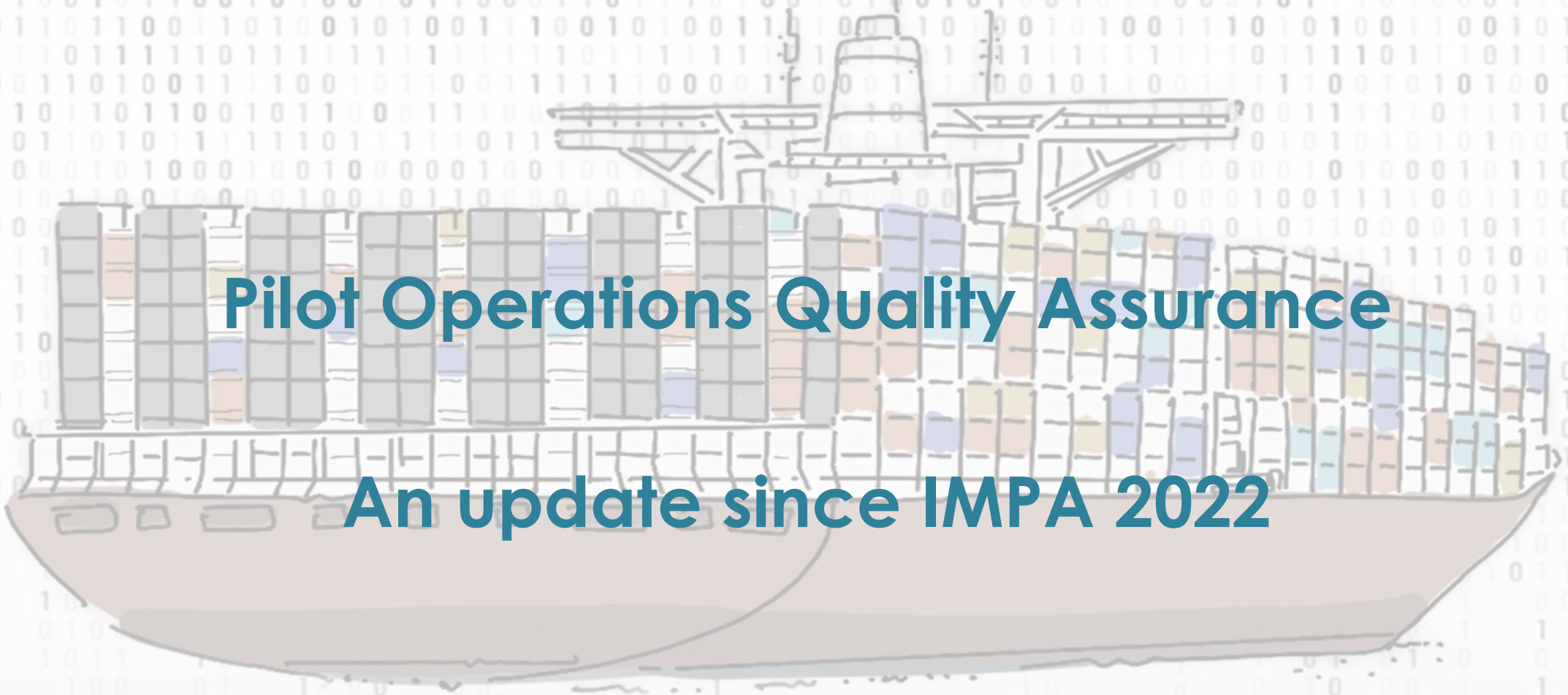
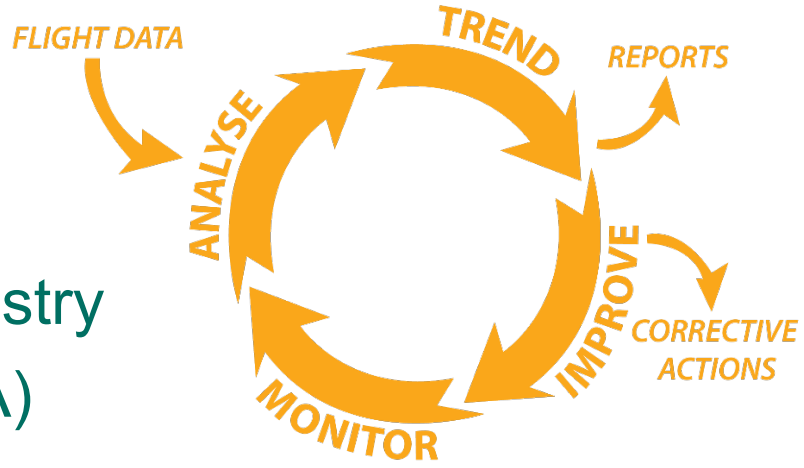


Pilot Operations Quality Assurance

An update since IMPA 2022



Refresh

- Pilot Operations Quality Assurance (POQA)
  is a maritime concept derived from the aviation industry
  Flight Operational Quality Assurance (FOQA)
- It is well established that
  accident causes are more predictable because of detailed knowledge
- Both POQA and FOQA combine data and operational experience
  to develop objective information to
  enhance safety, training effectiveness, operational procedures

FOQA is probably the most important safety tool available to aviation

FEDERAL AVIATION ADMINISTRATION

POQA and TransitAnalyst

"Flight Operations QA"

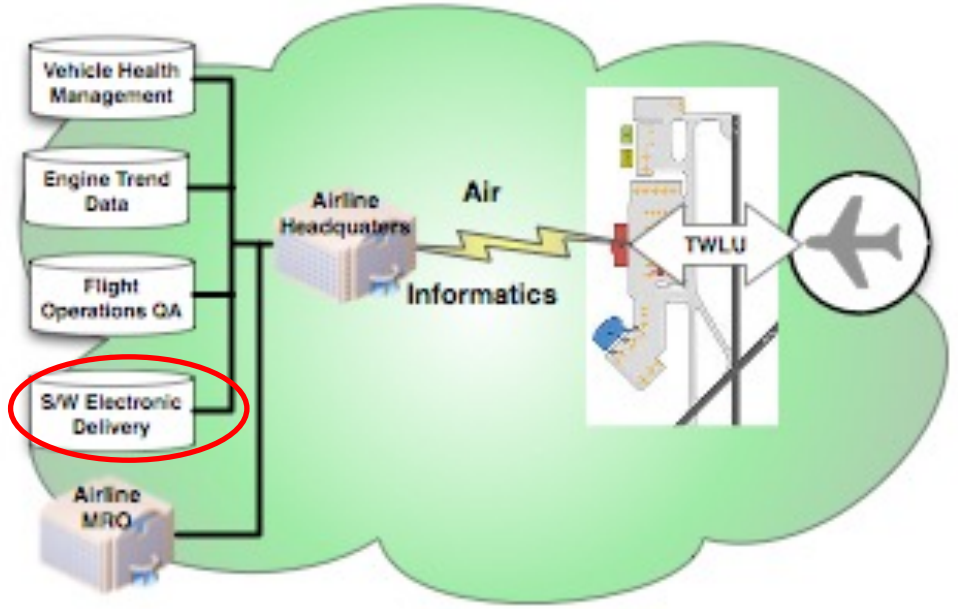
Air NZ presentation, NZMPA conference 2018

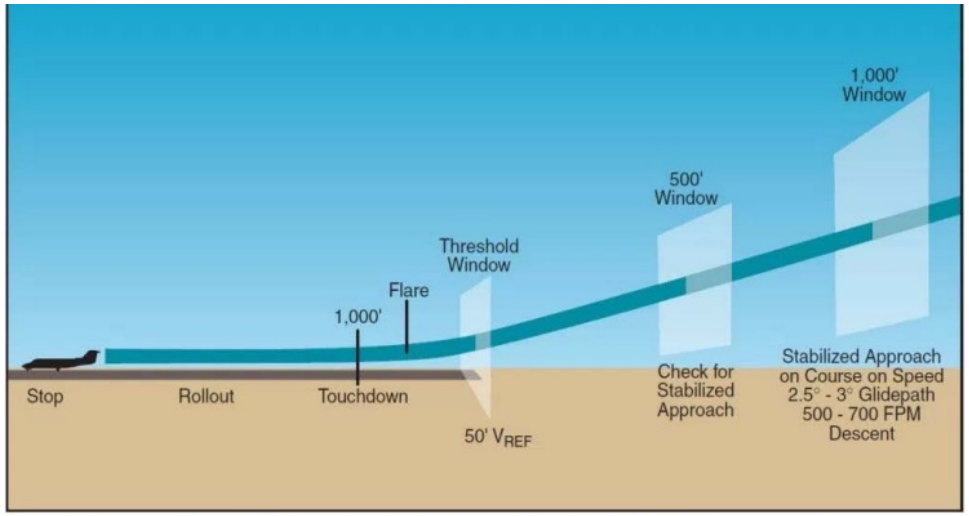
"A maritime equivalent was debated"

- *A pivotal change marking the shift of pilotage into the 'evidence-based' domain of the 'Age of Big Data'.*

"Leading indicators" (Ravi Nijjer)

- *Key goal is to look for "leading indicators" of potential problems. Identify BEFORE they occur.*





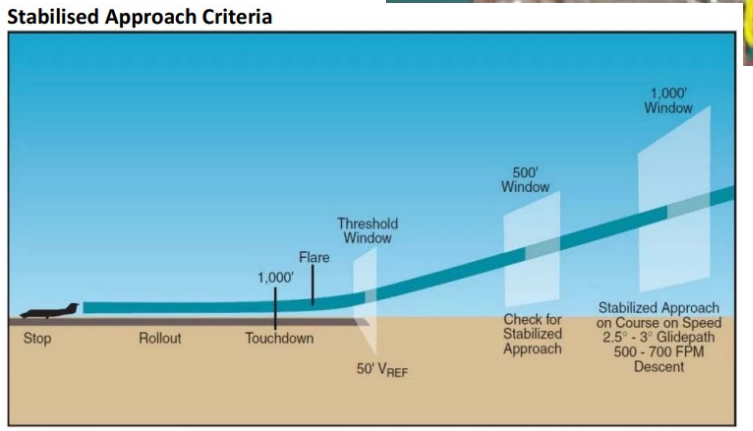
"All flights must be stabilized by 1000 feet above airport elevation in Instrument Meteorological Conditions (IMC) and 500 feet above airport elevation in Visual Meteorological Conditions (VMC).

Transit Analyst : Pilotage Operations Quality Assurance

- POQA combines pilotage big data with simple analytics to rapidly improve operational safety and efficiency and create the pilotage organisations of the future.
- A proactive approach to safety management. Capturing and acting upon events, trends, incidents, and outliers in a timely fashion.
- The need to understand, and set, effective boundaries that give sufficient time to react appropriately to a breach
- Fits well as a risk management tool

Facilitates:

- Improved consistency and delivery of pilotage services,
- Evidence-based operational planning,
- Targeted training and retention of retired pilot experience,
- CPD (impartial peer review),
- Investigation of non-reportable incidents and near misses.



"All flights must be stabilized by 1000 feet above airport elevation in Instrument Meteorological Conditions (IMC) and 500 feet above airport elevation in Visual Meteorological Conditions (VMC).

Modern Maritime Environment

- Zero community tolerance for maritime accidents
- Maritime accidents attract highly emotive and often negative publicity
  - accident involves pollution and/or loss of life the consequences for those involved can be very serious
- Accident and Safety Authorities conduct safety investigations and improve maritime safety by reducing the risk of similar accidents recurring
- Increased prosecutions of seafarers including pilots involved in accidents
- Increasing demands for efficiency and reduction in safety margins
- Application of increasingly sophisticated technologies
- Availability of reliable evidence post-event indicates a shift to an evidence-based world where transparency is the best option
- **'Overwhelmingly'** high percentage of present-day systems and practices in pilotage/shipping are operationally successful

It is NOT Big Brother : The data is already being, or can be, analysed

"Maritime NZ's investigation identified the pattern of excessive speed over many months and thousands of journeys."
Maritime NZ, July 2020

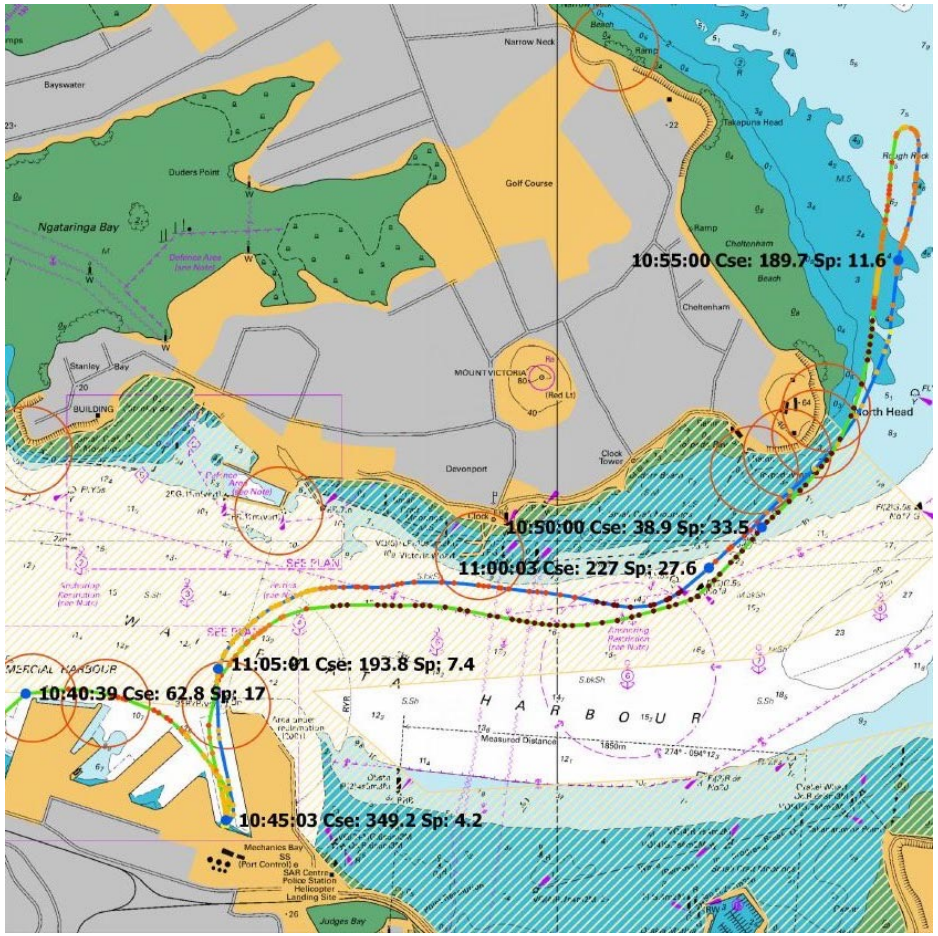
In short:
There are significant benefits which can be achieved through proactive marine safety management.

Very beneficial to identify potential problems before the next incident can take place...

TAIC is about investigating for the sole purpose of avoiding the same occurrence a second time.

TAIC : identified that the most likely point of failure continues to be during "controlled" turns in approach channels.

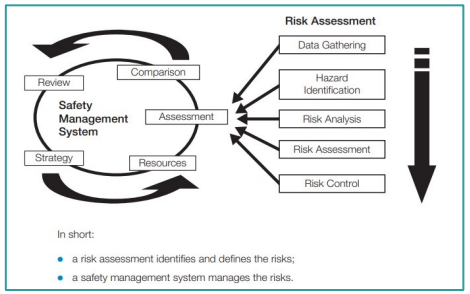
All of this making the point that "good practice and effective planning are essential" but not always conducted.

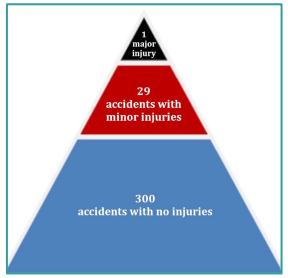


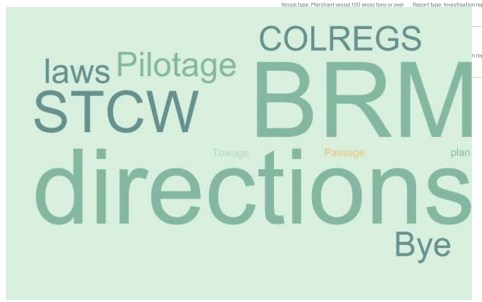
Maritime Accident Investigation Board

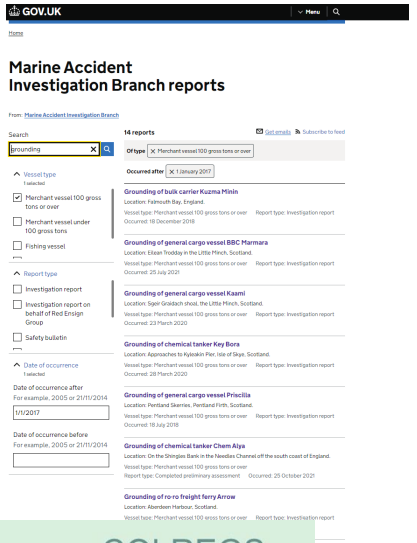
The MAIB recommends ports (and pilots) to actively manage their risk to avoid a visit by them

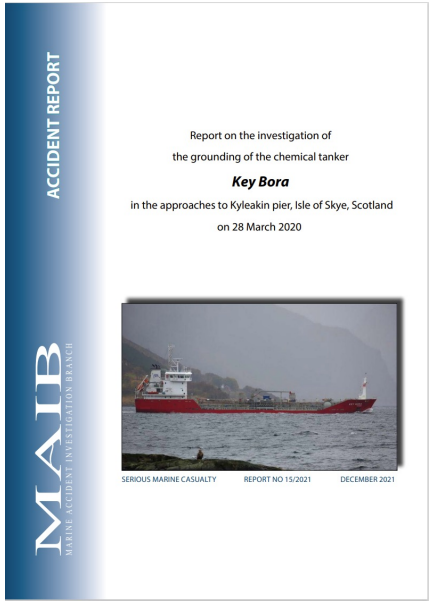
- Refer to the PMSC & GTGP
- Review your incidents and accidents
- Understand **your** risk controls











The MAIB recommends that pilotage trips be reviewed

- Pilotage Plans
- Pilotage Routes

Source courtesy of MAIB : UKHMA : Nov2023

Irrefutable Evidence

Fact: **Marine investigations of ships under pilotage, are now based on 'irrefutable evidence' obtained from real-time recordings**

Questions:

- ***"Can the job withstand scrutiny?"*** (that is possible after the event with today's technology)
- ***"Does it meet the legal requirement of Due Diligence?"*** (in regard to use of available knowledge on safety and technology
- ***"Are practices comparable to other hazardous industries?"***
- ***"Does it meet expected community standards in regard to acceptable risk?"***
- ***"Is there a 'fit for purpose' pilotage plan?"***

- It also implies the need for very strong focus on protocols around data access and data use in a world where so much new data is created every second.

Investigators Perspectives and Frustrations

1. Investigations revealed *"very different perspectives"* of pilots and marine accident investigators on the conduct of pilotage
2. 'Irrefutable evidence' from recordings:
   - Marine occurrence reports repeatedly found pilots only using visual techniques, local knowledge and their intuition and ignoring other resources. And this is considered sufficient by pilots.
3. Safety investigators in addition to visual piloting, local knowledge, and pilot's intuition also expect effective use of a passage plan, PPU, utilisation of Bridge Team, and ship's bridge equipment
4. The use of a 'system' as against 'individual' approach.
   - The traditional individual approach as it is referred to is susceptible to a single point failure and unacceptable in today's highly safety conscious world.
5. Despite two decades of safety accident investigations and recommendations, similar accidents continue to occur.
   - Evidence obtained from ship's VDR and VTS recordings consistently shows that little has changed in the way that pilotage is conducted.
   - Similar Accidents **implies need for 'Evidence Based Training'** (Captain Simon Henderson)

Outcomes of presentations (2018) Captains Peter Dann, Peter Liley, Tony Herriott, Mike Drake & Lindsay Cavanagh, Vik Chaudhri and Jeanine Drummond

Conclusions

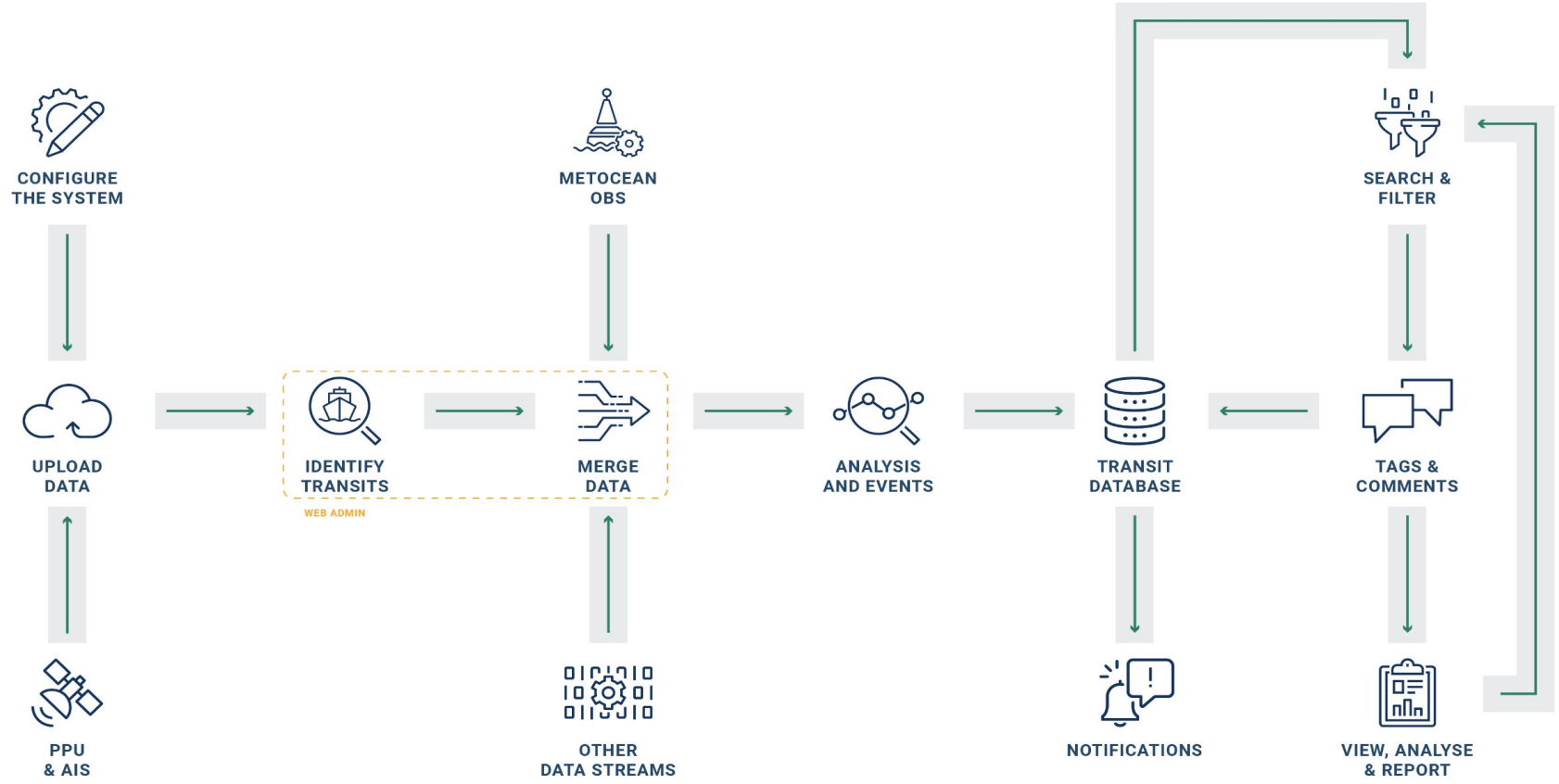
- Pilotage is being put under scrutiny as never before. This is only going to increase.
- “Whatever way pilotage is conducted, it has to be able to withstand scrutiny that is possible post occurrence with today’s technology”
- What is required is consistency, reliability and standardisation
- In an evidence-based environment transparency is the only option
  - the full implications of the use of VDR data and recordings for investigations has not been understood
- What are the consequences of not addressing issues related to revealed deficiencies in present day pilotage practices?
- Need for ‘Reconceptualisation of Pilotage’ to be understood and implemented*.

*Maximum Situational Awareness

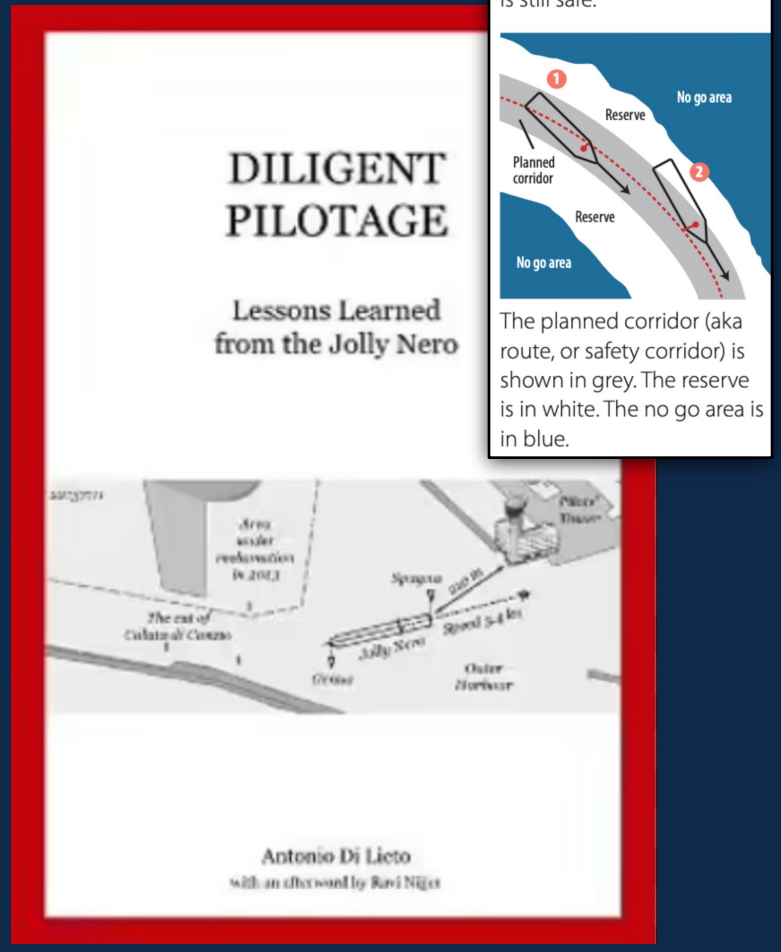
Introducing : TransitAnalyst

Overview

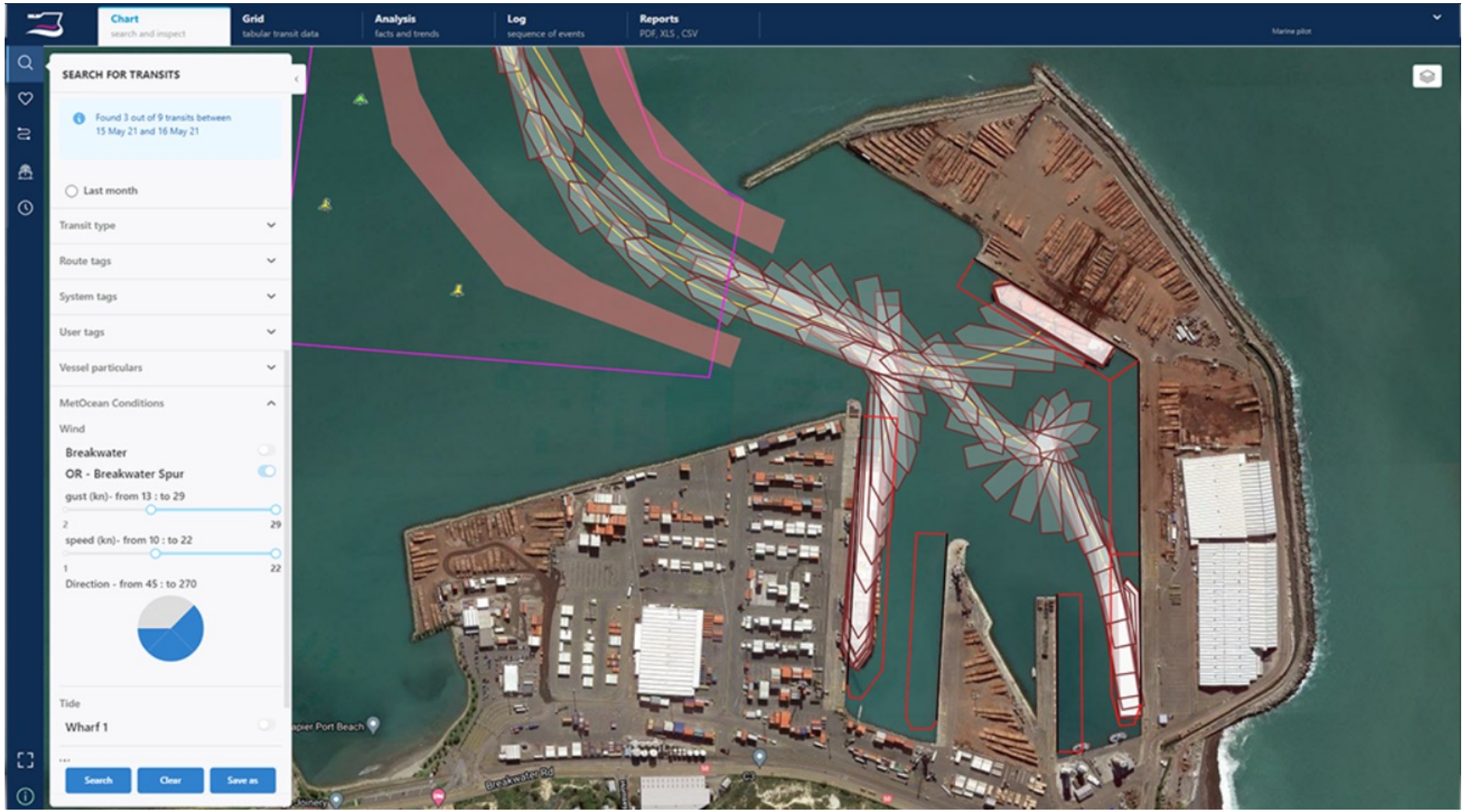
OMC's aim with TransitAnalyst is to empower users with an easy-to-use tool for visualising, analysing and acting upon pilotage big data.



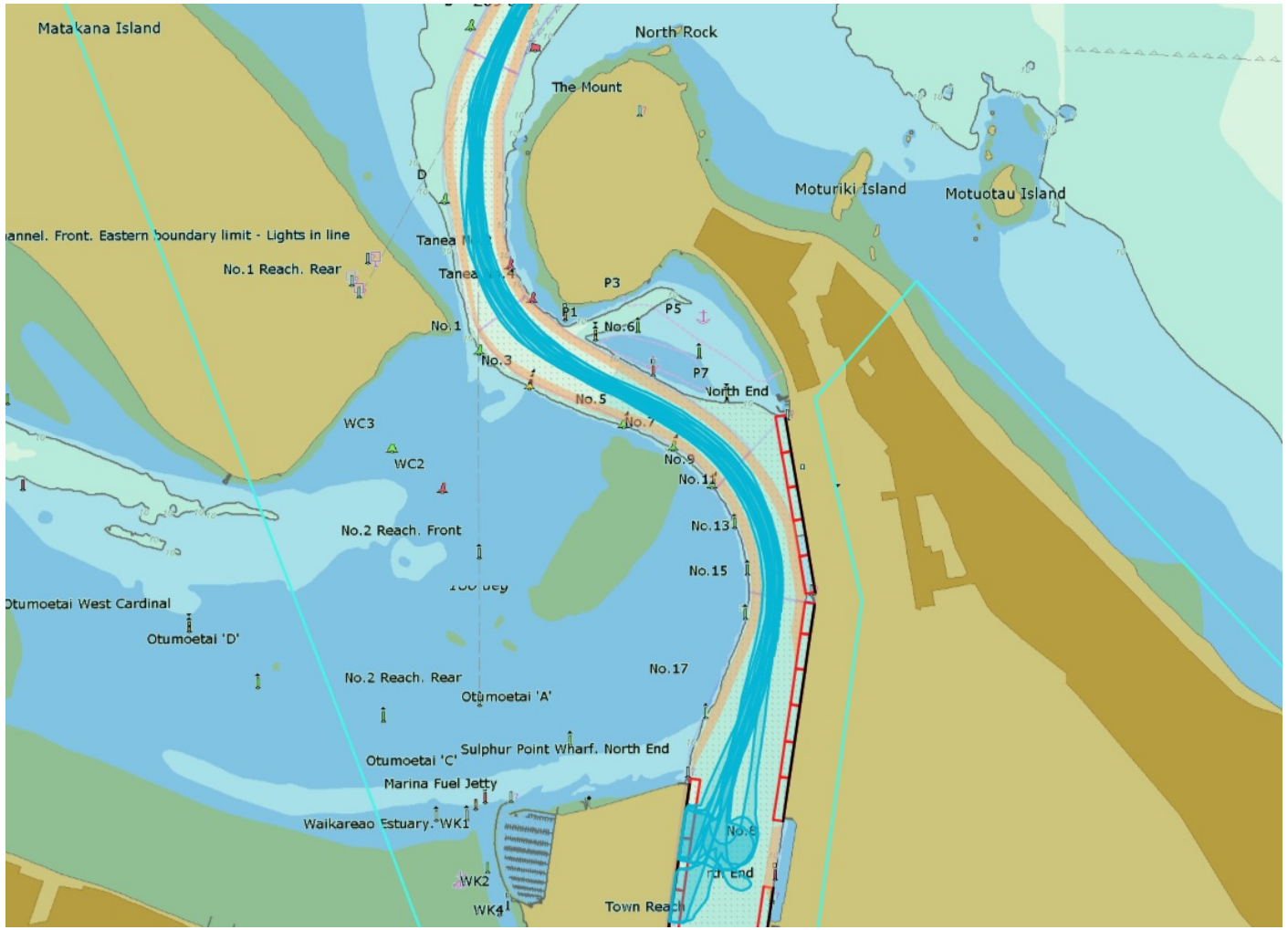
TransitAnalyst can be configured to manage the Critical Navigational Elements (CNEs) of individual pilotage jobs (transits) and have analysis conducted against those CNE's and their unique Safety Margins.

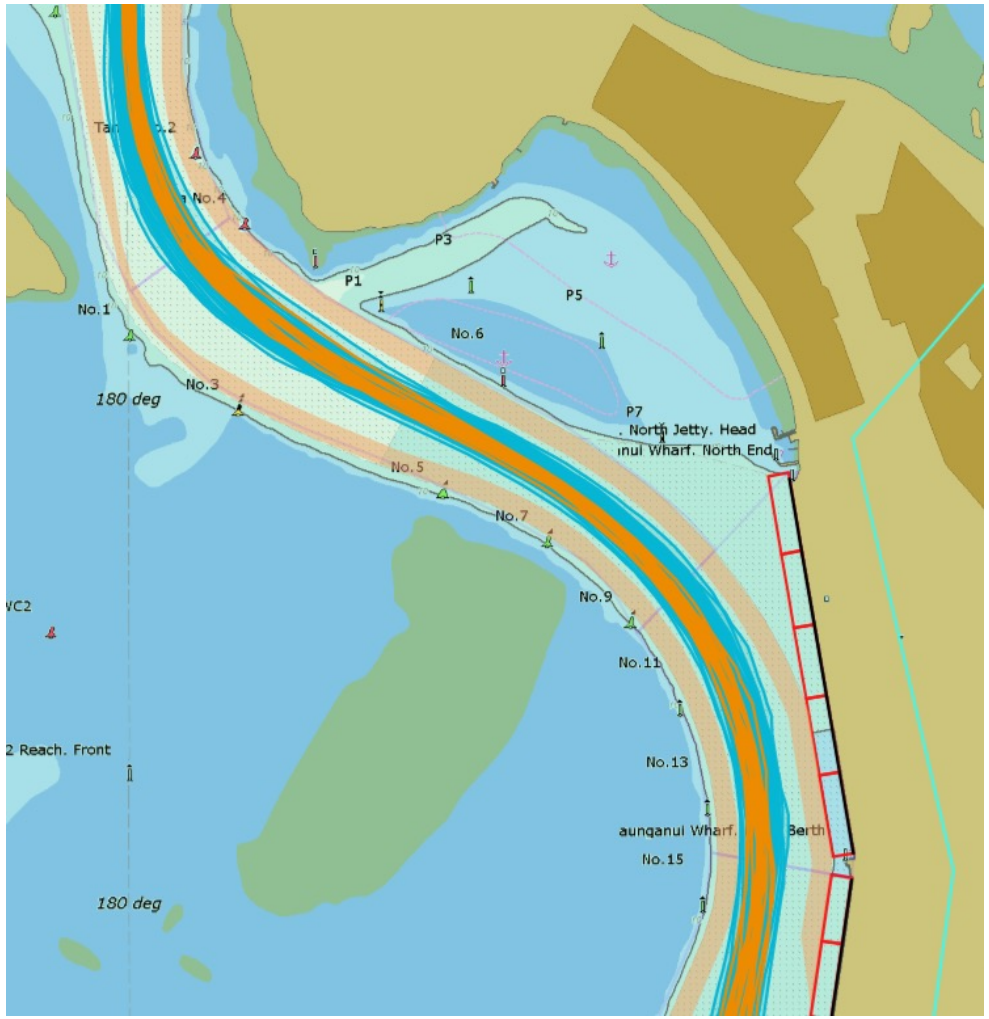


Advanced filtering for all parameters and environmental conditions



Channel and Safety Corridor Assessment





Drill Down

All Vessels 13 March 2024

Differentiate Inbound and Outbound

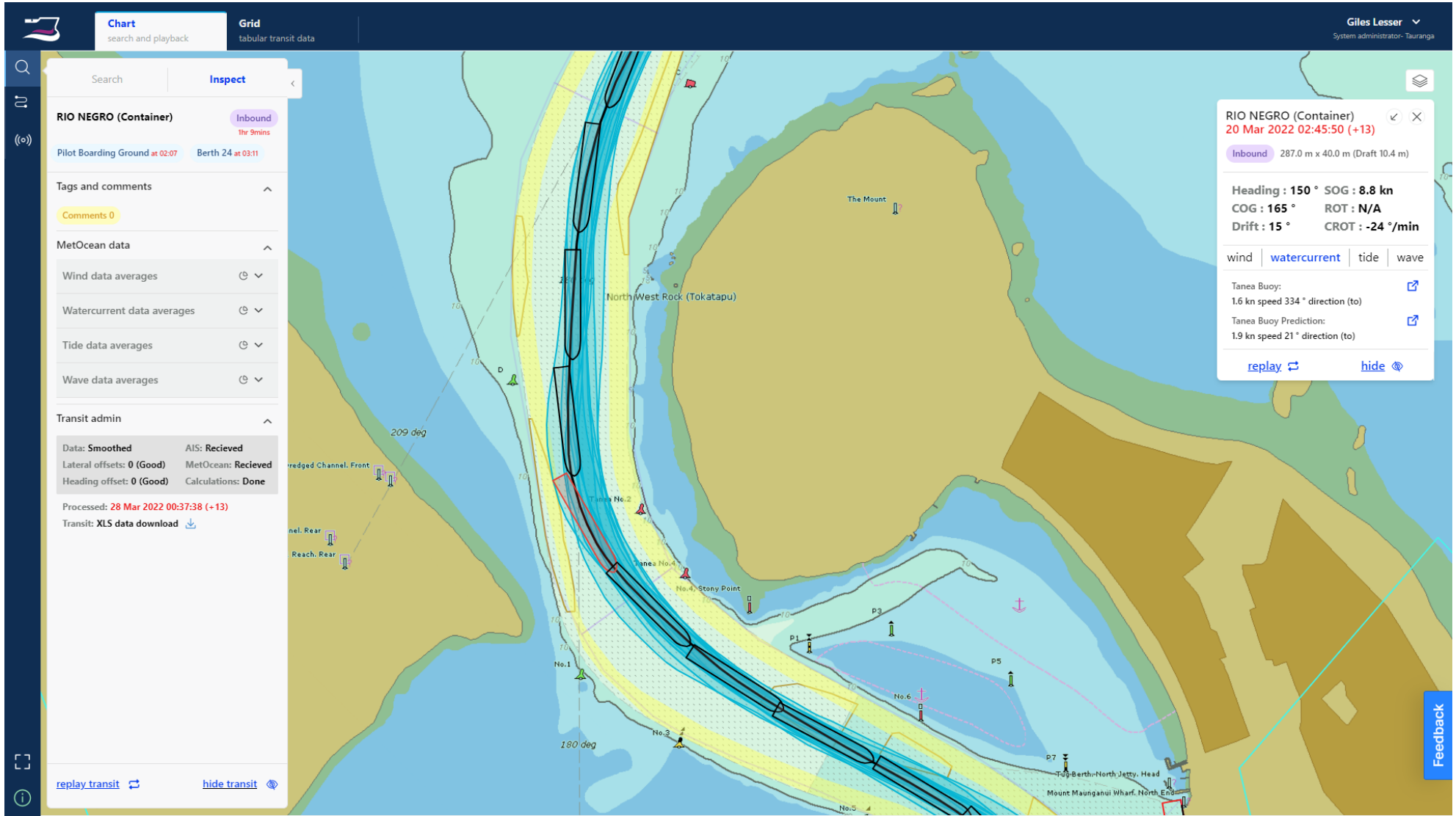
Highlight transit channel (outbound)

Highlight Outliers (outbound)

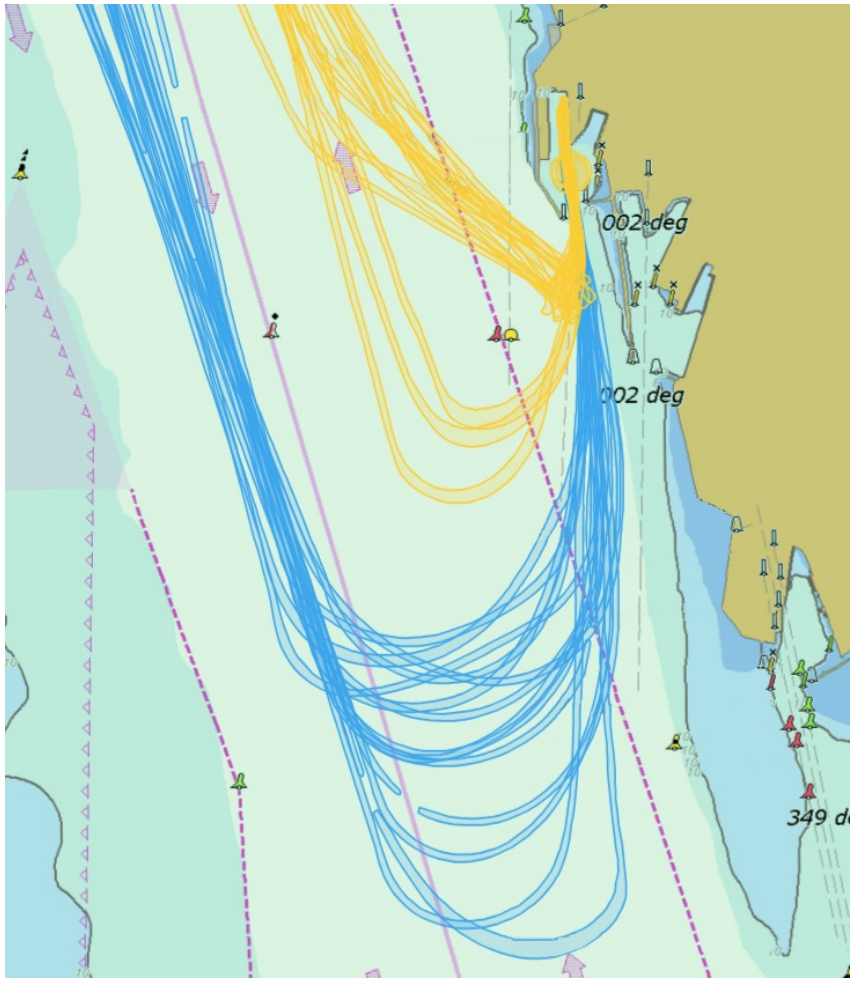
Inspect Individual Vessels

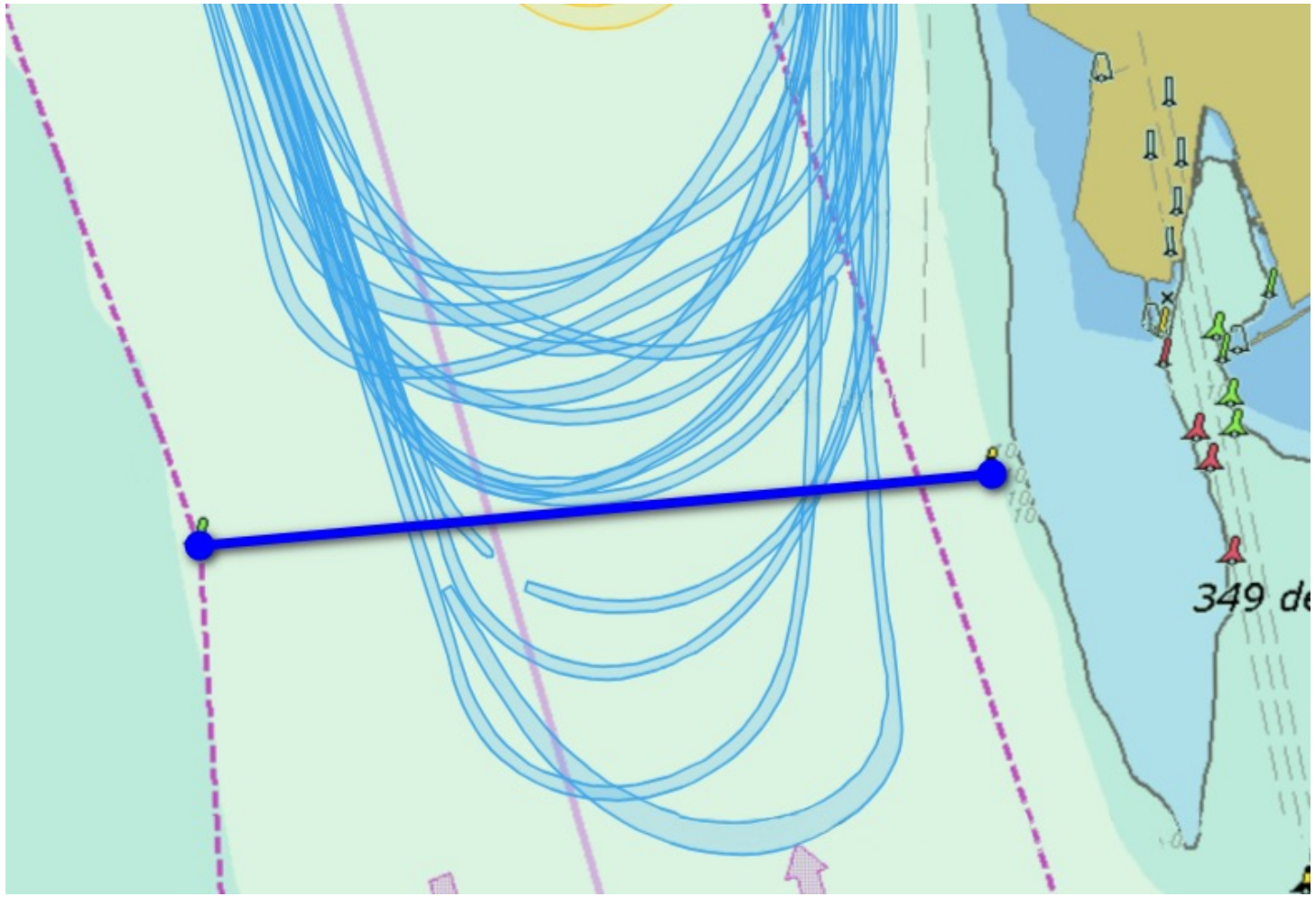
Replay whole transit

Transit Inspection

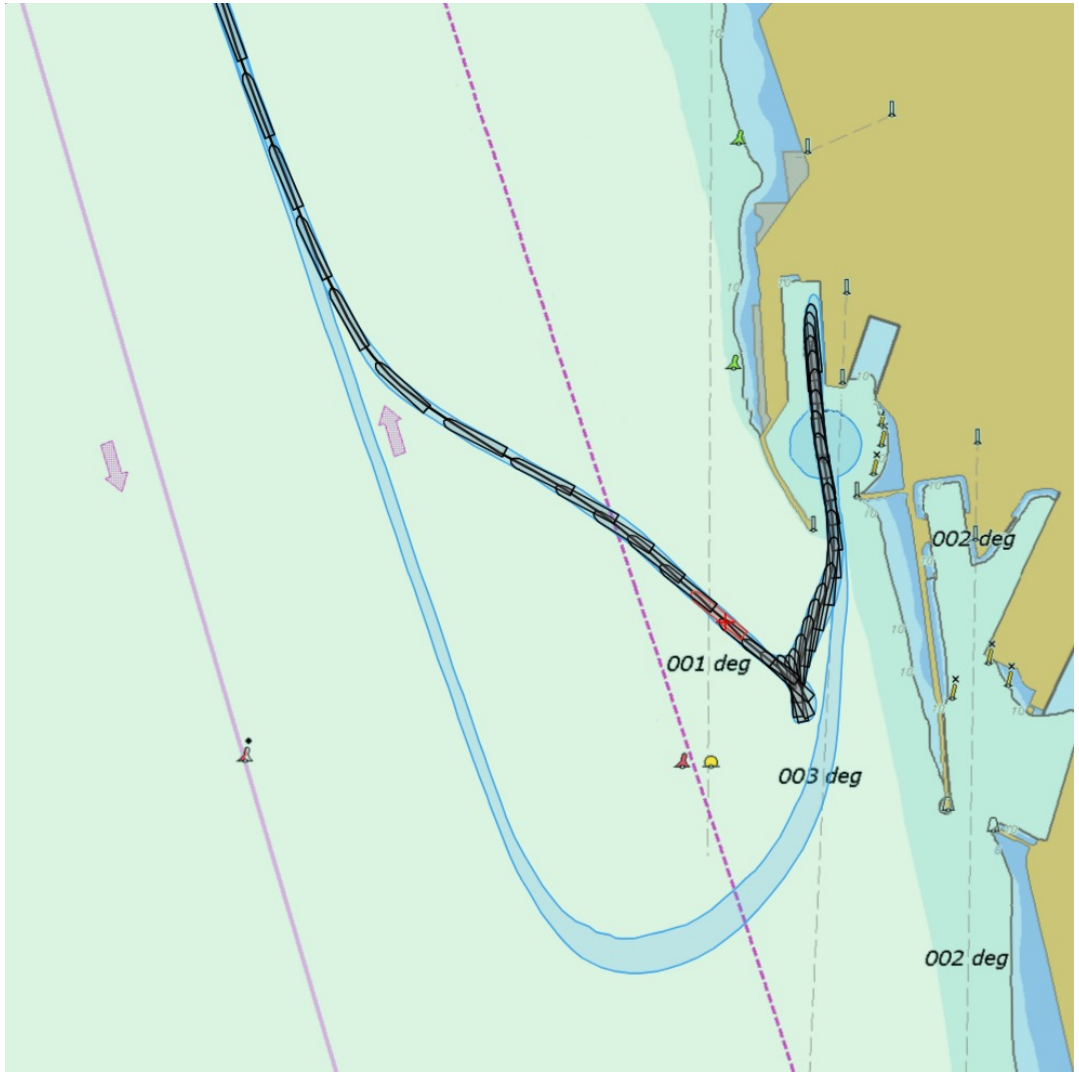


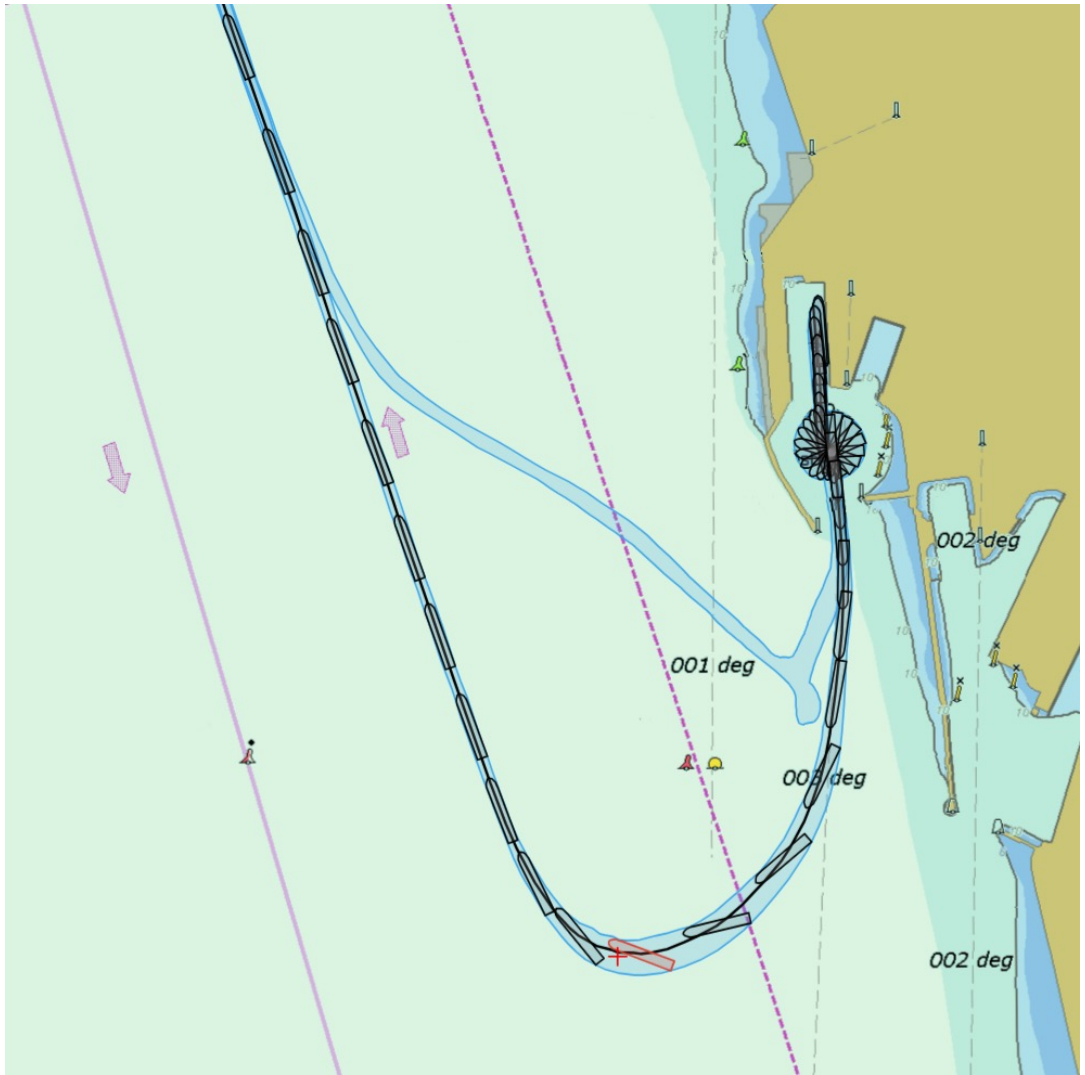
Procedures fit for purpose?



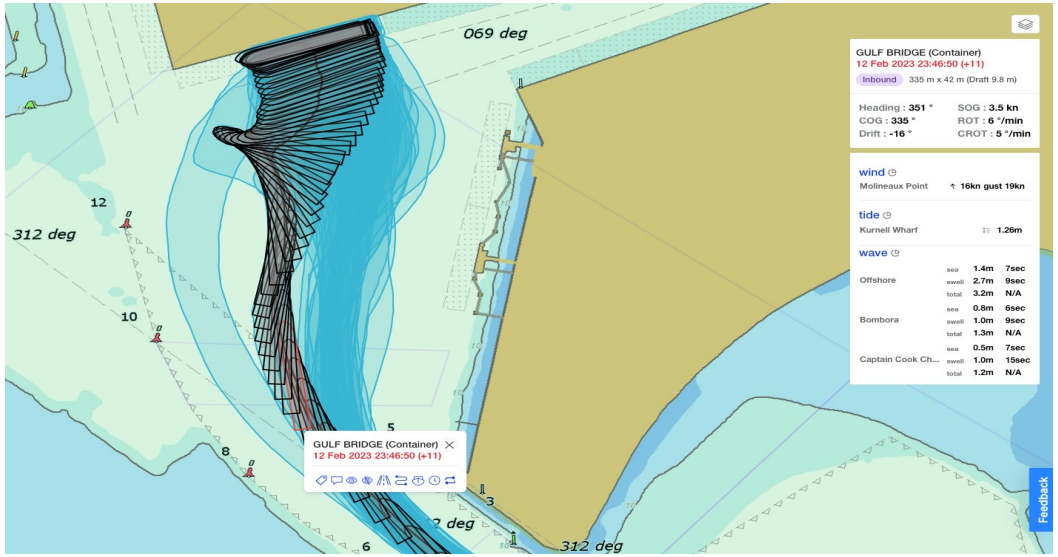


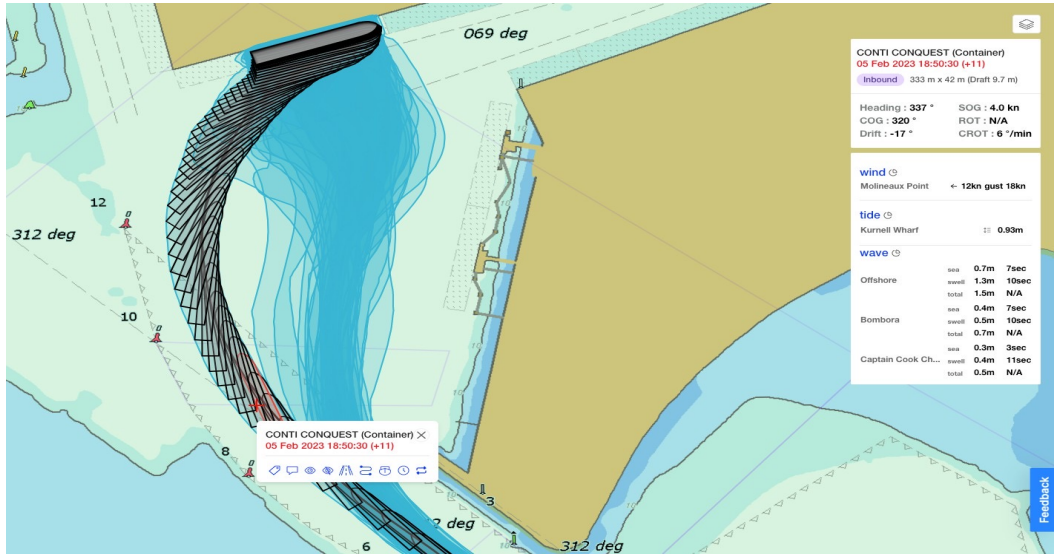
Alternative plans (wind direction)



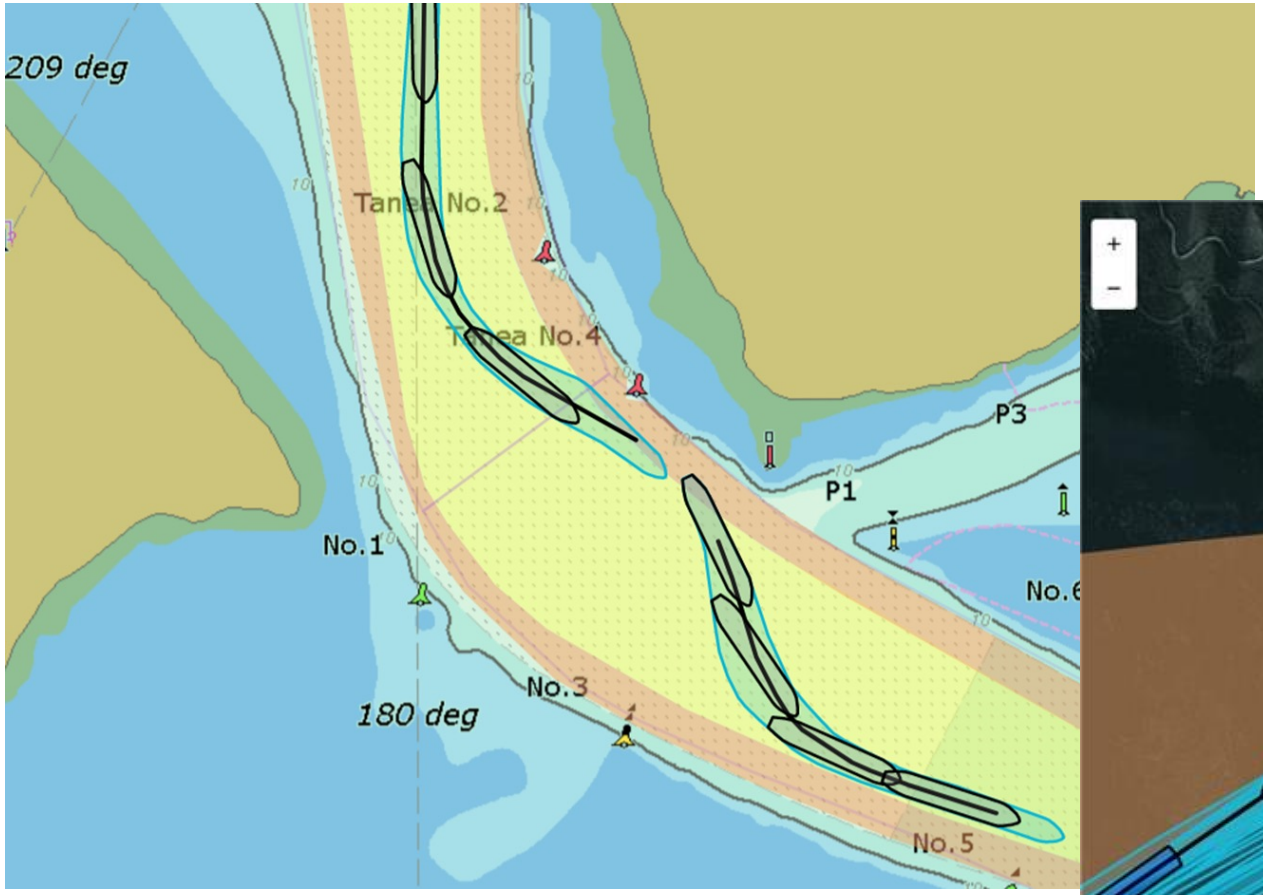


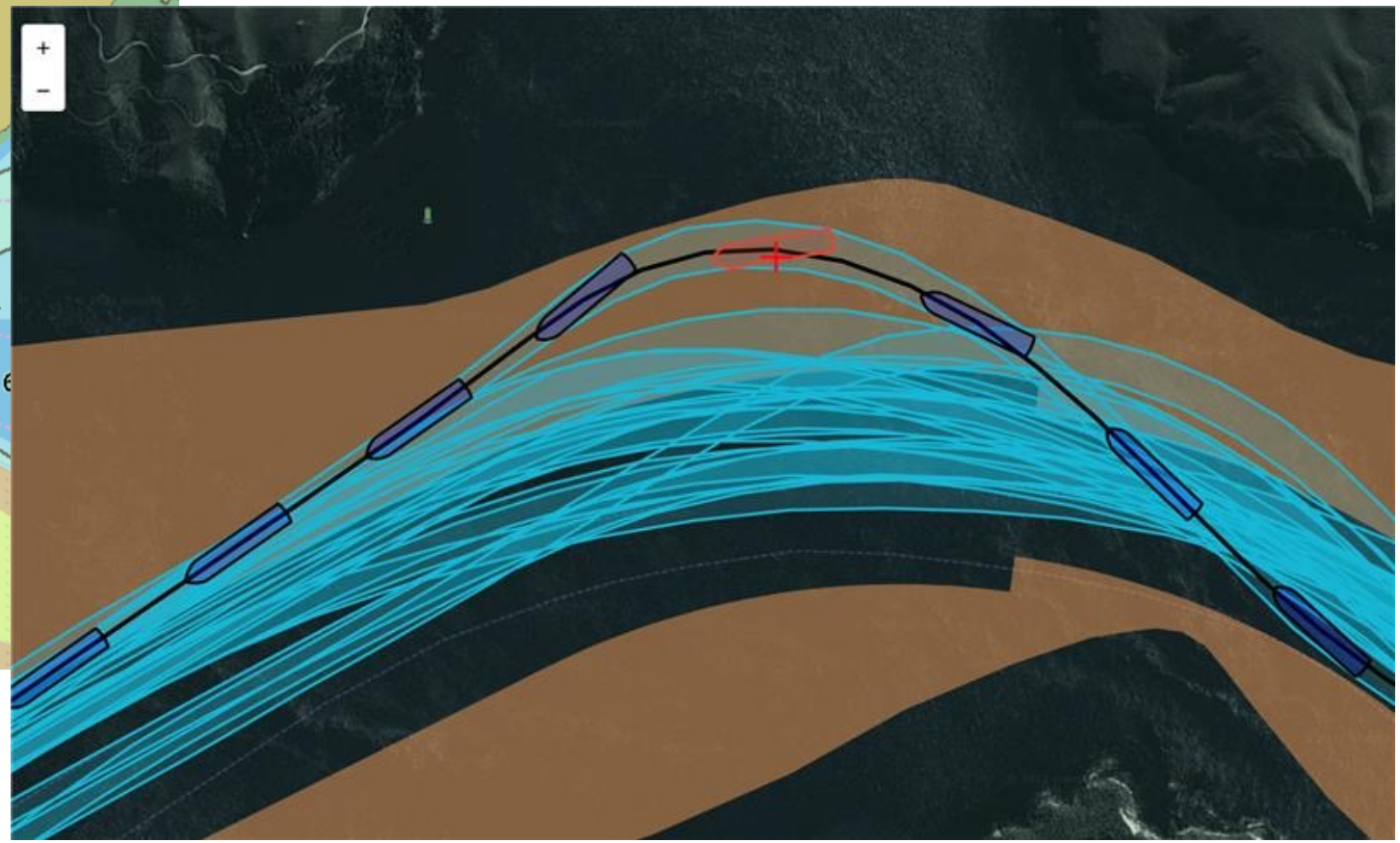
Alternative berthing options





Incident Analysis





Outlier Trends

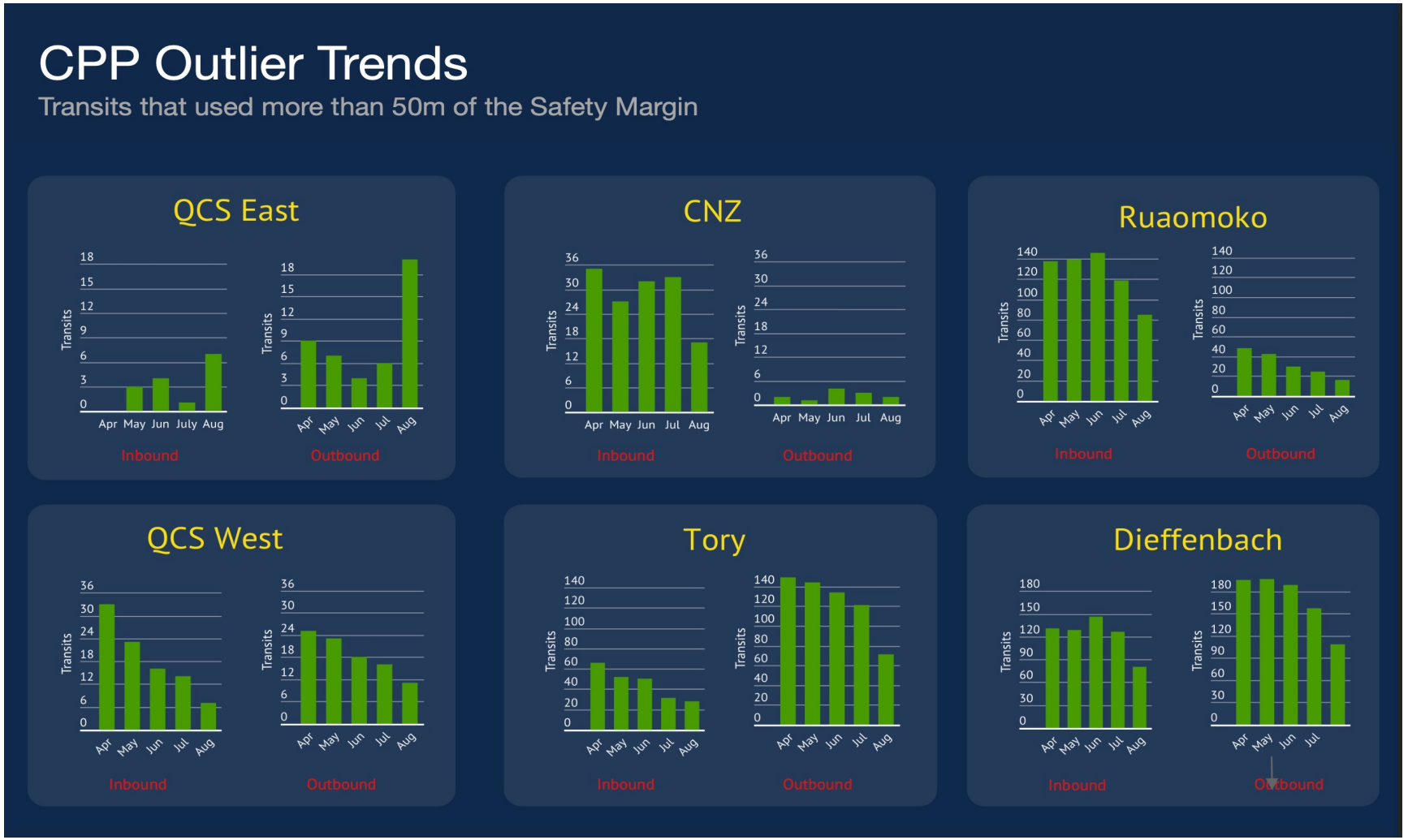
Identification of Outliers

Specific Vessels

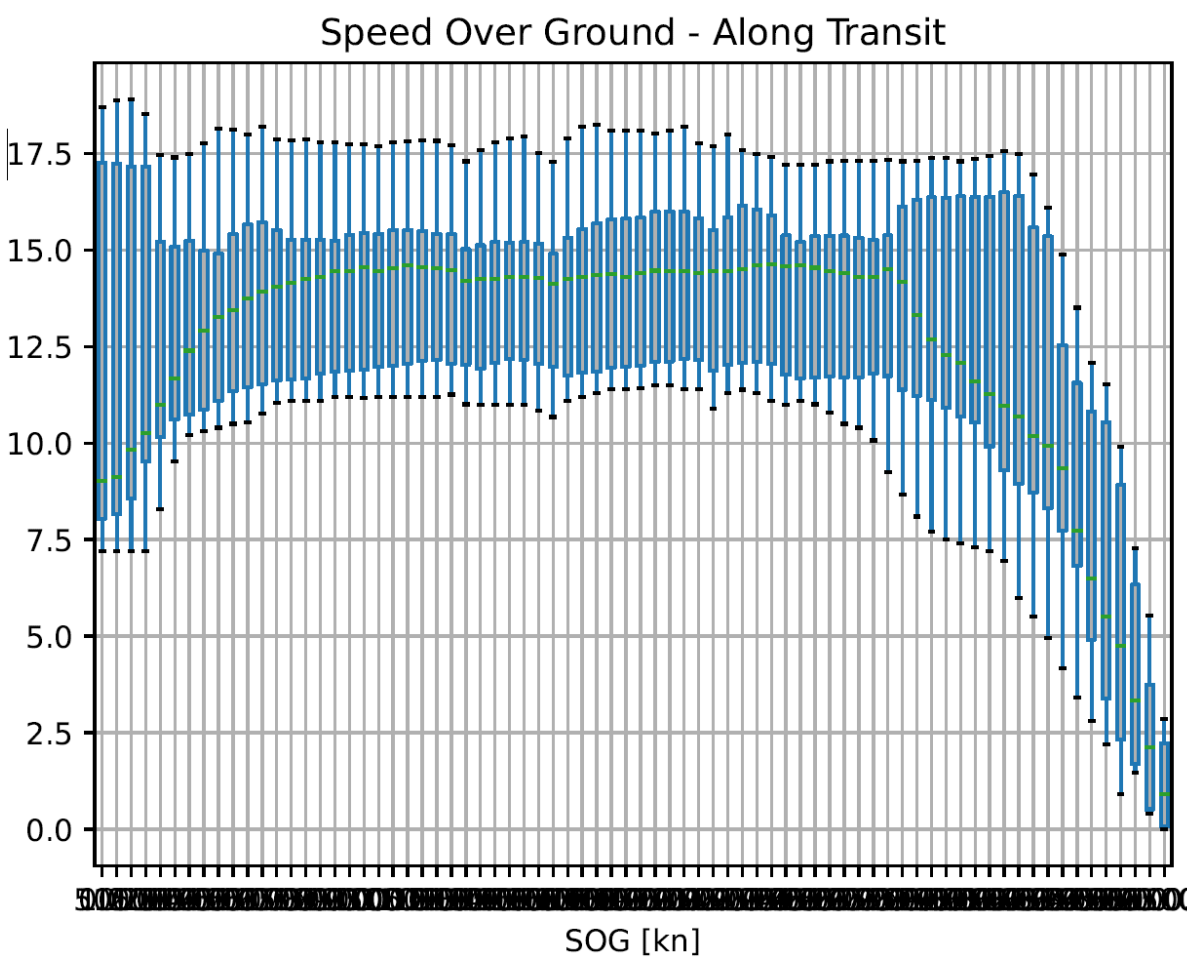
Specific Channels / Turns

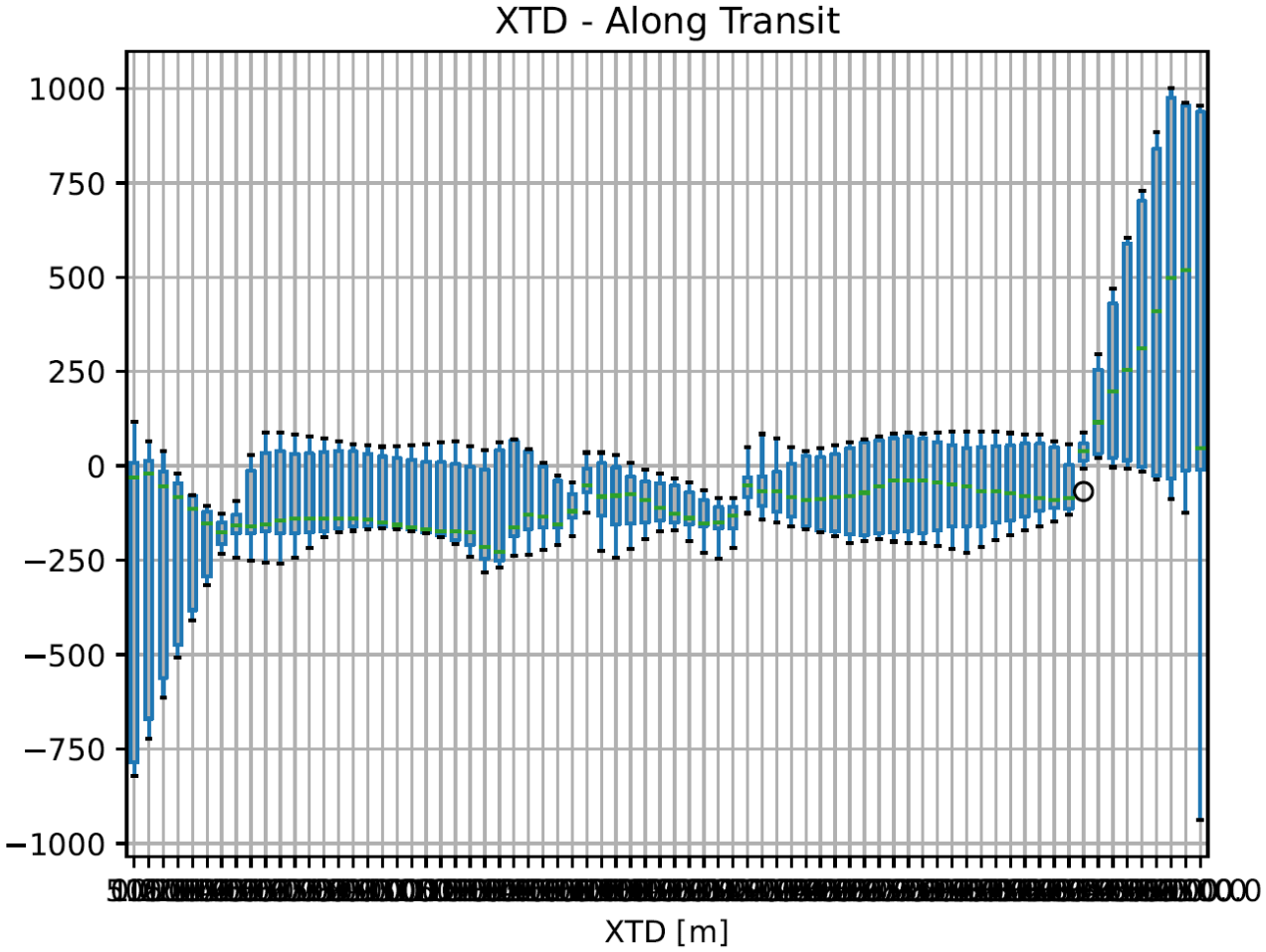
Seasonal

Direction

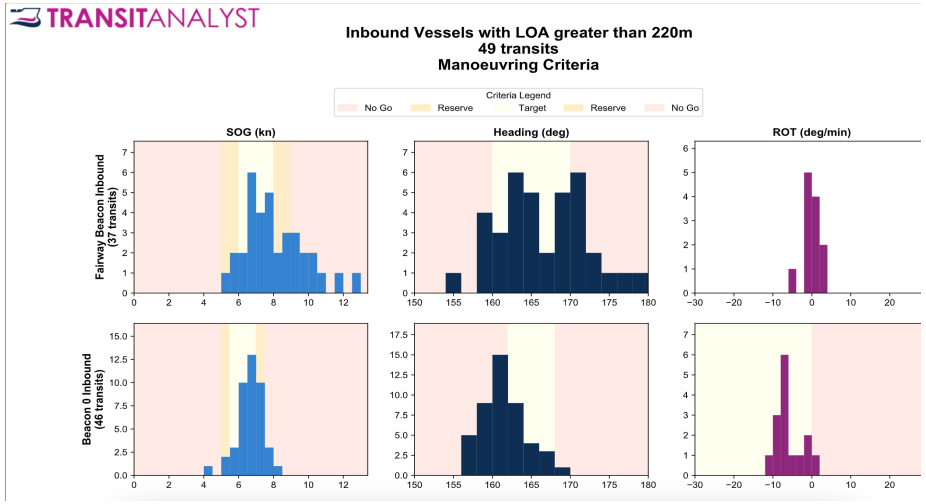


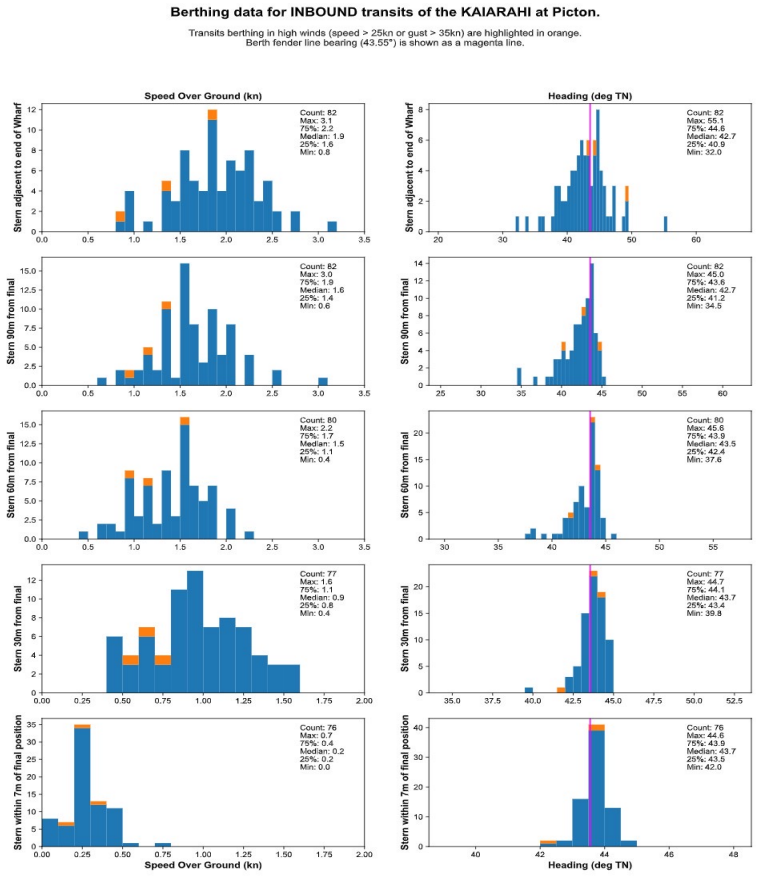
Advanced Metrics

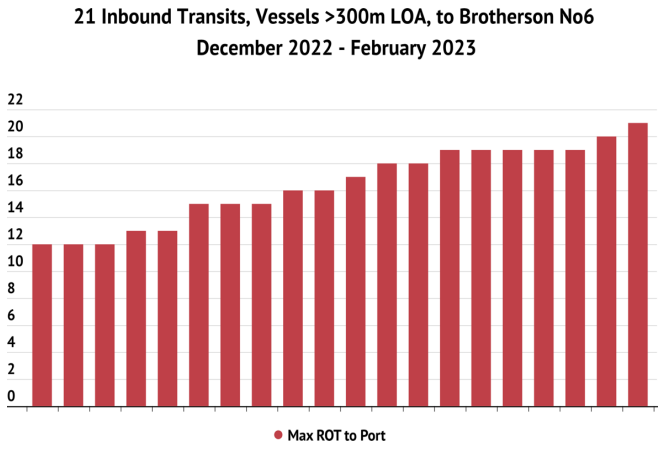


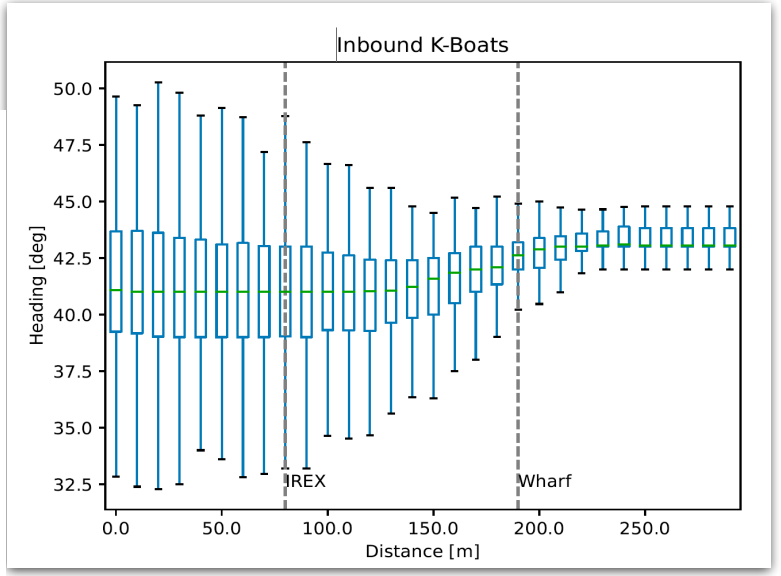


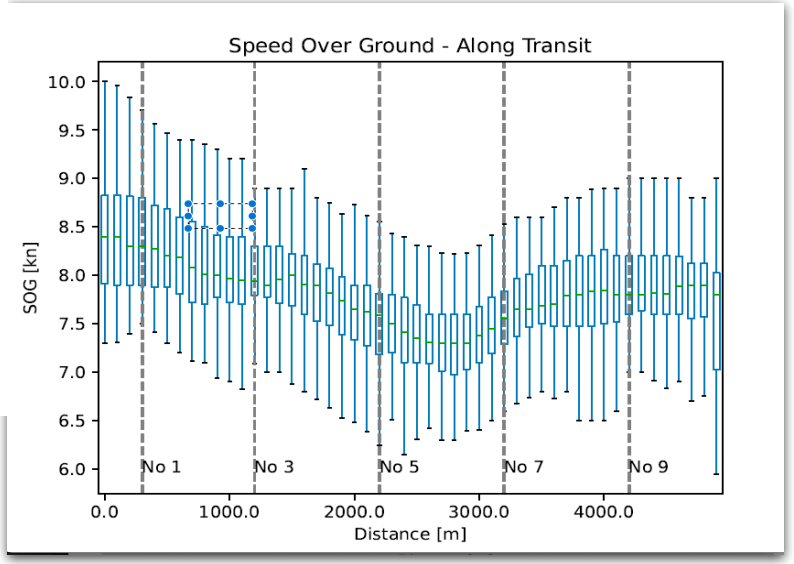
Speed, Course and ROT Assessment



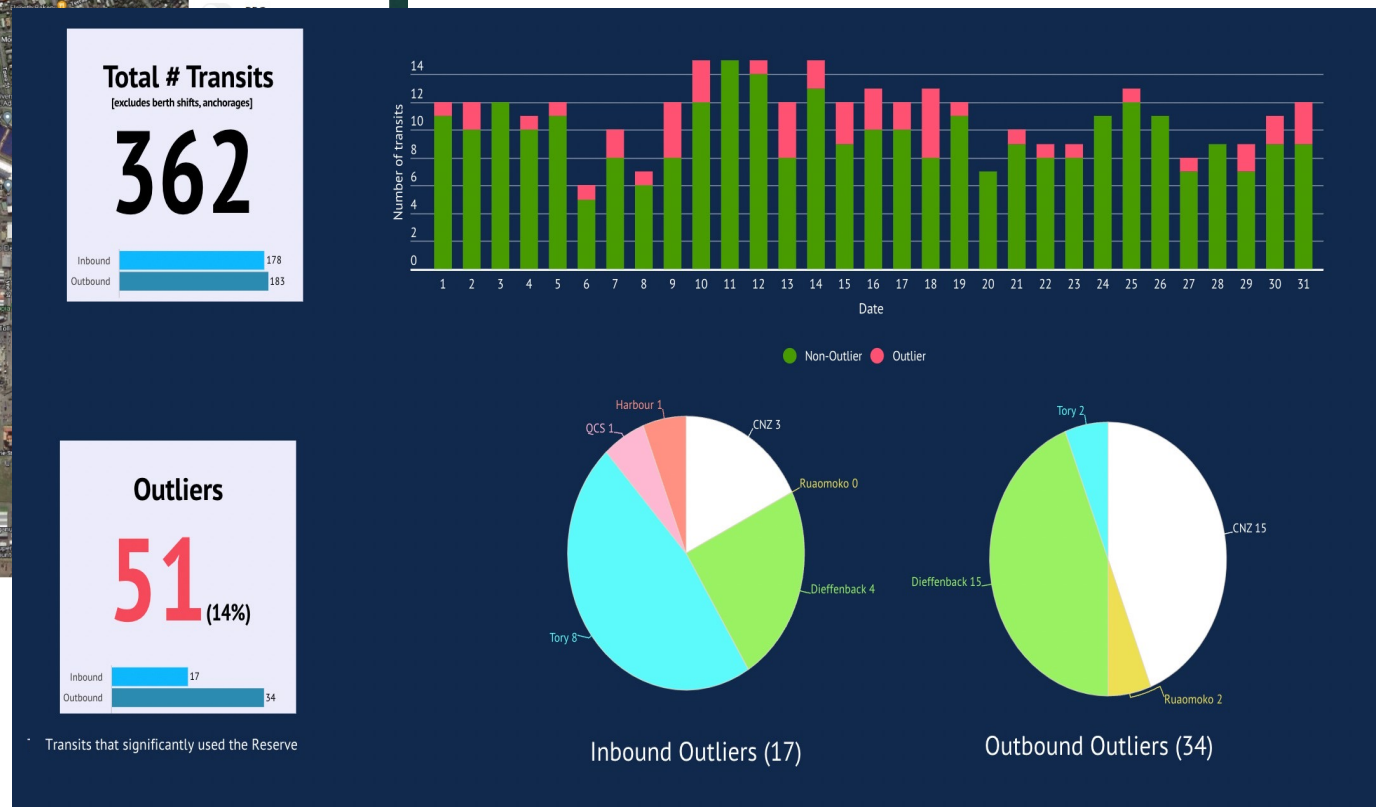






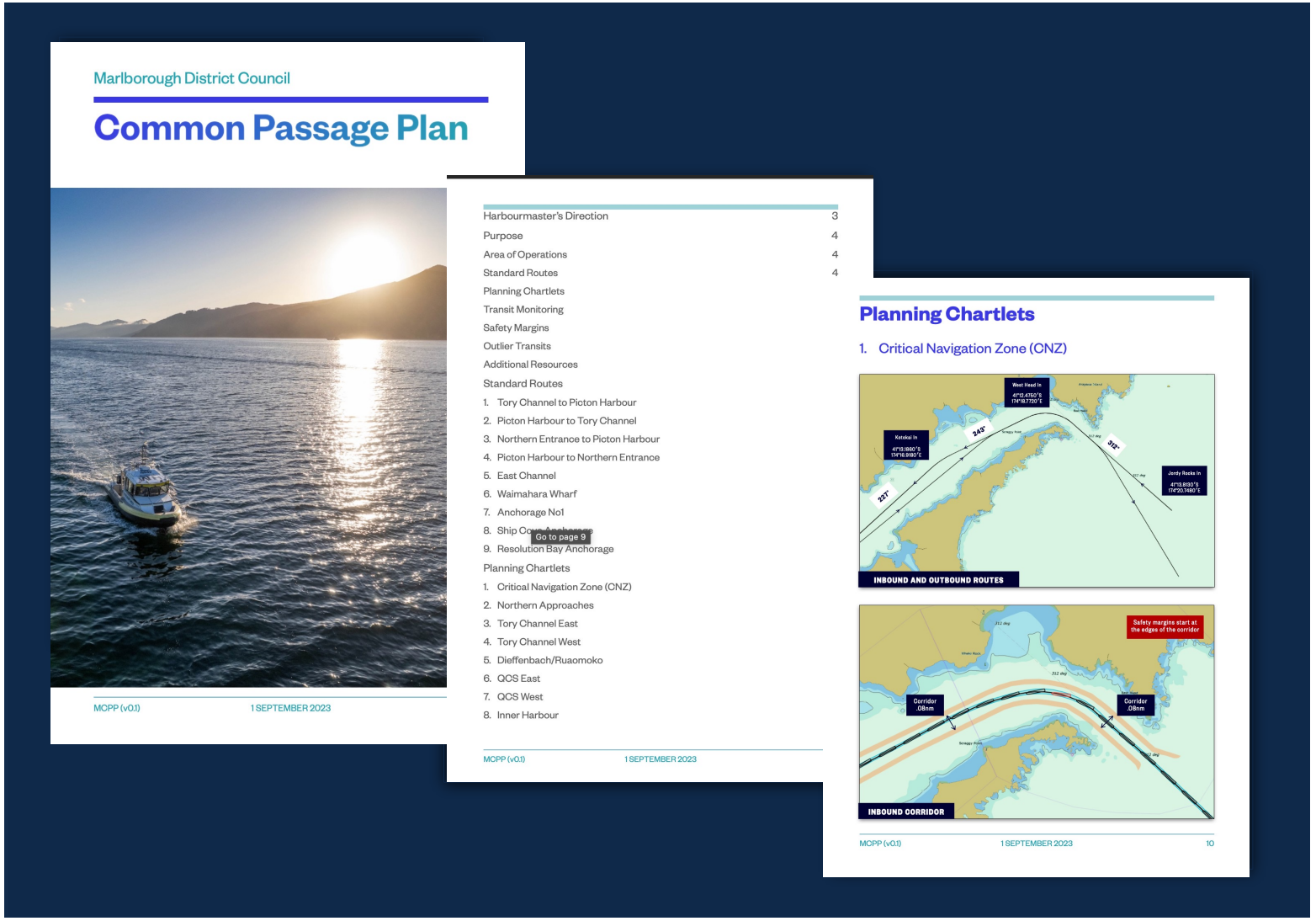


Customisation



Outcomes

- Improved and consistent delivery of services
- Fit for purpose passage plans and MPex
- Effective pre-planning of critical vessels
- Evidence based risk management and risk analysis integration
- Data-backed overview and oversight rather than reliance on memory



Marlborough District Council

Common Passage Plan

Go to page 9

Planning Chartlets

1. Critical Navigation Zone (CNZ)

Concerns and Usage

- Thoughts by some that it could be used in nefarious ways
- The storage of data and confidentiality, especially in incident investigation
- That should not be used retrospectively – historical data must be “anonymised”
- That all parties adopt an agreed protocol for use

- Usage discussion – Matt Conyers, Port of Nelson

Airline pilots now accept that operations are being recorded and analysed, and that safety improves because of it. Maritime is only just starting on this voyage.

Final thought

"Everybody is on the same road, some are walking, some are running and some are just standing around wondering how to get started"

Captain Tony Herriott