



Australian Government

Department of Transport and Regional Services

Bureau of Transport and Regional Economics



# waterline

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## in brief

- In July–December 2003, total cargo throughput and total container traffic reached new records of 54.3 million tonnes and 2.114 million teus respectively (page 10).
- The five-port average crane rate increased to a record 27.8 containers per hour in the September quarter, then fell by 2 per cent to 27.2 containers per hour in the December quarter 2003 (page 13).
- The new Terminal Land Use indicator appears in Tables 11 and 13 as “Throughput per berth metre”.
- The traditional term gross register tons or ‘GRT’ has been replaced by **gross tons** or ‘**GT**’ from this issue, reflecting changed terminology in the International Convention on Tonnage Measurement of Ships, 1969.
- The **Ship Rate** indicator has been retained following representations from industry.

## CHANGING FACE OF WATERLINE

### New Schedule Reliability Indicator

The BTRE has made significant progress towards developing the new schedule reliability indicator. However, the initial test results raise questions about the reliability of schedule data as well as the reliability of ship arrivals/departures, and will require further investigation.

The BTRE’s methodology has been to check whether the scheduled date of arrival/departure taken 14 days out matches the actual date of port arrival/departure, and if not, how late is the ship running. Data for the new indicator has been sourced from Lloyds List DCN, port authorities and shipping lines. Preliminary results for the January to December 2003 period indicate that more than 50 per cent of ships were on average two or more days late, and approximately 25 per cent of ships were four or more days late.

These results are not inconsistent with the latest Waterfront Reliability figures reported on pages 7–9 of this issue. They are also supported by comments from P&O Ports and Shipping Australia Limited senior executives reported in the Lloyd’s List DCN of 12 February 2004, that a high proportion of shipping appears to have been running late or off-window.

We have also noticed a number of anomalies in the various published sailing schedules. One reason for this could be that sailing schedules are not updated as frequently as they could be. We hope to have these matters clarified by the next issue, and to provide a progress report.

### Update on development of intermodal indicators

The Bureau has been exploring the possibility of publishing various port and landside performance indicators, including:

- truck turn around times (average turn around time and the proportion/percentage of trucks which achieve this time)
- truck intensity (number of TEUs leaving the port by road, divided by the number of truck visits)
- rail throughput (number of TEUs leaving the port by rail and as a percentage of overall port traffic)
- rail productivity (TEUs per hour exchanged on a rail terminal).

Our investigations have shown that while some of the information required for these indicators may be collected in some ports, none of the information is currently collected in a consistent manner in all five capital city ports. Even if definitions could be agreed, for example, on the issue of what constitutes truck turnaround, we have been informed by port and transport operators that collection of the above data may involve considerable cost and confidentiality issues. In light of these responses, the Bureau will not be able to report on these landside performance indicators for some time. The Bureau will continue its endeavours to develop a range of meaningful landside performance indicators, and will keep readers informed of developments.

## internet

### addresses

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## 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. These five ports account for approximately 90 per cent of Australia's container traffic. Data for January–June 2003 and July–December 2003 are presented in tables 1 to 5. 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.

**TABLE 1 PARAMETERS USED IN THE PORT INTERFACE COST INDEX, 2003**

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan–Jun 2003	Jul–Dec 2003	Jan–Jun 2003	Jul–Dec 2003	Jan–Jun 2003	Jul–Dec 2003	Jan–Jun 2003	Jul–Dec 2003	Jan–Jun 2003	Jul–Dec 2003
<b>Vessel size GT 17 215</b>										
<b>Average Teus exchanged<sup>a</sup></b>										
All	606	662	826	795	948	957	421	552	1 085	1 027
Loaded	482	551	702	674	829	870	369	466	790	826
Empty	124	111	124	121	119	87	52	86	295	202
Loaded inwards	335	370	434	434	415	456	81	114	474	658
Loaded outwards	147	182	268	240	414	414	288	352	316	168
<b>Ship call parameters<sup>a</sup></b>										
Number of port calls	5	8	3	3	4	4	1	3	3	3
Elapsed berth time (hrs)	22	27	33	31	34	28	18	19	30	31
<b>Vessel size GT 37 394</b>										
<b>Average Teus exchanged<sup>b</sup></b>										
All	1 069	1 143	1 839	1 846	1 859	1 879	668	618	671	726
Loaded	733	773	1 302	1 383	1 435	1 473	456	453	512	588
Empty	336	370	538	463	424	405	212	165	160	138
Loaded inwards	372	418	893	994	804	885	170	149	271	321
Loaded outwards	362	355	409	389	631	588	286	305	240	268
<b>Ship call parameters<sup>b</sup></b>										
Number of port calls	4	4	4	4	4	4	3	3	4	6
Elapsed berth time (hrs)	29	36	36	40	38	36	18	19	24	24
a. Mean value for ships between 15 000 and 20 000 GT.										
b. Mean value for ships between 35 000 and 40 000 GT.										
na not available										
Sources BTRE estimates based on ship call data supplied by relevant port authorities/corporations and other port service providers.										

## Port and related charges

Table 1 provides the parameters used to determine the *port and related charges* in tables 2 and 3. These parameters relate to a representative port call by container ships using the Lloyd's ship classification UCC. For the 15 000 to 20 000 GT range the representative vessel size used is 17 215 GT and 37 394 GT for the 35 000 to 40 000 GT range.

Tables 2 and 3 provide the port and related charges at the five mainland capital city ports for the 15 000 to 20 000 GT range and the 35 000 to 40 000 GT range respectively, for January–June 2003 and July–December 2003. Port and related charges comprise ship-based charges and cargo-based charges.

## Ship-based charges

While overall *ship-based charges* changed little in July–December 2003, there were some significant changes in charges per teu, mainly reflecting the variation in the average number of teus exchanged per ship call.

Compared to the previous period, the overall changes in total ship-based charges per teu in July–December 2003 for ships in the 15 000 to 20 000 GT range were:

- at *Brisbane*—a 12 per cent decrease;
- at *Sydney*—a 4 per cent increase;
- at *Melbourne*—a 23 per cent decrease (due to the abolition of direct berth hire charges);
- at *Adelaide*—a 25 per cent decrease (due to a significant increase in the number of teus exchanged); and
- at *Fremantle*—a 1 per cent increase.

For ships in this range, the average number of teus exchanged increased by 9 per cent at Brisbane, 1 per cent at Melbourne and 31 per cent at Adelaide, but decreased by 4 per cent at Sydney and 5 per cent at Fremantle when compared to the previous period.



**TABLE 2 PORT AND RELATED CHARGES FOR SHIPS IN THE 15 000–20 000 GT RANGE, 2003**

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec
	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
<b>Ship-based charges (\$/teu)</b>										
Conservancy	3.95	1.92	-	-	-	-	6.28	3.15	-	-
Tonnage	-	-	8.94	9.29	5.43	5.45	10.28	8.48	2.57	2.71
Pilotage	9.62	9.38	4.01	4.17	6.65	6.84	6.14	5.15	2.12	2.24
Towage	14.71	13.47	10.79	11.21	9.65	9.57	36.15	27.58	5.09	4.89
Mooring, unmooring	3.02	2.81	3.80	3.97	1.11	1.10	-	-	0.81 <sup>r</sup>	0.86
Berth hire <sup>a</sup>	-	-	-	-	6.94	-	-	-	-	-
<b>Total<sup>b</sup></b>	<b>31.3</b>	<b>27.58</b>	<b>27.56</b>	<b>28.64</b>	<b>29.78</b>	<b>22.96</b>	<b>58.85</b>	<b>44.36</b>	<b>10.59<sup>r</sup></b>	<b>10.7</b>
<b>Cargo-based charges (\$/teu)</b>										
Wharfage										
Imports	28.60	28.60	66.00	66.00	30.36	31.24	58.30	58.30	49.50	49.50
Exports	28.60	28.60	49.50	49.50	30.36	31.24	58.30	58.30	49.50	49.50
Harbour dues	46.20	46.20	-	-	-	-	-	-	-	-
Berth charge	-	-	-	-	-	-	-	-	15.29	15.29
<b>Total port and related charges (\$/teu)<sup>b</sup></b>										
Loaded imports	106	102	94	95	60	54	117	103	75	75
Loaded exports	106	102	77	78	60	54	117	103	75	75
<b>Charges per ship visit (\$/visit)</b>										
Total ship-based charges	18 974	18 255	22 752	22 771	28 243	21 962	24 776	24 481	11 490	10 995
Empty teus <sup>c</sup>	1 941	1 727	-	-	-	-	-	-	-	-

- 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 1.

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.

**TABLE 3 PORT AND RELATED CHARGES FOR SHIPS IN THE 35 000–40 000 GT RANGE, 2003**

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec
	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
<b>Ship-based charges (\$/teu)</b>										
Conservancy	4.86	4.84	-	-	-	-	5.25	4.97	-	-
Tonnage	-	-	8.72	8.69	6.02	6.03	9.05	10.52	9.02	8.34
Pilotage	7.85	7.82	3.06	3.05	4.31	4.42	5.58	6.64	3.42	3.17
Towage	10.54	9.86	5.16	5.14	5.27	5.21	29.32	31.71	11.40	10.26
Mooring, unmooring	1.71	1.62	2.34	2.13	0.56	0.56	-	-	1.31 <sup>r</sup>	1.21
Berth hire <sup>a</sup>	-	-	-	-	3.95	-	-	-	-	-
<b>Total<sup>b</sup></b>	<b>24.97</b>	<b>24.14</b>	<b>19.28</b>	<b>19.01</b>	<b>20.1</b>	<b>16.22</b>	<b>49.19</b>	<b>53.83</b>	<b>25.16<sup>r</sup></b>	<b>22.98</b>
<b>Cargo-based charges (\$/teu)</b>										
Wharfage										
Imports	28.60	28.60	66.00	66.00	30.36	31.24	58.30	58.30	49.50	49.50
Exports	28.60	28.60	49.50	49.50	30.36	31.24	58.30	58.30	49.50	49.50
Harbour dues	46.20	46.20	-	-	-	-	-	-	-	-
Berth charge	-	-	-	-	-	-	-	-	15.29	15.29
<b>Total port and related charges (\$/teu)<sup>b</sup></b>										
Loaded imports	100	99	85	85	50	47	107	112	90	88
Loaded exports	100	99	69	69	50	47	107	112	90	88
<b>Charges per ship visit (\$/visit)</b>										
Total ship-based charges	26 685	27 597	35 468	35 091	37 369	30 475	32 883	33 270	16 893	16 684
Empty teus <sup>c</sup>	5 244	5 775	-	-	-	-	-	-	-	-

- 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.

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Note Port and related charges are based on the parameters described in table 1.

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.



Compared to the previous period, the overall changes in total ship-based charges per teu in July–December 2003 for ships in the 35 000 to 40 000 GT range were:

- at *Brisbane*—a 3 per cent decrease;
- at *Sydney*—a 1 per cent decrease;
- at *Melbourne*—a 19 per cent decrease (due to the abolition of direct berth hire charges);
- at *Adelaide*—a 9 per cent increase; and
- at *Fremantle*—a 9 per cent decrease.

In the 35 000 to 40 000 GT range, the average number of teus exchanged rose at all ports except Adelaide in July–December 2003 when compared to the previous period. The increases were 7 per cent at Brisbane, 0.4 per cent at Sydney, 1 per cent at Melbourne and 8 per cent at Fremantle. Adelaide decreased by 7 per cent.

Fremantle continues to have the lowest ship-based charges on a per ship visit basis for the both representative vessel sizes in table 1.

### Cargo-based charges

Apart from a 3 per cent increase in wharfage charges at Melbourne in the July–December 2003 period there were no other changes in *cargo-based charges* compared with July–December 2002.

### Stevedoring charges per teu

The *stevedoring charges per teu* used in this issue of *Waterline* are those published in the most recently available ACCC report on stevedoring prices (2002–03 data reported in Report No. 5 of November 2003). This issue updates the provisional stevedoring charges figures published for the July–December 2002 and January–June 2003 periods (at \$169 per teu). Stevedoring charges will next be updated in *Waterline* 38.

### Land-based charges per teu

Average customs brokers' fees and road transport charges for January–June 2003 and July–December 2003 are included in tables 4 and 5. These charges are based on data provided by some 30 customs brokers and 30 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 2003 the average customs broker fee for imports increased at Brisbane (9 per cent), did not change at Sydney and Melbourne, and decreased 1 per cent at Adelaide and Fremantle. For exports the average fee increased 2 per cent at Sydney, did not change at Brisbane, Melbourne and Adelaide, and decreased 17 per cent at Fremantle.

Road transport charges increased at Brisbane (0.4 per cent), Melbourne (2 per cent), and Adelaide (3 per cent) while remaining unchanged at Sydney and Fremantle. One of the parameters used to estimate road transport charges is the time taken to move containers between the wharf and the customer's warehouse. Both distance and traffic congestion impact on this parameter and, therefore, help explain the significant difference between road transport charges at Melbourne and Sydney compared with Brisbane, Adelaide and Fremantle.

### Indices for individual ports

Table 4 indicates that for ships in the 15 000 to 20 000 GT range between January–June 2003 and July–December 2003, costs per teu for both import and export containers increased marginally (less than 0.5 per cent) at Sydney and Melbourne. At Brisbane, costs per teu for import containers increased by 1 per cent and costs per teu container for exports decreased by 0.3 per cent. At Fremantle, the costs per teu for imports and exports decreased by 0.3 per cent and 2.5 per cent respectively, and at Adelaide, by 2 per cent and 1 per cent respectively.

Table 5 indicates that for ships in the 35 000 to 40 000 GT range, costs per teu for import and export containers changed little between January–June 2003 and July–December 2003 with slight increases at Brisbane (2 per cent and 0.2 per cent respectively), Sydney (no change and 0.3 per cent respectively), Melbourne (both up by 0.8 per cent), Adelaide (both by 2 per cent), while Fremantle decreased (0.8 per cent and 3 per cent respectively).



These results should be interpreted with caution. 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.

**TABLE 4 PORT INTERFACE COSTS FOR SHIPS IN THE 15 000–20 000 GT RANGE, 2003**

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec
	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003
<b>Import</b>										
Ship-based charges	31	28	28	29	30	23	59	44	11	11
Cargo-based charges	75	75	66	66	30	31	58	58	65	65
Stevedoring <sup>p</sup>	169	169	169	169	169	169	169	169	169	169
Customs brokers' fees	121	132	134	134	130	130	130	128	155	153
Road transport charges	227	228	301	301	297	304	214	221	220	220
<b>Import total<sup>a</sup></b>	<b>623<sup>r</sup></b>	<b>631</b>	<b>697</b>	<b>699</b>	<b>656</b>	<b>657</b>	<b>630</b>	<b>620</b>	<b>620</b>	<b>618</b>
<b>Export</b>										
Ship-based charges	31	28	28	29	30	23	59	44	11	11
Cargo-based charges	75	75	50	50	30	31	58	58	65	65
Stevedoring <sup>p</sup>	169	169	169	169	169	169	169	169	169	169
Customs brokers' fees	99	99	109	111	81	81	92	92	90	75
Road transport charges	227	228	301	301	297	304	214	221	220	220
<b>Export total<sup>a</sup></b>	<b>601</b>	<b>599</b>	<b>656</b>	<b>659</b>	<b>607</b>	<b>609</b>	<b>592</b>	<b>584</b>	<b>554</b>	<b>540</b>

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

p. Provisional, updated annually after the release of the ACCC stevedoring monitoring report.

r. revised.

Notes 1. Based on parameters described in table 1.

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 ports. 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.

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**TABLE 5 PORT INTERFACE COSTS FOR SHIPS IN THE 35 000–40 000 GT RANGE, 2003**

	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec
	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003	2003 <sup>r</sup>	2003
<b>Import</b>										
Ship-based charges	25	24	19	19	20	16	49	54	25	23
Cargo-based charges	75	75	66	66	30	31	58	58	65	65
Stevedoring <sup>p</sup>	169	169	169	169	169	169	169	169	169	169
Customs brokers' fees	121	132	134	134	130	130	130	128	155	153
Road transport charges	227	228	301	301	297	304	214	221	220	220
<b>Import total<sup>a</sup></b>	<b>617</b>	<b>628</b>	<b>689</b>	<b>689</b>	<b>646</b>	<b>651</b>	<b>620</b>	<b>630</b>	<b>635</b>	<b>630</b>
<b>Export</b>										
Ship-based charges	25	24	19	19	20	16	49	54	25	23
Cargo-based charges	75	75	50	50	30	31	58	58	65	65
Stevedoring <sup>p</sup>	169	169	169	169	169	169	169	169	169	169
Customs brokers' fees	99	99	109	111	81	81	92	92	90	75
Road transport charges	227	228	301	301	297	304	214	221	220	220
<b>Export total<sup>a</sup></b>	<b>595</b>	<b>596</b>	<b>648</b>	<b>650</b>	<b>597</b>	<b>602</b>	<b>582</b>	<b>593</b>	<b>569</b>	<b>552</b>

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

p. Provisional, updated annually after the release of the ACCC stevedoring monitoring report.

r. revised.

Notes 1. Based on parameters described in table 1.

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 ports. Stevedoring charges vary between ports but detailed data for individual ports are not publicly available.

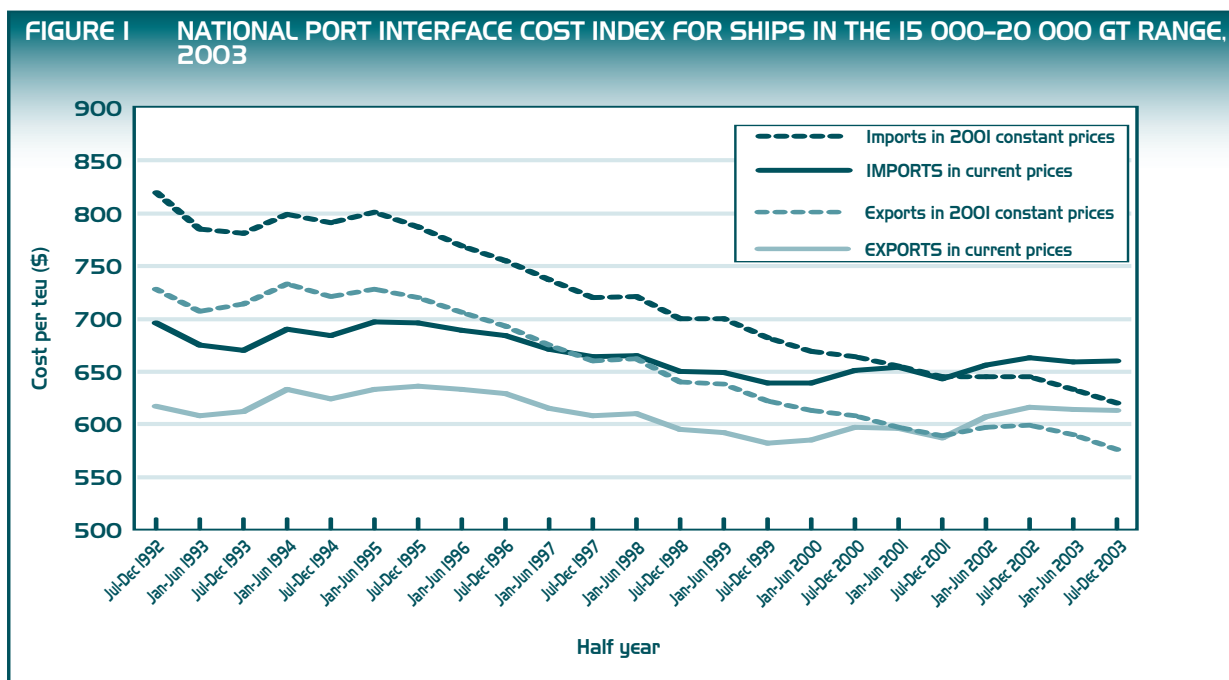
Sources BTRE estimates based on: ship call data supplied by relevant port authorities/corporations; price schedules of relevant port authorities/corporations, towage operators and pilotage service providers; surveys of customs brokers and road transport operators; and stevedoring charge data supplied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



## National index

Figure 1 provides the national port interface cost index for ships in the 15 000 to 20 000 GT range from 1992 onwards. In current prices, the national index for imports increased from \$659 per teu in January–June 2003 to \$660 in July–December 2003. At the same time the index for exports decreased from \$614 per teu to \$613 per teu.

In real terms (2001 prices), the national cost index per import teu has declined by 21 per cent since 1993, and by 19 per cent per export teu.



**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 table.

Table 6 shows the national port interface cost index from July–December 2001 for ships in the 35 000 to 40 000 GT range. The national index for imports increased from \$653 January–June 2003 to \$656 per teu in July–December 2003 in current prices. The index for exports increased from \$608 to \$609 per teu in current prices.

**TABLE 6 NATIONAL PORT INTERFACE COST INDEX FOR SHIPS IN THE 35 000–40 000 GT RANGE, 2003**

	Jan–Jun 2001 <sup>r</sup>	Jul–Dec 2001 <sup>r</sup>	Jan–Jun 2002 <sup>r</sup>	Jul–Dec 2002 <sup>r</sup>	Jan–Jun 2003 <sup>r</sup>	Jul–Dec 2003
<b>IMPORTS</b> in current prices	658	643	654	660	653	656
Imports in 2001 constant prices	659	645	643	643	627	616
<b>EXPORTS</b> in current prices	601	588	603	610	608	609
Exports in 2001 constant prices	602	589	592	594	584	572

<sup>r</sup> revised.

**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 table.





## WATERFRONT RELIABILITY

Waterline reliability indicators provide partial measures of the variability of waterfront performance for container movements at major Australian ports. They cover the timeliness of selected port services, factors contributing to ship waiting time, aspects of stevedoring performance and the accuracy of ship arrival advice.

### Berth availability, pilotage, towage

Table 7 presents information on berth availability, pilotage and towage services for samples of ship calls in the September and December quarters 2003, and indicates the extent to which selected port services were available at the scheduled or confirmed time.

TABLE 7 AVAILABILITY OF BERTH, PILOTAGE AND TOWAGE SERVICES AT THE SCHEDULED/ CONFIRMED TIME, SEPTEMBER AND DECEMBER QUARTERS 2003																		
Port/operation	Number of ship calls Delay in hours									Number of ship calls Delay in hours								
	September Quarter 2003									December Quarter 2003								
	0	1	2	3	4	5-10	11-20	>20	Total calls	0	1	2	3	4	5-10	11-20	>20	Total calls
<b>Five ports</b>																		
Berth availability	142	0	2	0	0	3	3	0	150	156	0	0	0	1	3	0	0	160
Pilotage	148	0	1	1	0	0	0	0	150	160	0	0	0	0	0	0	0	160
Towage	150	0	0	0	0	0	0	0	150	160	0	0	0	0	0	0	0	160
<b>Brisbane</b>																		
Berth availability	29	0	1	0	0	1	0	0	31	30	0	0	0	0	1	0	0	31
Pilotage	31	0	0	0	0	0	0	0	31	31	0	0	0	0	0	0	0	31
Towage	31	0	0	0	0	0	0	0	31	31	0	0	0	0	0	0	0	31
<b>Sydney</b>																		
Berth availability	48	0	0	0	0	0	0	0	48	56	0	0	0	0	2	0	0	58
Pilotage	48	0	0	0	0	0	0	0	48	58	0	0	0	0	0	0	0	58
Towage	48	0	0	0	0	0	0	0	48	58	0	0	0	0	0	0	0	58
<b>Melbourne</b>																		
Berth availability	36	0	1	0	0	2	3	0	42	43	0	0	0	1	0	0	0	44
Pilotage	42	0	0	0	0	0	0	0	42	44	0	0	0	0	0	0	0	44
Towage	42	0	0	0	0	0	0	0	42	44	0	0	0	0	0	0	0	44
<b>Adelaide</b>																		
Berth availability	18	0	0	0	0	0	0	0	18	15	0	0	0	0	0	0	0	15
Pilotage	16	0	1	1	0	0	0	0	18	15	0	0	0	0	0	0	0	15
Towage	18	0	0	0	0	0	0	0	18	15	0	0	0	0	0	0	0	15
<b>Fremantle</b>																		
Berth availability	11	0	0	0	0	0	0	0	11	12	0	0	0	0	0	0	0	12
Pilotage	11	0	0	0	0	0	0	0	11	12	0	0	0	0	0	0	0	12
Towage	11	0	0	0	0	0	0	0	11	12	0	0	0	0	0	0	0	12

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 pattern.

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

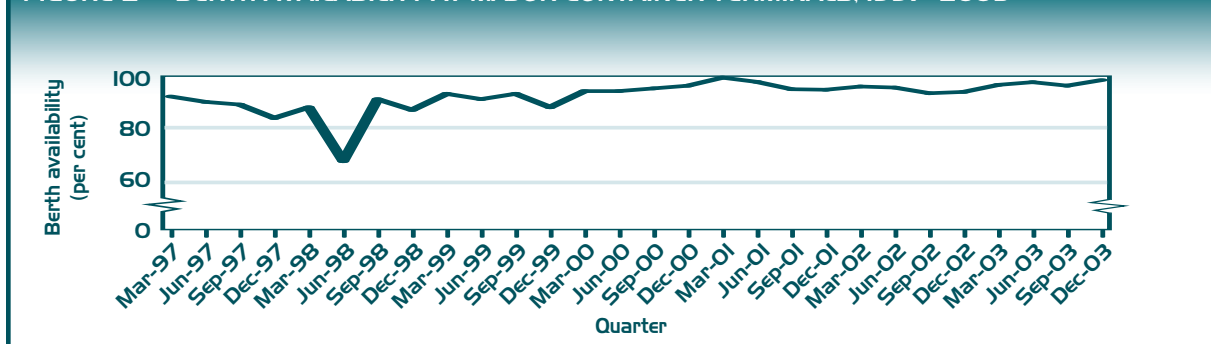
The sample for the September quarter 2003 covers 150 ship calls, equivalent to around 18 per cent of total ship calls at the five major container terminals during the period. The proportion of ship calls covered at individual ports ranges from 9 per cent at Fremantle to 29 per cent at Adelaide. The sample for the December quarter 2003 covers 160 ship calls, equivalent to around 19 per cent of total ship calls at the five major container terminals during the period. The proportion of ship calls covered at individual ports ranges from 11 per cent at Fremantle to 24 per cent at Sydney and Adelaide. The figures for Fremantle should be treated with caution due to the low percentage of calls captured in the sample. The samples include 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 2 shows that berth availability for the sample of ship calls was 96 per cent in the September quarter 2003. This was lower than in the previous quarter. Berth availability was 98 per cent in the December quarter 2003. 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 10 hours in the September quarter 2003, a decrease from 11 hours in the previous quarter. Average berth waiting time was 6 hours in the December quarter 2003.

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 for the pilotage indicator in the September quarter 2003 was 99 per cent, lower than in the previous quarter, and 100 per cent for the towage indicator, the same as in the previous quarter. In the December quarter 2003, the proportion for both the pilotage and towage indicators was 100 per cent. Performance has been at similar levels since the first data (covering the March quarter 1997) were published in *Waterline*.



**FIGURE 2 BERTH AVAILABILITY AT MAJOR CONTAINER TERMINALS, 1997-2003**

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

### Other ship waiting time

The five shipping lines that supplied information for table 7 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 8 summarises the data on other waiting time incidents which had a duration of at least one hour in the September and December quarters 2003. The shipping lines identified a total of 185 incidents (affecting 112 ship calls) for the sample of ship calls over the September quarter 2003, and 219 incidents (affecting 124 ship calls) in the December quarter 2003. These incidents involved both ship-related and waterfront factors.

**TABLE 8 OTHER SHIP WAITING TIME INCIDENTS AT THE FIVE MAINLAND CAPITAL CITY PORTS, SEPTEMBER AND DECEMBER QUARTERS 2003**

Incident type	Number of incidents Ship waiting time (hrs)								Number of incidents Ship waiting time (hrs)							
	September quarter 2003								December quarter 2003							
	1	2	3	4	5-10	11-20	>20	Total	1	2	3	4	5-10	11-20	>20	Total
Awaiting labour	3	5	4	0	10	1	1	24	3	2	3	11	15	8	3	45
Crane breakdown	13	11	6	0	3	0	0	33	8	12	4	2	4	0	0	30
Early ship arrival	4	4	3	0	3	2	0	16	3	5	0	3	2	0	0	13
Industrial action	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Late ship arrival	2	2	2	4	13	2	2	27	1	3	3	2	7	7	5	28
Pilot/tug booking not at preferred time	4	0	1	0	1	0	0	6	4	5	0	0	0	1	0	10
Ship repairs or maintenance	0	0	0	2	0	0	0	2	2	1	2	1	3	0	0	9
Stevedoring finished early	5	10	3	3	3	0	0	24	4	5	5	3	0	2	0	19
Stevedoring finished late	3	7	6	8	13	2	1	40	4	4	7	3	8	4	2	32
Weather or tides	0	2	0	1	3	0	0	6	1	1	1	0	1	0	0	4
Other	0	0	4	0	2	1	0	7	1	3	4	0	9	5	5	27
<b>Total incidents</b>	<b>34</b>	<b>41</b>	<b>29</b>	<b>18</b>	<b>51</b>	<b>8</b>	<b>4</b>	<b>185<sup>a</sup></b>	<b>31</b>	<b>41</b>	<b>29</b>	<b>26</b>	<b>49</b>	<b>27</b>	<b>16</b>	<b>219<sup>b</sup></b>

a. These incidents affected 112 of the 150 ship calls in the September Quarter 2003.

b. These incidents affected 124 of the 160 ship calls in the December Quarter 2003.

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 September quarter 2003 was the category of late ship arrival, which accounted for 27 per cent of total waiting time. Stevedoring finished late accounted for 25 per cent of total waiting time, and awaiting labour was related to a further 15 per cent of total waiting time. The largest single source of other ship waiting time in the December quarter 2003 was again the category of late ship arrival, which accounted for 29 per cent of total waiting time. Awaiting labour accounted for 23 per cent of total waiting time, and stevedoring finished late was related to a further 12 per cent of total waiting time.

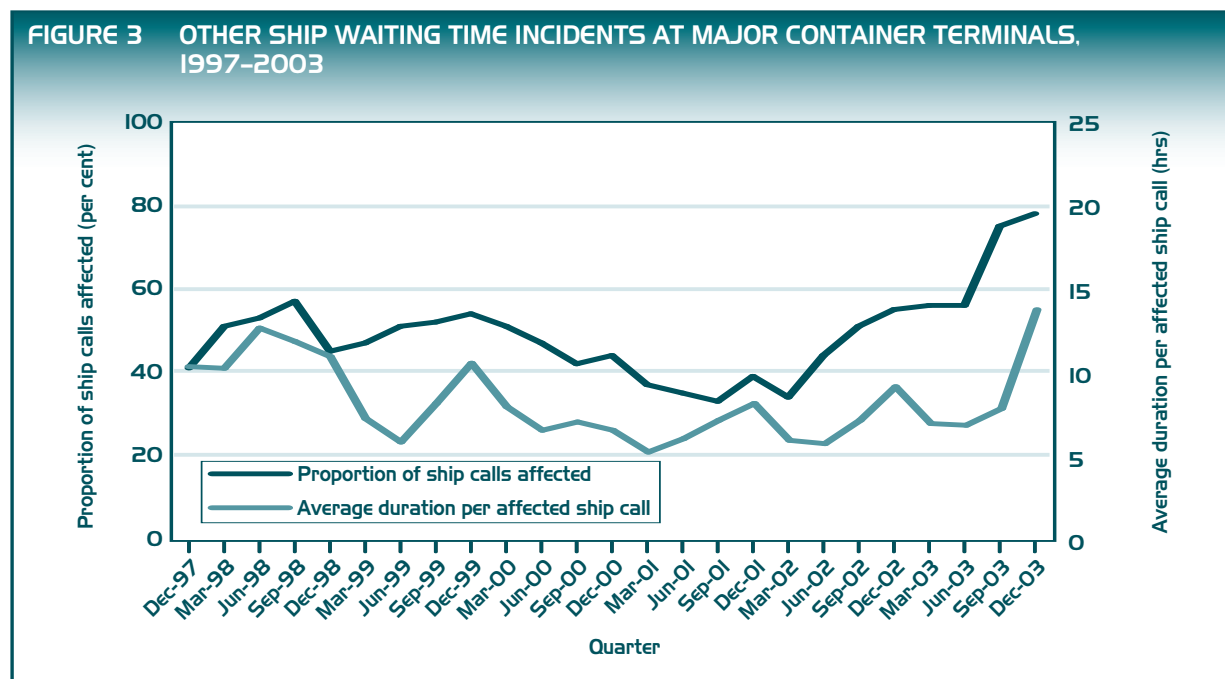
In the September quarter 2003, 75 per cent of ship calls in the sample were affected by other waiting time incidents that had a duration of at least one hour, up from 56 per cent in the June quarter 2003. This represents a significant jump in trend. The average duration of other waiting time incidents was 8 hours per affected ship call in the September quarter 2003, up from 7 hours per affected ship call in the previous quarter.

In the December quarter 2003, 78 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 average duration of other waiting time incidents was 14 hours per affected ship call in the December quarter 2003.





Figure 3 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.



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

### Stevedoring—cargo receipt

Table 9 presents the available information on an aspect of stevedoring reliability at major container terminals — cargo receipt. Data were not available for Adelaide.

**TABLE 9 STEVEDORING AND SHIP ARRIVAL RELIABILITY INDICATORS, SEPTEMBER AND DECEMBER QUARTERS 2003**

Indicator	(per cent)									
	Brisbane		Sydney		Melbourne		Adelaide		Fremantle	
	Sep-03	Dec-03	Sep-03	Dec-03	Sep-03	Dec-03	Sep-03	Dec-03	Sep-03	Dec-03
<b>Stevedoring</b>										
Cargo receipt	93	95	95	87	89	87	na	na	97	99
<b>Ship arrival</b>										
Advice at 24 hrs	56	61	46	48	na	na	70	55	50	57
Advice inside 24 hrs	95	94	92	95	na	na	45	41	92	91
na not available										
Sources AAPMA, Patrick and P&O Ports.										

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 2003 increased at Sydney and Melbourne, was almost unchanged at Fremantle, and fell at Brisbane compared with the previous quarter. Cargo receipt in the December quarter 2003 increased at Brisbane and Fremantle, and fell at Sydney and Melbourne compared with the previous quarter.

### Ship arrival

Table 9 also includes data for two indicators of ship arrival advice. Data were not available for Melbourne for the September and December quarters 2003.

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 at Adelaide and Fremantle, and fell at Sydney and Brisbane, in the September quarter 2003. The indicator rose at Sydney, Brisbane and Fremantle, and fell at Adelaide, in the December quarter 2003.

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 September quarter 2003 this indicator increased at Fremantle, increased slightly at Brisbane, and fell at Sydney and Adelaide compared to the previous quarter. In the December quarter 2003 this indicator increased at Sydney, fell slightly at Brisbane and Fremantle, and fell at Adelaide.



**TABLE 10 NON-FINANCIAL PERFORMANCE INDICATORS FOR SELECTED AUSTRALIAN PORTS, 2000-2003**

	Jul-Dec 2000	Jan-Jun 2001	Jul-Dec 2001	Jan-Jun 2002	Jul-Dec 2002	Jan-Jun 2003	Jul-Dec 2003
<b>Five ports<sup>d</sup></b>							
Total cargo throughput ('000 tonnes) <sup>r</sup>	50 915	49 139	50 638	51 422	52 110	51 797	54 279
Non-containerised general cargo ('000 tonnes) <sup>a</sup>	2 290	1 557	1 876	1 964	2 143	2 060	2 314
Containerised cargo (teus exchanged)							
Full import	761 155	629 916	767 239	714 041	898 549	834 191	972 737
Empty import	121 683	139 901	144 929	134 785	127 665	117 616	116 179
Full export	615 766	596 836	640 288	632 229	659 965	618 896	651 772
Empty export	213 409	167 603	192 083	213 298	302 462	344 846	373 294
TOTAL	1 712 013	1 534 256	1 744 539	1 694 353	1 988 641	1 915 549	2 113 982
Average total employment <sup>b</sup>	796	814	759	795	803	816	865
Port turnaround time (hrs) <sup>c</sup>							
Median result	-	-	-	-	-	-	-
95th percentile	-	-	-	-	-	-	-
<b>Brisbane</b>							
Total cargo throughput ('000 tonnes) <sup>r</sup>	11 898	11 206	11 642	11 525	12 172	12 399	12 741
Non-containerised general cargo ('000 tonnes) <sup>a</sup>	324	250	306	304	316	304	411
Containerised cargo (teus exchanged)							
Full import	86 526	67 177	88 281	85 688	114 878	107 977	137 111
Empty import	35 509	39 135	37 675	32 112	35 719	28 565	31 633
Full export	99 194	94 922	102 634	95 966	101 229	91 446	104 279
Empty export	17 651	13 143	17 874	21 393	41 581	48 809	56 923
TOTAL	238 880	214 377	246 464	235 159	293 407	276 797	329 946
Average total employment <sup>b</sup>	216	218	206	212	215	209	214
Port turnaround time (hrs) <sup>c</sup>							
Median result	30	31	34	32	32	31	35
95th percentile	52	56	53	52	55	49	59
<b>Sydney</b>							
Total cargo throughput ('000 tonnes)	13 005	11 684	12 462	11 838	12 073	11 485	12 429
Non-containerised general cargo ('000 tonnes) <sup>a</sup>	311	241	291	279	319	316	320
Containerised cargo (teus exchanged)							
Full import	274 119	217 570	270 691	236 594	309 070	277 860	320 061
Empty import	8 602	11 303	13 341	8 853	8 071	6 005	4 503
Full export	157 448	148 651	159 494	147 918	154 314	139 456	149 314
Empty export	97 683	73 591	78 535	94 027	123 810	141 927	154 189
TOTAL	537 852	451 115	522 061	487 392	595 265	565 248	628 067
Average total employment <sup>b</sup>	183	192	195	199	198	199	198
Port turnaround time (hrs) <sup>c</sup>							
Median result	32	32	32	30	36	32	32
95th percentile	60	57	68	55	63	58	66
<b>Melbourne</b>							
Total cargo throughput ('000 tonnes)	11 157	11 078	11 452	12 138	12 388	12 283	12 458
Non-containerised general cargo ('000 tonnes) <sup>a</sup>	1 110	605	753	834	896	930	984
Containerised cargo (teus exchanged)							
Full import	307 289	263 888	310 034	295 343	358 818	337 671	388 339
Empty import	45 993	52 401	60 384	58 936	52 600	52 238	48 478
Full export	265 442	258 077	273 910	279 866	291 272	277 392	276 401
Empty export	69 562	54 013	68 761	73 547	104 266	119 541	127 967
TOTAL	688 286	628 379	713 089	707 692	806 956	786 842	841 185
Average total employment <sup>b</sup>	83	89	93	96	95	102	142
Port turnaround time (hrs) <sup>c</sup>							
Median result	36	34	36	35	37	36	35
95th percentile	65	57	68	63	68	62	57
<b>Adelaide</b>							
Total cargo throughput ('000 tonnes)	3 407	4 039	3 934	4 446	4 130	3 524	4 478
Non-containerised general cargo ('000 tonnes) <sup>a</sup>	180	159	189	239	251	171	238
Containerised cargo (teus exchanged)							
Full import	20 143	17 865	21 097	19 591	21 864	19 015	22 214
Empty import	9 923	11 136	11 714	15 055	11 715	13 050	15 895
Full export	32 174	31 120	34 482	35 793	37 358	33 468	43 874
Empty export	5 790	5 085	4 117	3 377	5 660	6 203	6 757
TOTAL	68 030	65 206	71 410	73 816	76 597	71 736	88 740
Average total employment <sup>b</sup>	147	149	98	95	97	95	94
Port turnaround time (hrs) <sup>c</sup>							
Median result	20	19	22	21	19	21	23
95th percentile	40	50	43	43	29	40	41
<b>Fremantle</b>							
Total cargo throughput ('000 tonnes)	11 447	11 132	11 147	11 476	11 348	12 105	12 173
Non-containerised general cargo ('000 tonnes) <sup>a</sup>	364	301	337	309	361	338	361
Containerised cargo (teus exchanged)							
Full import	73 078	63 416	77 136	76 825	93 919	91 668	105 012
Empty import	21 656	25 926	21 815	19 829	19 560	17 758	15 670
Full export	61 508	64 066	69 768	72 686	75 792	77 134	77 904
Empty export	22 723	21 771	22 796	20 954	27 145	28 366	27 458
TOTAL	178 965	175 179	191 515	190 294	216 416	214 926	226 044
Average total employment <sup>b</sup>	167	166	167	193	199	211	217
Port turnaround time (hrs) <sup>c</sup>							
Median result	24	20	21	22	25	25	28
95th percentile	66	47	46	52	60	52	57

- 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.

r revised.

Source AAPMA.



## PORT PERFORMANCE—NON-FINANCIAL

The July–December 2000 to July–December 2003 non-financial indicators for the five mainland capital city ports are presented in table 10.

### Cargo throughput

*Total cargo throughput* at the five ports was a record 54.3 million tonnes for July–December 2003, compared with 51.8 million tonnes for the previous half-year and 52.1 million tonnes for July–December 2002. This represented an increase of 4.2 per cent in total cargo throughput for the five ports compared with July–December 2002 and an increase of 4.8 per cent compared with January–June 2003.

Note that the Brisbane figures have again been revised due to receipt of updated data. The revisions have only a marginal effect on the five ports aggregate and Brisbane figures (less than 0.1 per cent).

Compared with July–December 2002, total cargo throughput in July–December 2003 increased 4.7 per cent at Brisbane, 2.9 per cent at Sydney, 0.6 per cent at Melbourne, 8.4 per cent at Adelaide and 7.3 per cent at Fremantle.

*Non-containerised general cargo* throughput at the five ports was 2.314 million tonnes for July–December 2003, compared with 2.060 million tonnes for January–June 2003 and 2.143 million tonnes for July–December 2002. This represented an increase of 12.3 per cent from the previous half-year and an increase of 8 per cent from the corresponding previous half-year.

*Total container traffic* throughput for the five ports was 2.114 million teus for July–December 2003, compared with 1.916 million teus for January–June 2003 and 1.989 million teus for July–December 2002. This represented an increase of 10.4 per cent from the previous half-year and an increase of 6.3 per cent over July–December 2002.

Compared with July–December 2002, loaded teus at the five ports increased by 4.2 per cent, with loaded imports increasing by 8.3 per cent and loaded exports decreasing by 1.2 per cent.

The annualised 2003 five-port total container traffic increased by 9.4 per cent from 2002, to 4.030 million teus.



### 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
CVP.....	Continuing Voyage Permit
DOTARS.....	Department of Transport and Regional Services
Five-port .....	The five mainland capital city ports (Brisbane, Sydney, Melbourne, Adelaide, Fremantle)
GT.....	Gross Tons, formerly GRT
SVP .....	Single Voyage Permit
Teu .....	Twenty-foot equivalent unit
UCC.....	Fully cellular container vessel

### STEVEDORING PRODUCTIVITY DEFINITIONS

Containers Handled .....	The total number of containers lifted on/off fully cellular ships.
Crane Intensity .....	The total number allocated crane hours, divided by the elapsed time from labour first boarding the ship and labour last leaving the ship.
Crane Rate.....	The total containers/teus handled divided by the Elapsed Crane Time.
Elapsed Crane Time .....	The total allocated crane hours, less operational and non-operational delays.
Elapsed Labour Time .....	The elapsed time between labour first boarding the ship and labour last leaving the ship, less non-operational delays.
Ship Rate .....	The Crane Rate multiplied by Crane Intensity (as defined above).
Ships .....	Only fully cellular ships are included in calculations. Fully cellular ships are defined as purpose-built container ships equipped with 40-foot cell guides below deck as a minimum, and exclude such vessels if used for mixed cargoes of containers and general cargo.
TEUs Handled .....	The total 40-foot containers lifted on/off fully cellular ships multiplied by 2, plus the total 20-foot containers lifted on/off fully cellular ships.
Vessel Working Rate.....	The total containers/teus handled divided by the Elapsed Labour Time.



## STEVEDORING PRODUCTIVITY

Table 11 presents the December quarter 2001 to December quarter 2003 indicators of *stevedoring productivity* at the five major Australian container ports, expressed in container moves per hour. Figures 4 to 9 present these data over the December quarter 1997 to December quarter 2003 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, increased to 27.8 containers per hour in the September quarter 2003 (5.3 per cent higher than the September quarter 2002 rate of 26.4), but fell by 2.2 per cent to 27.2 containers per hour in the December quarter 2003 (4.6 per cent higher than the December quarter 2002 rate of 26.0).

In summary:

- the five-port average *crane rate* (average productivity *per crane* while the ship is worked) was 26.1 in the March quarter 2003, 27.5 in the June quarter 2003, 27.8 in the September quarter 2003 (new record), and 27.2 containers per hour for the December quarter 2003;
- the five port total of container moves increased from 686 067 in the September quarter 2003 to a record high of 734 597 moves in the December quarter 2003;
- the five-port average *vessel working rate* (productivity *per ship* based on the time labour is aboard the ship) was 31.6 in the March quarter 2003, 32.5 in the June quarter, 34.4 in the September quarter, and 33.3 containers per hour in the December quarter 2003, which was 8.5 per cent higher than the rate achieved in the December quarter 2002.

The *Brisbane* (P&O Ports, Patrick) average crane rate decreased from 26.7 in the June quarter 2003 to 25.5 in the September quarter 2003, and rose to 25.7 containers per hour in the December quarter 2003. The vessel working rate fell from a record 27.0 containers per hour in the June quarter 2003 to 24.9 in the September quarter, and increased to 26.3 in the December quarter 2003.

The *Sydney* (P&O Ports, Patrick) average crane rate increased from 27.2 containers per hour in the June quarter 2003 to a record 28.0 in the September quarter, and declined to 26.2 in the December quarter 2003. The vessel working rate of 35.4 containers per hour in the June quarter 2003 increased to a record 37.8 in the September quarter, and decreased to 33.1 in the December quarter 2003.

The *Melbourne* (P&O Ports, Patrick) average crane rate increased from 27.8 in the June quarter 2003 to new records of 28.5 in the September quarter and 28.6 containers per hour in the December quarter 2003. The vessel working rate increased from 33.0 containers per hour in the June quarter 2003 to 37.2 in the September quarter and 38.1 in the December quarter 2003, up 19 per cent on December quarter 2002.

The *Adelaide* (CSX World Terminals) average crane rate increased from 27.4 containers per hour in the June quarter 2003 to 28.0 in the September quarter and 28.2 in the December quarter 2003. The vessel working rate decreased from 36.0 containers per hour in the June quarter 2003 to 31.1 in the September quarter, but increased again to 33.7 in the December quarter 2003.

The *Fremantle* (P&O Ports, Patrick) average crane rate decreased from 28.1 containers per hour in the June and September quarters to 27.0 containers per hour in the December quarter 2003. The vessel working rate increased from 28.6 containers per hour in the June quarter 2003 to 30.4 in the September quarter, but decreased to 28.8 in the December quarter 2003.

Overall, stevedoring (or crane-rate) variability became slightly more volatile over the June to December 2003 quarters, particularly in Sydney, where the stevedoring variability rate of 50 per cent in the June quarter dropped sharply in the September 2003 quarter to 41 per cent, recovering to 49 per cent in the December quarter 2003.

### Teus per hour

Table 13 on page 19 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 11 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. The trend towards a larger proportion of 40-foot containers continues, increasing steadily from 21 per cent of the five-port total in March 1996 to 39 per cent in December 2003.



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

Port / Indicator	Quarter								
	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-03
<b>Five ports</b>									
Ships handled	846	824	868	858	856	821	822	841	850
Total containers	591 070	544 135	591 247	645 506	685 458	643 406	639 157	686 067	734 597
Crane rate	26.1	26.6	26.9	26.4	26.0	26.1	27.5	27.8	27.2
Vessel working rate	29.6	29.6	30.7	31.9	30.7	31.6	32.5	34.4	33.3
Crane time not worked (per cent)	29	29	27	28	29	27	28	29	28
40-foot containers (per cent)	33	33	33	36	37	35	36	39	39
Ship rate	41.4	41.4	42.1	44.0	43.4	43.4	45.1	48.3	46.1
Throughput pbm	83	76	83	90	96	90	90	96	103
<b>Brisbane</b>									
Ships handled	198	202	211	216	216	206	184	192	194
Total containers	88 669	78 160	94 230	103 537	107 692	98 482	92 872	107 257	114 580
Crane rate	25.3	26.6	27.2	26.1	26.7	25.5	26.7	25.5	25.7
Vessel working rate	22.4	22.2	23.2	24.2	24.1	24.7	27.0	24.9	26.3
Crane time not worked (per cent)	37	39	38	36	40	35	34	36	35
40-foot containers (per cent)	27	28	29	32	34	32	34	37	38
Stevedoring variability (per cent)	65	55	54	53	57	52	54	58	52
Ship rate	35.8	36.6	37.2	37.9	40.4	38.1	41.1	39.2	40.6
Throughput pbm	55	49	59	64	67	61	58	67	71
<b>Sydney</b>									
Ships handled	206	196	203	204	210	211	217	228	238
Total containers	184 559	167 278	172 599	200 825	215 863	201 358	194 177	215 321	236 567
Crane rate	25.7	26.9	27.4	26.3	25.2	25.9	27.2	28.0	26.2
Vessel working rate	31.2	32.1	34.3	35.8	32.7	33.5	35.4	37.8	33.1
Crane time not worked (per cent)	29	28	26	25	26	25	26	27	27
40-foot containers (per cent)	37	37	37	38	40	38	40	41	42
Stevedoring variability (per cent)	66	56	46	59	56	48	50	41	49
Ship rate	44.0	44.3	46.1	47.4	44.2	44.8	48.0	51.8	45.5
Throughput pbm	95	86	89	103	111	104	100	111	122
<b>Melbourne</b>									
Ships handled	249	234	251	250	243	229	235	240	241
Total containers	221 647	205 435	221 786	239 564	250 679	234 243	240 028	246 024	259 334
Crane rate	26.3	26.3	26.7	26.9	26.1	26.1	27.8	28.5	28.6
Vessel working rate	31.6	31.5	31.9	33.4	32.0	33.7	33.0	37.2	38.1
Crane time not worked (per cent)	26	28	28	28	29	26	27	28	26
40-foot containers (per cent)	33	33	33	36	37	36	37	39	39
Stevedoring variability (per cent)	59	59	62	66	63	63	52	57	58
Ship rate	42.9	43.4	44.0	46.7	45.3	45.6	45.1	52.0	51.6
Throughput pbm	121	113	121	131	137	128	131	135	142
<b>Adelaide</b>									
Ships handled	57	54	59	55	58	50	58	62	63
Total containers	28 857	24 505	32 735	28 815	30 214	29 401	32 093	35 221	36 954
Crane rate	25.9	25.5	24.0	23.3	24.0	25.9	27.4	28.0	28.2
Vessel working rate	32.1	32.5	34.3	32.6	34.0	36.2	36.0	31.1	33.7
Crane time not worked (per cent)	9	9	8	6	11	12	15	18	13
40-foot containers (per cent)	27	30	28	30	30	28	25	26	29
Stevedoring variability (per cent)	na	na	na	na	na	na	na	na	na
Ship rate	35.2	35.8	37.1	34.5	38.2	41.3	42.4	37.7	38.7
Throughput pbm	61	52	70	61	64	63	68	75	79
<b>Fremantle</b>									
Ships handled	136	138	144	133	129	125	128	119	114
Total containers	67 338	68 757	69 897	72 765	81 010	79 922	79 987	82 244	87 162
Crane rate	27.9	27.1	27.4	27.1	28.1	27.5	28.1	28.1	27.0
Vessel working rate	27.2	25.2	26.7	26.5	28.9	27.8	28.6	30.4	28.8
Crane time not worked (per cent)	31	30	25	30	30	31	35	32	31
40-foot containers (per cent)	35	30	34	36	37	34	33	38	37
Stevedoring variability (per cent)	36	35	40	35	36	44	49	46	52
Ship rate	39.4	35.8	35.5	37.7	41.2	40.5	44.1	44.9	41.7
Throughput pbm	52	53	54	56	63	62	62	64	67

na not available

pbm per berth metre

Notes 1. The definitions used in compiling the stevedoring productivity data are detailed in Waterline 33, pages 15–17.

2. 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 13.

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

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





## CONTAINER TERMINAL PRODUCTIVITY

FIGURE 4 FIVE MAJOR PORTS

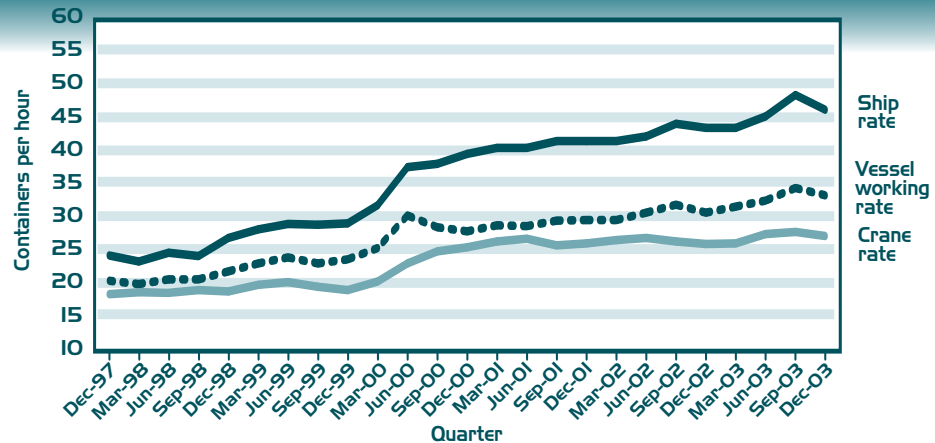


FIGURE 5 BRISBANE

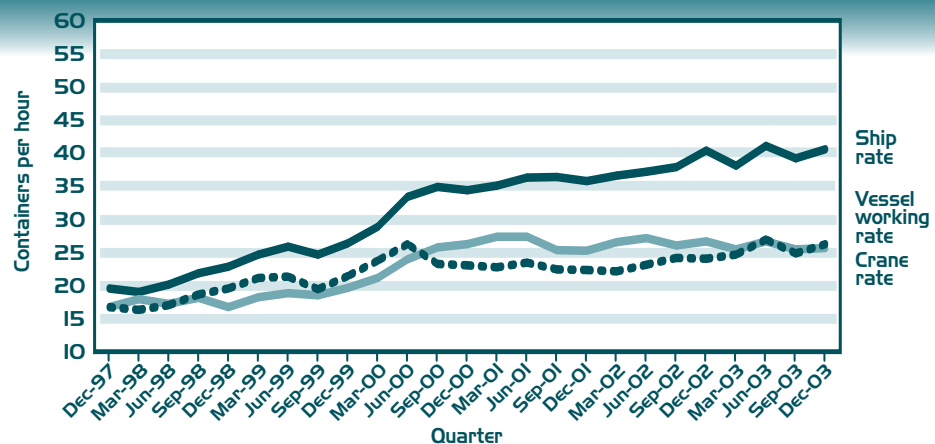
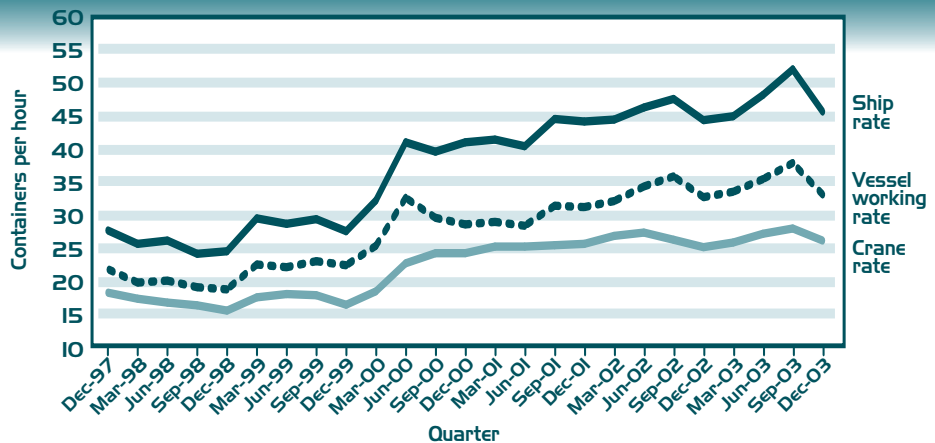


FIGURE 6 SYDNEY



Note These figures are based on the data contained in table II. Readers should refer to the notes in that table.  
Sources Patrick, P&O Ports and CSX World Terminals.



## CONTAINER TERMINAL PRODUCTIVITY

FIGURE 7 MELBOURNE

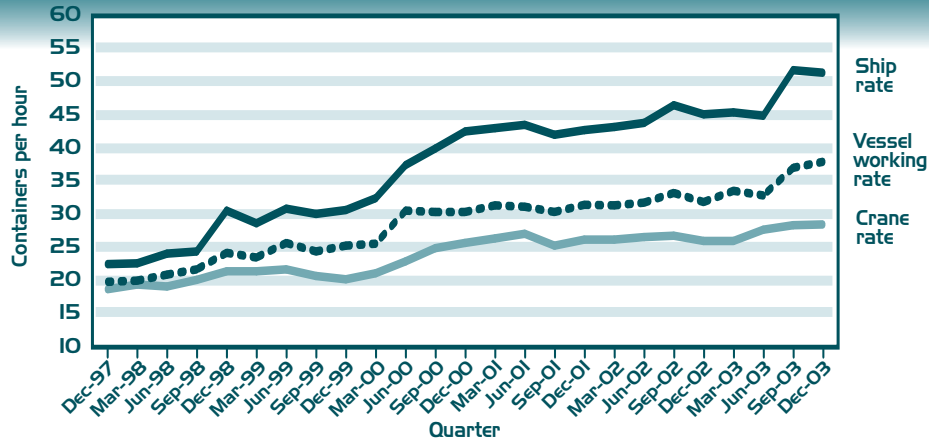


FIGURE 8 ADELAIDE

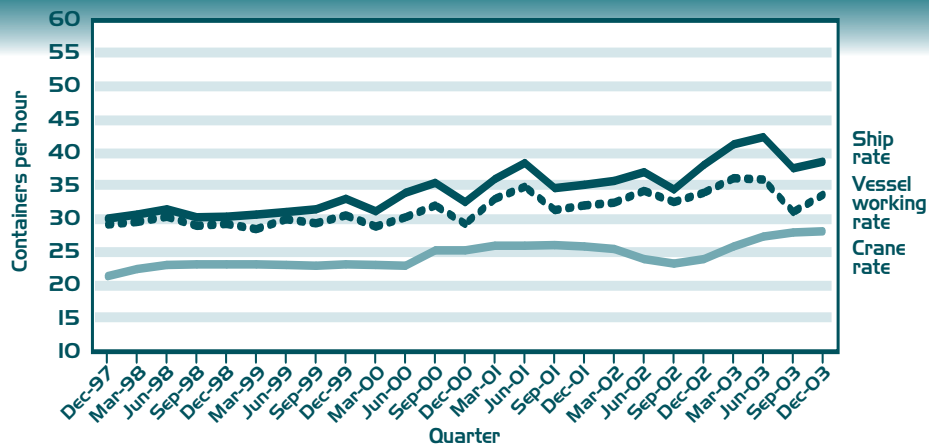
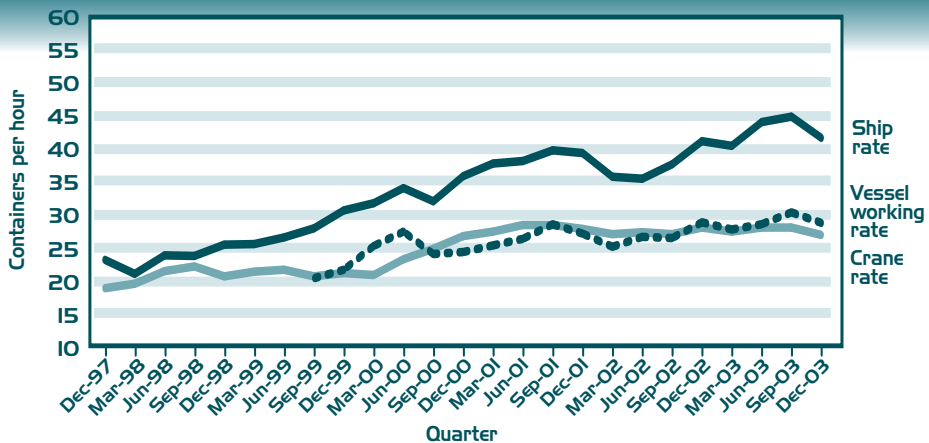


FIGURE 9 FREMANTLE



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

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



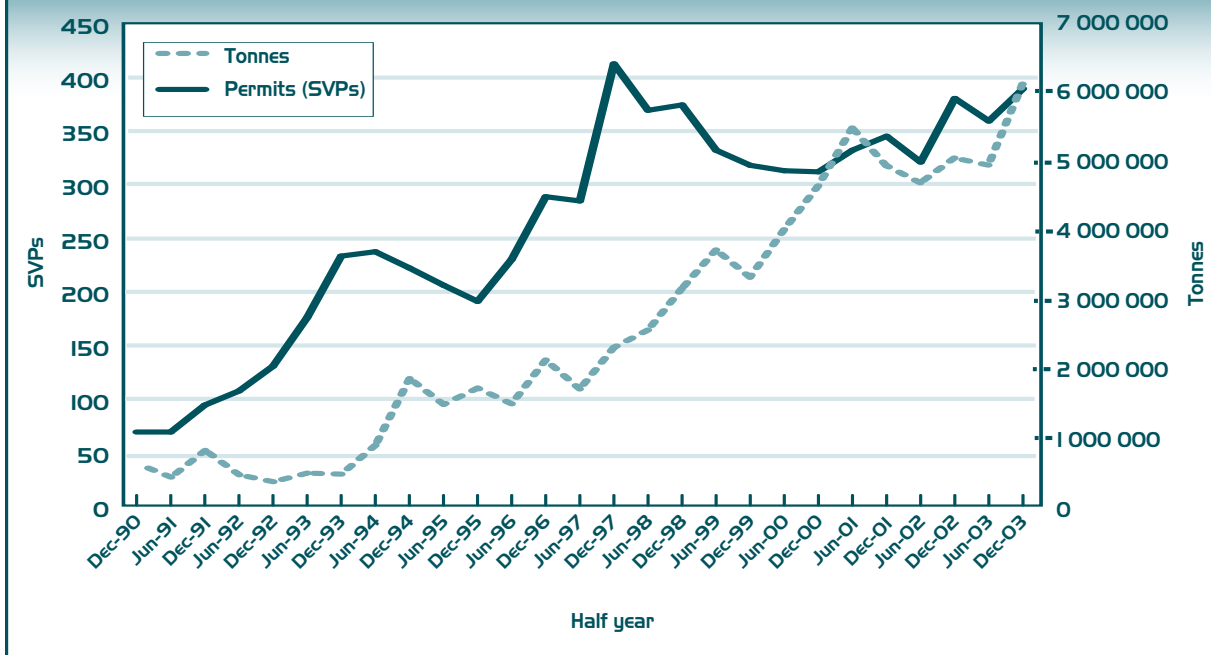
## COASTAL SHIPPING PERMITS

Total tonnages of cargo provided by applicants under SVPs and CVPs increased by 11.6 per cent from 12.0 million tonnes in 2002 to 13.4 million tonnes in 2003. (Note the January–June 2003 CVP permit and tonnage figures have been revised in this issue).

### Single voyage permits

Figure 10 illustrates the number of SVPs issued, and the pre-voyage estimation of tonnes of cargo to be carried, between July–December 1990 and July–December 2003. The number of SVPs issued in July–December 2003 increased by 8.4 per cent compared with January–June 2003, and increased by 2.4 per cent compared with July–December 2002. The associated estimated tonnes of cargo to be carried increased by 23.6 per cent compared with January–June 2003, and increased by 21.1 per cent compared with July–December 2002.

FIGURE 10 TONNES TO BE CARRIED VIA SINGLE VOYAGE PERMITS, 1990–2003



Note All tonnages are pre-voyage estimates.

Source Regulatory Group, Department of Transport and Regional Services.

On a calendar year basis the total number of SVPs issued in 2003 was 746, compared with 699 in 2002. This represented an increase of 6.7 per cent. Over the same period, estimated SVP cargo increased by 13.5 per cent from 9.7 million tonnes to 11.0 million tonnes.

Table 12 gives a breakdown of SVPs by cargo types for July–December 2003. General cargo (including containerised cargo) permits continue to lead the tally for SVPs issued. However, bulk cargo accounts for over 97 per cent of the total tonnage moved under SVPs.

TABLE 12 SUMMARY OF SINGLE SHIPPING PERMITS ISSUED, JULY–DECEMBER 2003

Cargo Category	Permits	Tonnes
<b>Bulk Cargo</b>		
Petroleum Products	60	2 290 450
Liquefied Gas	37	63 455
Other Bulk Liquids	21	114 007
Dry Bulk	107	3 462 715
<b>General Cargo</b>	163	171 499
<b>Total</b>	<b>388</b>	<b>6 102 126</b>

Note Tonnages are the pre-voyage estimation of the tonnes to be carried.

Source Regulatory Group, Department of Transport and Regional Services.

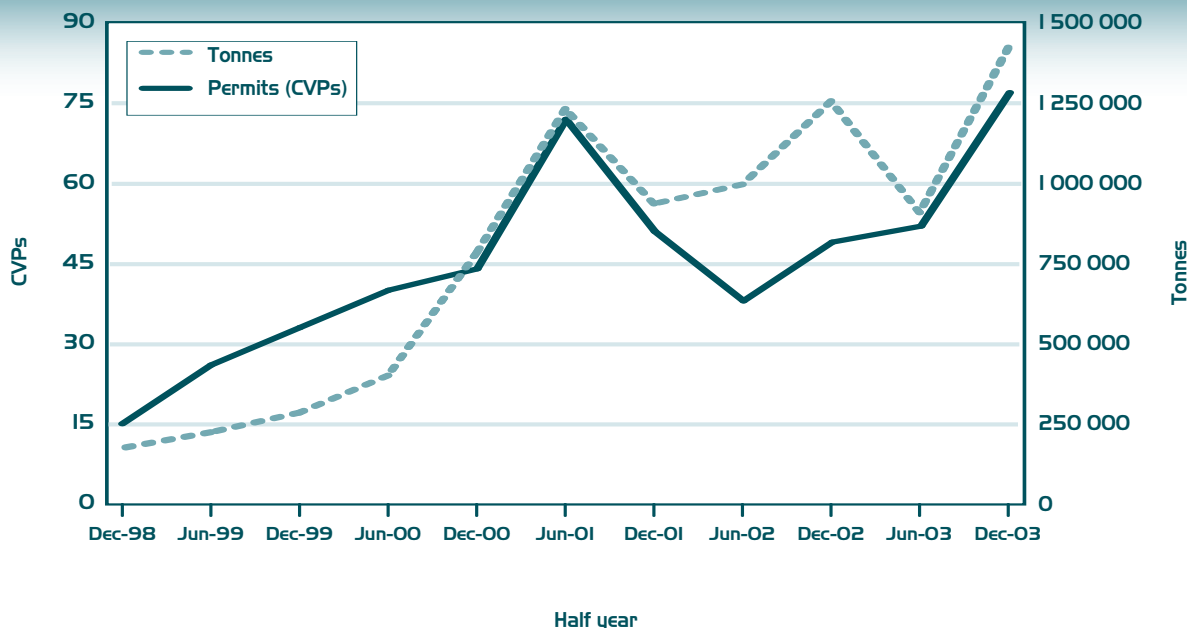
### Continuing voyage permits

Although CVPs were available prior to 1998, they were rarely requested or issued during this period. However, as shown in figure 11, since 1998 there have been significant fluctuations in both the number of permits issued and the tonnage to be carried. In July–December 2003, a total of 1.4 million tonnes were to be carried under CVPs, compared with 0.9 million tonnes in January–June 2003 (revised from 0.4 million tonnes shown in *Waterline* 35), and 1.3 million tonnes in July–December 2002. CVPs issued since the start of 2003 have been for 3 months maximum duration rather than the 6 months allowed previously. One CVP is estimated to be equivalent to three SVPs on average.



In 2003 there were 129 CVPs issued compared with 87 in 2002. A total of 2.3 million tonnes of coastal trade were to be moved using CVPs in 2003, representing an increase of 3.5 per cent over the previous year.

**FIGURE II TONNES TO BE CARRIED VIA CONTINUING VOYAGE PERMITS, 1998-2003**



**Note** All tonnages are pre-voyage estimates.

**Source** Regulatory Group, Department of Transport and Regional Services.

More information on coastal permits can be found on the Department of Transport and Regional Services' internet site at [http://www.dotars.gov.au/transreg/str\\_permits.htm](http://www.dotars.gov.au/transreg/str_permits.htm).

page  
17

**FIGURE I2 TOTAL COASTAL TRADE, 1990-2003**



**Note** Total coastal trade figures for 2002-03 are not available at time of publishing.

**Sources** BTRE estimates and the Regulatory Group, Department of Transport and Regional Services.



# WATERLINE IS 10 YEARS OLD

2004 marks the 10th anniversary of *Waterline*. The first issue was published in July 1994 as "a biannual publication that will make available the results of the Bureau's continuing waterfront monitoring program".

In our next issue, we will publish a special feature on the 10 years of *Waterline*.

**bureau of transport and communications economics**

## Media Statement

D9/94  
27 July 1994

**WATERFRONT COSTS FALL**

Australian exporters and importers are benefiting from the Federal Government's waterfront reforms.

This is revealed in a new publication, *Waterline*, to be produced every six months by the Bureau of Transport and Communications Economics (BTCE).

A BTCE spokesperson said today that *Waterline* would measure changes in port authority, government, towage and pilotage charges, as well as customs brokers' fees and land transport charges.

"The first edition of *Waterline* confirms that the Federal Government's waterfront reform strategy is continuing to drive performance up and costs down," the spokesperson said.

"The publication shows that there have been several significant cost reductions -- for example, with wharfage in Sydney, and customs brokers' fees in a number of other ports -- which have provided direct benefits for exporters and importers.

"The improvement in stevedoring performance achieved during the waterfront reform period from 1989 to 1992 is being maintained. Average container crane rates increased from 13 to 20 containers an hour during that period. More recently, handling rates averaged 21 containers per hour in September 1993 and 20 per hour in December 1993.

"The waterfront has been an important focus of the Federal Government's microeconomic reform program. *Waterline* will report on the performance of the stevedoring industry and port authorities and provide a regular snapshot of the efficiency and competitiveness of the cargo movement chain from the wharf to the warehouse."

Copies of *Waterline* are available from the BTCE, phone (06) 274 6846.

Media inquiries: Brian Hill (06) 274 7821

## MEDIA STATEMENT

Hon. John Sharp MP Minister for Transport and Regional Development

**STEVEDORING PERFORMANCE STILL DOWN**

Overall productivity at Australia's major container terminals declined again in the June quarter 1996.

The quarterly report on stevedoring performance published this week by the Bureau of Transport and Communications Economics (BTCE) in the eighth edition of its *Waterline* series shows a fall in the five port average crane rate in the June quarter from 20.3 to 20.1 standard twenty foot containers per hour, although there was variation in performance at individual ports.

"These statistics continue to show that Australia's stevedoring performance remains well below world best practice and is slipping further behind. Australian container cranes typically achieve only half the productivity of efficient terminals in other countries," Minister for Transport and Regional Development John Sharp said.

Speaking at the launch of the Australian Shippers Association Shipping Industry Report 1996 in Melbourne today, Mr Sharp said that improving the efficiency of the Australian waterfront and shipping industries was one of the most pressing issues facing the country, despite thirteen years of Labor's so-called reforms.

"The Australian Workplace Relations Bill currently before the Senate provides a framework for achieving increased competition and greater labour flexibility and productivity in the maritime industry.

"It aims to give Australian shippers and stevedores a chance to address productivity issues in a real way. While the waterfront labour market remains a closed shop with no chance of competition, performance levels will continue to remain low."

Copies of the *Waterline* report can be obtained from the Manager, Information Services, Bureau of Transport and Communications Economics, GPO Box 501, Canberra, ACT 2601, telephone (06) 274 6846.

Copies of the Shipping Industry Report Annual Review 1996 can be obtained from the Australian Shippers Association Limited, Level 1, 40 Beach Street, Port Melbourne, Victoria 3207, telephone (03) 9446 0755.

Media inquiries: Adam Connolly (06) 277 7680

TR104/96  
23 September 1996

A NEW RECORD IN WATERFRONT PRODUCTIVITY

Page 1 of 2

## MEDIA RELEASE

The Hon John Anderson MP  
Deputy Prime Minister  
Minister for Transport and Regional Services  
Leader of the National Party

29 September 1999  
AL48/99

**A NEW RECORD IN WATERFRONT PRODUCTIVITY**

The 20 movements per hour barrier for crane rates - a level Labor was never close to cracking - has been breached for the first time, highlighting the success of the Federal Government's waterfront reform program.

The June 1999 edition of *Waterline* released today reveals that the five port average crane rate reached 20.3 moves per hour. This is a new record since *Waterline* began collating figures, breaking the record set in March of 19.9 in the March quarter and a big increase on the 18.9 recorded in the December 1998 quarter.

The Deputy Prime Minister and Minister for Transport and Regional Services, John Anderson, said the rate mainly reflected the improved performance of Patrick Stevedores, especially in Melbourne.

"Future rates will reflect the reforms implemented by P&O in the last few months and we can expect continued improvement in waterfront productivity," Mr Anderson said.

The improved reliability and efficiency of Australia's waterfront is of major benefit to users. Vessel delays were once common in the Australian waterfront. Eliminating these delays significantly reduces costs and also provides shipping lines with the opportunity to operate fixed schedules. This reduces the number of vessels required to service Australian trade routes resulting in lower operating costs and better services to shippers.

*Waterline* also found sustained improvements in waterfront reliability, with the figures showing that berths in the June quarter 1999 were available for more than 90% of arriving vessels within 4 hours.

"Sustainable cost reductions for waterfront users will flow only from increased productivity and a competitive environment, not from a Government dictate. The Government will, however, monitor the cost outcome for users through the ACCC which has been tasked to monitor stevedores' costs, charges and profits."

However, amid the good news, there are some troubling signs. Labor has issued a press release criticising the Government's waterfront reform achievements and announcing that it will block the further funds necessary for waterfront reform in the Senate.

"The Government has repeatedly made it clear that the additional cost of redundancies and the extra cost of financing those redundancies means that the original \$250m appropriation is not enough."

"That is why the Government sought an additional \$100m, \$350m will be sufficient to cover the extra redundancy costs, the administrative costs of the Maritime Industry Finance Company, costs associated with tapping up WA stevedoring redundancies and non-redundancy costs. The total figure also includes a contingency of \$10m."

<http://www.ministers.dotars.gov.au/ja/releases/1999/sep/sep/...> 12/03/04

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WATERLINE  
JULY 1994 ISSUE NO. 1  
BUREAU OF TRANSPORT AND COMMUNICATIONS ECONOMICS

**FROM THE DIRECTOR**

I am pleased to introduce *Waterline* -- a biannual publication that will make available the results of the Bureau's continuing waterfront monitoring program.

A competitive waterfront is vital for an efficient domestic industry and for the competitiveness of Australian exports on the world market. For this reason, the waterfront has been an important focus of the Commonwealth Government's microeconomic reform program.

The Waterfront Industry Reform Authority (WIRA) monitored the progress of waterfront reform from June 1989 to September 1992, producing performance indicators at quarterly intervals. Since then, the waterfront has not been formally monitored. Yet, the waterfront remains the focus of often poorly informed criticism. This is understandable given the complexity of the industry and the numerous participants involved -- many with conflicting interests.

Therefore, there is a need to continue the monitoring of waterfront reform and disseminate this information in a simple and practical way. *Waterline* will do this by including the results of the Bureau's Port Authority Cost Index, port authority financial and non financial performance data, and stevedoring performance indicators. Although *Waterline* concentrates on container cargo and related issues, *Waterline* will also report on other waterfront issues to facilitate a more informed debate.

Dr Maurice Haddad  
Director

**IN BRIEF**

**Price**

Between 1990 and June 1993, average stevedoring charges fell by about 25 per cent.

The Bureau's Port Authority Cost Index shows that total water-front charges per ton, between 1992 and 1993, fell by 3.5 per cent for imports, while exports remained steady for the same period.

The major change in the index occurred in customs brokers' fees in the small ports and wharfage charges in Sydney.

**Port Authority Performance**

Total employment in the five major port authorities declined 17 per cent in 1992-93. There has been a general improvement in the financial positions of the port authorities, helped by reduced debt servicing requirements. Significantly, the Port of Brisbane cleared itself of all debt.

**Quality of Service**

The national average container crane handling rate increased from 16.2 to 20.1 tons per gross hour between 1989 and

September 1992. Recent figures indicate that this rate has essentially been maintained. In the September 1993 quarter, the five port average elapsed and net handling rates peaked at 21.4 tons per elapsed hour and 20.2 tons per net hour.

Undoubtedly there are still areas where improvements can be achieved. *Waterline* will provide an opportunity to discuss such issues.

WaterLine  
Issue number 21 December 1999

**Stevedoring productivity**

Table 1 presents the September quarter 1997 to September quarter 1999 indicators of stevedoring productivity at the five major Australian container terminals, expressed in container moves per hour. Figures 1 to 8 present these data over the December quarter 1995 to September quarter 1998 period. The data for Brisbane, Sydney, Melbourne and Fremantle are weighted averages for the major terminals operated by P&O Ports and Patrick. The Adelaide data cover the Sea-Land terminal.

Overall, national stevedoring productivity, as measured by the five port average, was down marginally in the September quarter 1999 compared with the peak level of stevedoring productivity attained in the June quarter 1999.

- the five port average crane rate (productivity per crane while the ship is worked) was 19.8 containers per hour for the September quarter compared with 20.3 in the June quarter;
- the five port average elapsed rate (productivity per ship based on the time labour is aboard the ship) was 23.0 containers per hour for the September quarter compared with 24.0 in the June quarter; and
- the five port average net rate (productivity per ship while the ship is worked) was 28.8 containers per hour for the September quarter compared with 29.0 in the June quarter.

Although there was a fall in the crane rate indicator at all ports, the net ship rate indicator rose at Sydney, Adelaide and Fremantle, reflecting higher crane intensities (the number of cranes used per ship).

The marginal fall in stevedoring productivity for the September quarter 1999 mainly reflects the problems encountered at P&O terminals during the recent phasing of new enterprise agreements, which included a reduction of the workforce in excess of 30 per cent. Over the quarter, the Sea-Land terminal at Adelaide managed to largely maintain its productivity, as did the Patrick terminal at Melbourne. On a more positive note, productivity at Brisbane, Sydney and Fremantle Patrick terminals continued to improve. The new enterprise agreement at the Adelaide Sea-Land terminal was approved in mid-1999, while the agreement covering all Patrick terminals was introduced in September 1998.

The Brisbane average crane rate was 18.6 containers per hour in the September quarter, down from 18.9 in the June quarter. The Brisbane elapsed rate of 19.5 containers per hour and the net rate of 24.7 containers per hour were both down on the June quarter figures. The average proportion of elapsed time not worked increased to approximately 21 per cent.

**Articles in this issue**

- Stevedoring productivity 1
- Coastal shipping permits 6
- Coastal freight in Australia 7
- Crew to berth rates 10
- Waterfront reliability 14

**waterline**

**in brief**

- The five port average crane rate improved to 20.3 containers per hour for the December quarter 1999.
- Slight increases were recorded in the five port elapsed labour rate (23.6 containers per hour) and in the ship rate (41.6 containers per hour)
- The five port total container traffic increased to 1.740 million tons during July-December 1999.
- Berth availability was 95 per cent in the December quarter.

**at a glance**

Table 1: Container moves per hour (productivity) by port and quarter

Table 2: Elapsed and net rates by port and quarter

Table 3: Stevedoring productivity by port and quarter

Table 4: Port authority cost index by port and quarter

Table 5: Port and wharfage charges by port and quarter

Table 6: Container moves per hour (productivity) by port and quarter

**at a glance**

Table 1: Container moves per hour (productivity) by port and quarter

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Table 5: Port and wharfage charges by port and quarter

Table 6: Container moves per hour (productivity) by port and quarter

**in this issue**

- Stevedoring productivity 1
- Waterfront reliability 6
- Port authority cost index 7
- Port and wharfage charges 10
- Abbreviations 13
- Recent releases 15

**change of name**

The Bureau of Transport and Communications Economics has now become the Bureau of Transport and Regional Services. Please note that our web address has changed.

**internet**

The new Bureau web site is available at: <http://www.btre.gov.au>

Page 1 of 2

**TABLE 13 CONTAINER TERMINAL PERFORMANCE INDICATORS BY QUARTER, SELECTED AUSTRALIAN PORTS—PRODUCTIVITY IN TEUS PER HOUR**

	Dec-99	Mar-00	Jun-00	Sep-00	Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-03
<b>Five Ports</b>																	
Ships handled	933	875	808	840	814	787	813	825	846	824	868	858	856	821	822	841	850
Total teus	726 590	678 046	666 967	708 433	731 936	634 003	661 326	762 202	787 093	724 311	788 090	876 522	938 913	871 089	870 861	952 273	1 023 224
Crane rate	24.8	26.6	30.4	33.2	34.2	35.4	35.2	34.2	34.8	35.4	35.9	35.9	35.6	35.3	37.4	38.5	37.8
Vessel working rate	30.8	33.3	40.0	37.6	37.6	38.6	37.8	39.2	39.6	39.6	41.1	39.6	42.2	42.9	44.3	47.9	46.5
Ship rate	37.8	41.7	49.5	50.8	53.2	54.3	53.3	55.0	55.4	55.4	56.3	59.9	59.4	58.8	61.7	67.4	64.4
Throughput pbm	101.8	95.0	93.5	99.3	102.6	88.8	92.7	106.8	110.3	101.5	110.4	122.8	131.6	122.1	122.0	133.4	143.4
<b>Brisbane</b>																	
Ships handled	232	219	178	187	179	167	188	175	198	202	211	216	216	206	184	192	194
Total teus	106 096	97 431	90 932	103 654	107 812	81 864	108 810	105 746	112 586	100 033	121 920	136 771	143 882	130 384	124 854	147 273	158 065
Crane rate	27.0	29.8	33.4	30.0	29.7	29.6	30.2	28.7	28.5	28.5	30.0	32.0	32.3	32.6	35.8	35.0	35.4
Vessel working rate	33.1	36.1	42.3	45.1	44.5	46.1	46.5	46.8	45.5	46.9	48.2	50.2	53.9	50.4	55.3	53.7	55.9
Ship rate	66.0	60.6	56.6	64.5	67.1	50.9	67.7	65.8	70.1	62.2	75.9	85.1	89.5	81.1	77.7	91.6	98.4
Throughput pbm																	
<b>Sydney</b>																	
Ships handled	244	221	218	223	211	201	202	208	206	196	203	204	210	211	217	228	238
Total teus	260 927	229 014	224 445	237 843	240 720	203 217	205 126	242 823	252 521	228 723	235 664	277 733	302 267	278 456	271 501	303 745	336 988
Crane rate	22.1	24.8	30.9	33.1	33.2	34.7	34.0	34.4	35.2	36.8	37.4	36.2	35.2	35.7	38.0	39.4	37.3
Vessel working rate	30.1	34.0	44.1	40.5	39.0	39.7	38.2	42.5	42.7	43.9	46.7	49.4	45.8	46.2	49.5	53.3	47.1
Ship rate	36.8	43.0	55.4	53.9	55.8	56.6	54.1	60.1	60.2	60.7	62.8	65.5	61.7	61.9	67.2	73.0	64.8
Throughput pbm	134.4	117.9	115.6	122.5	124.0	104.6	105.6	125.0	130.0	117.8	121.4	143.0	155.6	143.4	139.8	156.4	173.5
<b>Melbourne</b>																	
Ships handled	266	247	217	227	218	214	215	243	249	234	251	250	243	229	235	240	241
Total teus	257 147	243 277	236 306	253 568	255 022	226 612	228 400	285 947	294 753	274 108	295 284	325 945	342 684	317 711	327 822	342 966	361 225
Crane rate	26.5	27.9	30.3	33.5	34.7	35.3	35.7	33.9	35.0	35.1	35.6	36.6	35.7	35.3	38.0	39.7	39.8
Vessel working rate	33.4	33.8	40.5	41.1	41.1	41.9	41.0	40.7	41.9	42.0	42.4	45.5	43.8	45.7	45.1	51.9	53.0
Ship rate	40.4	43.0	49.4	53.8	57.6	57.5	57.3	56.2	57.1	57.9	58.5	63.6	61.9	61.8	61.6	72.4	71.8
Throughput pbm	140.8	133.2	129.4	138.9	139.7	124.1	125.1	156.6	161.4	150.1	161.7	178.5	187.7	174.0	179.5	187.8	197.8
<b>Adelaide</b>																	
Ships handled	62	56	56	62	63	57	57	57	57	54	59	55	58	50	58	62	63
Total teus	30 597	27 736	30 551	30 945	35 339	32 251	33 308	34 867	36 633	31 815	41 829	37 317	39 354	37 731	40 012	44 510	47 571
Crane rate	27.2	29.4	27.8	29.1	32.2	33.5	33.4	32.1	32.8	33.0	30.7	30.2	31.3	33.2	34.2	35.4	36.4
Vessel working rate	35.9	36.8	36.7	37.0	37.2	42.6	44.9	38.6	40.8	42.2	43.9	42.2	44.3	46.5	44.9	39.4	43.4
Ship rate	38.8	39.7	41.1	41.0	41.5	46.5	49.5	42.7	44.7	46.5	47.4	44.7	49.7	53.1	52.8	47.6	49.9
Throughput pbm	65.1	59.0	65.0	65.8	75.2	68.6	70.9	74.2	77.9	67.7	89.0	79.4	83.7	80.3	85.1	94.7	101.2
<b>Fremantle</b>																	
Ships handled	129	132	139	141	143	148	151	142	136	138	144	133	129	125	128	119	114
Total teus	71 823	80 588	84 733	82 423	93 043	90 059	85 682	92 819	90 600	89 632	93 393	98 756	110 726	106 807	106 672	113 779	119 375
Crane rate	27.2	27.4	30.5	33.5	36.5	37.7	37.9	37.4	36.5	35.4	36.6	36.8	38.4	36.7	37.3	38.7	36.7
Vessel working rate	27.9	33.0	36.0	32.4	33.6	34.5	35.0	37.8	36.6	32.8	35.7	36.0	39.5	37.2	38.3	42.3	40.0
Ship rate	38.8	41.6	44.7	43.2	48.7	51.3	50.8	52.3	53.0	46.6	47.4	51.2	56.2	54.2	59.1	62.5	57.6
Throughput pbm	55.6	62.4	65.6	63.8	72.0	69.7	66.3	71.9	70.2	69.4	72.3	76.5	85.7	82.7	82.6	88.1	92.4

pbm per berth metre

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 September quarter 1993, refer to Waterline 34.

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





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