



TE MANATŪ WAKA
MINISTRY OF TRANSPORT

Domestic Transport Costs and Charges

Information session – Rail transport, Coastal Shipping and Interislander

29 August 2022



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MINISTRY OF TRANSPORT

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Results included in this file may be subject to revision as the project team finalises the estimates for the DTCC Final Report.

Coastal shipping



Chris Stone – Rockpoint
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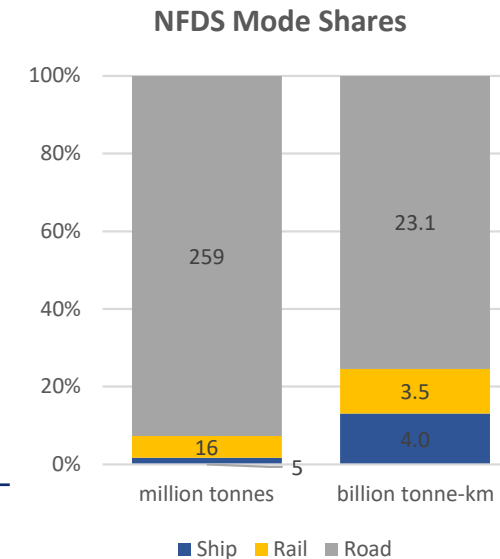
NZ Freight Task

- National Freight Task (domestic)
 - 279 million tonnes, 30.6 billion tonne-km (NFDS 2019)
- Coastal shipping freight task (excludes Cook Strait ferries)
 - <2% share in tonnes, 13% of tonne-km, 20% of inter-island
 - 5.3 million tonnes total (DTCC 2019, updated from NFDS)
 - Petroleum 2.5 mt (since ceased), cement 1.4mt, other bulk 0.2mt, containers 1.1mt

National Freight Task - 2017/18

Mode	million tonnes						billion tonne-km		km Avg Trip
			oil cement	intra-regional	intra-island	inter-island			
Sea / Ship	4.6	1.6%	3.4	0.1	0.1	0.9	4.0	13.2%	890
Rail / Train	15.6	5.6%		5.3	10.0	0.2	3.5	11.6%	230
Road / Truck	<u>258.5</u>	92.8%		211.0	43.8	3.3	<u>23.1</u>	75.3%	<u>90</u>
	278.7						30.6		

Source: National Freight Demand Study - Sep 2019, modified



Coastal Containers

Coastal containers - 409,000 TEU:

- 270,000 TEU domestic (48% full, 1.1mt) – 10% of all TEU passing through NZ ports
- 139,000 TEU transshipment (imex) (95% full, 1.6mt) – 5% of total
Note: each coastal and transshipment TEU is handled by 2 ports
- 2,300,000 TEU import-export and re-export - 85% of total

Containers Handled at NZ Ports *

Year to Sep-19	Domestic	Coastal		Re-export	Null	International		Total
		Transshipment Export	Import			Export	Import	
000TEU				^				
Load Empty	143	4	4	15	11	165		341
Load Full	120	97	33	68	2	928		1,249
Discharge Empty	147	4	4	15	0		327	497
Discharge Full	129	100	33	68	2		802	1,133
Total	540	205	74	165	16	1,092	1,128	3,220
Unique #	270	102	37	83		1,092	1,128	2,712
Unique Full #	129	100	33	68		928	802	2,058
% Full	48%	97%	90%	82%		85%	71%	76%
Import-Export 000t				-		11,792	7,118	-
Implied t/TEU	8.9	12.7	8.9			12.7	8.9	
Coastal 000t (calc)	1,142	1,265	294					2,701

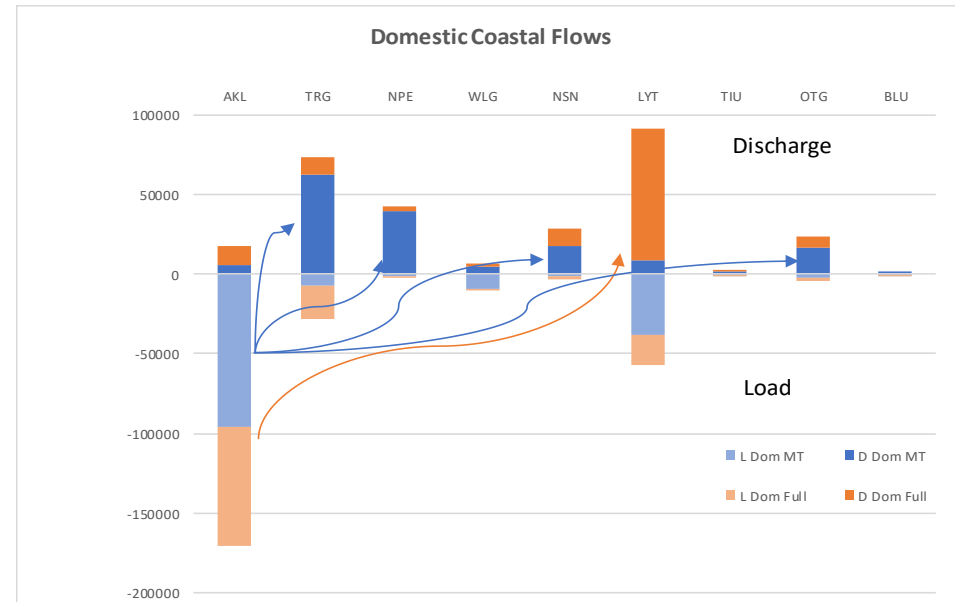
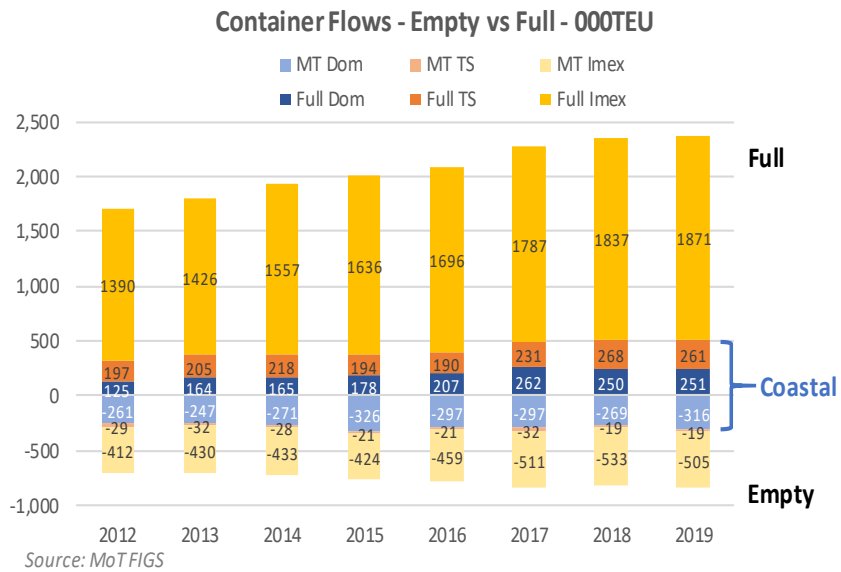
* the 9 principal container ports, AKL, TRG, NPE, WLG, NSN, LYT, TIU, POE, BLU

^ a re-export is a container imported, then without leaving that port exported on a different ship

each coastal container is handled twice, once each by loading and discharging ports

Port Container Flows

- 13 commercial ports receive 7,000 ship visits p.a. - 55% of visits by container ships
- foreign ships carry all import-export cargo, 75% of coastal containers
- only 1 domestic containership, making ~200 port visits p.a.
- established pattern of domestic container movements



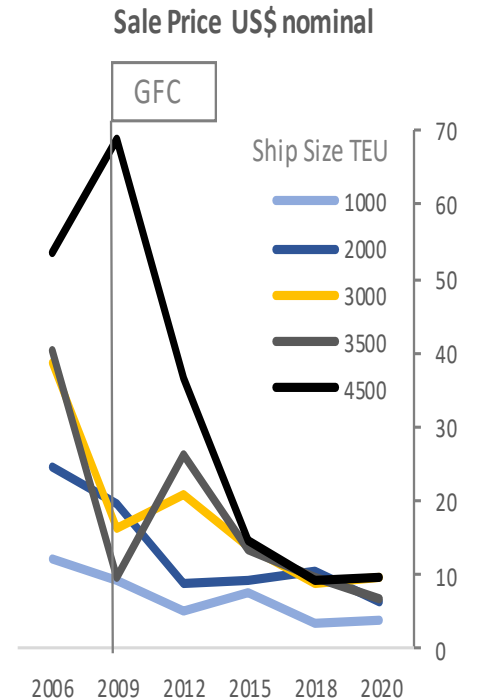
Ship Costs - Capital

- Cost components are Capital, Operating and Voyage (bunkers and ports)
- **Capital costs (purchase and financing)**
 - vary by ship type, size, age, and changes through time (peaked pre-GFC)

Containership Sale Price - US\$million (nominal)

Year Sold	Ship Size Range - TEU										
	< 1000	1000-1500	1500-2000	2000-2500	2500-3000	3000-3500	3500-4000	4000-4500	4500-5000	5000-6000	6000-10000
2019-2020	3.8	6.0	6.4	7.7	9.7	6.7	9.6	17.4	11.2	25.1	
2016-2018	3.5	6.5	10.3	6.6	8.9	9.8	8.0	9.3		35.2	
2013-2015	7.5	6.7	9.1	13.1	13.9	13.4	14.7	18.8			
2010-2012	5.2	7.4	8.8	11.4	20.7	26.2	17.1	36.5	24.0		
2007-2009	9.2	17.3	19.7	21.0	16.3	9.7	24.1	69.0	30.7		
2004-2006	<u>11.9</u>	<u>16.4</u>	<u>24.4</u>	<u>23.4</u>	<u>38.4</u>	<u>40.1</u>	<u>49.0</u>	<u>53.4</u>			
Average	8.7	11.4	13.2	15.1	20.0	23.3	20.8	26.5	27.6	11.2	29.3
Sales #	275	288	216	113	152	60	38	101	59	3	40

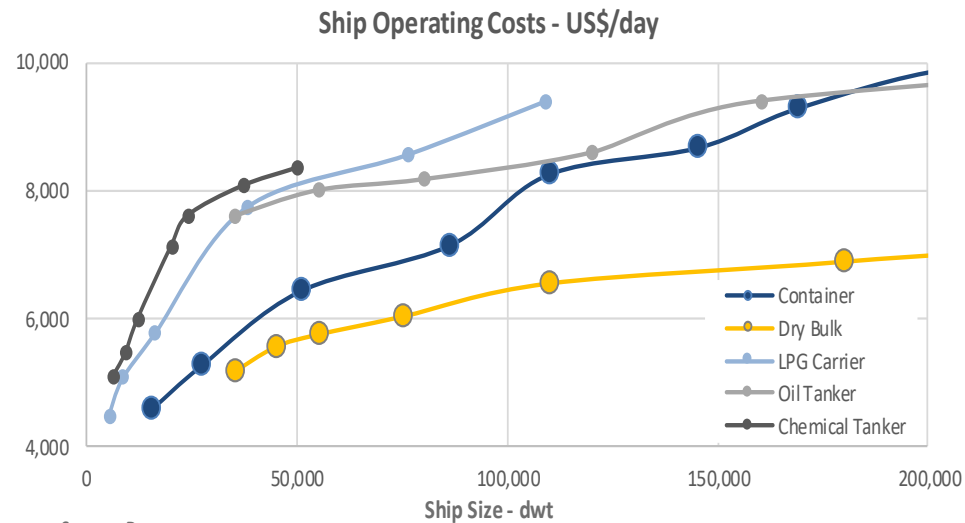
Source: Alphaliner (period 2004 to 2019)



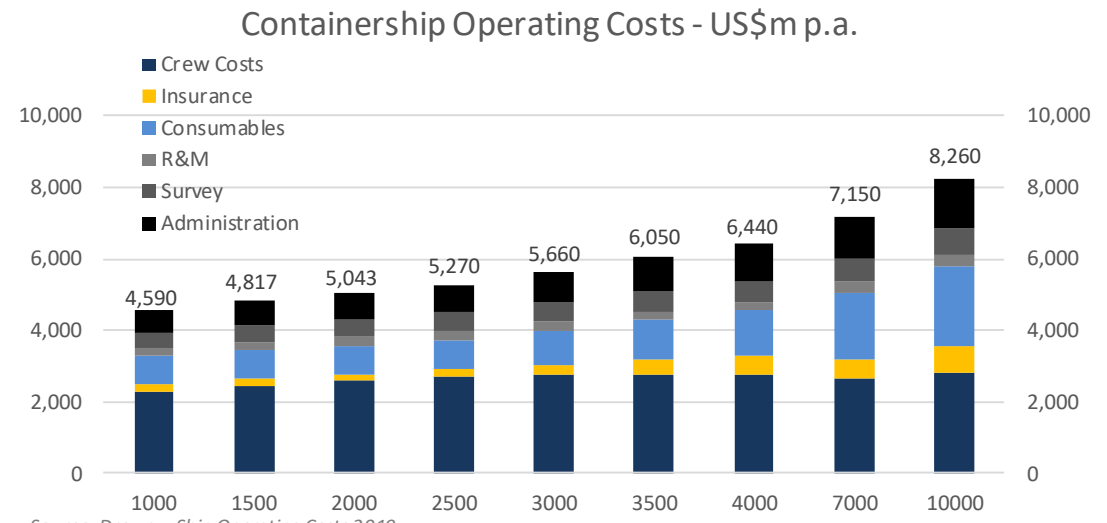
Ship Costs: Fixed Operating

Fixed operating costs (Drewry)

- costs rise with ship size, all classes plateau >30,000dwt (scale economies)
- costs are fixed – incurred whether in operation or waiting
- crewing the largest component, followed by consumables (ex bunkers)



Source: Drewry



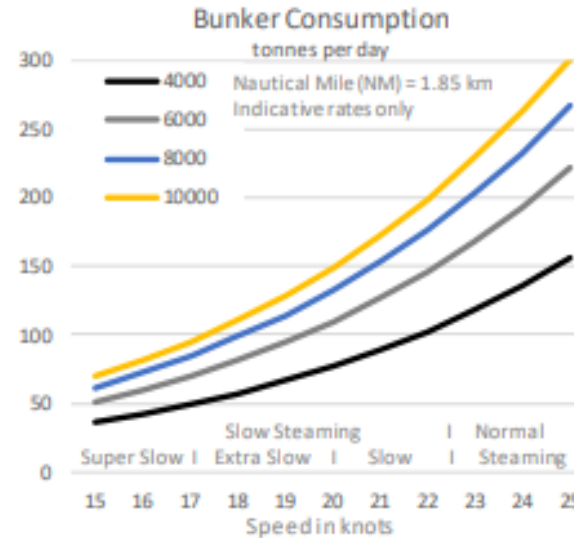
Source: Drewry - Ship Operating Costs 2019

Ship Costs: Voyage - Bunkers

Variable operating costs

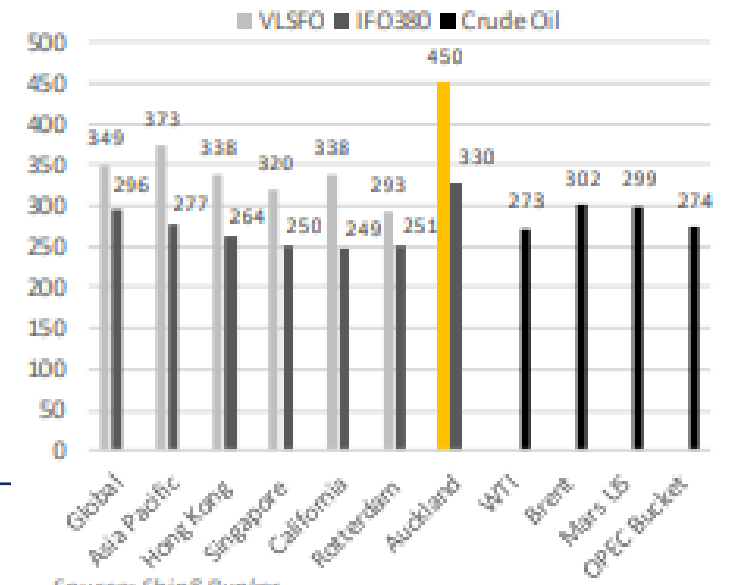
Bunker costs

- bunker consumption is a function of
 - ship size
 - transit speed (slow steaming)
- bunker prices are highly volatile
 - based on crude oil price (volatile) plus refining margin
 - readily shipped so global prices align
 - change in fuel standards (MARPOL)
- NZ pays a 40% premium over Singapore



Source: adapted from Netteboom

Global Bunker Price - US\$/tonne as at 1 July 2020

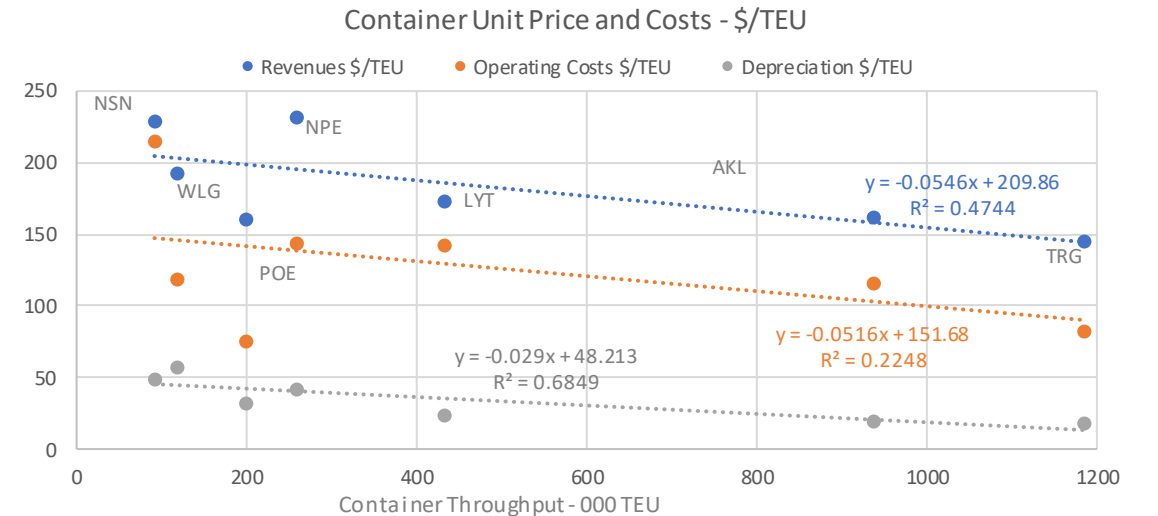
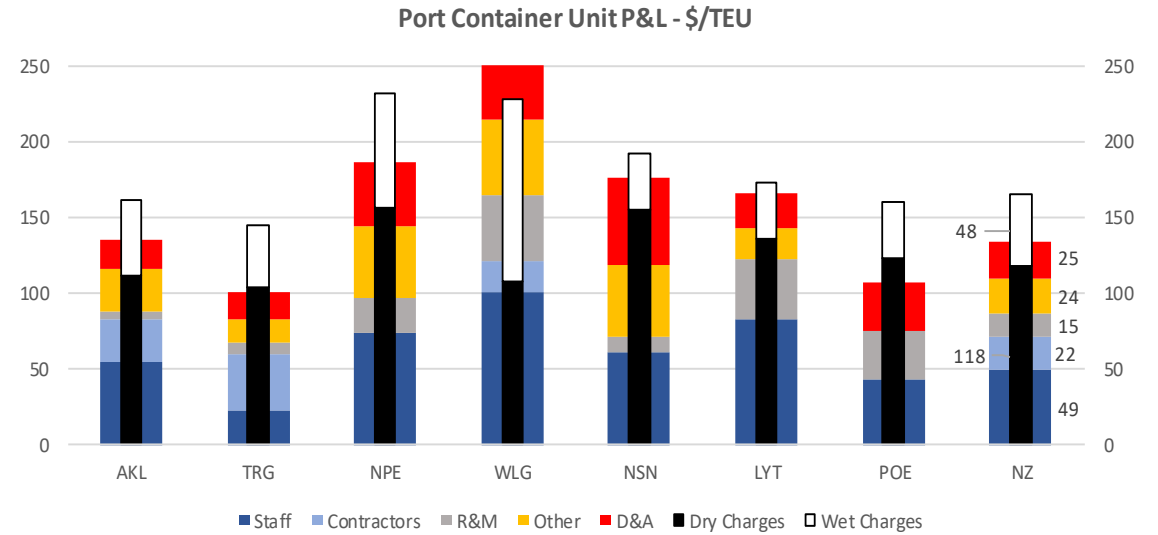


Source: Ship&Bunker

Ship Costs: Voyage - Ports

Port costs

- well understood given detailed disclosure of financial and operating data
- some further input from ports on allocation to business/trade components
- revenues (black/white)
- operating costs (colours)
- scale economies evident



Source: Port Company disclosures, Rockpoint

Economies of Foreign Ships

Shipping costs in NZ are 60% higher than for foreign shipping lines

- scale: material - economies in ship size, fleet size, bargaining power
- capital: minor - ship buying / leasing on liquid global market
- operating: material - especially crewing, consumables
- bunkers: material - NZ \$/tonne ~ 40% higher than Asia
- tax: material - foreign tax jurisdictions, outside ETS, no GST

Overall Ship Costs - NZ\$/day

Ship Size TEU	Domestic Ships				Foreign Ships					
	1000	1500	2000	2500	2500	3000	3500	4000	7000	10000
Capital Costs	1820	2750	3400	3740	3740	4360	4120	5130	7830	11010
Operating Costs	13790	14850	15920	16550	8280	8720	9163	9600	10670	12320
Bunker Costs (65% in transit)	<u>10200</u>	<u>11300</u>	<u>12400</u>	<u>13900</u>	<u>9400</u>	<u>10100</u>	<u>10600</u>	<u>11400</u>	<u>16500</u>	<u>27900</u>
Total	25810	28900	31720	34190	21420	23180	23883	26130	35000	51230
% bunkers	40%	39%	39%	41%	44%	44%	44%	44%	47%	54%
Implied \$/TEU										
at 100% capacity	25.8	19.3	15.9	13.7	8.6	7.7	6.8	6.5	5.0	5.1
at 50% capacity	51.6	38.5	31.7	27.4	17.1	15.5	13.6	13.1	10.0	10.2
at 20% capacity	129.1	96.3	79.3	68.4	42.8	38.6	34.1	32.7	25.0	25.6

Coastal Modelling

Per the table on the previous slide, we have modelled unit costs weighted for observed volumes for coastal container (and bulk freight) movements

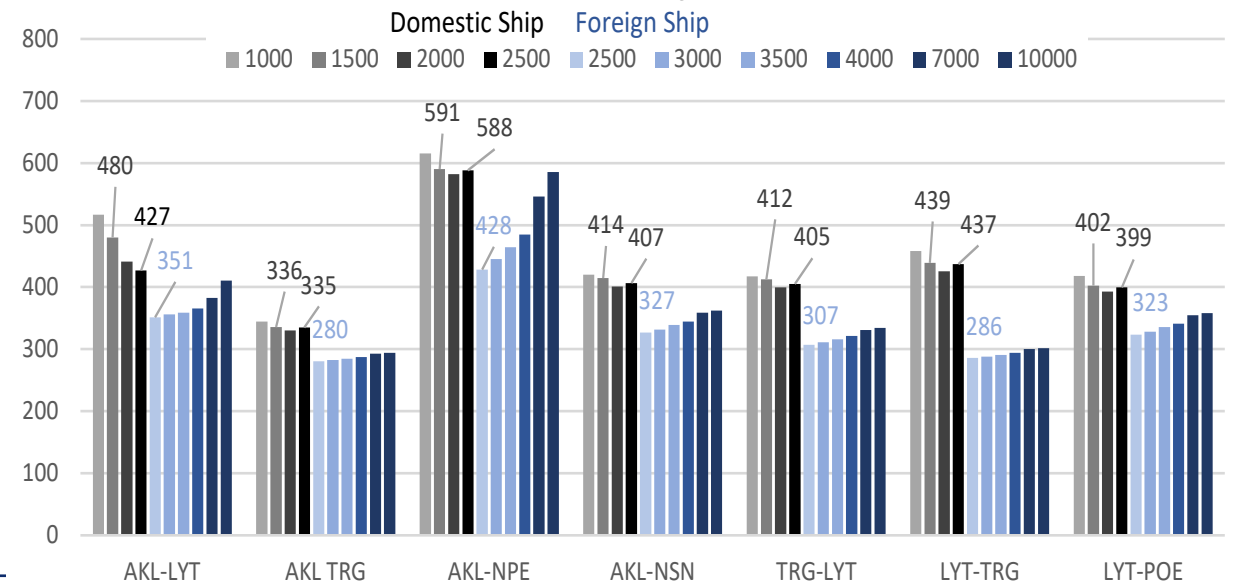
- observed traffic on key routes (left chart) (AKL-LYT is the key route)
- market share –allocation to domestic and competing foreign services on each route
- unit costs for foreign ships (blue columns right chart) lower across all routes

Coastal Container Movements by Key Routes

Route	Domestic		Trans-shipment	Coastal Total	Weekly Shipping Services			Containers per Ship TEU/ship	
	Full	Empty			Pacifica	International	Indirect		
From	To	000TEU	000TEU	000TEU	Weekly	Direct	Indirect		
AKL	LYT	65	10	5	80	1	4	3	320
AKL	TRG	0	40	5	45	+2	1	6	450
AKL	NPE	0	30	2	32			3	320
AKL	NSN	10	10	4	24	+1	1		240
TRG	LYT	15	0	9	24	+1		1	240
LYT	TRG	10	0	10	20	+1	1	5	200
LYT	POE	10	15	0	25		1		500
Total of 7 Key Routes		110	105	35	250				
NZ Total		125	145	138	408				
share of 7 key routes		88%	72%	25%	61%				

Pacifica: 1 = direct, +1 = 1 intermediate port. International: indirect = 1-4 intermediate ports

Container Unit Costs by Route - \$/TEU



Inter-island Ferries - Revenues

Interislander (KiwiRail)

- government owned, good disclosure
- 3 ROPAX ferries (1 rail-enabled)
- 3700 sailings p.a., 70% passenger, car
- Competition keeps pricing aligned

Interislander Revenues

June Year	2016	2017	2018	2019	
Operational Inputs (estimates)					
Passengers	0.80	0.75	0.78	0.83	
Cars (<6m)	0.25	0.24	0.25	0.26	
Trucks (lane-m)	1.30	1.20	1.20	1.20	
Rail (lane-m)	0.45	0.48	0.50	0.56	
Unit Revenue					
	\$/unit	\$m	\$m	\$m	\$m
PAX (each)	55	42	40	42	45
Car (each)	115	27	26	28	30
Large Truck (lane-m)	50	59	58	59	60
Other (unknown)	6	0	7	9	2
Interislander Revenue \$m					
Third party (actual) \$m		128	130	137	138
Rail (est) \$m	60	32	32	33	34
Total Interislander (est) \$m		159	162	170	171

Analysis based solely on public information

Ferries provide “land bridge” across Cook Strait (to complete SH1). Ports provide separate facilities.

Bluebridge (StraitNZ)

- privately owned, very limited disclosure
- 2 ROPAX ferries
- 2600 sailings, 56% of truck market
- Introduced competition in 1992

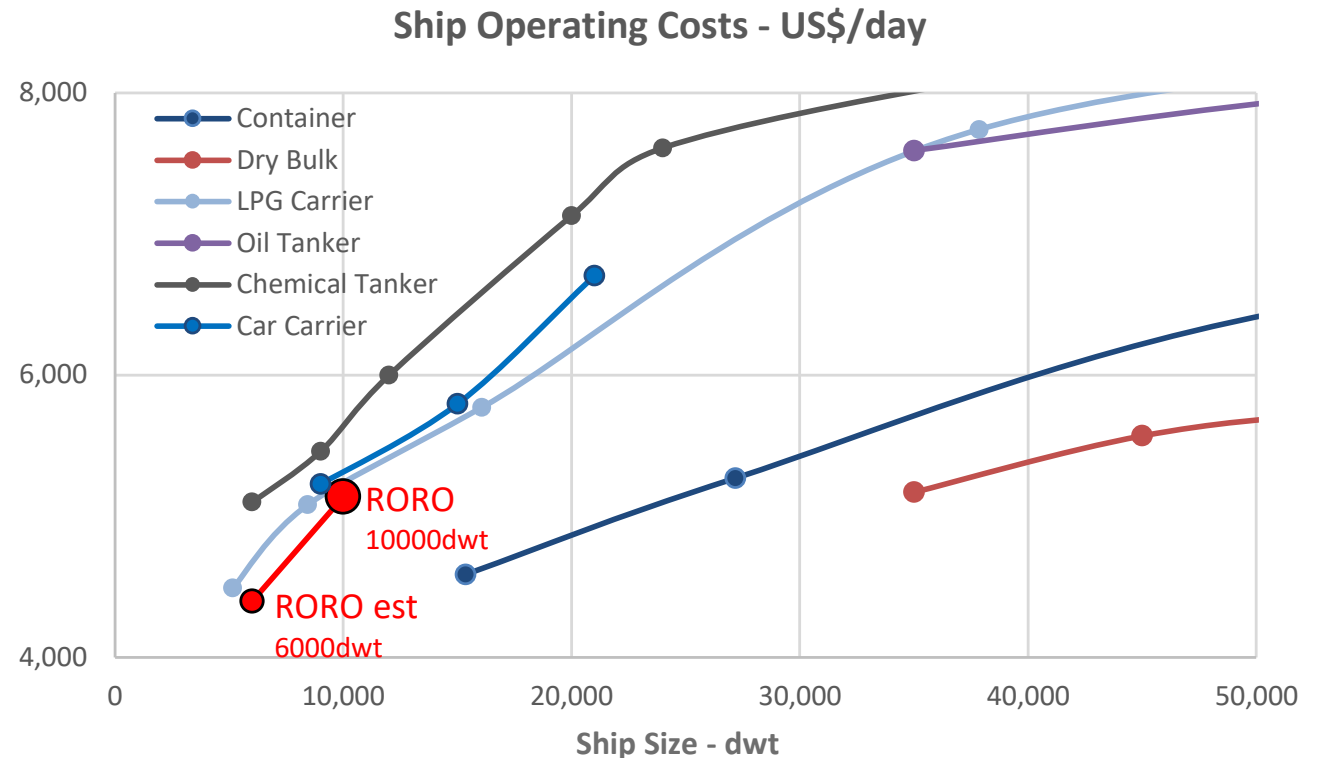
Bluebridge Revenues

June Year	2016	2017	2018	2019	2020	2021
Operational Inputs (estimates)						from flyer
Passengers	0.30	0.30	0.36	0.34		
Cars (<6m)	0.10	0.10	0.12	0.11		
Trucks (lane-m)	1.27	1.42	1.47	1.53		
Rail (lane-m)						
Unit Revenue						
	\$/unit	\$m	\$m	\$m	\$m	
PAX	55	16	16	19	19	
Car	120	11	12	14	14	
Large Truck (lane-m)	45	54	61	65	69	
Catering	3	1	1	1	1	
Estimated Bluebridge Revenue \$m						
		82	90	99	102	110
Inferred "Other" StraitNZ (non-ferry) Revenue				47	51	55
Strait NZ Revenue (from flyer)				149	161	175

Inter-island Ferries – Operating Costs

Cost structure comprises capital, ship operating and voyage (bunker and port) costs

- **Capital** – NZ ROPAX fleet is old, both operators buy ferries from liquid global market
- **Ship Operating** - derived from Drewry, adjusted to NZ market (2.1x global)
- **Bunkers** – NZ priced at 1.5x premium to global (Asian) market (pre-refinery closure)
- **Port costs** – not disclosed, rates for Interislander and Bluebridge expected to be similar



Source: Drewry Ship Operating Costs 2019

Inter-island Ferries – Financial Summary

Cook Strait Ferries - Annual Operating Profit - NZ\$m

		Interislander		Bluebridge
Operational Inputs				
ROPAX Deadweight (dwt)	<i>Kaiarahi</i>	7,012	<i>Strait Feronia</i>	7910
	<i>Aratere</i>	5,464	<i>Straitsman</i>	4168
	<i>Kaitaki</i>	5,794		
	Fleet	18,270	Fleet	12,078
Patronage and Unit Rates				
	<i>\$/unit</i>		<i>\$/unit</i>	
Passengers million	55	0.83	55	0.34
Cars million	115	0.26	120	0.11
Large Trucks lane-m million	50	1.20	45	1.53
Rail lane-m million	60	0.56		
Revenues \$million				
	<i>share</i>		<i>share</i>	
Passengers	33%	45	18%	19
Cars	22%	30	13%	14
Large Trucks	44%	60	67%	69
Other (unknown)	2%	2	1%	1
Total Third Party		138		102
Rail (Related Party)		34		0
Total Revenue		171		102
Ship Operating Costs				
Manning		12		8
Insurance		0		0
Stores		1		1
Spares		1		1
Lubricants		1		1
R&M		1		0
Survey		1		1
Admin		1		1
Lease/Charter		5		0
Total \$m		22		11

Summary financials – estimates from public sources

- Operational inputs – well disclosed
- Pricing and revenues – well constrained
- Ship Op Costs – ex-Drewry, poorly constrained
- Bunkers –1.5x premium to global (Asian)
- Port costs – not disclosed

(continued)		
Ship Non-operating Costs		
Hospitality crew	4	2
Hospitality Provisioning	8	3
<u>Other</u>	<u>9</u>	<u>5</u>
Total	21	10
Bunker Costs		
NZ\$/tonne	670	670
Consumption t/day at 20kts	55	55
Consumption 000tonne/yr	35	24
Bunker Cost \$m	24	16
Capital, Port & Other Costs \$m		
Ship Capital Charges	17	6
Terminal R&M and Operations	15	10
Head Office, Marketing, Booking	9	6
Port Marlborough	6	4
CentrePort	8	6
Capital, Port & Other Costs \$m	55	32
Total Ferry Expenses	122	69
Operating Earnings (EBITDA)	49	33

DTCC Follow-up Resilience Study

1) Bunker Supply Resilience

- Refining NZ ceased domestic refining 1 April 2022. NZ now relies solely on imports.
- Four dimensions of NZ's supply resilience of bunker (vs crude oil)
 - 1 – Global oil supply – *secure*
 - 2 – Global Refining Capacity – strong expansion in Asia, excess capacity – *secure*
 - 3 – Oil Shipping – long history of reliable available tanker capacity – *secure*
 - 4 – Storage barely meets IEA minimum, tested under import-only model - *review*
- Imports ex Singapore, South Korea, requires at least 12 LR2 class ships
- MARPOL Annex VI imposes tighter emissions rules, VLSFO or MGO now mandatory
- Bunker prices historically 30% premium to Singapore, should fall ?

DTCC Follow-up Resilience Study

2) Ship Operating Costs

- DTCC study confirmed high cost of operating
- Domestic ship costs 1.6x equivalent visiting foreign ships
 - Fixed operating costs 2.0x (crew costs 2.55x, other 1.5x)
 - Bunker costs 1.3x
- Playing field structurally tilted (scale, tax, regulation)
 - No easy policy levers
 - NZ signatory to same international rules (IMO, WTO)
 - Foreign ships vital for NZ trade – cannot jeopardise
 - Changing cabotage or crewing requirement may undermine foreign capacity
- NLTP funding initiatives – 4 candidates selected

DTCC Follow-up Resilience Study

3) Impact of Covid on Trade Resilience

- NZ has fared well through pandemic, held at bay, successful vaccination rollout
- Economic impact mitigated by stimulus funding, lowering OCR:
 - Service sector principally has suffered – tourism, hospitality
 - Short sharp dip in GDP, high employment, inflationary pressures. Recession?
- Significant disruptions to trade
 - Global demand for goods initially dropped, then a major surge
 - Lockdowns worldwide affected manufacturing, production
- Shipping badly affected
 - Global supply chains disrupted – long, complex, hard to reassemble
 - Ships – face long delays berthing – 20% global capacity at anchor waiting
 - Capability, efficiency has fallen
 - Global shipping rates have risen 6-10-fold



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Questions?