

Drought related impacts on transport and Supply Chains: Paraguay – Paraná case study



SUMMARY

- THE PARAGUAY-PARANA WATERWAY
- EXTREME LOW WATERS 2020-2022
- CONSEQUENCES ON TRANSPORTATION AND TRADE
- CONCLUSIONS

PARAGUAY – PARANA WATERWAY

One of the world's longest inland waterway transport network connecting 5 countries: Bolivia, Brazil, Paraguay, Argentina and Uruguay.



2.180 km
7' / 10' draft
132 km
25' draft
680 km
34' draft

THE WATERWAY IN NUMBERS

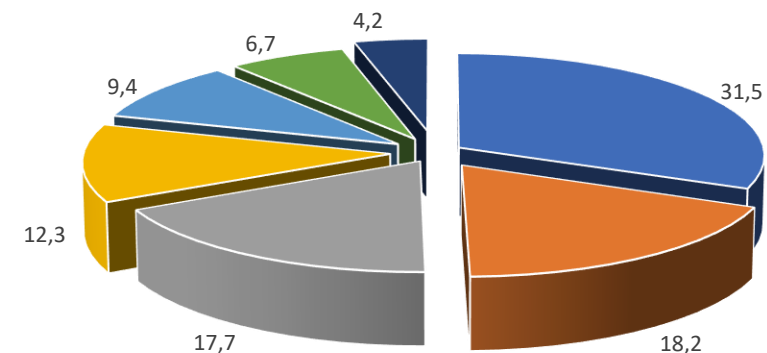


>120 millions tons
throughput
(expo, impo,
cabotage) in 2018

(Min. Transporte, BCR)

- Downstream traffic is 4 times greater than upstream
- Over 70 Bn U\$D Transported in 2017 (60% of Argentina's export value and almost 80% in volume)
- 82% of solid and 95% of liquids Agri bulk are transported in the PP Waterway
- In 2019 more than 2600 sea going transport vessels used the waterway, in all more than 500 vessels per month.

Main products transported in the Paraguay-Paraná Waterway

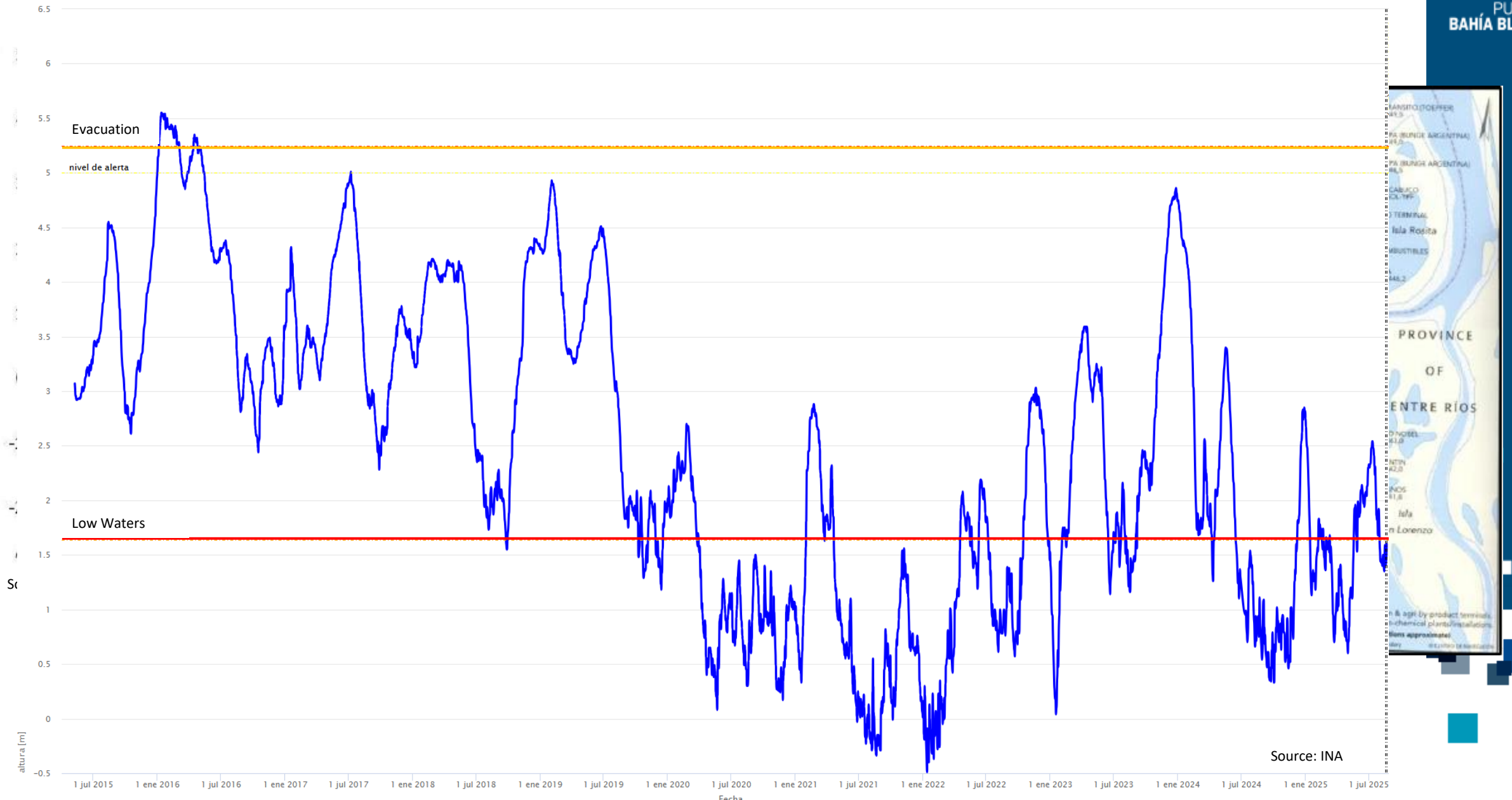


■ Grains ■ Cereals ■ Wood
 ■ Heave loads ■ Fertilizers ■ Liq. Fuels
 ■ Gas Fuels

SUMMARY

- THE PARAGUAY-PARANA WATERWAY
- EXTREME LOW WATERS 2020-2022
- CONSEQUENCES ON TRANSPORTATION AND TRADE
- CONCLUSIONS

PARANA'S WATER LEVELS IN ROSARIO

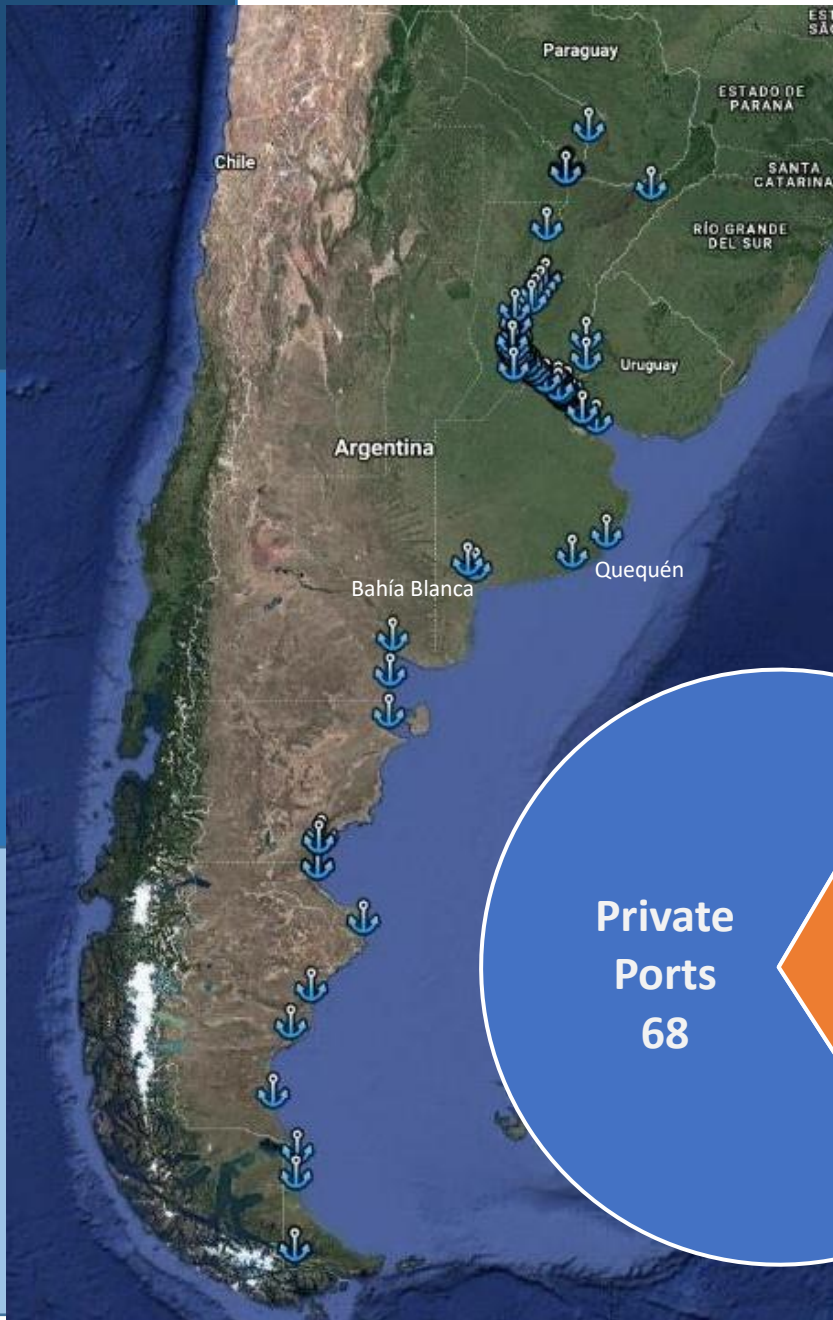


Source: INA

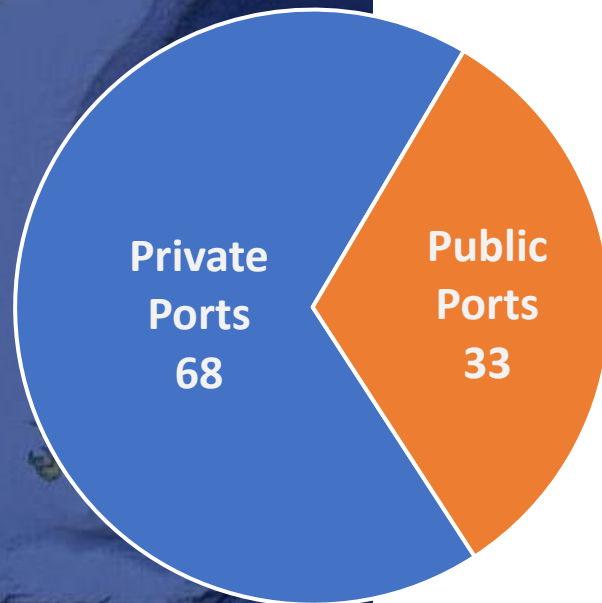
SUMMARY

- THE PARAGUAY-PARANA WATERWAY
- EXTREME LOW WATERS 2020-2022
- CONSEQUENCES ON TRANSPORTATION AND TRADE
- CONCLUSIONS

ARGENTINE PORTS



- 101 Registered Ports
- +4.500Km from Iguazu (North) to Ushuaia (South)



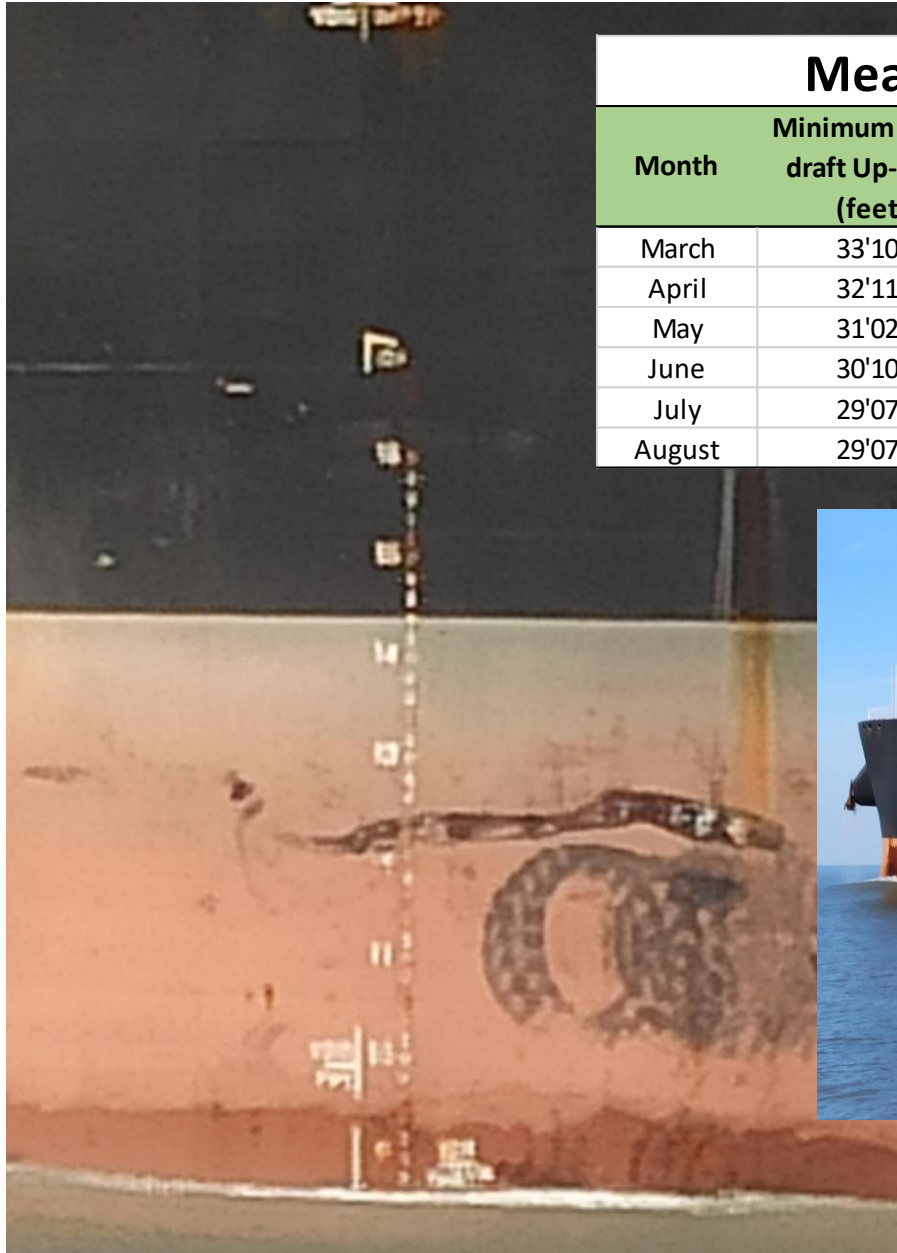
- Under normal conditions (34 feet draft) Cereal Bulk Carriers (Panamax) Top Off at Atlantic Ports (Quequén and Bahía Blanca) to 45 feet draft or go to Brazilian Ports

CARGO AND DRAFTS UPRIVER

Mean minimum draft and loss of cargo 2021 at Rosario

Month	Minimum mean draft Up-river (feet)	Minimum mean draft Up-river (m)	Draft difference to 34' (10.36m)	Estimated loss of cargo according to vessel type (Tn)				
				Handy 33 K	Small Tanker	Big Tanker	Supramax 56 K	Panamax 75 K
March	33'10"	10.33	0.03	200	200	200	200	200
April	32'11"	10.04	0.32	1600	1600	1900	1900	2200
May	31'02"	9.5	0.86	4200	4200	4900	5100	5900
June	30'10"	9.41	0.95	4700	4700	5500	5600	6500
July	29'07"	9.02	1.34	6600	6600	7700	7900	9200
August	29'07"	9.02	1.34	6600	6600	7700	7900	9200

Source: BCRmercado with data provided by NABSA

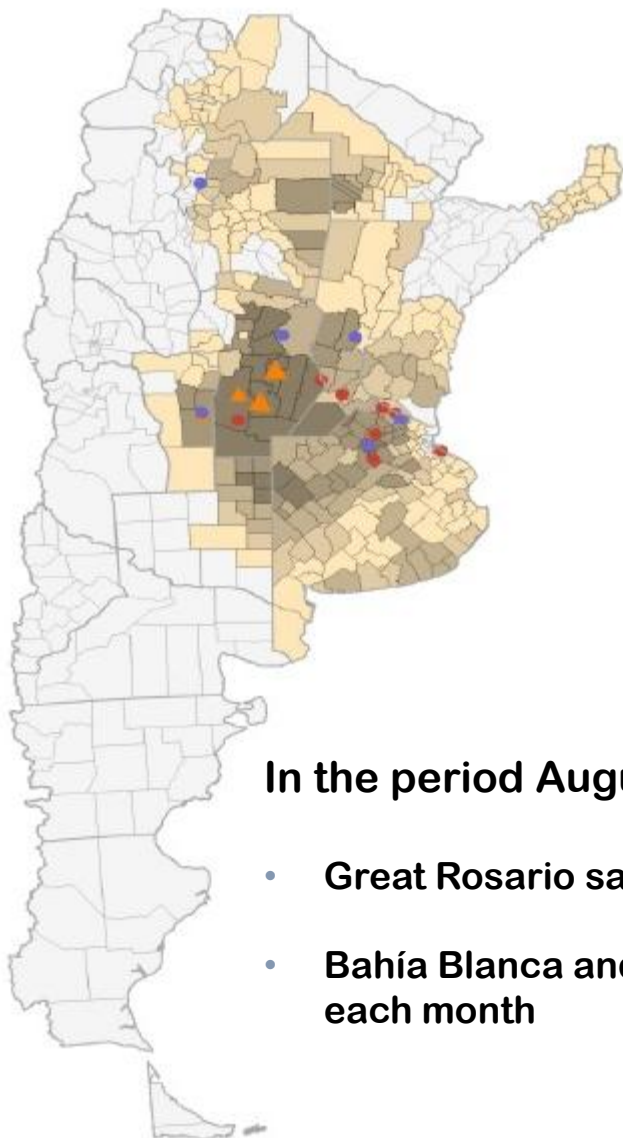


Draft of incoming ships from Upriver to top off at Bahia Blanca, September 2021

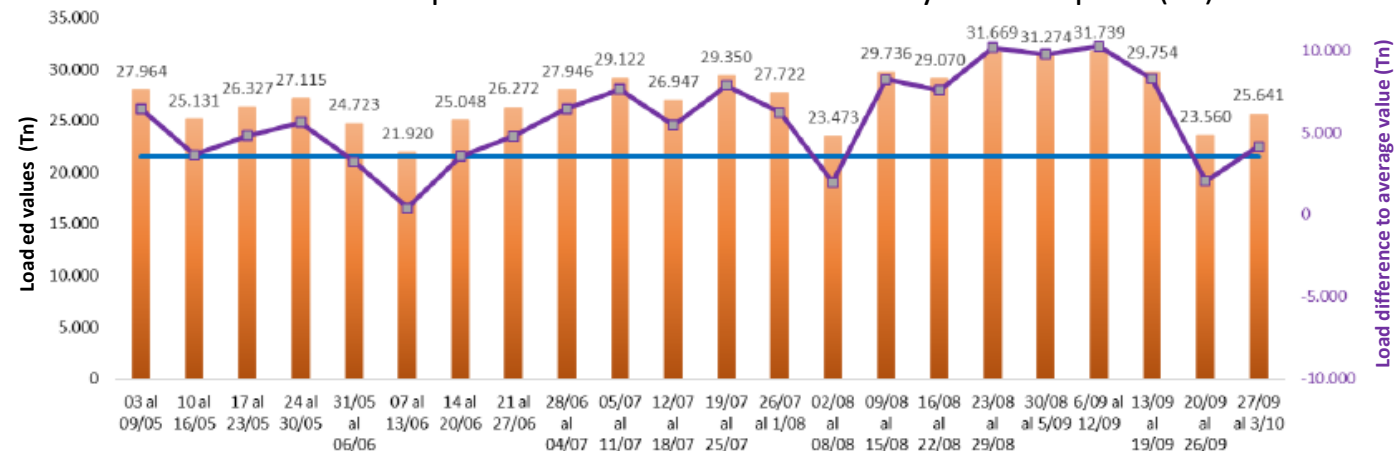


CARGO SHIFT TO ATLANTIC PORTS

Cereals: Corn



Corn exported from Bahía Blanca Weekly mean Top Off (Tn)

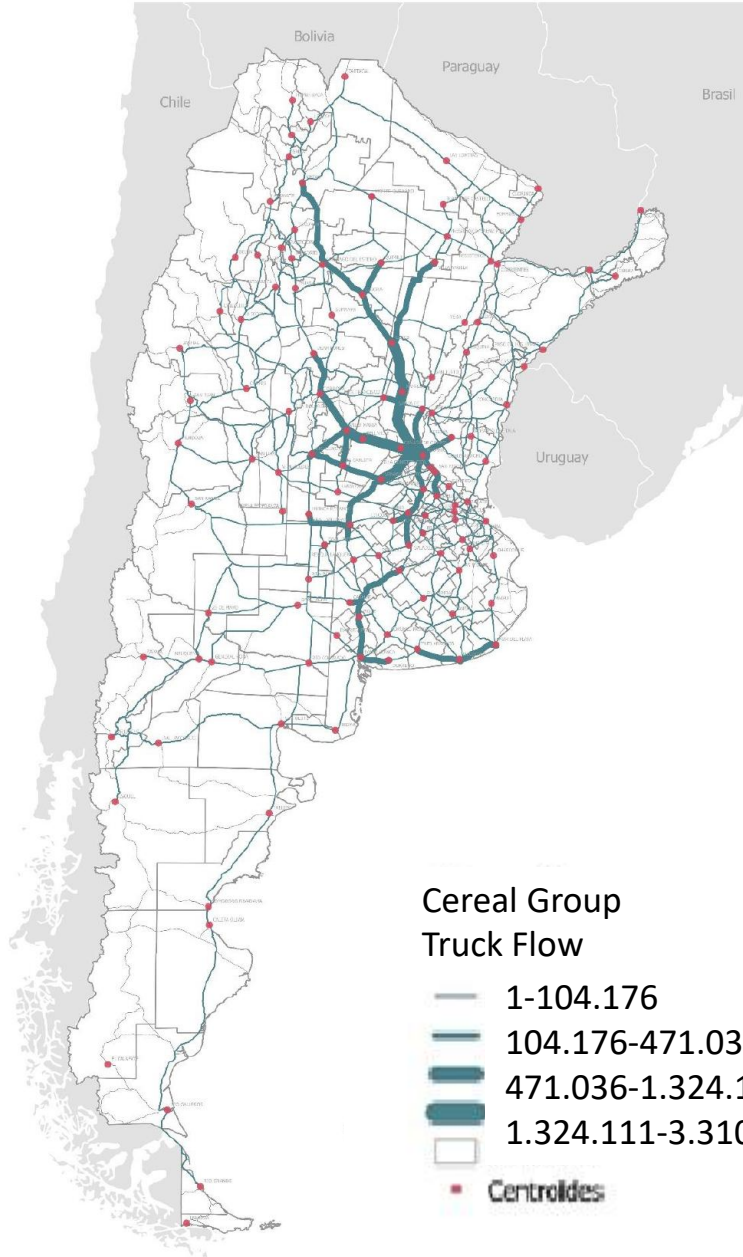


- Mean Top Off volumes increased in 29%
- Record breaking volume for Corn embarked in Bahía Blanca over 5.4 Mill Tn

In the period August-September 2021

- Great Rosario saw a three-year minimum in average corn loading volume in August
- Bahía Blanca and Quequén in the Atlantic coast saw it's historic record with 2.5 M Tn and 2.23 M Tn in each month

INTERMODAL DEFICIENCIES



Deficiencies in land accesses to Ports

- Great Rosario area 2.000.000 trucks/year (up to 14.000 trucks/day)
- Bahía Blanca area 400.000 trucks/year (up to 4.000 trucks/day)

In 2019 93% of all transportation in Argentina was carried out using roads

Railroad accesses to Ports

- Almost all ports in the **Rosario** area have Rail connections, but it only amounts to **15% of the cargo received in 2020**.
- Bahía Blanca has outdated infrastructure, but has the highest percentage of cargo received by rail (30%)



INTERMODAL DEFICIENCIES



Congestion of trucks near the port accesses causes **disruption and tension in neighbouring urban centres**. This includes an **increase in fatal accidents**.

To somewhat improve the situation the Ministry of Transportation has devised (in 2021) a quota system, where only trucks with prior reserve of a slot to unload are allowed to transit to the Ports. It still isn't enough, collapse being common during post harvest periods.



Many **roads** used to transport cargo to the ports are **in a state of great decay**. **Overloaded trucks** and scarce control contribute to deterioration. **Maintenance** and repairs are **insufficient** to improve the general situation.



In the period March-July 2021 compared to 2020

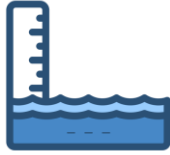
- Great Rosario area **decreased by 20%** in trucks arriving with corn
- Bahía Blanca saw arrivals **increased by 46%**



SUMMARY

- THE PARAGUAY-PARANA WATERWAY
- EXTREME LOW WATERS 2020-2022
- CONSEQUENCES ON TRANSPORTATION AND TRADE
- CONCLUSIONS

CONCLUSIONS



- 50+years low Waters has affected the Paraguay-Parana waterway since 2020 (with a peak during 2021) causing operational drafts to fall in upriver ports, and with it the cargo carrying capacity of ships.



- Being the waterway vital for Argentina's foreign trade, the disruption has had a negative economic impact, not only on prices, but also on losing cargo to foreign ports. This can be partly solved shifting cargo to the deeper Atlantic Ports and topping off there.



Displacing cargo hundreds of kilometres stresses an already deficient intermodal system. Rail has a minority participation, and road transportation causes grave consequences on infrastructure, albeit higher economic cost and environmental damage through augmented emissions compared to other means of transportation.

Thank You



**PUERTO[®]
BAHÍA BLANCA**

CONSORCIO DE GESTIÓN
DEL PUERTO DE BAHÍA BLANCA