



in brief

- The five-port average crane rate improved to 26.3 containers per hour for the December quarter 2001.
- Slight increases were recorded in the five-port elapsed labour rate (29.6 containers per hour) and in the ship rate (41.6 containers per hour).
- The five-port total container traffic increased to 1.740 million teus during July–December 2001.
- Berth availability was 95 per cent in the December quarter.



at a glance

tables

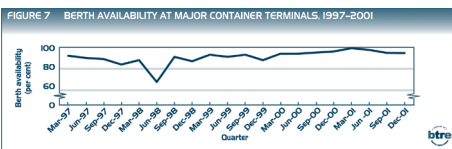
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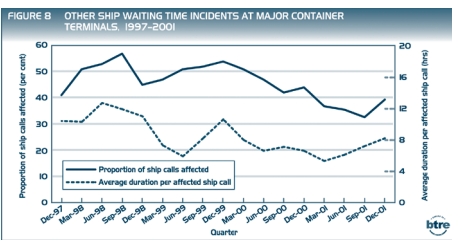
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graphs

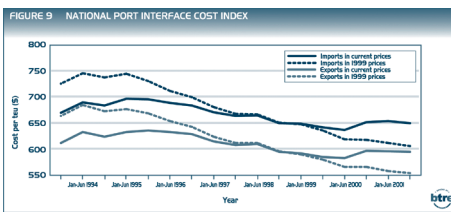
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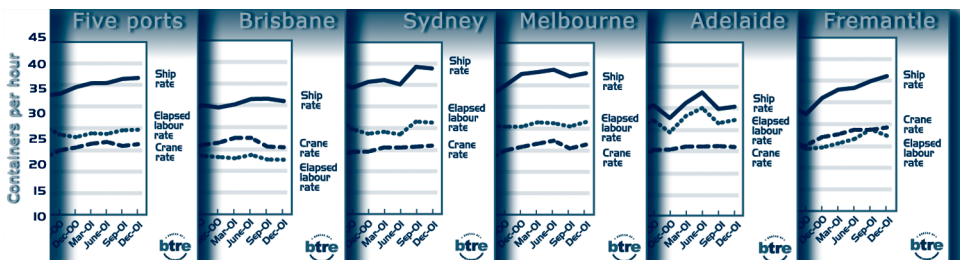
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change of name



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STEVEDORING PRODUCTIVITY

Table 1 presents the December quarter 1999 to December quarter 2001 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 March quarter 1996 to December quarter 2001 period. The data for Brisbane, 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 increased in the December quarter 2001 compared with the September quarter 2001. The elapsed labour rate and the ship rate have also both increased.

In summary:

- the five-port average *crane rate* (productivity *per crane* while the ship is worked) was 26.3 containers per hour for the December quarter 2001, compared with 25.8 in the September quarter 2001;
- the five-port average *elapsed labour rate* (productivity *per ship* based on the time labour is aboard the ship) was 29.6 containers per hour for the December quarter 2001, compared with 29.5 in the September quarter 2001; and
- the five-port average *ship rate* (productivity *per ship* while the ship is worked) was 41.6 containers per hour for the December quarter 2001, compared with 41.4 in the September quarter 2001.

The *Brisbane* (P&O Ports, Patrick) average crane rate was 25.3 containers per hour in the December quarter, down from 25.4 in the September quarter. The elapsed labour rate of 22.4 containers per hour and the ship rate of 35.8 containers per hour were both down compared with the previous quarter's figures.

The *Sydney* (P&O Ports, Patrick) average crane rate was 25.7 containers per hour in the December quarter, up from 25.5 in the September quarter. The elapsed labour rate of 31.2 containers per hour and the ship rate of 44.0 containers per hour were both down compared with the previous quarter's figures.

The *Melbourne* (P&O Ports, Patrick) average crane rate was 26.3 containers per hour in the December quarter, up from 25.4 in the September quarter. The elapsed labour rate of 31.6 containers per hour and the ship rate of 42.9 containers per hour were both up compared with the previous quarter's figures.

The *Adelaide* (CSX World Terminals) average crane rate was 25.9 containers per hour in the December quarter, down from 26.1 in the September quarter. The elapsed labour rate of 32.1 containers per hour and the ship rate of 35.2 containers per hour were both up compared with the previous quarter's figures.

The *Fremantle* (P&O Ports, Patrick) average crane rate was 29.0 containers per hour in the December quarter, up from 28.5 containers per hour in the September quarter. The elapsed labour rate of 27.2 containers per hour was down, and the ship rate of 40.9 containers per hour was 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								
	Dec-99	Mar-00	Jun-00	Sep-00	Dec-00	Mar-01	Jun-01	Sep-01	Dec-01
Five ports									
Ships handled	933	875	808	840	814	787	813	825	846
Total containers	557 659	517 533	505 802	531 700	545 075	472 797	502 037	575 130	591 070
Crane rate	19.1	20.4	23.1	24.9	25.5	26.4	26.8	25.8	26.3
Elapsed labour rate	23.7	25.4	30.3	28.5	27.9	28.8	28.7	29.5	29.6
Ship rate	29.1	31.8	37.5	38.0	39.5	40.4	40.4	41.4	41.6
Elapsed time not worked (per cent)	19	20	19	25	29	29	29	29	29
40-foot containers (per cent)	30	31	32	33	34	34	32	33	33
Brisbane									
Ships handled	232	219	178	187	179	167	188	175	198
Total containers	84 354	77 992	71 679	80 366	83 082	63 177	84 854	81 935	88 669
Crane rate	19.7	21.2	24.0	25.8	26.3	27.4	27.4	25.4	25.3
Elapsed labour rate	21.5	23.8	26.3	23.3	23.1	22.8	23.5	22.5	22.4
Ship rate	26.4	28.9	33.4	34.9	34.4	35.1	36.3	36.4	35.8
Elapsed time not worked (per cent)	19	18	21	33	33	35	35	38	37
40-foot containers (per cent)	26	25	27	29	30	30	28	29	27
Sydney									
Ships handled	244	221	218	223	211	201	202	208	206
Total containers	195 544	171 164	166 212	173 988	176 106	148 316	152 650	179 506	184 559
Crane rate	16.6	18.6	22.8	24.3	24.3	25.3	25.3	25.5	25.7
Elapsed labour rate	22.5	25.4	32.6	29.6	28.6	29.0	28.4	31.4	31.2
Ship rate	27.6	32.2	40.9	39.5	40.9	41.3	40.3	44.4	44.0
Elapsed time not worked (per cent)	18	21	20	25	30	30	29	29	29
40-foot containers (per cent)	33	34	35	37	37	37	34	35	37
Melbourne									
Ships handled	266	247	217	227	218	214	215	243	249
Total containers	195 723	184 710	178 156	189 306	189 580	170 250	174 149	214 752	221 647
Crane rate	20.3	21.2	23.0	25.0	25.8	26.5	27.2	25.4	26.3
Elapsed labour rate	25.4	25.7	30.7	30.5	30.5	31.5	31.3	30.5	31.6
Ship rate	30.8	32.6	37.6	40.1	42.7	43.2	43.7	42.2	42.9
Elapsed time not worked (per cent)	17	21	18	24	29	27	28	28	26
40-foot containers (per cent)	31	32	33	34	35	33	31	33	33
Adelaide									
Ships handled	62	56	56	62	63	57	57	57	57
Total containers	26 090	21 803	25 245	26 836	27 800	25 051	25 928	28 369	28 857
Crane rate	23.2	23.1	23.0	25.3	25.3	26.0	26.0	26.1	25.9
Elapsed labour rate	30.6	28.9	30.3	32.1	29.3	33.1	34.9	31.4	32.1
Ship rate	33.1	31.2	34.0	35.5	32.6	36.1	38.5	34.7	35.2
Elapsed time not worked (per cent)	7	7	11	10	10	8	9	10	9
40-foot containers (per cent)	17	27	21	15	27	29	28	23	27
Fremantle									
Ships handled	129	132	139	141	143	148	151	142	136
Total containers	55 948	61 864	64 510	61 204	68 507	66 003	64 456	70 568	67 338
Crane rate	21.2	20.9	23.3	24.9	26.8	27.5	28.5	28.5	29.0
Elapsed labour rate	21.7	25.3	27.5	24.1	24.4	25.4	26.4	28.6	27.2
Ship rate	30.7	31.8	34.1	32.1	35.9	37.8	38.2	39.8	40.9
Elapsed time not worked (per cent)	29	21	19	25	32	33	31	28	34
40-foot containers (per cent)	28	30	31	35	36	36	33	32	35

- 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 until June quarter 2001.
 3. The data in this table are expressed in container moves per hour and are therefore not directly comparable with the teus per hour data in table 9.
 4. Elapsed time not worked is the difference between the ship rate and elapsed rate as a percentage of the net rate.

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





CONTAINER TERMINAL PRODUCTIVITY

FIGURE 1 FIVE MAJOR PORTS

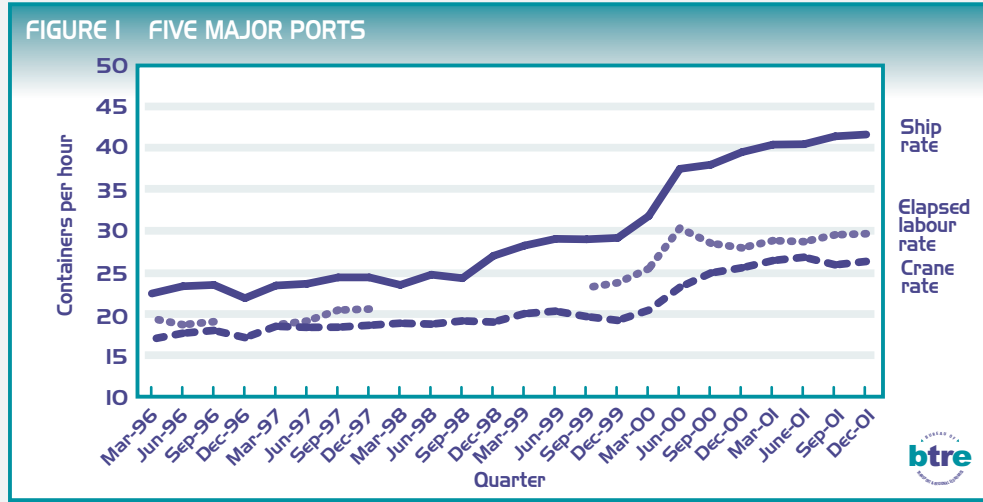


FIGURE 2 BRISBANE

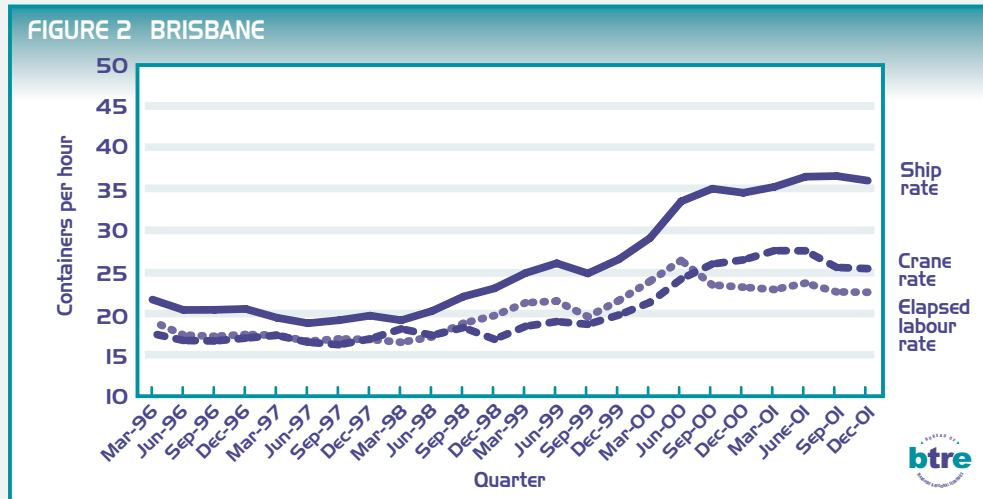
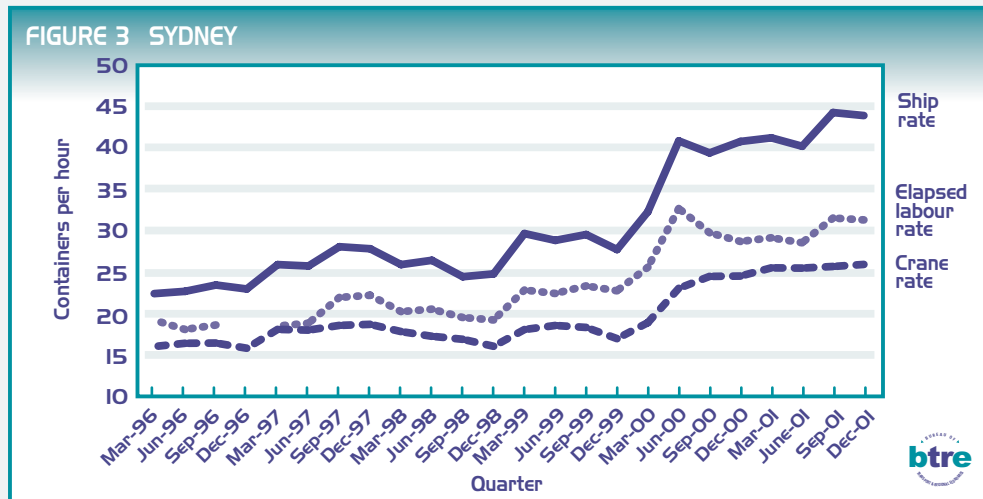


FIGURE 3 SYDNEY



Note These figures are based on data contained in table 1. Readers should refer to the notes in that table.

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



CONTAINER TERMINAL PRODUCTIVITY

FIGURE 4 MELBOURNE

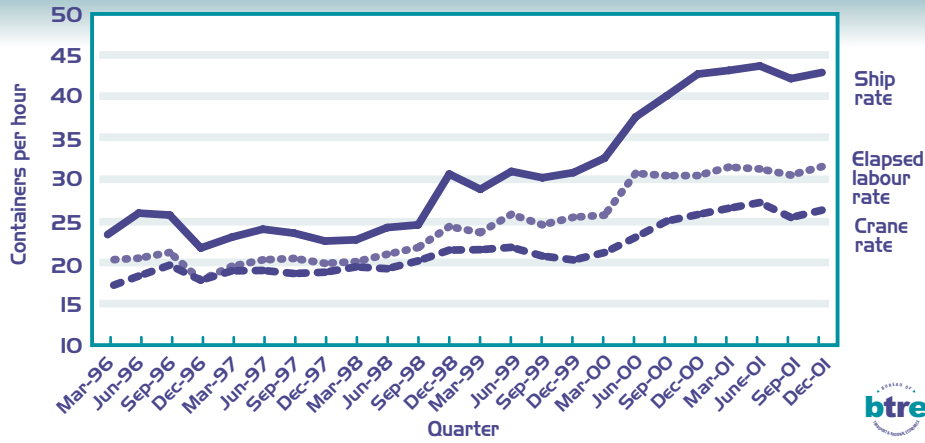


FIGURE 5 ADELAIDE

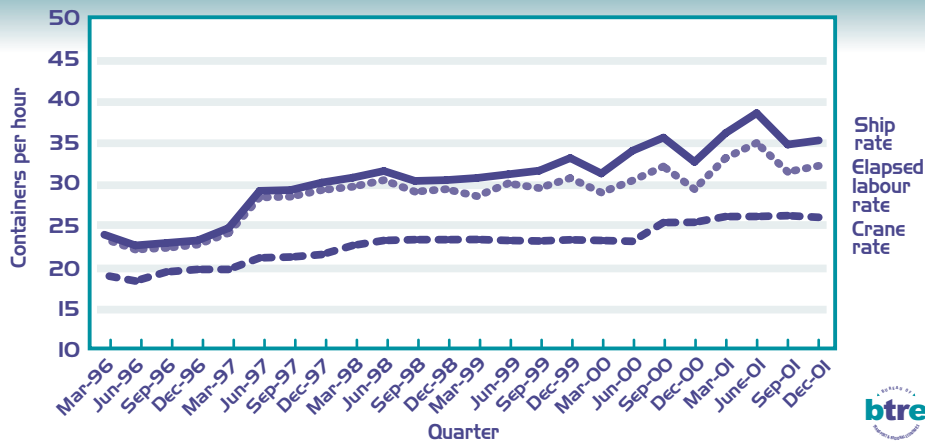
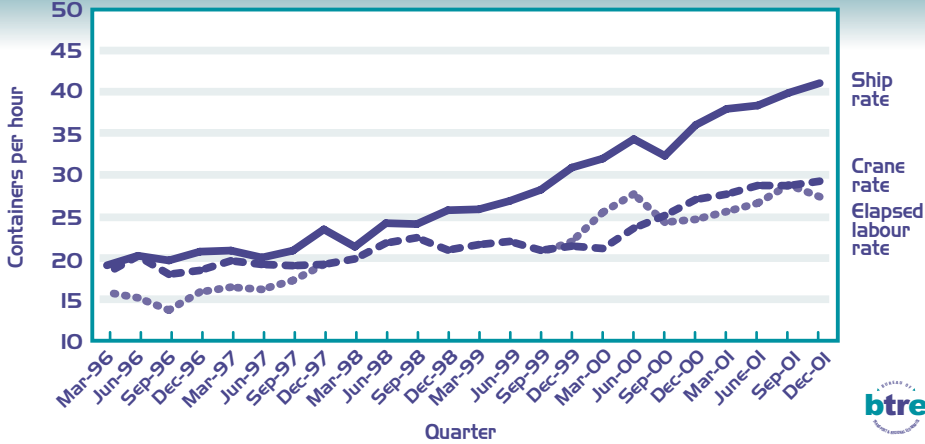


FIGURE 6 FREMANTLE



Note These figures are based on 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 December quarter 2001. It indicates the extent to which selected port services were available at the scheduled or confirmed time.

The sample for the December quarter 2001 covers 163 ship calls, equivalent to around 19 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 9 per cent at Brisbane to 27 per cent at Sydney. The figures for Brisbane should be treated with caution due to the low proportion of ship calls included in the data. 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 December quarter 2001. This was the same as the previous quarter. 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 December quarter 2001, the same as 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 99.4 per cent for the pilotage indicator in the December quarter 2001, virtually unchanged from the previous quarter. The proportion was 100 per cent for the towage indicator in the December quarter 2001, the same as in the September 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 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.

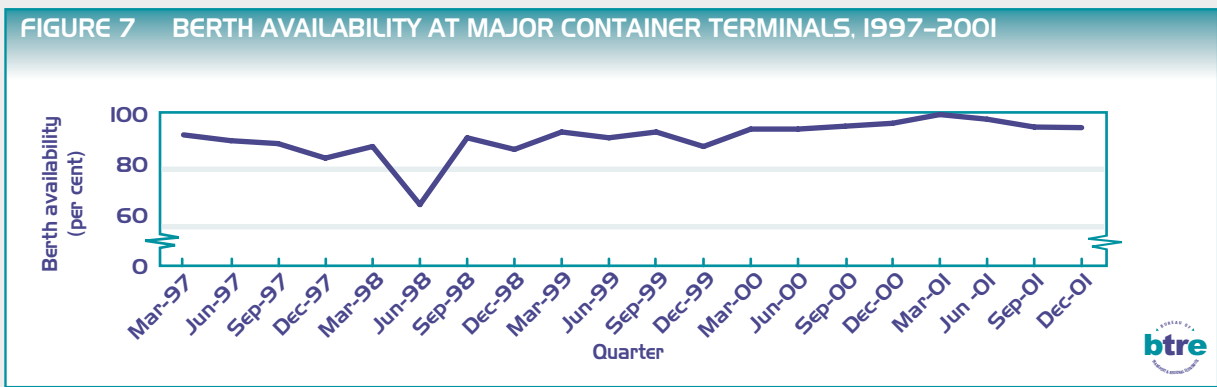
TABLE 2 AVAILABILITY OF BERTH, PILOTAGE AND TOWAGE SERVICES AT THE SCHEDULED/CONFIRMED TIME, DECEMBER QUARTER 2001

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	17	0	0	0	0	1	0	0	18	
Pilotage	18	0	0	0	0	0	0	0	18	
Towage	17	1	0	0	0	0	0	0	18	
Sydney										
Berth availability	52	1	0	0	0	1	1	0	55	
Pilotage	55	0	0	0	0	0	0	0	55	
Towage	55	0	0	0	0	0	0	0	55	
Melbourne										
Berth availability	51	1	0	0	0	2	1	1	56	
Pilotage	56	0	0	0	0	0	0	0	56	
Towage	56	0	0	0	0	0	0	0	56	
Adelaide										
Berth availability	10	0	0	0	0	0	2	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	20	1	0	0	1	0	0	0	22	
Pilotage	21	0	0	1	0	0	0	0	22	
Towage	22	0	0	0	0	0	0	0	22	
Five ports										
Berth availability	150	3	0	0	1	4	4	1	163	94.5
Pilotage	162	0	0	1	0	0	0	0	163	99.4
Towage	162	1	0	0	0	0	0	0	163	100.0

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.





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 December quarter 2001. The shipping lines identified a total of 102 incidents (affecting 64 ship calls) for the sample of ship calls over this period. These incidents involved both ship-related and waterfront factors.

TABLE 3 OTHER SHIP WAITING TIME INCIDENTS AT THE FIVE MAINLAND CAPITAL CITY PORTS, DECEMBER 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	9	4	3	2	9	2	1	30
Pilot/tug booking not at preferred time	9	8	0	0	0	0	0	17
Early ship arrival	3	4	2	1	4	0	0	14
Stevedoring finished early	5	3	1	1	0	0	0	10
Weather or tides	0	2	3	0	1	0	2	8
Crane breakdown	4	3	0	0	0	0	0	7
Ship repairs or maintenance	0	1	0	0	4	0	1	6
Industrial action	0	0	0	0	1	0	0	1
Late ship arrival	0	0	0	0	0	1	0	1
Stevedoring finished late	0	0	0	0	0	0	0	0
Other	1	2	0	1	0	2	2	8
Total incidents	31	27	9	5	19	5	6	102^a

a. These incidents affected 64 of 163 ship calls covered in table 2.
 Sources Data for a sample of ship calls provided by shipping lines.

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 December quarter 2001 was the category of awaiting labour, which accounted for 29 per cent of total waiting time. Closed port -holidays accounted for 19 per cent of total waiting time, and tides or weather was related to a further 17 per cent of total waiting time.

In the December quarter 2001, 39 per cent of ship calls in the sample were affected by other waiting time incidents that had a duration of at least one hour, up from 33 per cent in the September quarter 2001. The average duration of other waiting time incidents was 8.2 hours per affected ship call in the December quarter 2001, up from 7.2 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.

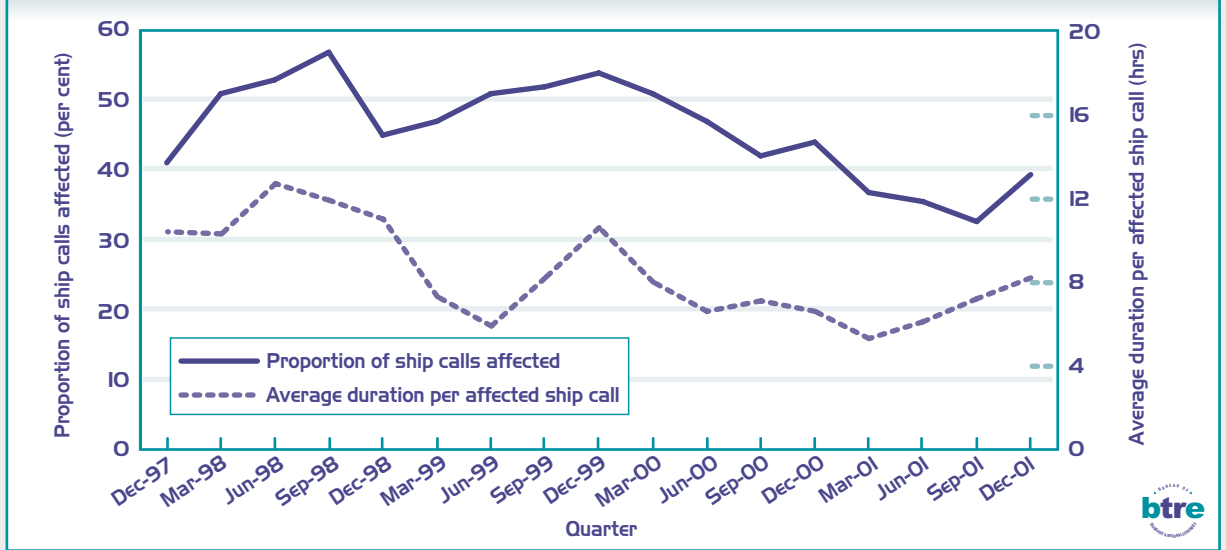
Stevedoring

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.

Stevedoring rate provides a partial indicator of the variability of stevedoring productivity at each port. It measures how consistently each port achieved its average crane rate for the quarter. Stevedoring rate 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.

December quarter 2001 improved at Fremantle and Sydney compared with that for the September quarter 2001, while there was little change at Melbourne and Brisbane.

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 December quarter 2001 changed little at the three ports that also provided data in the previous quarter.

Ship arrival

Table 4 includes data for two indicators of ship arrival advice. Data were not available for Melbourne for the December or September 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 improved at Brisbane and Sydney, dropped slightly at Fremantle and fell at Adelaide.

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 December quarter 2001, this indicator fell at Sydney and Fremantle, remained constant at Brisbane and increased at Adelaide.

TABLE 4 STEVEDORING AND SHIP ARRIVAL RELIABILITY INDICATORS, SEPTEMBER QUARTER 2001 AND DECEMBER QUARTER 2001

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jul-Sep	Oct-Dec	Jul-Sep	Oct-Dec	Jul-Sep	Oct-Dec	Jul-Sep	Oct-Dec	Jul-Sep	Oct-Dec
(per cent)										
Stevedoring										
Stevedoring rate	68	65	53	66	57	59	na	na	22	36
Cargo receipt	na	97	85	84	94	94	na	na	96	96
Ship arrival										
Advice at 24 hrs	60	65	49	60	na	na	63	54	54	52
Advice inside 24 hrs	94	94	98	94	na	na	93	95	82	80

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 50.4 million tonnes for July–December 2001, compared with 49.6 million tonnes for the previous half-year. This represented an increase of 2 per cent in total cargo throughput for the five ports compared with January–June 2001. Total cargo throughput increased at Sydney (7 per cent) and Melbourne (3 per cent). It declined at Brisbane (2 per cent) and Adelaide (3 per cent). Fremantle remained stable at 11.1 million tonnes.

Non-containerised general cargo throughput at the five ports was 1.872 million tonnes for July–December 2001, compared with 1.569 million tonnes for January–June 2001, representing an increase of 19 per cent. The January–June 2001 figure has been revised based on advice from AAPMA.

Total container traffic throughput for the five ports was 1.740 million teus for July–December 2001, compared with 1.547 million teus for January–June 2001, representing an increase of 12 per cent. Loaded teus increased by 14 per cent, with loaded imports increasing by 21 per cent and loaded exports increasing by 6 per cent compared with figures for January–June 2001.

Compared with 2000, the 2001 full-year five-port total container traffic increased by less than one per cent to 3.29 million teus.

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

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle		Five ports ^d	
	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001
Total cargo throughput ('000 tonnes)	11 618	11 366	11 684	12 462	11 078	11 452	4 039	3 934	11 132	11 147	49 551	50 362
Non-containerised general cargo ('000 tonnes)^a	262	302	241	291	605 ^f	753	159	189	301	337	1 569 ^f	1 872
Containerised cargo (teus exchanged)												
Full import	69 785	87 135	217 570	270 691	263 888	310 034	17 865	21 097	63 416	77 136	632 524	766 093
Empty import	40 258	37 226	11 303	13 341	52 401	60 384	11 136	11 714	25 926	21 815	141 024	144 480
Full export	102 095	100 322	148 651	159 494	258 077	273 910	31 120	34 482	64 066	69 768	604 009	637 976
Empty export	14 654	17 122	73 591	78 535	54 013	68 761	5 085	4 117	21 771	22 796	169 114	191 331
TOTAL	226 792	241 805	451 115	522 061	628 379	713 089	65 206	71 410	175 179	191 515	1 546 671	1 739 880
Average total employment^b	218	206	192	195	89	93	149	98	166	167	814	759
Port turnaround time (hrs)^c												
Median result	31	34	32	32	34	36	19	22	20	21	-	-
95th percentile	56	53	57	68	57	68	50	43	47	46	-	-

- 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.

r. Revised.

Source AAPMA.





PORT INTERFACE COST INDEX

The port interface cost index provides a measure of shore-based shipping costs (charges) for containers moved through Australian mainland capital city ports. Data for January–June and July–December 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.

TABLE 6 PARAMETERS USED IN THE PORT INTERFACE COST INDEX, 2001

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 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	540	493	834	1085	1215	1048	608	626	533	784
Loaded	418	382	669	871	1011	872	468	481	401	590
Empty	122	111	165	214	204	176	140	145	132	194
Loaded inwards	170	155	397	518	511	441	171	176	200	293
Loaded outwards	248	227	271	354	500	431	297	306	202	296
Ship call parameters^a										
Number of port calls	5	4	2	3	3	3	3	3	5	5
Elapsed berth time (hrs)	22	24	37	40	36	37	23	22	20	21

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

Sources BTRE 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 January–June and July–December 2001. Port and related charges comprise ship-based charges and cargo-based charges.

Ship-based charges

In general, there was little change in actual ship-based charges in July–December 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 Sydney, Adelaide and Fremantle but fell at Brisbane and Melbourne in July–December 2001 when compared to the previous period. The changes were a 9 per cent decrease at Brisbane, 14 per cent decrease at Melbourne, 30 per cent increase at Sydney, 3 per cent increase at Adelaide, and 47 per cent increase at Fremantle. The average teu exchange at Sydney and Fremantle exceeded all previous averages.

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

- at Brisbane—10 per cent increase;
- at Sydney—25 per cent decrease;
- at Melbourne—18 per cent increase;
- at Adelaide—2 per cent decrease; and
- at Fremantle—34 per cent decrease.

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



TABLE 7 PORT AND RELATED CHARGES, 2001

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001
Ship-based charges (\$/teu)										
Conservancy	4.27	4.68	-	-	-	-	2.72	3.17	-	-
Tonnage	-	-	8.86	6.81	4.07	4.88	7.82	7.52	5.23	3.56
Pilotage	10.46	11.47	3.98	3.05	4.96	5.86	4.25	4.13	4.31	2.93
Towage	14.79	16.21	9.67	7.26	6.11	7.08	21.61	20.98	11.06	7.05
Mooring, unmooring	3.47	3.90	4.15	2.89	0.85	0.99	-	-	2.27	1.54
Berth hire ^a	-	-	-	-	5.67	6.74	-	-	-	-
Total ^b	33.00	36.25	26.65	20.01	21.66	25.54	36.40	35.80	22.87	15.08
Cargo-based charges (\$/teu)										
Wharfage										
Imports	28.60	28.60	66.00	66.00	29.10	29.70	58.30	58.30	49.50	49.50
Exports	28.60	28.60	49.50	49.50	29.10	29.70	58.30	58.30	49.50	49.50
Harbour dues	46.20	46.20	-	-	-	-	-	-	-	-
Berth charge	-	-	-	-	-	-	-	-	15.29	15.29
Total port and related charges (\$/teu)^p										
Loaded imports	108	111	93	86	51	55	95	94	88	80
Loaded exports	108	111	76	70	51	55	95	94	88	80
Charges per ship visit (\$/visit)										
Total ship-based charges	17813	17857	22225	21720	26322	26774	22140	22423	12193	11820
Empty teus ^c	1906	1734	-	-	-	-	-	-	1016	1494

- 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.

Note Port and related charges are based on the parameters described in table 6.

Sources BTRE 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.



While caution should always be used when making port comparisons on a per teu basis, Fremantle 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 also the lowest cost port for ship-based charges on a per ship-visit basis.

Cargo-based charges

In July–December 2001, cargo based charges increased by 2 per cent at Melbourne. There was no change at Brisbane, Sydney, Adelaide and Fremantle compared with January–June 2001.

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 (November 2001). As the report does not include charges beyond the first half of 2001, the July–December 2001 stevedoring charges included in the port interface cost index is provisional and will be updated in *Waterline* 32.

Land-based charges per teu

Average customs brokers' fees and road transport rates for the January–June and July–December 2001 port interface cost indices are included in table 8. These charges are based on data provided by 35 customs brokers and 42 road transport operators. Customs brokers' fees for imports are higher than fees for exports, reflecting the more complex clearance procedures for import containers. During July–December 2001 the customs brokers' fee for imports increased at Adelaide by 9 per cent and decreased at Melbourne by 7 per cent. For exports the fee increased at Adelaide by 10 per cent and decreased at Melbourne by



5 per cent. The fee for imports and exports did not change at Brisbane, Sydney or Fremantle when compared with January–June 2001.

Road transport charges increased by less than one per cent at Brisbane and Melbourne, by 3 per cent at Sydney and by 2 per cent at Adelaide. The charge decreased by 14 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, between January–June 2001 and July–December 2001, both import and export costs increased by less than 1 per cent for Brisbane and by over 2 per cent for Adelaide. For Fremantle, import costs decreased by 6 per cent, and export costs decreased by 7 per cent. Import costs for Melbourne decreased by less than one per cent. However, this should be interpreted with caution, given the provisional nature of the reported stevedoring charges. Moreover, the use of a single stevedoring charge for all ports reflects the scope of the available information which is not disaggregated on an individual port basis. In practice, container stevedoring charges tend to vary between ports.

National index

Figure 9 provides the national port interface cost index back to 1993. In overall terms, there was little change in the national index between January–June and July–December 2001. In current prices, national import charges decreased from \$654 to \$650 per teu, and export charges decreased from \$596 to \$595 per teu.

In real terms (1999 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 17 per cent since 1993, and the charge per exported teu has declined by 16 per cent.

TABLE 8 PORT INTERFACE COSTS, 2001

Indicator	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2001	Jul-Dec 2001
Import										
Ship-based charges	33	36	27	20	22	26	36	36	23	15
Cargo-based charges	75	75	66	66	29	30	58	58	65	65
Stevedoring ^p	173	173	173	173	173	173	173	173	173	173
Customs brokers' fees	143	143	143	143	140	131	112	122	135	135
Road transport charges	212	213	311	321	274	275	186	190	202	173
Import total^a	635	640	720	723	637	634	566	580	597	561
Export										
Ship-based charges	33	36	27	20	22	26	36	36	23	15
Cargo-based charges	75	75	50	50	29	30	58	58	65	65
Stevedoring ^p	173	173	173	173	173	173	173	173	173	173
Customs brokers' fees	71	71	105	105	87	83	84	92	68	68
Road transport charges	212	213	311	321	274	275	186	190	202	173
Export total^a	564	568	665	668	585	586	538	550	531	494

^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 6.

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.

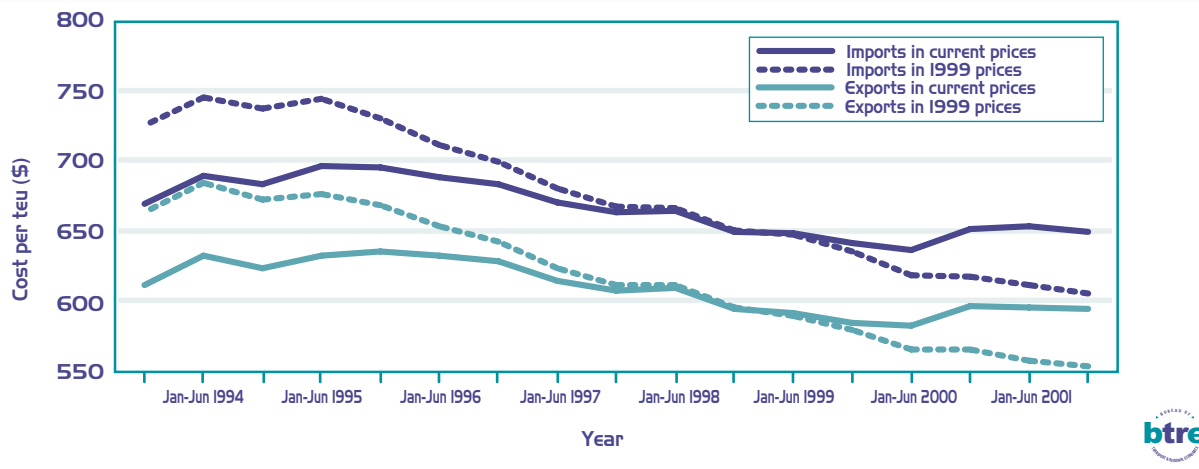
3. The stevedoring charge used in Waterline is monitored by the ACCC and is the weighted average for Brisbane, Sydney, Melbourne, Adelaide, Fremantle and Burnie. Stevedoring charges vary between ports but detailed data for individual ports are not publicly available.

Sources BTRE 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 BTRE 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 tables.



ABBREVIATIONS

AAPMA	Association of Australian Ports and Marine Authorities
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
BTRE	Bureau of Transport and Regional 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**

	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	Sep-01	Dec-01	
Five Ports																		
Ships handled	963	909	845	1020	942	942	958	979	933	875	808	840	814	787	813	825	846	
Total teus	585 474	527 881	514 409	633 107	612 019	573 444	602 501	660 593	726 590	678 046	666 967	708 433	731 936	634 003	661 326	762 202	787 093	
Crane rate	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	34.2	35.0	
Elapsed rate	25.8	na	na	na	na	na	na	30.1	30.8	33.3	40.0	38.0	37.6	38.6	37.8	39.2	39.6	
Ship rate	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	55.0	55.6	
Brisbane																		
Ships handled	177	170	168	192	180	176	193	224	232	219	178	187	179	167	188	175	198	
Total teus	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	105 746	112 586	
Crane rate	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	32.7	32.1	
Elapsed rate	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	28.7	28.5	
Ship rate	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	46.8	45.5	
Sydney																		
Ships handled	266	238	219	267	230	221	243	259	244	221	218	223	211	201	202	208	206	
Total teus	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	242 823	252 521	
Crane rate	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	34.4	35.2	
Elapsed rate	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	42.5	42.7	
Ship rate	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	60.1	60.2	
Melbourne																		
Ships handled	281	276	234	309	274	271	282	278	266	247	217	227	218	214	215	243	249	
Total teus	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	285 947	294 753	
Crane rate	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	33.9	35.0	
Elapsed rate	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	40.7	41.9	
Ship rate	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	56.2	57.1	
Adelaide																		
Ships handled	66	60	66	63	74	73	66	62	62	56	56	62	63	57	57	57	57	
Total teus	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	34 867	36 633	
Crane rate	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	32.1	32.8	
Elapsed rate	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	38.6	40.8	
Ship rate	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	42.7	44.7	
Fremantle																		
Ships handled	173	165	158	189	184	201	174	156	129	132	139	141	143	148	151	142	136	
Total teus	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	92 819	90 600	
Crane rate	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	37.4	37.4	39.1	
Elapsed rate	22.2	na	na	na	na	na	na	25.8	27.9	33.0	36.0	32.4	33.6	34.5	35.0	37.8	36.6	
Ship rate	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	52.3	55.1	

na not available

Notes 1. Data from CSX World Terminals at Brisbane are incorporated from the December quarter 1999 until June quarter 2001.

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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