



in brief

- The five-port average crane rate has improved further to 26.8 containers per hour for the June quarter 2001.
- The five-port elapsed labour rate decreased to 28.7 containers per hour, while the ship rate remained unchanged.
- The five-port total container traffic declined to 1.547 million teus during January–June 2001.
- Berth availability was 97 per cent in the June quarter—the second highest level since the series commenced.

at a glance

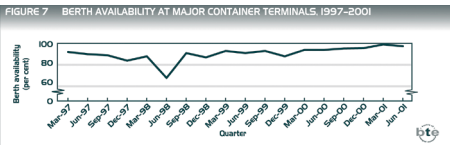
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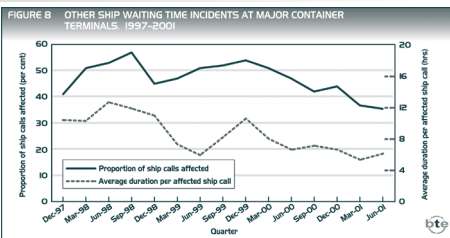
at a glance

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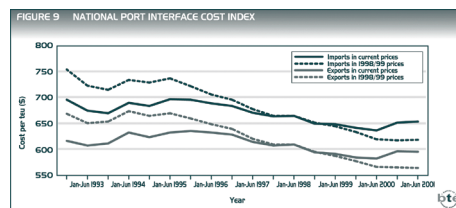
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STEVEDORING PRODUCTIVITY

Table 1 presents the June quarter 1999 to June quarter 2001 indicators of stevedoring productivity at the five major Australian container ports, *expressed in container moves per hour*. Figures 1 to 6 presents these data from the December quarter 1995 to the June quarter 2001. The Brisbane data are the weighted averages for the container terminals operated by P&O Ports, Patrick and CSX World Terminals. The data for Sydney, Melbourne and Fremantle are weighted averages for the container terminals operated by P&O Ports and Patrick. The Adelaide data are for the CSX World Terminals container terminal.

National crane rate productivity, as measured by the five-port average, has improved further for the June quarter 2001. The elapsed labour rate has dropped slightly, while the ship rate has not changed.

In summary:

- the five-port average *crane rate* (productivity *per crane* while the ship is worked) was 26.8 containers per hour for the June quarter 2001, compared with 26.4 in the March quarter 2001;
- the five-port average *elapsed labour rate* (productivity *per ship* based on the time labour is aboard the ship) was 28.7 containers per hour for the June quarter 2001, compared with 28.8 in the March quarter 2001; and
- the five-port average *ship rate* (productivity per ship while the ship is worked) of 40.4 containers per hour remained unchanged for the June quarter 2001.

The *Brisbane* (P&O Ports, Patrick, CSX World Terminals) average crane rate was 27.4 containers per hour in the June quarter, which is unchanged from the March quarter. The elapsed labour rate of 23.5 containers per hour and the ship rate of 36.3 containers per hour were both up compared with the previous quarter's figures.

The *Sydney* (P&O Ports, Patrick) average crane rate of 25.3 containers per hour remained unchanged in the June quarter. The elapsed labour rate of 28.4 containers per hour and the ship rate of 40.3 containers per hour were both down compared with the previous quarter's figures.

The *Melbourne* (P&O Ports, Patrick) average crane rate was 27.2 containers per hour in the June quarter, up from 26.5 in the March quarter. The elapsed labour rate of 31.3 containers per hour was down, and the ship rate of 43.7 containers per hour was up, compared with the previous quarter's figures.

The *Adelaide* (CSX World Terminals) average crane rate of 26.0 containers per hour remained unchanged in the June quarter. The elapsed labour rate of 34.9 containers per hour and the ship rate of 38.5 containers per hour were both up compared with the previous quarter's figures.

The *Fremantle* (P&O Ports, Patrick) average crane rate was 28.5 containers per hour in the June quarter, up from 27.5 containers per hour in the March quarter. The elapsed labour rate of 26.4 containers per hour and the ship rate of 38.2 containers per hour were both up compared with the previous quarter's figures.

Teus per hour

Table 9 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.




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

Port / Indicator	Quarter								
	Jun-99	Sep-99	Dec-99	Mar-00	Jun-00	Sep-00	Dec-00	Mar-01	Jun-01
Five ports									
Ships handled	958	979	933	875	808	840	814	787	813
Total containers	469 742	506 696	557 659	517 533	505 802	531 700	545 075	472 797	502 037
Crane rate	20.3	19.6	19.1	20.4	23.1	24.9	25.5	26.4	26.8
Elapsed labour rate	24.0 ^a	23.1	23.7	25.4	30.3	28.5	27.9	28.8	28.7
Ship rate	29.0	28.9	29.1	31.8	37.5	38.0	39.5	40.4	40.4
Elapsed time not worked (per cent)	17.4	20.2	18.7	20.1	19.1	25.0	29.3	28.7	29.2
40-foot containers (per cent)	28.3	30.4	30.3	31.0	31.9	33.2	34.3	34.1	31.7
Brisbane									
Ships handled	193	224	232	219	178	187	179	167	188
Total containers	71 008	77 914	84 354	77 992	71 679	80 366	83 082	63 177	84 854
Crane rate	18.9	18.6	19.7	21.2	24.0	25.8	26.3	27.4	27.4
Elapsed labour rate	21.4	19.5	21.5	23.8	26.3	23.3	23.1	22.8	23.5
Ship rate	25.9	24.7	26.4	28.9	33.4	34.9	34.4	35.1	36.3
Elapsed time not worked (per cent)	17.5	21.0	18.7	17.9	21.3	33.1	33.0	35.1	35.2
40-foot containers (per cent)	24.4	27.0	25.8	24.9	26.9	29.0	29.8	29.6	28.2
Sydney									
Ships handled	243	259	244	221	218	223	211	201	202
Total containers	154 062	170 684	195 544	171 164	166 212	173 988	176 106	148 316	152 650
Crane rate	18.2	18.0	16.6	18.6	22.8	24.3	24.3	25.3	25.3
Elapsed labour rate	22.2	23.1	22.5	25.4	32.6	29.6	28.6	29.0	28.4
Ship rate	28.7	29.4	27.6	32.2	40.9	39.5	40.9	41.3	40.3
Elapsed time not worked (per cent)	22.8	21.5	18.4	21.2	20.3	24.9	30.1	29.8	29.5
40-foot containers (per cent)	32.1	32.9	33.4	33.8	35.0	36.7	36.7	37.0	34.4
Melbourne									
Ships handled	282	278	266	247	217	227	218	214	215
Total containers	167 942	183 058	195 723	184 710	178 156	189 306	189 580	170 250	174 149
Crane rate	21.8	20.8	20.3	21.2	23.0	25.0	25.8	26.5	27.2
Elapsed labour rate	25.8	24.5	25.4	25.7	30.7	30.5	30.5	31.5	31.3
Ship rate	31.0	30.2	30.8	32.6	37.6	40.1	42.7	43.2	43.7
Elapsed time not worked (per cent)	16.7	18.8	17.5	21.1	18.1	24.0	28.7	27.0	28.5
40-foot containers (per cent)	28.2	32.1	31.4	31.7	32.6	33.9	34.5	33.1	31.2
Adelaide									
Ships handled	66	62	62	56	56	62	63	57	57
Total containers	24 445	23 969	26 090	21 803	25 245	26 836	27 800	25 051	25 928
Crane rate	23.1	23.0	23.2	23.1	23.0	25.3	25.3	26.0	26.0
Elapsed labour rate	30.0	29.4	30.6	28.9	30.3	32.1	29.3	33.1	34.9
Ship rate	31.1	31.5	33.1	31.2	34.0	35.5	32.6	36.1	38.5
Elapsed time not worked (per cent)	3.5	6.7	7.3	7.4	10.6	9.8	10.1	8.3	9.4
40-foot containers (per cent)	21.0	17.9	17.3	27.2	21.0	15.3	27.1	28.7	28.5
Fremantle									
Ships handled	174	156	129	132	139	141	143	148	151
Total containers	52 285	51 071	55 948	61 864	64 510	61 204	68 507	66 003	64 456
Crane rate	21.7	20.7	21.2	20.9	23.3	24.9	26.8	27.5	28.5
Elapsed labour rate	na	20.4	21.7	25.3	27.5	24.1	24.4	25.4	26.4
Ship rate	26.6	28.0	30.7	31.8	34.1	32.1	35.9	37.8	38.2
Elapsed time not worked (per cent)	na	27.1	29.2	20.5	19.5	25.1	31.9	32.9	31.0
40-foot containers (per cent)	25.7	26.9	28.4	30.3	31.3	34.7	35.8	36.4	32.9

na not available

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

Notes 1. The definitions used in compiling the stevedoring productivity data are detailed in Waterline 26, pages 2–3.

2. Data from CSX World Terminals at Brisbane are incorporated from the December quarter 1999 onwards.

3. The data in this table are expressed in container moves per hour and therefore are not directly comparable with the teus per hour data in table 6.

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

Sources Patrick, P&O Ports and CSX World Terminals.



CONTAINER TERMINAL PRODUCTIVITY

FIGURE 1 FIVE MAJOR PORTS

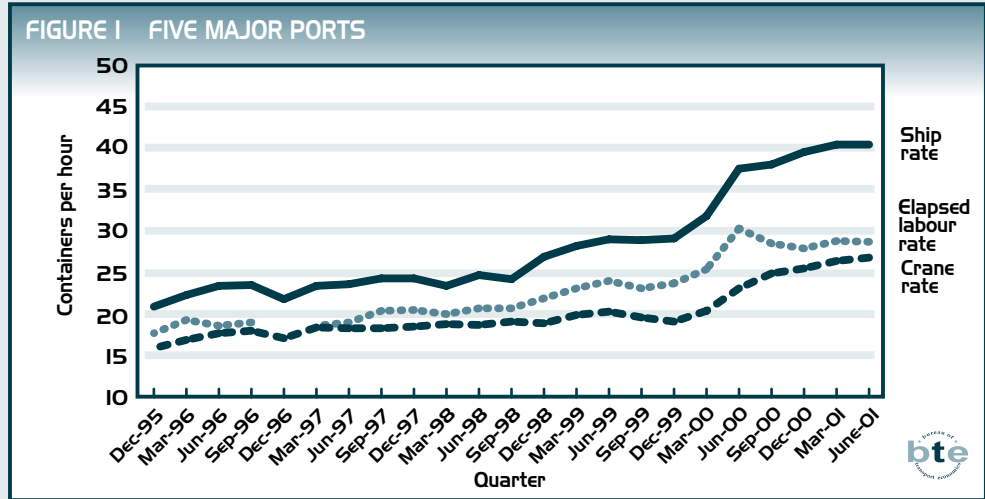


FIGURE 2 BRISBANE

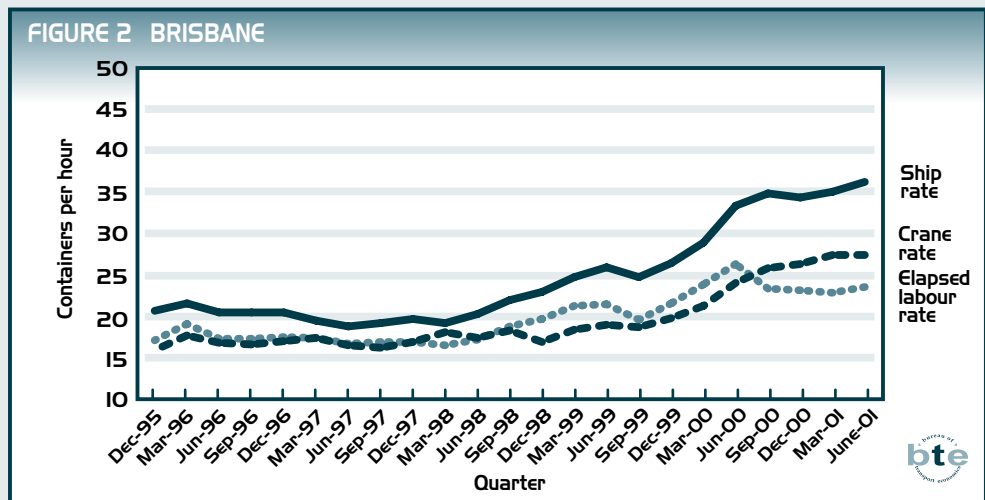
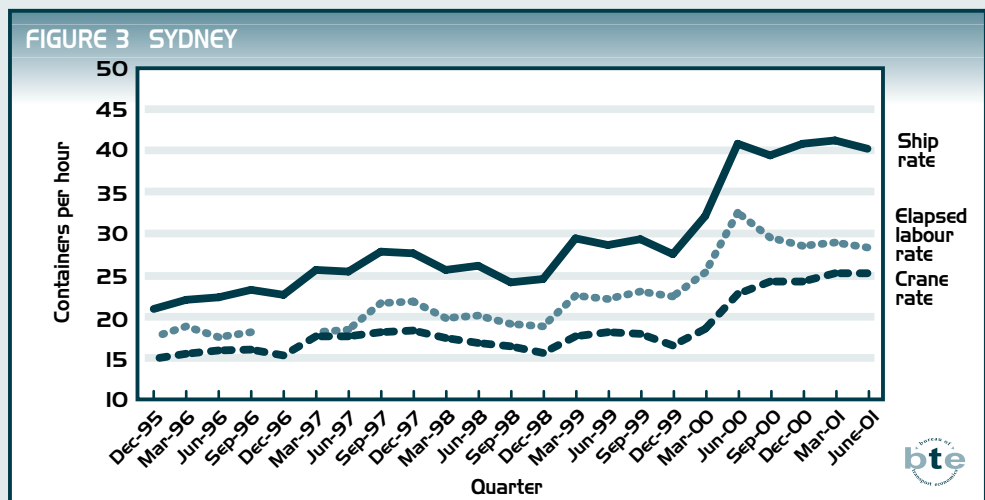


FIGURE 3 SYDNEY



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

Sources Patrick, P&O Ports and CSX World Terminals.



CONTAINER TERMINAL PRODUCTIVITY

FIGURE 4 MELBOURNE

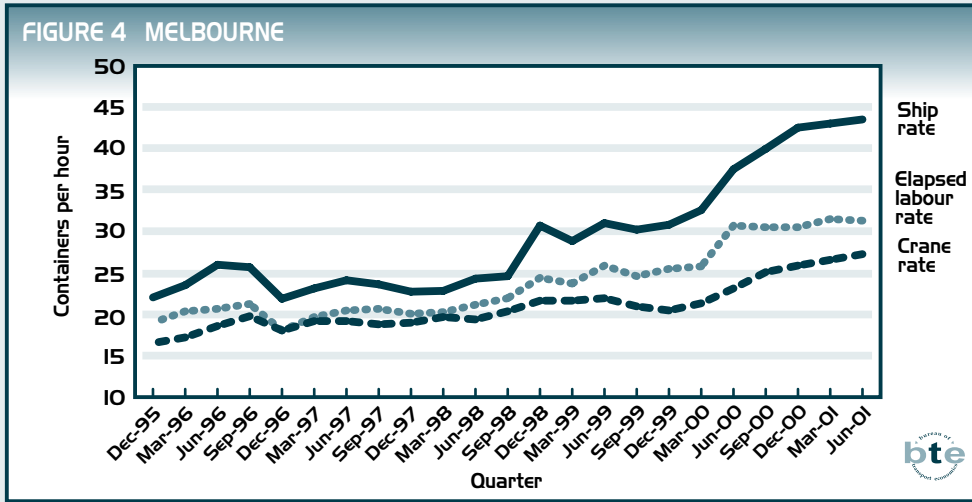


FIGURE 5 ADELAIDE

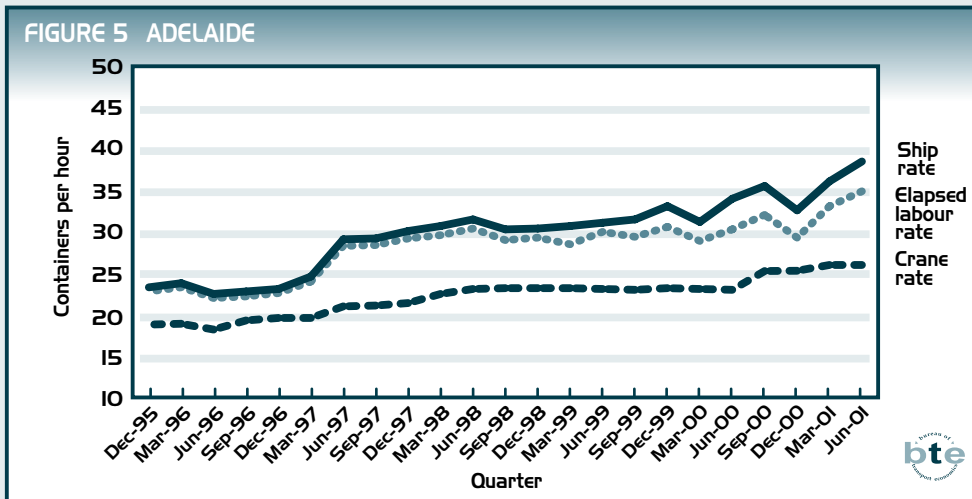
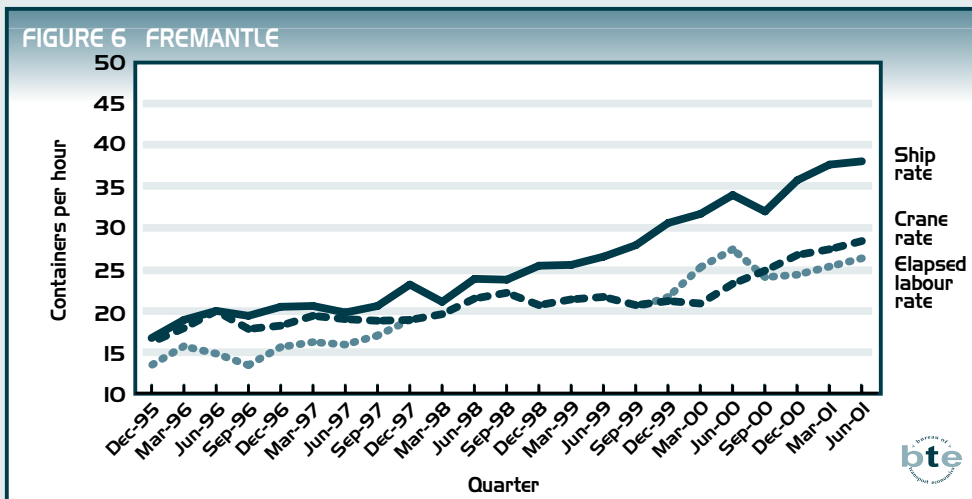


FIGURE 6 FREMANTLE



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

Sources Patrick, P&O Ports and CSX World Terminals.



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 June quarter 2001. It indicates the extent to which selected port services were available at the scheduled or confirmed time.

The sample for the June quarter 2001 covers 189 ship calls, equivalent to around 23 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 15 per cent at Brisbane to 30 per cent at Melbourne. 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 97 per cent in the June quarter 2001. This was lower than in the previous quarter, but remains the second 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 11.4 hours in the June quarter 2001, up from 10.5 hours in the previous quarter.

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 June quarter 2001, the same as in the March quarter 2001. The proportion was 99.5 per cent for the towage indicator in the June quarter 2001, similar to the March quarter 2001. Performance has been at similar levels since the first data (covering the March quarter 1997) were published in *Waterline*.

Other waiting time

The four 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.

TABLE 2 AVAILABILITY OF BERTH, PILOTAGE AND TOWAGE SERVICES AT THE SCHEDULED/CONFIRMED TIME, JUNE QUARTER 2001

Port/operation	(Number of ship calls)								Total no. of ship calls	Availability indicator (per cent)
	Delay (hrs)									
	0	1	2	3	4	5-10	11-20	>20		
Brisbane										
Berth availability	27	0	0	0	0	0	2	0	29	
Pilotage	29	0	0	0	0	0	0	0	29	
Towage	28	0	0	1	0	0	0	0	29	
Sydney										
Berth availability	56	0	0	0	0	0	0	0	56	
Pilotage	56	0	0	0	0	0	0	0	56	
Towage	56	0	0	0	0	0	0	0	56	
Melbourne										
Berth availability	63	1	0	0	0	1	0	0	65	
Pilotage	65	0	0	0	0	0	0	0	65	
Towage	65	0	0	0	0	0	0	0	65	
Adelaide										
Berth availability	12	0	0	0	0	0	0	0	12	
Pilotage	12	0	0	0	0	0	0	0	12	
Towage	12	0	0	0	0	0	0	0	12	
Fremantle										
Berth availability	25	0	0	0	0	1	1	0	27	
Pilotage	27	0	0	0	0	0	0	0	27	
Towage	27	0	0	0	0	0	0	0	27	
Five ports										
Berth availability	183	1	0	0	0	2	3	0	189	97.4
Pilotage	189	0	0	0	0	0	0	0	189	100.0
Towage	188	0	0	1	0	0	0	0	189	99.5

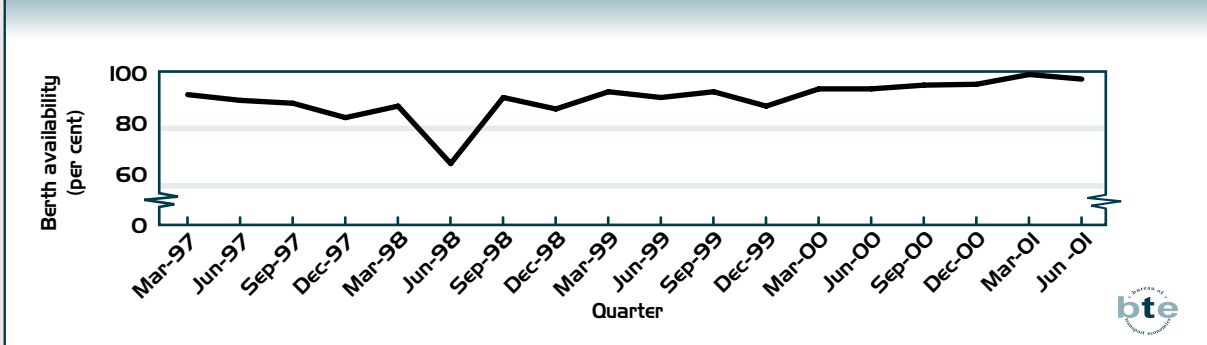
Note Inter-port comparisons should be interpreted with caution as there is significant variation between ports in factors such as sample sizes and ship call patterns.

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





FIGURE 7 BERTH AVAILABILITY AT MAJOR CONTAINER TERMINALS, 1997-2001



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 June quarter 2001. The shipping lines identified a total of 111 incidents (affecting 67 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 June quarter 2001 was the category of ship repairs or maintenance, which accounted for 21 per cent of total waiting time. Awaiting labour accounted for 17 per cent of total waiting time, and stevedoring finished early was related to a further 16 per cent of total waiting time.

In the June quarter 2001, 35 per cent of ship calls in the sample were affected by other waiting time incidents that had a duration of at least one hour, down from 37 per cent in the March quarter 2001.

The average duration of other waiting time was 6.1 hours per affected ship call in the June quarter 2001, up from 5.3 hours per affected ship call in the previous quarter.

Figure 8 provides information on other ship waiting time over the period since the December quarter 1997. It indicates the proportion of ship calls affected and the average duration of other waiting time per affected ship call in each quarter.

TABLE 3 OTHER SHIP WAITING TIME INCIDENTS AT THE FIVE MAINLAND CAPITAL CITY PORTS, JUNE QUARTER 2001

Incident type	(Number of incidents)							Total no. of incidents
	Ship waiting time (hrs)							
	1	2	3	4	5-10	11-20	>20	
Awaiting labour	7	10	1	4	4	0	0	26
Stevedoring finished early	4	9	5	2	4	0	0	24
Early ship arrival	4	5	4	2	4	0	0	19
Other	3	1	4	0	1	1	1	11
Pilot/tug booking not at preferred time	3	6	0	0	0	0	0	9
Weather or tides	1	1	1	0	4	1	0	8
Ship repairs or maintenance	0	0	2	0	2	1	2	7
Crane breakdown	3	3	0	0	0	0	0	6
Industrial action	0	1	0	0	0	0	0	1
Late ship arrival	0	0	0	0	0	0	0	0
Stevedoring finished late	0	0	0	0	0	0	0	0
Total incidents	25	36	17	8	19	3	3	111^a

a. These incidents affected 67 of the 189 ship calls covered in table 2.

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



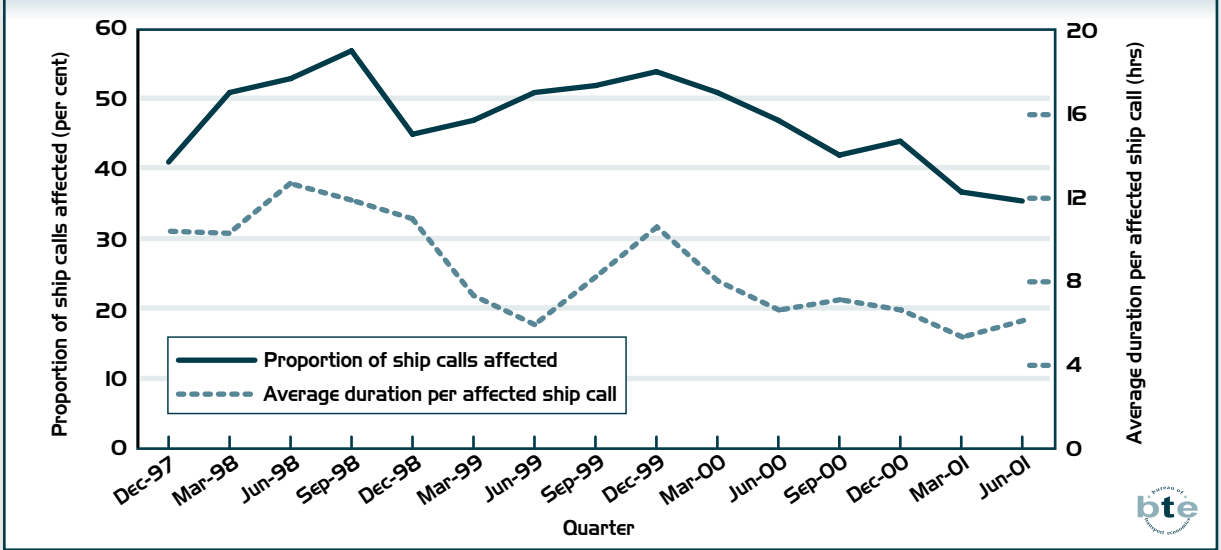
Stevedoring

Table 4 presents the available information on two aspects of stevedoring reliability at major container terminals—stevedoring rate and cargo receipt. Data were not available for Adelaide, and only stevedoring rate was available for Brisbane.

Stevedoring rate provides a partial indicator of the variability of stevedoring productivity at each port. It is defined as the proportion of ship visits where the average crane rate for the ship is within two containers per hour (plus or minus) of the quarterly average crane rate for the terminal. The stevedoring rate in the



FIGURE 8 OTHER SHIP WAITING TIME INCIDENTS AT MAJOR CONTAINER TERMINALS, 1997-2001



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

June quarter 2001 remained unchanged in Sydney compared with that for the March quarter 2001, while there was a substantial increase at Melbourne, and a moderate increase at Fremantle.

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 June quarter 2001 fell at Sydney, while remaining constant at Melbourne and Fremantle.

Ship arrival

Table 4 includes data for two indicators of ship arrival advice. Data were not available for Melbourne for the June and March quarters, 2001.

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 rose substantially for Adelaide and Fremantle, and fell for Sydney and Brisbane, in the June quarter 2001.

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. In the June quarter 2001 this indicator increased at all ports providing data except Fremantle, where it fell.

TABLE 4 STEVEDORING AND SHIP ARRIVAL RELIABILITY INDICATORS, MARCH QUARTER 2001 AND JUNE QUARTER 2001.

Indicator	(per cent)									
	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Mar	Apr-Jun	Jan-Mar	Apr-Jun	Jan-Mar	Apr-Jun	Jan-Mar	Apr-Jun	Jan-Mar	Apr-Jun
Stevedoring										
Stevedoring rate	na	51	48	48	49	59	na	na	36	38
Cargo receipt	na	na	88	84	96	96	na	na	97	97
Ship arrival										
Advice at 24 hrs	73	68	60	57	na	na	45	60	48	58
Advice inside 24 hrs	94	97	97	98	na	na	91	93	88	83

na not available

Sources AAPMA, Patrick and P&O Ports.





PORT PERFORMANCE—NON-FINANCIAL

The year 2001 non-financial indicators for the five mainland capital city ports are presented in table 5.

Cargo throughput

Total cargo throughput at the five ports was 49.6 million tonnes for January–June 2001, compared with 50.5 million tonnes for the previous half-year. This represented a decrease of 2 per cent in total cargo throughput for the five ports compared with July–December 2000. Total cargo throughput increased at Brisbane (1 per cent) and Adelaide (19 per cent). It declined at Sydney (10 per cent), Melbourne (1 per cent) and Fremantle (3 per cent).

Non-containerised general cargo throughput at the five ports was 1.884 million tonnes for January–June 2001, compared with 2.274 million tonnes for July–December 2000, representing a decrease of 17 per cent.

Total container throughput for the five ports was 1.547 million teus for January–June 2001, compared with 1.699 million teus for July–December 2000. While all categories fell over the January–June 2001 period compared to June–December 2000, loaded exports increased by 5.3 per cent compared to January–June 2000.

Compared with the 1999/2000 year, the 2000/01 five-port total container traffic increased by 4 per cent to 3.25 million teus.

TABLE 5 NON-FINANCIAL PERFORMANCE INDICATORS, SELECTED AUSTRALIAN PORTS, 2000/2001

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle		Five ports ^d	
	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001
Total cargo throughput ('000 tonnes)	11 529	11 618	13 005	11 684	11 157	11 078	3 407	4 039	11 447	11 132	50 545	49 551
Non-containerised general cargo ('000 tonnes)^a	308	262	311	241	1 110	921	180	159	364	301	2 274	1 884
Containerised cargo (teus exchanged)												
Full import	83 701	69 785	274 119	217 570	307 289	263 888	20 143	17 865	73 078	63 416	758 330	632 524
Empty import	34 317	40 258	8 602	11 303	45 993	52 401	9 923	11 136	21 656	25 926	120 491	141 024
Full export	92 078	102 095	157 448	148 651	265 442	258 077	32 174	31 120	61 508	64 066	608 650	604 009
Empty export	16 151	14 654	97 683	73 591	69 562	54 013	5 790	5 085	22 723	21 771	211 909	169 114
TOTAL	226 247	226 792	537 852	451 115	688 286	628 379	68 030	65 206	178 965	175 179	1 699 380	1 546 671
Average total employment^b	216	218	183	192	83	89	147	149	167	166	796	814
Port turnaround time (hrs)^c												
Median result	30	31	32	32	36	34	20	19	24	20	-	-
95th percentile	52	56	60	57	65	57	40	50	66	47	-	-

- not applicable

a. Excludes bulk cargoes.

b. Comparisons between ports are not appropriate because each port authority/corporation has a different structure.

c. Port turnaround times refer only to ships calling at container terminals. Comparisons between ports are not appropriate because each port has a different set of parameters to measure the turnaround time. Normally, only inter-temporal comparison at individual ports is of use.

d. Components may not sum to totals due to rounding.

Source AAPMA.





PORT INTERFACE COST INDEX

The port interface cost index provides a measure of shore-based shipping costs (charges) for containers moved through the Australian mainland capital city ports. Data for July–December 2000 and January–June 2001 are presented in tables 6 to 8. The port interface cost index is based on an indicative approach; that is, the index is not an average of all costs, but is based on those costs typically charged by service providers in most instances.

Port and related charges

Table 6 provides the parameters used to determine the port and related charges in table 7. These parameters relate to a representative port call by a container ship (Lloyd's ship classification UCC) in the 15 000 to 20 000 GRT range.

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001
Vessel size										
GRT	17 215	17 215	17 215	17 215	17 215	17 215	17 215	17 215	17 215	17 215
NRT	8 372	8 372	8 372	8 372	8 372	8 372	8 372	8 372	8 372	8 372
Teus exchanged^a										
Total	502	540	892	834	1070	1215	679	608	690	533
Loaded	389	418	716	669	890	1011	522	468	519	401
Empty	113	122	176	165	180	204	157	140	171	132
Loaded inwards	185	170	455	397	477	511	201	171	282	200
Loaded outwards	204	248	261	271	412	500	321	297	237	202
Ship call parameters^a										
Number of port calls	5	5	3	2	4	3	4	3	7	5
Elapsed berth time (hrs)	21	22	33	37	36	36	22	23	27	20

a. Mean value for ships between 15 000 and 20 000 GRT.

Sources BTE estimates based on ship call data supplied by relevant port authorities/corporations and other port service providers.




Table 7 provides the port and related charges at the five mainland capital city ports for July–December 2000 and January–June 2001. Port and related charges comprise ship-based charges and cargo-based charges.

Ship-based charges

In general, there was little change in ship-based charges in January–June 2001. However, on a per teu basis, the change in the charges is reflected by the rise and fall of the average number of teus exchanged per ship. The average number of teus exchanged rose at Brisbane and Melbourne, but fell at Sydney, Adelaide and Fremantle in January–June 2001 when compared to the previous period. The changes were a 7 per cent increase at Brisbane, a 14 per cent increase at Melbourne, 7 per cent decrease at Sydney, 10 per cent decrease at Adelaide, and 23 per cent decrease at Fremantle. The average teu exchange at Brisbane exceeded all previous averages.

On a per teu basis, and compared to the previous period, the overall changes in total ship-based charges in January–June 2001 were:

- at *Brisbane*—a 7 per cent decrease;
- at *Sydney*—a 7 per cent increase;
- at *Melbourne*—a 13 per cent decrease;
- at *Adelaide*—a 12 per cent increase; and
- at *Fremantle*—a 29 per cent increase.



TABLE 7 PORT AND RELATED CHARGES, 2000/2001

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun 2000	Jul-Dec 2001	Jan-Jun 2000	Jul-Dec 2001	Jan-Jun 2000	Jul-Dec 2001	Jan-Jun 2000	Jul-Dec 2001	Jan-Jun 2000	Jul-Dec 2001
Ship-based charges (\$/teu)										
Conservancy	4.59	4.27	-	-	-	-	2.44	2.72	-	-
Tonnage	-	-	8.28	8.86	4.62	4.07	6.86	7.82	4.04	5.23
Pilotage	11.24	10.46	3.72	3.98	5.64	4.96	3.81	4.25	3.33	4.31
Towage	15.89	14.79	9.04	9.67	7.08	6.11	19.38	21.61	8.54	11.06
Mooring, unmooring	3.73	3.47	3.88	4.15	0.97	0.85	-	-	1.75	2.27
Berth hire ^a	-	-	-	-	6.46	5.67	-	-	-	-
Total ^b	35.45	33.00	24.92	26.65	24.76	21.66	32.49	36.40	17.66	22.87
Cargo-based charges (\$/teu)										
Wharfage										
Imports	28.60	28.60	66.00	66.00	29.10	29.10	58.30 ^r	58.30	49.50	49.50
Exports	28.60	28.60	49.50	49.50	29.10	29.10	58.30 ^r	58.30	49.50	49.50
Harbour dues	46.20	46.20	-	-	-	-	-	-	-	-
Berth charge	-	-	-	-	-	-	-	-	15.29	15.29
Total port and related charges (\$/teu)^b										
Loaded imports	110	108	91	93	54	51	91	95	82	88
Loaded exports	110	108	74	76	54	51	91	95	82	88
Charges per ship visit (\$/visit)										
Total ship-based charges	17 813	17 813	22 225	22 225	26 488	26 322	22 047	22 140	12 193	12 193
Empty teus ^c	1 765	1 906	-	-	-	-	-	-	1 317	1 016

- not applicable

a. Charged by stevedores and itemised separately from basic stevedoring charge.

b. Components may not sum to totals due to rounding.

c. Sum of wharfage, harbour dues and berth charge per empty teu, multiplied by average exchange of empty teus.

r. Revised

Note Port and related charges are based on the parameters described in table 5.

Sources BTE estimates based on ship call data supplied by relevant port authorities/corporations, and price schedules of relevant port authorities/corporations, towage operators and pilotage service providers.



The high increase in Fremantle's charge per teu is directly related to the large decrease in the average number of teus exchanged per ship.

While caution should always be used when making port comparisons on a per teu basis, Melbourne was the lowest-cost port for ship-based charges. From the point of view of ship operators using ships similar to the representative ship in table 6, Fremantle was the lowest cost port for ship-based charges on a per ship-visit basis.

Cargo-based charges

There was no change in cargo based charges in January–June 2001 compared to July–December 2000.

Stevedoring charges per teu

The stevedoring charges used in this issue of *Waterline* are those published in the most recently available ACCC report on stevedoring prices (October 2000). As the report does not include charges beyond the first half of 2000, the July–December 2000 and the January–June 2001 stevedoring charges included in the port interface cost index is provisional and will be updated in *Waterline* 30.

Land-based charges per teu

Average customs brokers' fees and road transport rates for the July–December 2000 and January–June 2001 port interface cost index are included in table 8. These charges are based on data provided by 34 customs brokers and 38 road transport operators. Customs brokers' fees for imports are higher than fees for exports, reflecting the more complex clearance procedures for import containers. During January–June



2001 the customs brokers' fee for imports increased at Brisbane by 16 per cent and at Melbourne by one per cent. The fee decreased at Sydney by 4 per cent, at Adelaide by 14 per cent and at Fremantle by 2 per cent. For exports, the fee increased at Adelaide by 14 per cent and at Fremantle by 3 per cent. The fee decreased at Brisbane by 7 per cent, at Melbourne by 5 per cent and at Sydney by 2 per cent.

Road transport charges increased by 5 per cent at Brisbane, 4 per cent at Sydney, one per cent at Melbourne and Adelaide, and decreased by 3 per cent at Fremantle. One of the parameters used to estimate road transport charges is the time taken to move containers from/to the wharf to/from the customer's warehouse. Both distance and traffic congestion impact on this parameter and therefore, to some extent, help explain the significant difference between road transport charges at Melbourne and Sydney compared with Brisbane, Adelaide and Fremantle.

Indices for individual ports

Table 8 indicates that import costs increased by 4 per cent for Brisbane between July–December 2000 and January–June 2001. Both import and export costs increased by one per cent for Sydney. For Adelaide, import costs decreased by 2 per cent, while export costs increased by 3 per cent. Melbourne and Fremantle showed little change. However, these figures should be interpreted with caution, given the provisional nature of the reported stevedoring charges. Furthermore, a single stevedoring charge has been assumed for all ports. In practice, container stevedoring charges tend to vary between ports.

National index

Figure 9 provides the national port interface cost index back to 1992. In overall terms, there was little change in the national index between July–December 2000 and January–June 2001. In current prices, national import charges increased from \$653 to \$654 per teu, and export charges decreased from \$597 to \$596 per teu.

In real terms (1998/99 prices, using ABS chain volume and current price statistics to calculate the deflator), the National Port Interface Cost Index charge per imported teu has declined by 18 per cent since 1993, and the charge per exported teu has declined by 16 per cent.

TABLE 8 PORT INTERFACE COSTS, 2000/2001

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2000	Jan-Jun 2001
Import										
Ship-based charges	35	33	25	27	25	22	32	36	18	23
Cargo-based charges	75	75	66	66	29	29	58	58	65	65
Stevedoring	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P
Customs brokers' fees	123	143	149	143	138	140	132	112	138	135
Road transport charges	202	212	299	311	272	274	183	186	208	202
Import total^a	609	635	711	720	638	637	579	566	600	597
Export										
Ship-based charges	35	33	25	27	25	22	32	36	18	23
Cargo-based charges	75	75	50	50	29	29	58	58	65	65
Stevedoring	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P	173 ^P
Customs brokers' fees	77	71	111	105	89	87	73	84	67	68
Road transport charges	202	212	299	311	272	274	183	186	208	202
Export total^a	562	564	657	665	588	585	521	538	530	531

p provisional pending updating of stevedoring charge by the ACCC.

a. Components may not sum to totals due to rounding.

Notes 1. Based on parameters described in table 5.

2. Waterline data on customs brokers' fees and road transport charges are collected for the purpose of monitoring trends in charges over time. They should not be used for inter-port comparisons, as sample characteristics may vary between ports.

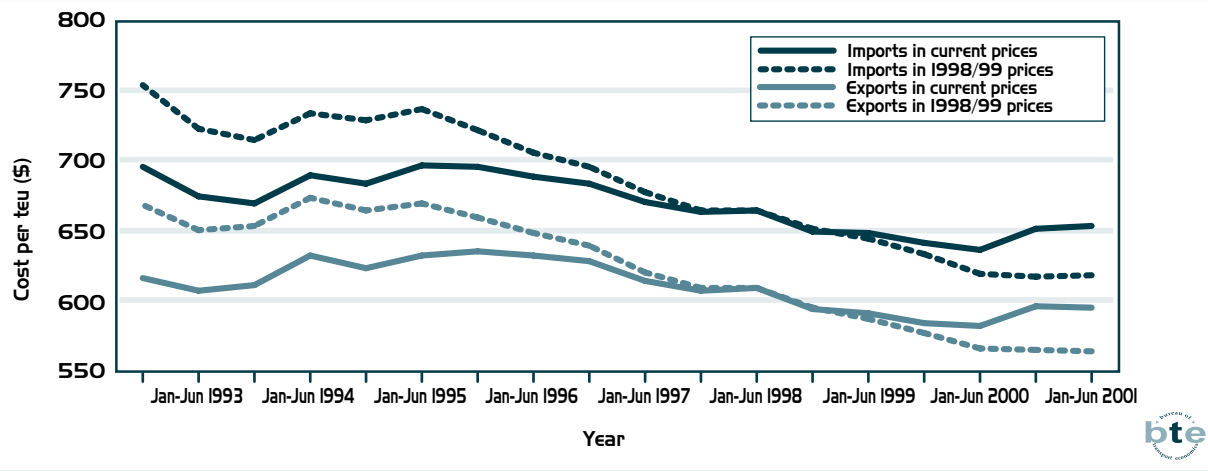
3. The stevedoring charge used in Waterline is monitored by the ACCC and is the weighted average for Brisbane, Sydney, Melbourne, Adelaide, Fremantle and Burnie. Stevedoring charges vary between ports but detailed data for individual ports are not publicly available.

Sources BTE estimates based on: ship call data supplied by relevant port authorities/corporations; price schedules of relevant port authorities/corporations, towage operators and pilotage service providers; surveys of customs brokers and road transport operators; and stevedoring charge data supplied by the ACCC.





FIGURE 9 NATIONAL PORT INTERFACE COST INDEX



Sources BTE estimates based on: ship call data supplied by port authorities/corporations; price schedules of port authorities/corporations, towage operators and pilotage service providers; surveys of customs brokers and road transport operators; stevedoring charges data supplied by the ACCC and industry sources; and ABS 5206.041 National Accounts table.



ABBREVIATIONS

AAPMA	Association of Australian Ports and Marine Authorities
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
BTE	Bureau of Transport Economics
GRT	Gross registered tonnage
NRT	Net registered tonnage
teu	Twenty-foot equivalent unit
UCC	Container ship



**TABLE 9 CONTAINER TERMINAL PERFORMANCE INDICATORS, SELECTED AUSTRALIAN PORTS—
PRODUCTIVITY IN TEUS PER HOUR**

	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	Dec-00	Mar-01	Jun-01
Five Ports																	
Ships handled	891	907	963	909	845	1 020	942	942	958	979	933	875	808	840	814	787	813
Total teus	483 372	549 247	585 474	527 881	5 14 409	633 107	6 12 019	5 73 444	602 501	680 593	726 590	678 046	686 967	708 433	731 936	634 003	661 326
Crane rate	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	34.2	35.4	35.2
Elapsed rate	23.8	26.0	25.8	na	na	na	na	na	na	30.1	30.8	33.3	40.0	38.0	37.6	38.6	37.8
Ship rate	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	53.2	54.3	53.3
Brisbane																	
Ships handled	164	162	177	170	168	192	180	176	193	224	232	219	178	187	179	167	188
Total teus	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	107 812	81 864	108 810
Crane rate	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	34.0	35.5	35.1
Elapsed rate	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	29.7	29.6	30.2
Ship rate	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	44.5	46.1	46.5
Sydney																	
Ships handled	249	243	266	238	219	267	230	221	243	259	244	221	218	223	211	201	202
Total teus	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	240 720	203 217	205 126
Crane rate	22.6	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	33.2	34.7	34.0
Elapsed rate	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	39.0	39.7	38.2
Ship rate	32.7	36.1	35.5	33.1	33.9	32.0	32.3	38.8	38.0	38.9	36.8	43.0	55.4	53.9	55.8	56.6	54.1
Melbourne																	
Ships handled	249	268	281	276	234	309	274	271	282	278	266	247	217	227	218	214	215
Total teus	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	255 022	226 612	228 400
Crane rate	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	34.7	35.3	35.7
Elapsed rate	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	41.1	41.9	41.0
Ship rate	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	57.6	57.5	57.3
Adelaide																	
Ships handled	65	68	66	60	66	63	74	73	66	62	62	56	56	62	63	57	57
Total teus	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	35 339	32 251	33 308
Crane rate	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	32.2	33.5	33.4
Elapsed rate	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	37.2	42.6	44.9
Ship rate	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	41.5	46.5	49.5
Fremantle																	
Ships handled	164	166	173	165	158	189	184	201	174	156	129	132	139	141	143	148	151
Total teus	52 092	57 903	64 243	62 922	58 374	68 166	72 672	72 660	65 706	64 819	71 823	80 588	84 733	82 423	93 043	90 059	85 682
Crane rate	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	36.5	37.7	37.9
Elapsed rate	19.5	21.0	22.2	na	na	na	na	na	na	25.8	27.9	33.0	36.0	32.4	33.6	34.5	35.0
Ship rate	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	48.7	51.3	50.8

na not available

Notes 1. Data from CSX World Terminals at Brisbane are incorporated from the December quarter 1999 onwards.

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

Sources Patrick, P&O Ports and CSX World Terminals.





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acknowledgements

This issue of *Waterline* was compiled by Shelby Armour. The reliability article was written by Dr Michael Simpson. Desktop publishing by Thomas Smith.

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 and Marine Authorities; individual port authorities/corporations; Queensland Transport; shipping lines; ship operators; customs brokers; road transport operators; pilot, tug and mooring operators; and the stevedoring companies Patrick, P&O Ports and CSX World Terminals.

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The Bureau of Transport Economics operates within the Commonwealth Department of Transport and Regional Services
ISSN 1324-4043

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