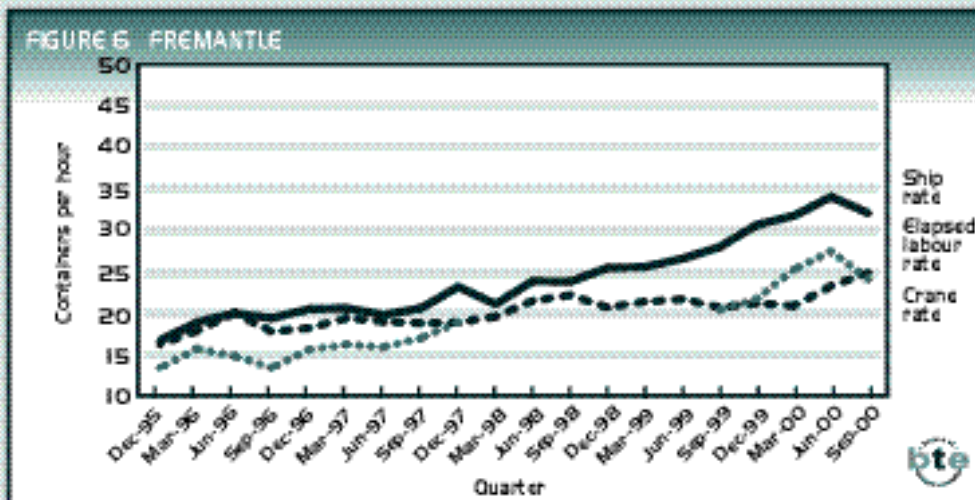
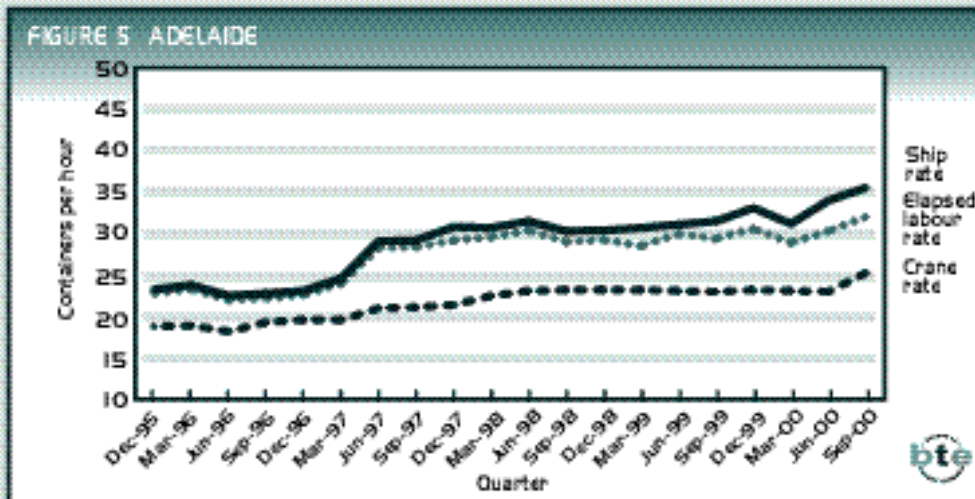
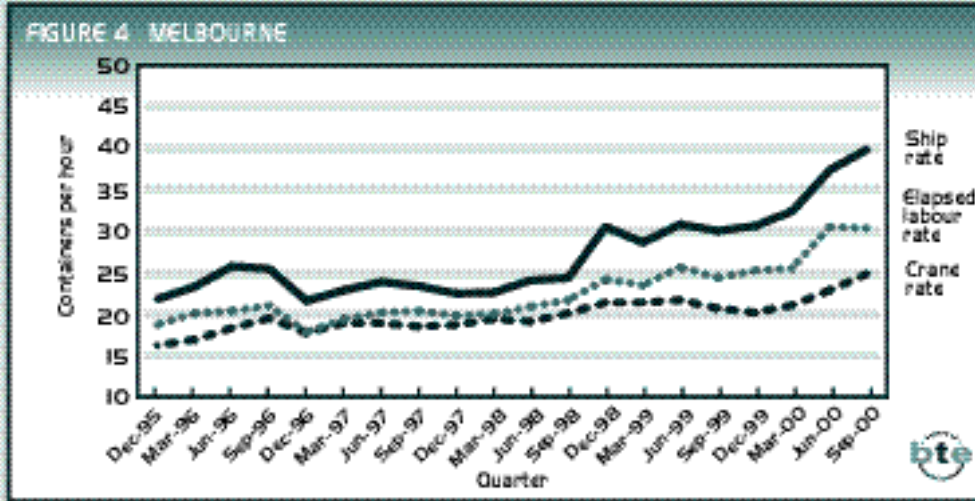
Note These figures are based on data contained in table I. Readers should refer to the notes in that table.

Sources Patrick, P&O Ports and Sea-Land.





CONTAINER TERMINAL PRODUCTIVITY



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Sources Patrick, P&O Ports and Sea-Land.





WATERFRONT RELIABILITY

The *Waterline* reliability indicators provide partial measures of the variability of waterfront performance for container traffic at major Australian ports. They cover the timeliness of selected port services, sources of other ship waiting time, aspects of stevedoring performance and the accuracy of ship arrival advice.

Berth availability, pilotage, towage

Table 2 presents information on berth availability, pilotage and towage for a sample of ship calls in the September quarter 2000. It indicates the extent to which selected port services were available at the scheduled or confirmed time.

TABLE 2 AVAILABILITY OF BERTH, PILOTAGE AND TOWAGE SERVICES AT THE SCHEDULED/CONFIRMED TIME, SEPTEMBER QUARTER 2000

Port/operation	(Number of ship calls)								Total no. of ship calls	Berth availability (per cent)
	Delay (hrs)									
	0	1	2	3	4	5-10	11-20	>20		
Brisbane										
Berth availability	46	0	1	0	1	0	0	2	50	96.0
Pilotage	50	0	0	0	0	0	0	0	50	
Towage	49	1	0	0	0	0	0	0	50	
Sydney										
Berth availability	81	0	1	0	1	0	1	1	85	97.6
Pilotage	85	0	0	0	0	0	0	0	85	
Towage	85	0	0	0	0	0	0	0	85	
Melbourne										
Berth availability	92	0	0	0	1	2	2	0	97	95.9
Pilotage	97	0	0	0	0	0	0	0	97	
Towage	97	0	0	0	0	0	0	0	97	
Adelaide										
Berth availability	22	0	0	1	0	3	1	0	27	85.2
Pilotage	27	0	0	0	0	0	0	0	27	
Towage	26	0	0	0	0	1	0	0	27	
Fremantle										
Berth availability	37	0	1	0	0	1	0	0	40	95.0
Pilotage	40	0	0	0	0	0	0	0	40	
Towage	40	0	0	0	0	0	0	0	40	
Five ports										
Berth availability	278	0	3	1	3	6	4	3	299	95.3
Pilotage	299	0	0	0	0	0	0	0	299	
Towage	297	1	0	0	0	1	0	0	299	

Note Inter-port comparisons should be interpreted with caution as there is significant variation between ports in factors such as sample sizes and ship call patterns.

Sources Data for a sample of ship calls provided by shipping lines.



The sample for the September quarter 2000 covers 299 ship calls, equivalent to around 36 per cent of total ship calls at the major container terminals during the period. The proportion of ship calls covered at individual ports ranges from 27 per cent at Adelaide to 44 per cent at Brisbane. The sample includes calls by container ships operating to and from Europe, the Mediterranean, the Middle East, North America, Asia and New Zealand.

The *berth availability* indicator measures the proportion of ship arrivals where a berth is available within four hours of the scheduled berthing time. Figure 7 shows that berth availability for the sample of ship calls was 95 per cent in the September quarter 2000. This was slightly higher than in the previous quarter, and is the highest figure recorded since the series commenced in the

March quarter of 1997. Caution should be used in undertaking inter-port comparisons of the berth availability data, as there is significant variation between ports in sample sizes and ship call patterns.

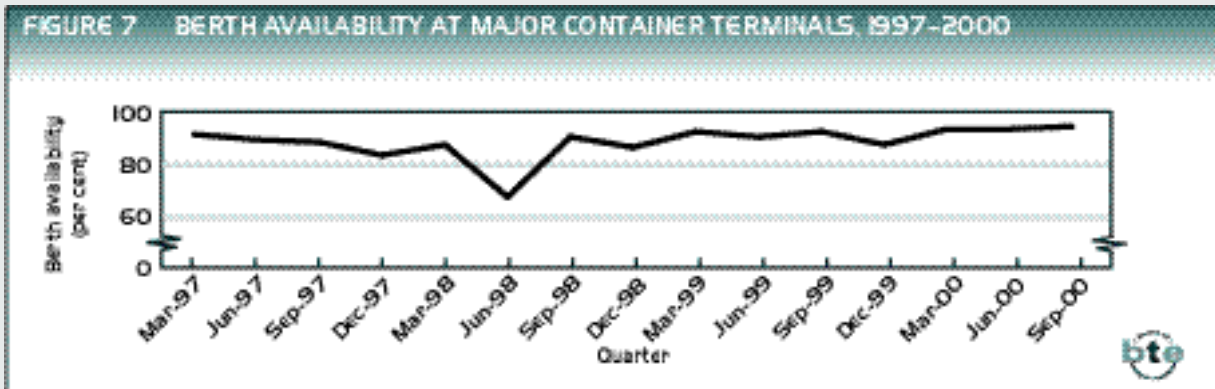
Average waiting time for ships unable to obtain a berth within four hours of the scheduled berthing time was 13 hours in the September quarter 2000, the same as in the June quarter 2000.

The *pilotage* and *towage* indicators reported in *Waterline* measure the proportion of ship movements where the service is available to the ship within one hour of the confirmed ship arrival/departure time. The proportion was 100 per cent for the pilotage indicator in the September quarter 2000, the same as in the June quarter 2000. The proportion was 99.3 per cent for the towage indicator in the September quarter 2000, down from 100 per cent in the June quarter 2000. Performance has been at similar levels since the first data (covering the March quarter 1997) were published in *Waterline*.

Other waiting time

The five shipping lines that supplied information for table 2 also provided data on other ship waiting time. This category incorporates waiting time that is attributable to factors other than the unavailability of a berth, pilot or towage service at the scheduled/confirmed time. The data on other ship waiting time reported in *Waterline* exclude ship schedule adjustments.





Sources Data for a sample of ship calls provided by shipping lines.

Table 3 summarises the data on other waiting time incidents, which had a duration of at least one hour, in the September quarter 2000. The shipping lines identified a total of 201 incidents (affecting 127 ship calls) for the sample of ship calls over this period. These incidents involved both ship-related and waterfront factors.

The total waiting time attributable to particular incident types reflects the number of incidents and the waiting time associated with individual incidents. The largest single source of other ship waiting time in the September quarter 2000 was the category 'awaiting labour', which accounted for 35 per cent of total waiting time.

In the September quarter 2000, 42 per cent of ship calls in the sample were affected by other waiting time incidents that had a duration of at least one hour. The corresponding proportion in the June quarter 2000 was 47 per cent. The average duration of other waiting time was 7.1 hours per affected ship call in the September quarter 2000, up slightly from 6.6 hours per affected ship call in the previous quarter. This increase was due to one very late ship arrival following a boiler breakdown. The average duration of other waiting time, excluding this particular observation, was 6.3 hours per affected ship call.

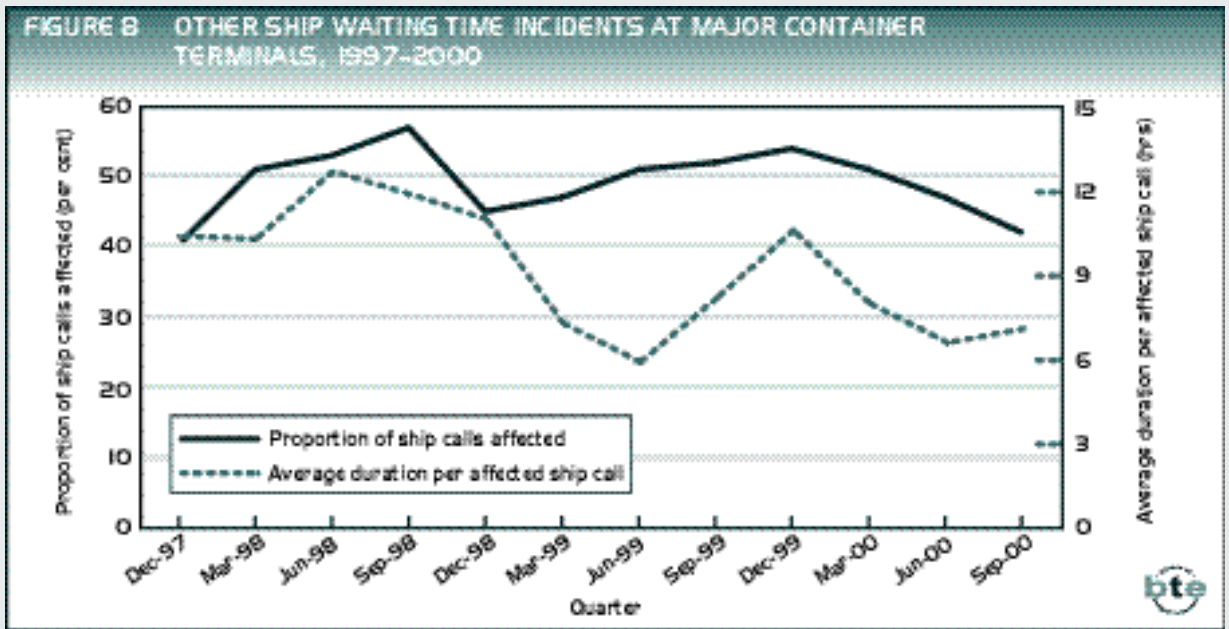
TABLE 3 OTHER SHIP WAITING TIME INCIDENTS AT THE FIVE MAINLAND CAPITAL CITY PORTS, SEPTEMBER QUARTER 2000

Incident type	(Number of incidents)							Total no. of incidents
	Ship waiting time (hrs)							
	1	2	3	4	5-10	11-20	>20	
Awaiting labour	18	9	10	7	14	6	2	66
Early ship arrival	2	4	3	4	5	1	0	19
Stevedoring finished early	16	7	3	1	3	0	0	30
Crane breakdown	5	4	2	2	0	0	0	13
Pilot/tug booking not at preferred time	13	7	5	0	1	0	0	26
Stevedoring finished late	1	0	0	0	1	0	0	2
Late ship arrival	1	0	1	0	0	3	1	6
Industrial action	0	0	0	0	0	0	0	0
Ship repairs or maintenance	1	2	0	0	4	0	0	7
Weather or tides	2	2	0	0	1	1	1	7
Other	1	7	4	3	6	4	0	25
Total incidents	60	42	28	17	35	15	4	201^a

a. These incidents affected 127 of the 299 ship calls covered in table 2.

Sources Data for a sample of ship calls provided by shipping lines.





Sources Data for a sample of ship calls provided by shipping lines.

Cargo receipt is the proportion of receipts (exports) completed by the stevedore's cut-off time. It provides a partial measure of one factor that can affect container terminal performance. Cargo receipt in the September quarter 2000 was lower than in the June quarter 2000 for Brisbane, Sydney, Melbourne and Fremantle.

Ship arrival

Table 4 includes data for two indicators of ship arrival advice. Data were not available for Brisbane and Melbourne for the September quarter 2000.

The first indicator is the proportion of ship arrivals within one hour (plus or minus) of the most recently advised arrival time available to the port authority/corporation at 24 hours prior to actual arrival. Compared with the previous quarter, this indicator fell for Sydney and Fremantle, and was unchanged for Adelaide, in the September quarter 2000.

The second indicator is the proportion of ship arrivals within one hour (plus or minus) of the last scheduled arrival time advised inside the 24 hours prior to actual arrival. This indicator fell for Adelaide and Fremantle in the September quarter 2000, and increased marginally for Sydney.

TABLE 4 STEVEDORING AND SHIP ARRIVAL RELIABILITY INDICATORS, JUNE AND SEPTEMBER QUARTERS 2000

Indicator	(per cent)									
	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Apr-Jun	Jul-Sep	Apr-Jun	Jul-Sep	Apr-Jun	Jul-Sep	Apr-Jun	Jul-Sep	Apr-Jun	Jul-Sep
Stevedoring										
Stevedoring rate	44	51	47	54	52	53	na	na	39	38
Cargo receipt	93	84	85	84	94	92	na	na	99	94
Ship arrival										
Advice at 24 hrs	na	na	61	54	na	na	58	58	54	48
Advice inside 24 hrs	na	na	96	97	na	na	95	91	90	83

na not available

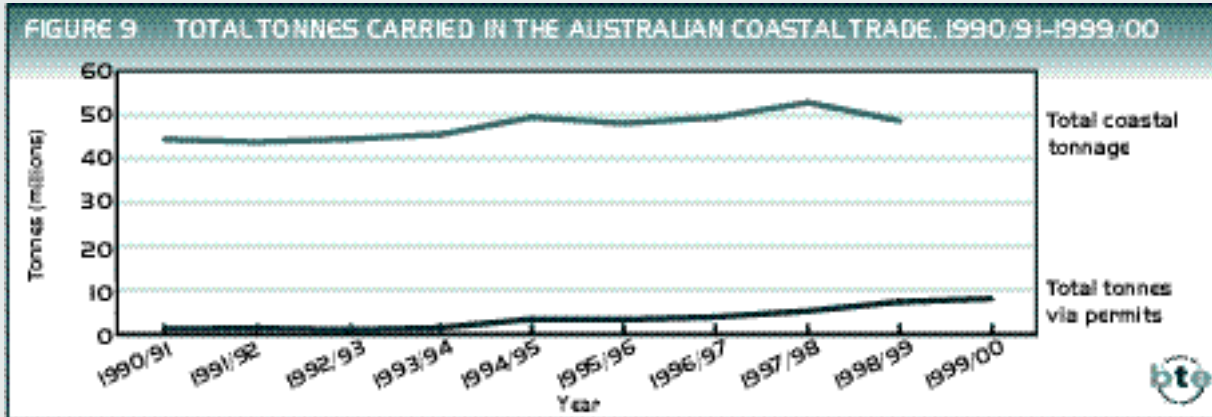
Sources AAPMA, Patrick and P&O Ports.





COASTAL SHIPPING PERMITS

During 1999/2000, the overall tonnage of cargo moved under a combination of single voyage permits (SVPs) and continuing voyage permits (CVPs) increased by 15 per cent compared with 1998/99 (see figure 9). Figure 9 also shows total tonnage of coastal trade carried via a combination of permits and licenced ships.

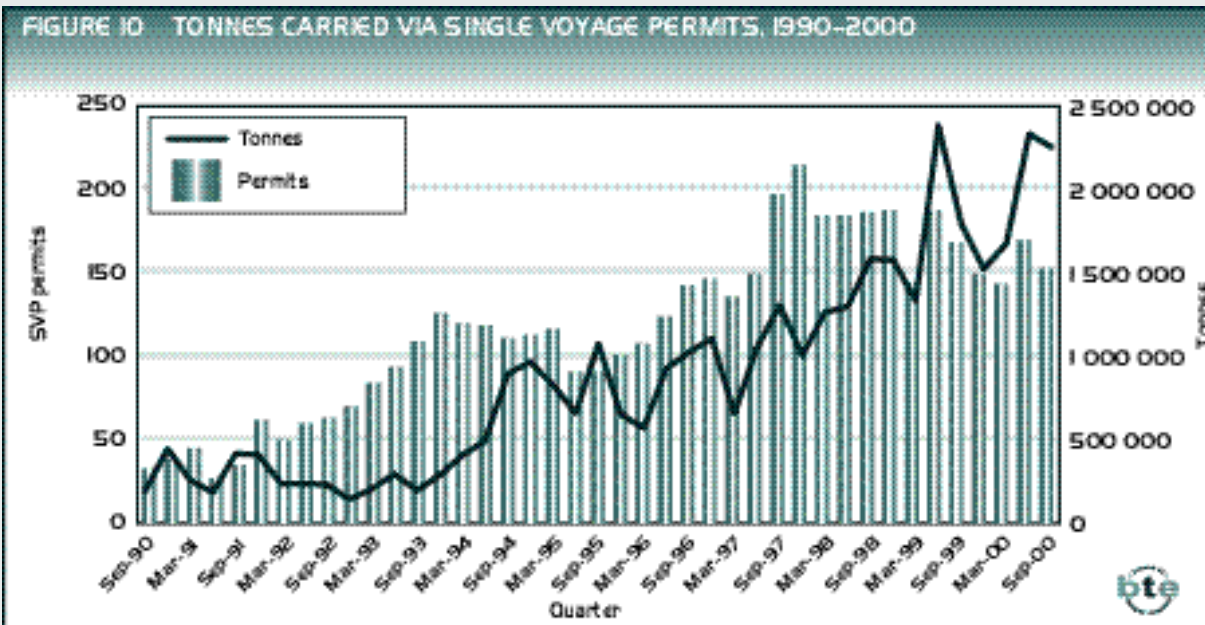


Source Bureau of Transport Economics, Cross-Modal and Maritime Transport Division, Department of Transport and Regional Services.

Single voyage permits

Figure 10 indicates the number of SVPs issued, and tonnes of cargo carried, over the period from the September quarter 1990 to the September quarter 2000. The number of SVPs issued in the September quarter 2000 declined by 10 per cent compared with the June quarter 2000, while the associated tonnes of cargo carried declined by 3 per cent.

The total number of SVPs issued in the 1999/2000 financial year was 629, compared with 704 in 1998/99, representing a decrease of 11 per cent. Over the same period, the number of tonnes of cargo carried using SVPs fell by 7 per cent.



Source Cross-Modal and Maritime Transport Division, Department of Transport and Regional Services.





TABLE 5 SUMMARY OF SINGLE VOYAGE PERMITS ISSUED, 1 APRIL 2000 TO 30 SEPTEMBER 2000

Cargo category	Permits issued	Tonnes carried
Bulk cargo		
Petroleum products	62	1 430 380
Crude oil & feedstocks	13	632 338
Liquefied gas	23	647 500
Other bulk liquids	14	89 000
Dry bulk	72	2 084 550
General cargo		
Containerised	108	257 855
Break bulk	29	264 420
Total	321	4 585 315

Source Cross-Modal and Maritime Transport Division, Department of Transport and Regional Services.



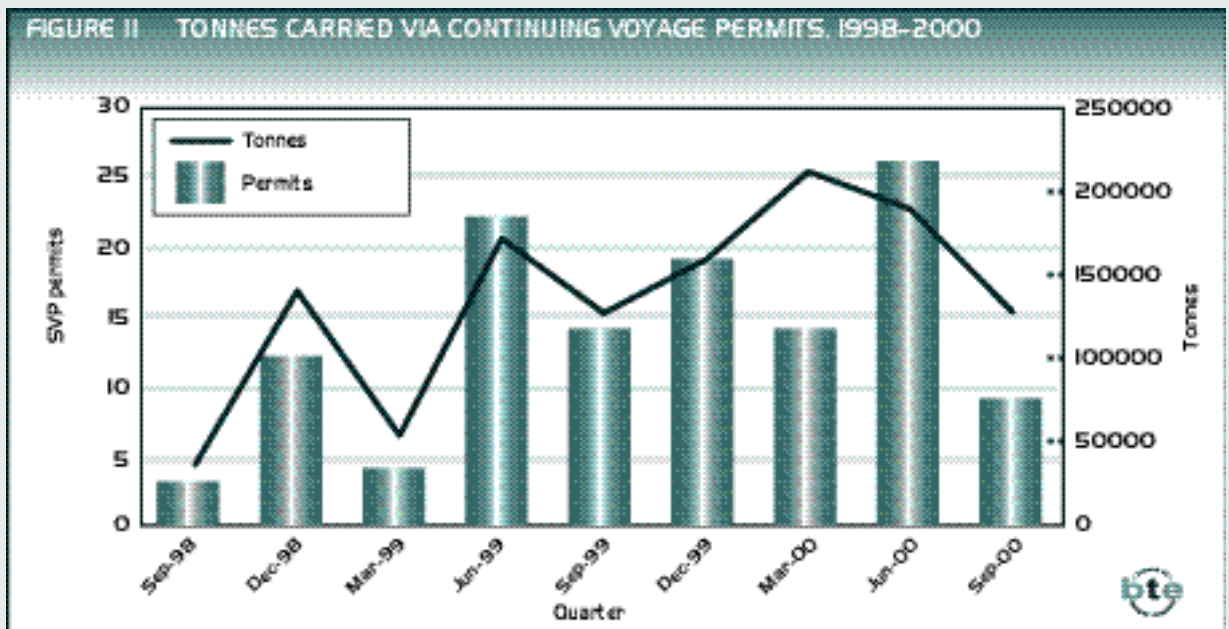
Table 5 shows a breakdown of SVPs by cargo types for the half year between 1 April and 30 September 2000. Containerised cargo permits continue to be the major component of the total number of permits issued. However, bulk cargo accounts for over 90 per cent of the total tonnage moved under permit.

Continuing voyage permits

Although CVPs were available, they were rarely requested or issued prior to 1998. However, as indicated in figure 11, since 1998 there have been significant quarterly fluctuations in both the number of permits issued and the tonnage carried. During the 1999/2000 financial year, 73 CVPs were issued, with approximately 688 000 tonnes of coastal

trade either moved, or committed to be moved, using CVPs. Each CVP covers a six-month period which usually translates into six voyages that may otherwise have been undertaken under SVP.

FIGURE 11 TONNES CARRIED VIA CONTINUING VOYAGE PERMITS, 1998-2000



Source Cross-Modal and Maritime Transport Division, Department of Transport and Regional Services.

General information

Part VI of the *Navigation Act 1912* provides for licensed vessels to carry passengers and cargo in the coasting trade. The Act does not restrict the class of vessels that may obtain a coasting trade licence. Any ship, regardless of registry, is able to obtain a licence provided the crew is paid Australian wage rates while it is engaged in the coasting trade, and the ship is not in receipt of foreign government subsidies and has not received such a subsidy in the previous twelve months.

Ships that obtain a licence must also conform to the requirements of the Navigation Act, including specified safety, manning, and crew qualifications, and rehabilitation and compensation provisions. Where suitable licensed vessels are not available, the Act also provides for the issue of single or continuing voyage permits to unlicensed vessels — where this is considered to be in the public interest. The application fee for a passenger SVP is \$22 and for a cargo SVP is \$200. The application fee for a CVP is \$400.





More information on coastal permits can be found on the Department of Transport and Regional Services' internet site at <http://www.dotrs.gov.au/>.



PORT INTERFACE CHARGES

The port interface cost index ship-based charges published in alternate issues of *Waterline* are presented as a charge per teu. Therefore, this charge per teu tends to increase when the average teu exchange at a port falls, and conversely the charge per teu tends to decrease when the teu exchange rises, even though the charge for a particular service may remain constant.

Figures 12–16 give a breakdown of port interface charges over the past five years for container ships in the 15,000–20,000 GRT range. The ship-based charges of conservancy, pilotage, towage, mooring/unmooring and berth hire cover the actual cost to the ship per visit, while the other charges are shown, as charged, on a teu basis.

Stevedoring charge

Stevedoring charges have not been included in figures 12–16 as the BTE has access to these charges in aggregate form only. Stevedoring charges are monitored by the ACCC at Brisbane, Sydney, Melbourne, Adelaide, Fremantle and Burnie, and the aggregate result is published towards the end of each year. The charge in 1995 was \$203 per teu, while the latest publicly available charge was \$181 for the January–June 1999 period. Therefore, between 1995 and 1999, there was an 11 per cent reduction in the aggregate stevedoring charge.

Brisbane

Figure 12 shows that Brisbane recorded a fall of 28 per cent in state conservancy charges, 27 per cent in towage charges (caused by a reduction in the number of tugs required), 2 per cent in customs brokers' import fees, and 8 per cent in customs brokers' export fees. Mooring/unmooring charges increased by 19 per cent, and road transport charges by 9 per cent. Pilotage charges, wharfage and harbour dues remained unchanged.

Sydney

Figure 13 shows that Sydney recorded a fall of 15 per cent in tonnage charges, 39 per cent in pilotage charges, 25 per cent in towage charges (caused by a reduction in the number of tugs required), one per cent in road transport charges, 3 per cent in customs brokers' import fees, and the elimination of wharfage on empty containers. Customs brokers' export fees increased by 10 per cent, while mooring/unmooring charges and wharfage on loaded containers remained unchanged.

Melbourne

Figure 14 shows that Melbourne recorded a fall of 56 per cent in tonnage charges, 6 per cent in towage charges (mainly caused by a reduction in the number of tugs required for the inward trip from July–December 1998 onwards), 67 per cent in mooring/unmooring charges, 45 per cent in wharfage on loaded containers, 7 per cent in customs brokers' import fees, 2 per cent in customs brokers' export fees, and the elimination of wharfage on empty containers. Melbourne's berth hire charge is calculated on the time a ship is at berth. Since berth times differ for each ship visit, an average berth time over the past five years was calculated and this figure was used to calculate the berth hire charges. In actual changes, the rate-per-hour berth hire charge dropped 19 per cent in July 1997. Melbourne's road transport charges increased by 6 per cent, and pilotage charges remained unchanged.



FIGURE 12 PORT INTERFACE CHARGES AT BRISBANE, 1995-2000

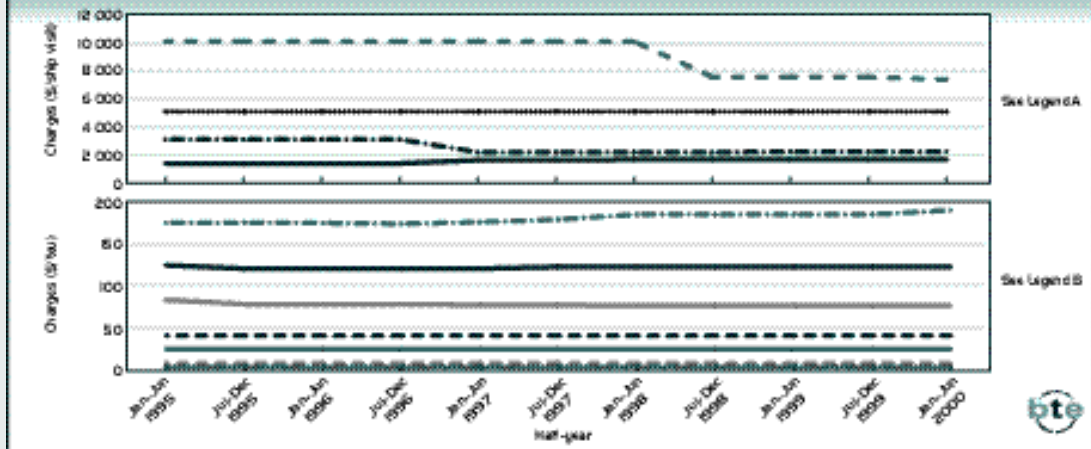


FIGURE 13 PORT INTERFACE CHARGES AT SYDNEY, 1995-2000

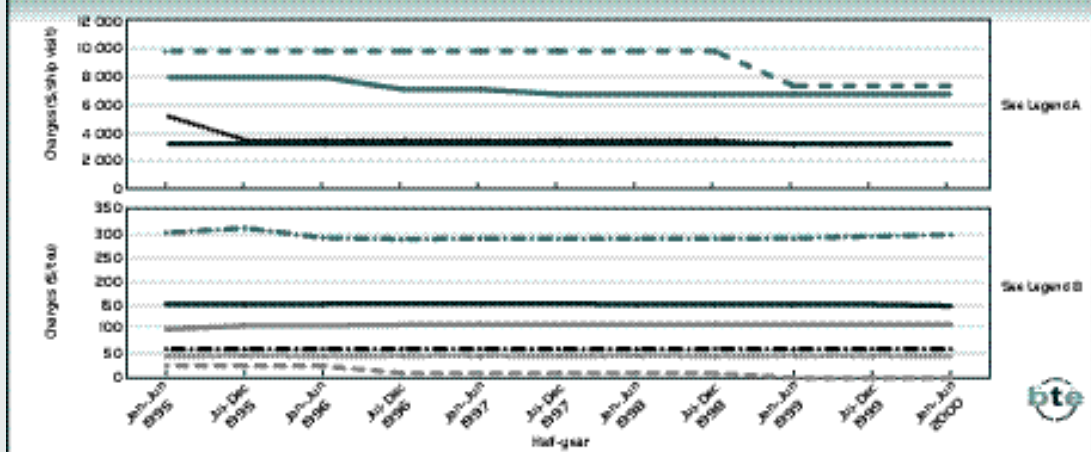
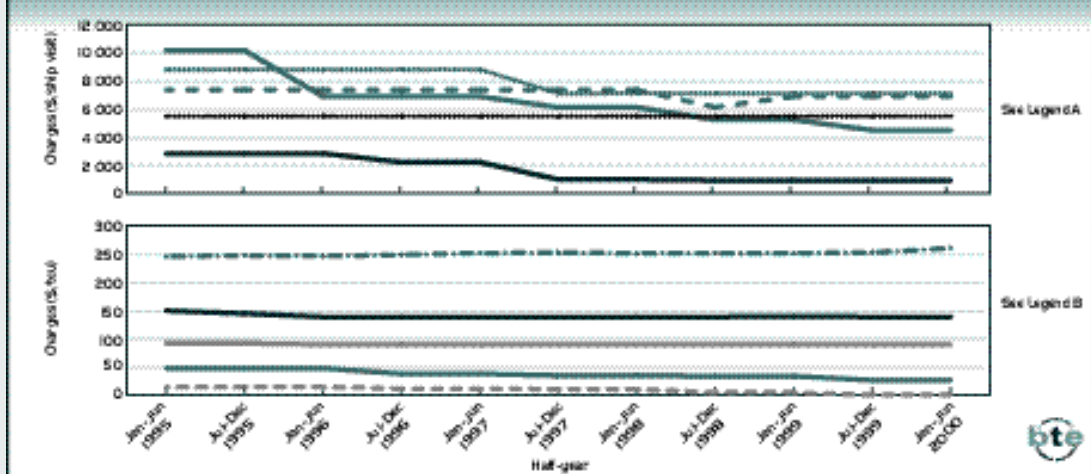


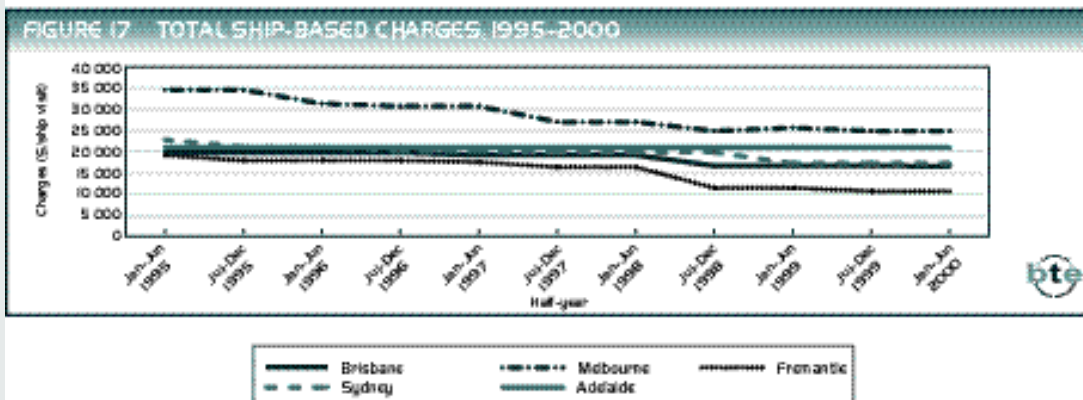
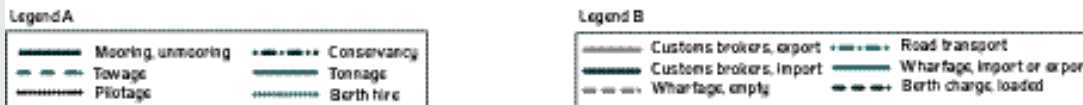
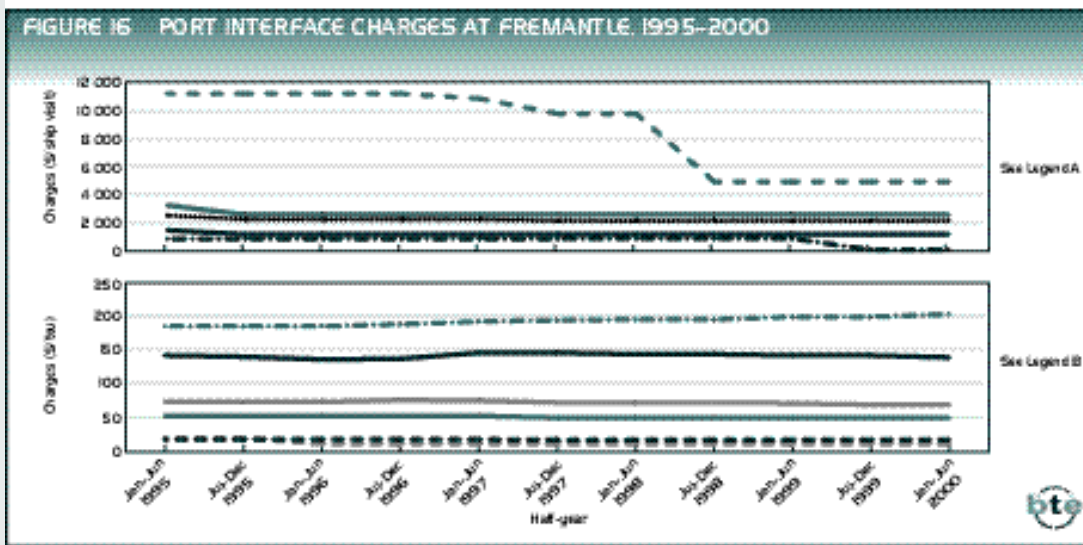
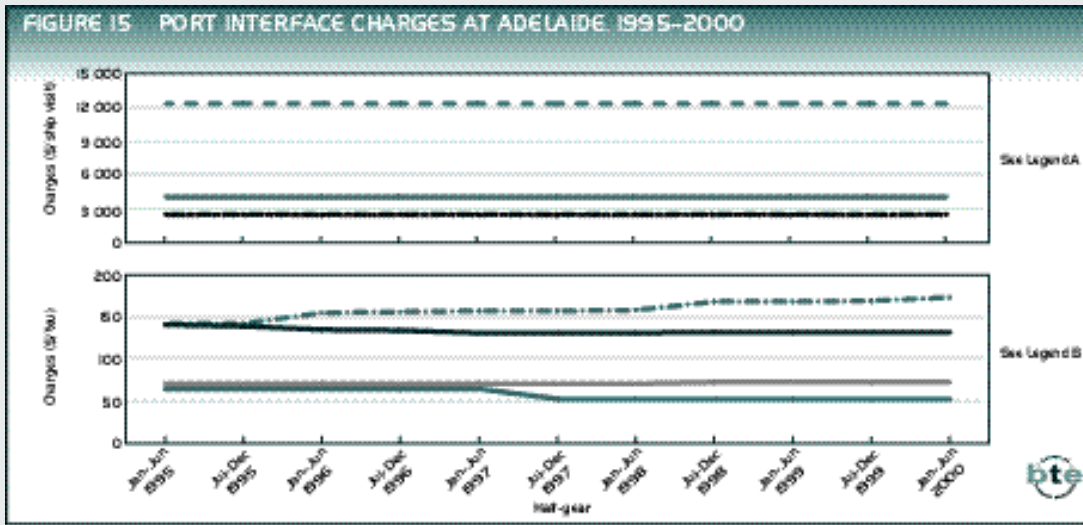
FIGURE 14 PORT INTERFACE CHARGES AT MELBOURNE, 1995-2000



- | | | | |
|--------------------|-------------|-------------------------|----------------------------|
| Legend A | | Legend B | |
| Mooring, unmooring | Conservancy | Customs brokers, export | Road transport |
| Towage | Tonnage | Customs brokers, import | Wharfage, import or export |
| Pilotage | Berth hire | Harbour dues, empty | Wharfage, export |
| | | Harbour dues, loaded | Wharfage, import |
| | | Wharfage, empty | |

Sources BTE estimates based on: price schedules of relevant port authorities/corporations and State departments of transport; pilotage, towage and mooring/unmooring service providers; and surveys of customs brokers and road transport operators.





Sources BTE estimates based on: price schedules of relevant port authorities/corporations and State departments of transport; pilotage, towage and mooring/unmooring service providers; and surveys of customs brokers and road transport operators.





Adelaide

Figure 15 shows that Adelaide recorded a fall of 18 per cent in wharfage on loaded containers, and 6 per cent in customs brokers' import fees. Road transport charges increased by 22 per cent, and customs brokers' export fees by 3 per cent. All Adelaide ship-based charges remained unchanged throughout the period. The conservancy charge (navigation service charge) for Adelaide reduces for each additional ship visit within a six-month period, and the tonnage charge (harbor service charge) is based on the berth time. Five-year averages for the fluctuating variables of these two charges were calculated and used to obtain the overall charge per period that is shown in figure 15.

Fremantle

Figure 16 shows that Fremantle eliminated state conservancy charges, and recorded a fall of 21 per cent in tonnage charges, 16 per cent in pilotage charges, 56 per cent in towage charges (caused by a reduction in the number of tugs required), 22 per cent in mooring/unmooring charges, 5 per cent in wharfage on loaded containers, 52 per cent in wharfage on empty containers, 5 per cent in berth charges on loaded containers, 2 per cent in customs brokers' import fees, and 6 per cent in customs brokers' export fees. Road transport charges increased by 10 per cent.

Total ship-based charges

Figure 17 shows the total ship-based charges for each of the five container ports. Over the past five years, Brisbane ship-based charges have fallen by 17 per cent, Sydney by 25 per cent, Melbourne by 28 per cent, and Fremantle by 44 per cent. Adelaide ship-based charges remained unchanged.



ABBREVIATIONS

AAPMA	Association of Australian Ports and Marine Authorities
BTE	Bureau of Transport Economics
CVP	Continuing Voyage Permit
SVP	Single Voyage Permit
teu	Twenty-foot equivalent unit



**TABLE 6 CONTAINER TERMINAL PERFORMANCE INDICATORS, SELECTED AUSTRALIAN PORTS—
PRODUCTIVITY IN TEUS PER HOUR**

	Sep-96	Dec-96	Mar-97	Jun-97	Sep-97	Dec-97	Mar-98	Jun-98	Sep-98	Dec-98	Mar-99	Jun-99	Sep-99	Dec-99	Mar-00	Jun-00	Sep-00
Five ports																	
Ships handled	871	907	865	891	907	963	909	845	1020	942	942	942	958	979	933	875	840
Total teus	497 140	519 206	441 697	483 372	549 247	585 474	527 881	514 409	633 107	612 019	573 444	602 501	660 593	726 590	678 046	666 967	708 433
Crane rate	22.3	21.2	22.8	22.8	23.2	23.3	23.5	23.6	24.4	24.2	25.5	25.9	25.4	24.8	26.6	30.4	33.2
Elapsed rate	23.6	na	23.1	23.8	26.0	25.8	na	na	na	na	na	na	30.1	30.8	33.3	40.0	38.0
Net rate	29.1	27.2	29.0	29.5	31.0	30.8	29.6	31.3	31.3	34.7	36.2	37.3	37.7	37.8	41.7	49.5	50.8
Brisbane																	
Ships handled	140	141	156	164	162	177	170	168	192	180	176	193	224	232	219	178	187
Total teus	66 115	62 904	47 471	65 572	73 184	71 043	58 857	74 023	87 373	84 200	75 444	88 311	98 944	106 096	97 431	90 932	103 654
Crane rate	20.6	20.6	20.0	20.5	20.2	20.5	21.6	21.6	22.5	20.9	22.6	23.4	23.3	24.6	26.4	30.5	33.4
Elapsed rate	20.9	21.1	20.3	20.6	21.2	20.8	19.9	21.5	23.6	24.7	26.3	26.7	24.7	27.0	29.8	33.4	30.0
Net rate	25.1	24.9	22.7	23.3	24.0	24.2	23.0	25.4	27.5	28.7	30.6	32.2	31.2	33.1	36.1	42.3	45.1
Sydney																	
Ships handled	228	249	251	249	243	266	238	219	267	230	221	243	259	244	221	218	223
Total teus	156 344	174 982	158 323	167 705	183 978	201 535	176 496	168 234	209 619	203 042	187 287	203 536	226 784	260 927	229 014	224 445	237 843
Crane rate	20.3	19.6	22.3	20.5	23.5	23.5	22.5	21.8	21.6	20.4	23.2	24.0	23.7	22.1	24.8	30.9	33.1
Elapsed rate	23.1	na	22.7	23.6	28.0	28.2	25.6	26.1	25.4	24.8	29.6	29.3	30.6	30.1	34.0	44.1	40.5
Net rate	29.5	28.9	22.7	23.3	26.1	35.5	33.1	33.9	32.0	32.3	36.8	38.0	38.9	36.8	43.0	55.4	53.9
Melbourne																	
Ships handled	274	282	230	249	268	281	276	234	309	274	271	282	278	266	247	217	227
Total teus	203 371	202 376	162 156	177 070	208 200	223 465	207 346	185 803	242 456	219 549	206 727	215 379	241 775	257 147	243 277	236 306	253 568
Crane rate	24.5	22.4	23.6	23.5	23.6	23.6	24.3	24.3	26.1	27.7	27.5	28.1	27.4	26.5	27.9	30.3	33.5
Elapsed rate	26.5	22.1	24.3	25.1	26.0	25.2	25.3	26.8	28.4	31.7	30.2	33.1	32.4	33.4	33.8	40.5	40.9
Net rate	32.2	27.2	28.7	29.7	29.9	28.7	28.6	30.7	31.9	39.7	36.9	39.7	39.9	40.4	43.0	49.4	53.8
Adelaide																	
Ships handled	70	74	69	65	68	66	60	66	63	74	73	66	62	62	56	56	62
Total teus	20 519	23 351	21 963	20 933	25 982	25 188	22 260	27 975	25 493	32 556	31 326	29 569	28 271	30 597	27 736	30 551	30 945
Crane rate	22.7	24.0	24.6	26.0	26.1	26.0	27.5	27.7	27.6	28.7	30.0	27.9	27.2	27.2	29.4	27.8	29.1
Elapsed rate	26.2	27.7	30.2	35.1	35.2	35.4	36.3	36.5	34.5	36.2	36.8	36.3	34.7	35.9	36.8	36.7	37.0
Net rate	26.8	28.3	30.9	36.0	36.2	36.5	37.6	37.8	36.0	37.6	39.7	37.6	37.2	38.8	39.7	41.1	41.0
Fremantle																	
Ships handled	159	161	159	164	166	173	165	158	189	184	201	174	156	129	132	139	141
Total teus	50 791	55 593	51 784	52 092	57 903	64 243	62 922	58 374	68 166	72 672	72 680	65 706	64 819	71 823	80 588	84 733	82 423
Crane rate	20.8	21.5	23.3	22.9	23.1	23.6	24.5	26.7	27.9	25.7	26.6	27.3	26.1	27.2	27.4	30.5	33.5
Elapsed rate	16.0	18.6	19.7	19.5	21.0	22.2	na	na	na	na	na	na	25.8	27.9	33.0	36.0	32.4
Net rate	22.6	24.2	25.0	24.0	25.5	28.8	26.4	29.8	30.2	31.7	32.0	33.4	35.3	38.8	41.6	44.7	43.2

na not available

Notes 1. Data for the Sea-Land terminal at Brisbane are incorporated from the December quarter 1999 onwards.

2. Elapsed rates and net rates from March quarter 1997 onwards are not directly comparable with earlier figures (except at Adelaide) due to changes in a terminal operator's information systems.

3. For data back to the December quarter 1989, refer to Waterline 15.

Sources: Patrick, P&O Ports and Sea-Land.





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acknowledgments

acknowledgments

This issue of *Waterline* was compiled by Gita Curnow. The reliability article was written by Christine Williams. Desktop publishing by Jean Penny.

The BTE is particularly grateful for the assistance of the Cross-Modal & Maritime Transport Division of the Department of Transport & Regional Services; the Association of Australian Ports Marine Authorities; individual port authorities/corporations; shipping lines; ship operators; and the stevedoring companies Patrick The Australian Stevedore, P&O Ports and Sea-Land (Australia) Terminals.

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ISSN 1324-4043

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