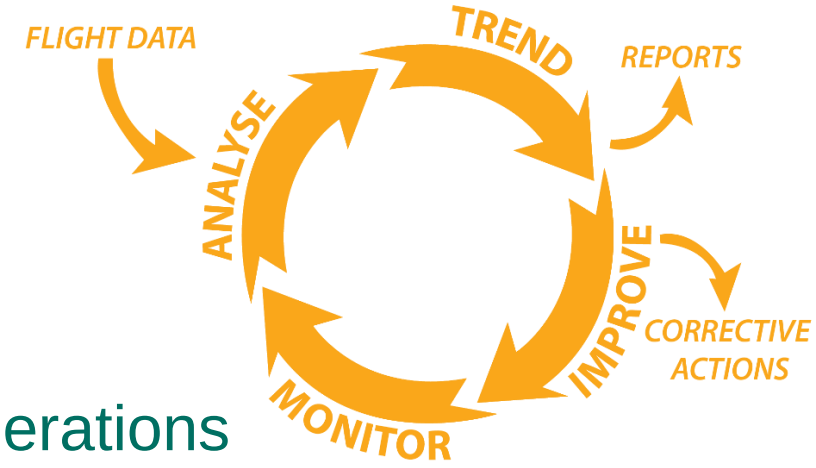
Are Ports and Pilots ready for POQA?

Port/Pilot Operations Quality Assurance

Where it all began - FOQA – An aviation overview



- Flight Operational Quality Assurance (FOQA) began 60 years ago by British Airways in 1962
- Whilst voluntary; today all pilots take for granted that operations are being recorded and analysed, It provides more information about, and greater insight into, the total flight operations environment.
- Accident causes are more predictable due to detailed knowledge
- It combines 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

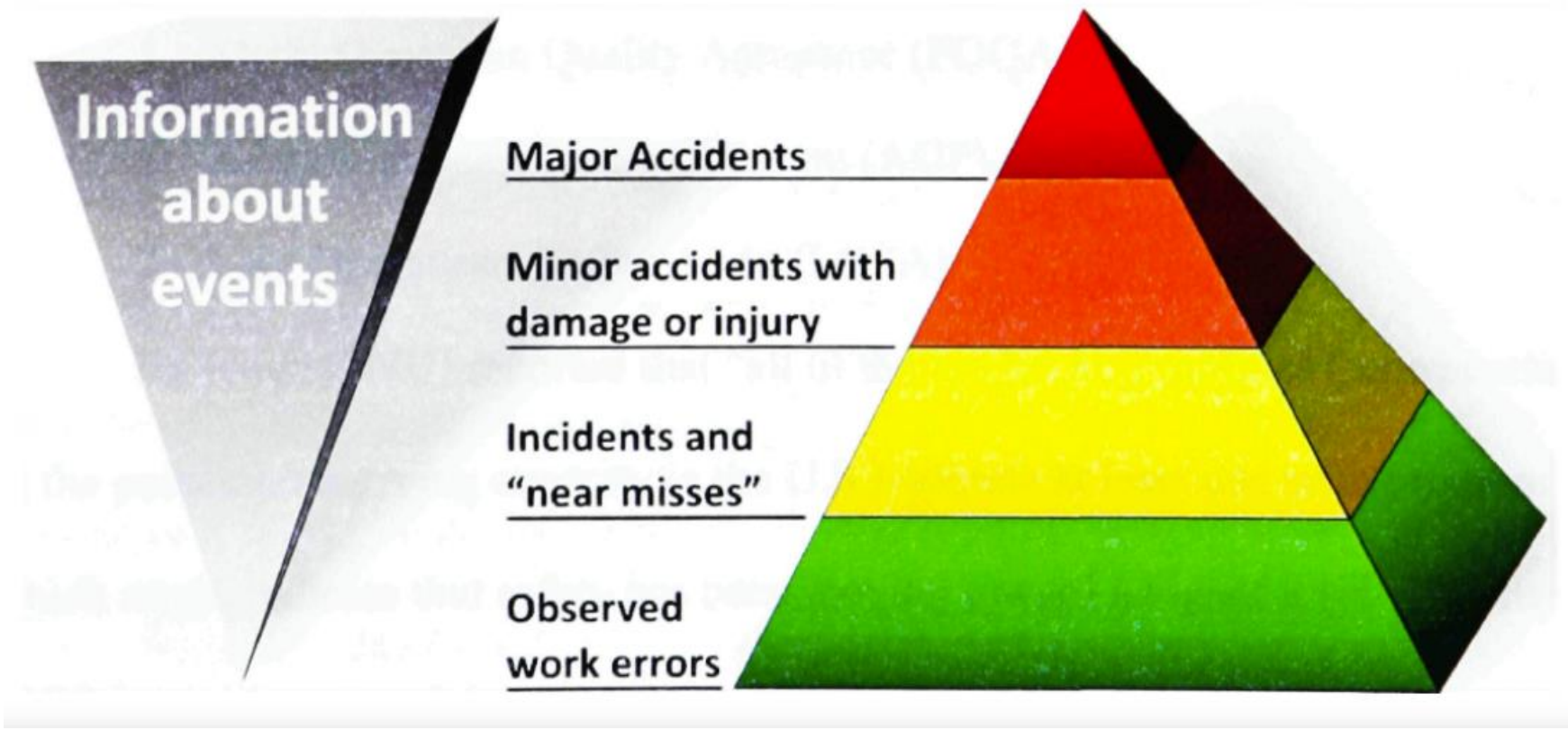
Event Pyramid

- The event severity / frequency triangle: the more serious the event, the less frequently it happens
- In normal or routine daily operations there are probably thousands of minor events which will quite often go unnoticed.

Question

- Does “No paperwork” mean a safe operation?

Information Pyramid



Available Information versus Events (Adapted from McVenes & Chidester, 2005).

Is there a problem?

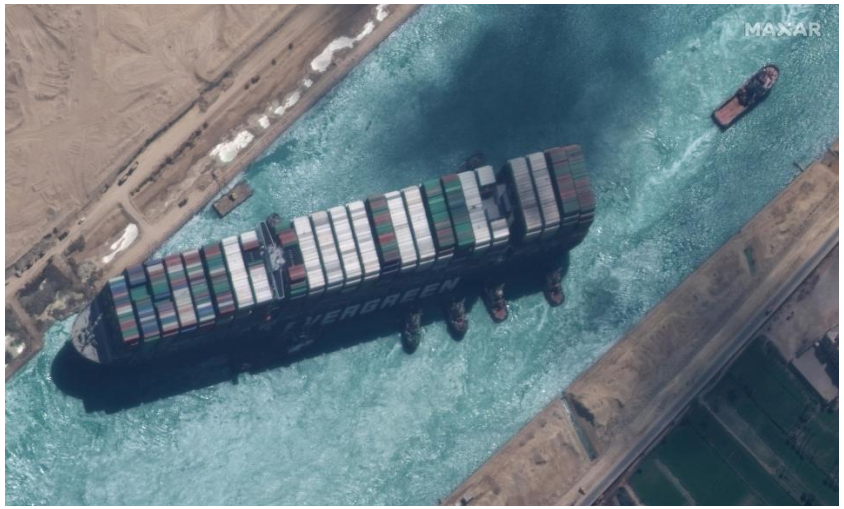
- There is a mistaken belief that not kn roblems means they do not exist.
- There is a cultural issue : that of ained and belief in one's own ability
- That pilots do not readily ac f their ability
- That incidents happen to
- That pilot organisations d rarely subjected to third party scrutiny

- Summary : A industry w elief there is no problem

Recent Incidents

CMA CGM Vasco de Gama
Thorn Channel, Southampton
22 August 2016

CSCL Jupiter
River Scheldt, Antwerp
14 August 2017



Ever Given
Suez Canal
23 March 2021

Mumbai Maersk
Weser Outer approaches
2 February 2022

Ever Forward
Chesapeake Bay
13 March 2022

Common denominator?

- Speed ?
- Navigation (Position) ?
- Experience ?
- Environmental Conditions ?
- Underkeel Clearance Management ?
- Fatigue ?
- Communications/Language ?
- Bridge Resource Management failure ?
- External influences (other vessels) ?

Unknown without investigation

- There is one common denominator : They all had a pilot on board

Incident Investigation

Primarily uses VDR Data
Comprehensive data but

- Difficult to obtain
- Costly to process
- Multiple formats
- Still requires additional information
- Extensive training required

Not viable for operational analysis or third-party audits

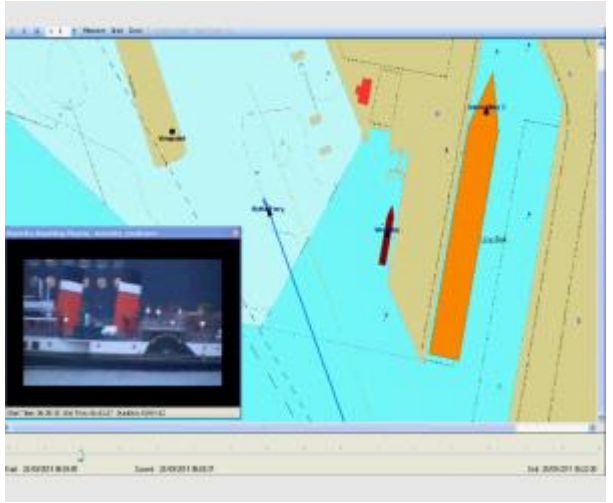
Can incur GDPR problems

In truth :

This is not a situation any pilot wants to be at!

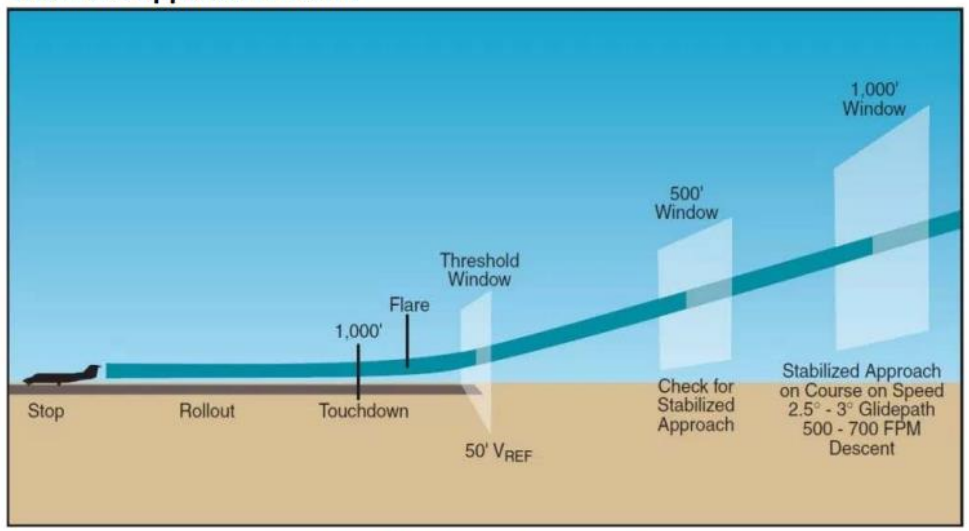
avenca

MADAS enables investigators to fuse digital data from all the available sources to get the complete and accurate picture of what actually happened

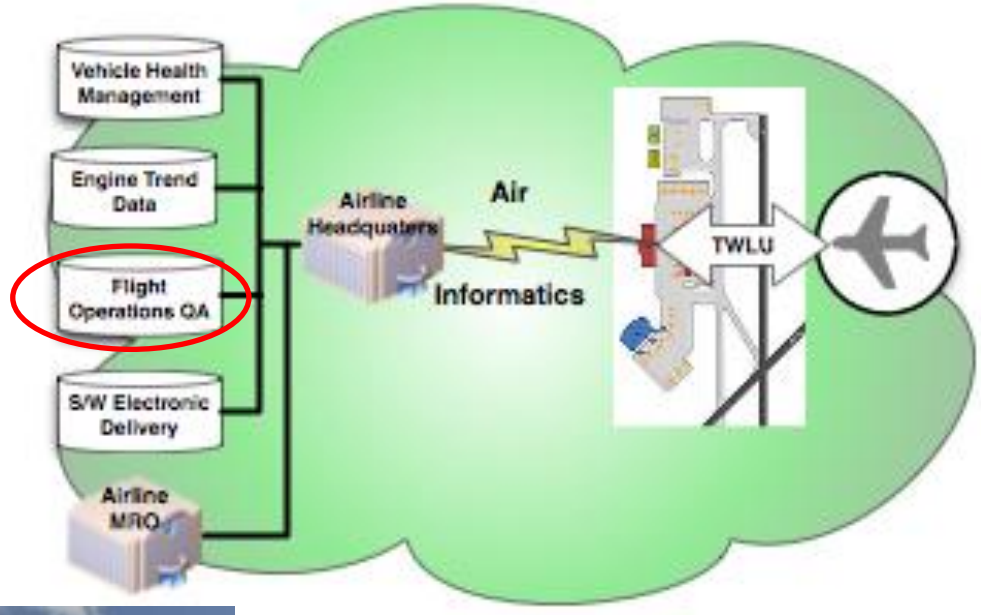


Introducing POQA

Stabilised Approach Criteria



"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).



"Flight Operations QA"
Air NZ presentation
NZMPA conference 2018

"Leading indicators" (Ravi Nijjer)

POQA – first steps

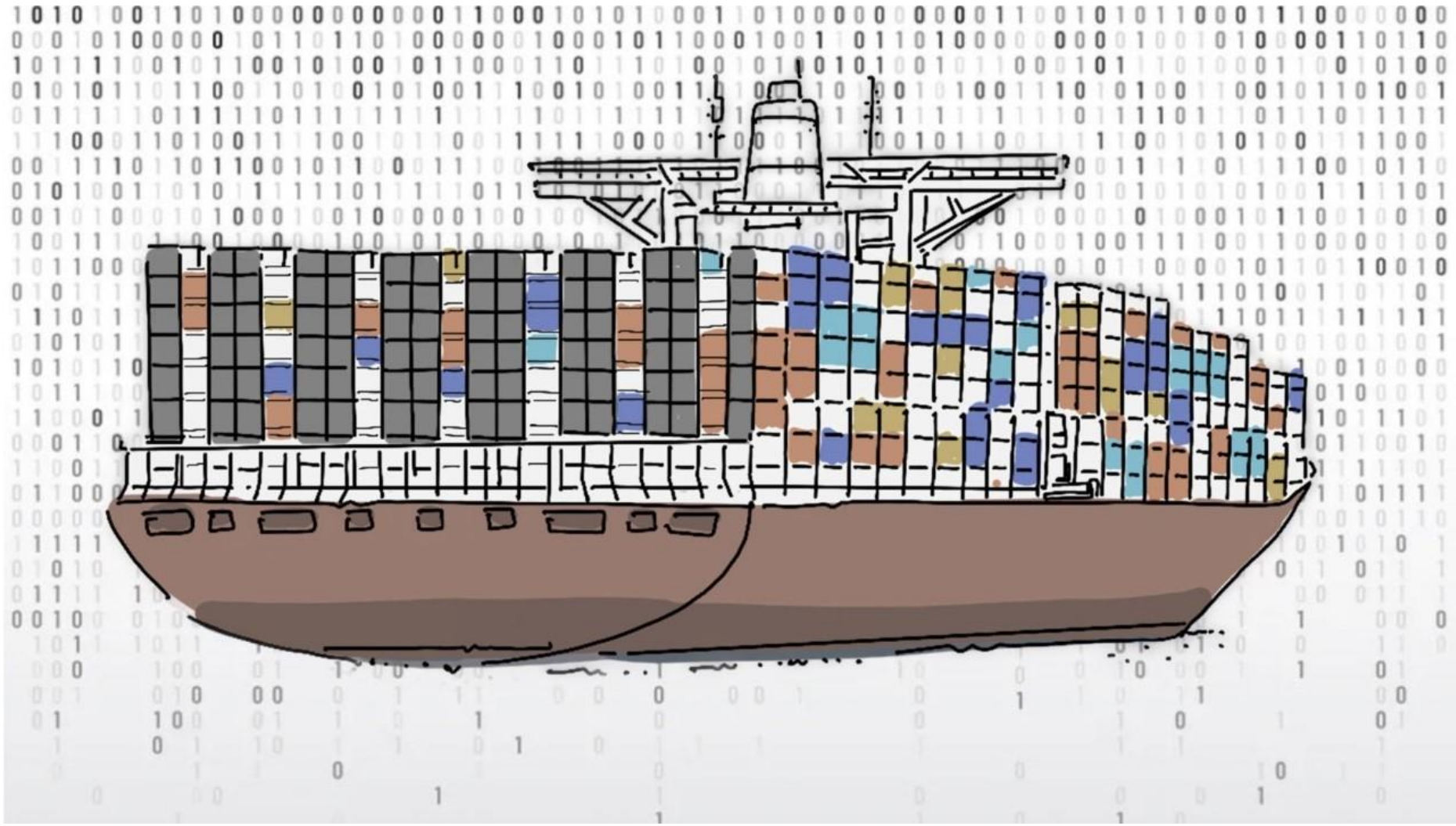
It's possible due to Big Data

AIS

PPU recordings

Weather conditions

Ship Motion surveys



Pilot experience

Simulator runs

SOPs

VTS

The Difficulties for POQA Implementation

In this highly technical age it is curious why POQA is not implemented:

a) Motivation

b) Cost

The Difficulties for POQA Implementation

c) Technical Difficulties and Standards

d) Accessibility and Potential for Misuse

Big Brother?

The data is readily available

Publicly and commercially

Any significant incident is likely to be in public domain before it is even investigated

https://www.marinetraffic.com
MarineTraffic: Global Ship Tracking Intelligence | AIS Marine ...
MarineTraffic **Live** Ships Map. Discover information and vessel positions for vessels around the world. Search the MarineTraffic ships database of more than ...
AIS Marine Traffic · Vessels Database · Online Services · Ports Database

https://www.vesselfinder.com
Free AIS Ship Tracker - VesselFinder
VesselFinder is a FREE **AIS** vessel tracking web site. VesselFinder displays real time ship positions and marine traffic detected by global **AIS** network.
Become AIS Partner · RealTime AIS Data · Historical AIS Data · Vessels Database

https://www.myshiptracking.com
My Ship Tracking Free Realtime AIS Vessel Tracking Vessels ...
My Ship Tracking is a FREE REALTIME **AIS** vessel finder tracking service. With this vessel tracker you can monitor ship positions, vessel tracking, ...

https://ihsmarkit.com › products › ais-live-ship-tracker
AIS Tracking, Ship Tracker for Maritime Traffic : AISLive - IHS ...
The industry's first online software for tracking real-time marine traffic, **AISLive** delivers updated movements for 130,000+ ships and vessels every 60 seconds, ...

https://www.fleetmon.com
Live AIS Vessel Tracker with Ship and Port Database
The open database for ships and ports world-wide. Have access to real-time **AIS** position data, technical information and photos from more than 500000 vessels.

https://comarsystems.com › ais-action
Live AIS data of the Isle of Wight, Solent & English Channel
View **live AIS** data of ships and boats across the Isle of Wight, Solent and English channel. Will show competitors of the Round the Island Race & Cowes week.

https://maritime.ihs.com
Index - Home
AIS Antenna Network Partnerships. As part of IHS Markit's continuing **AIS** network expansion we are looking to work with reliable partners in coastal ...

https://www.shiplocation.com
Ship Tracking of AIS Marine Traffic
Ships' Location **Live** Map. Find out information and vessel positions for vessels around the globe. Search ships in our database of more than 80000 active and ...

https://www.aishub.net
Free AIS vessel tracking | AIS data exchange | JSON/XML ship ...
AISHub is a FREE **AIS** data sharing service which provides access to real time ship ... After our system receives your **live AIS** data stream, we will create a ...

https://www.vesseltracker.com
Terrestrial & Satellite AIS Tracking Service in Realtime ...
Comprehensive satellite detected **AIS** data completes the picture by providing vessel movements and destination and ETA changes at sea. SHIP DATABASE – ShipDB.

And its already being analysed

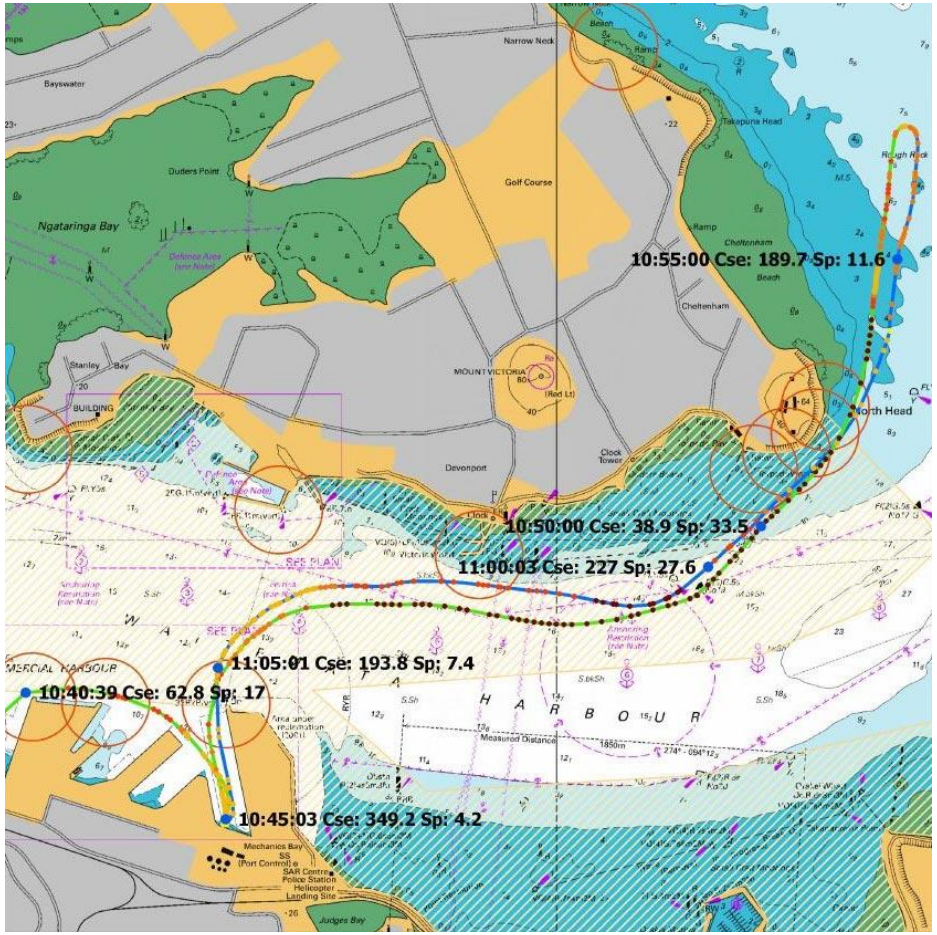
Question : If regulators will analyse the data, shouldn't you?

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

Maritime NZ, July 2020

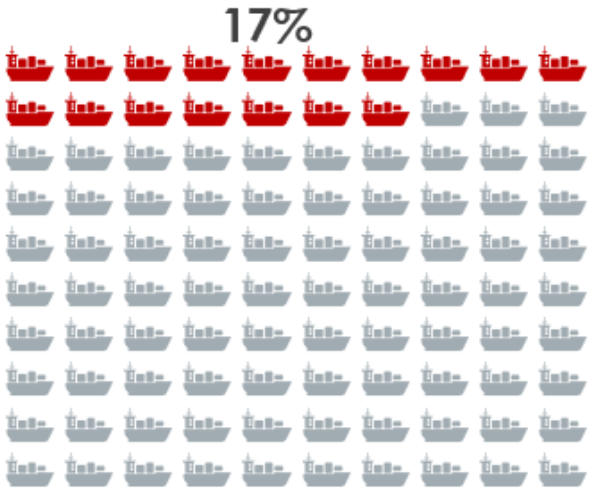
In short:
There are significant benefits which can be achieved through proactive marine safety management.

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



Simple Truth – When transits are monitored safety improves - (Torres Strait)

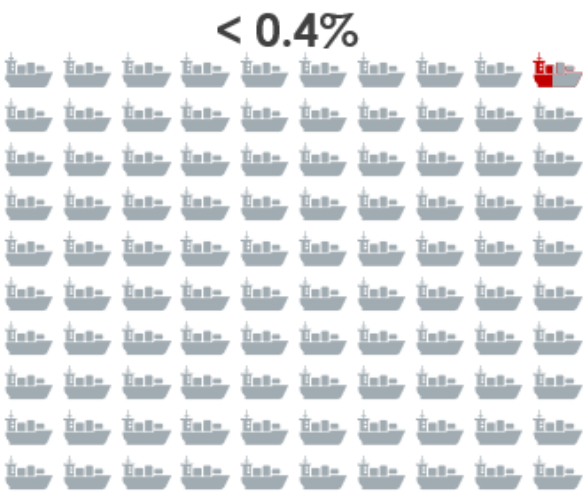
Vessel breaches of regulated UKC limits



Pre UKCMS

Pre UKCMS (2011) :

Maximum draft : 12.2m



Post UKCMS

Post UKCMS (2011) :

Maximum draft : 12.5m

(1 November 2021)

- IMO promulgated as a “Particularly Sensitive Sea Area”
- Jointly managed by AMSA, MSQ and GBRMPA

Benefits Can be Grouped into Four Areas:

a) Alignment of Standard Operating Procedures (SOPs) and behaviour

This is probably the most critical and useful part of POQA and is a continuous audit of performance.

SOP compliance is strongly encouraged by the mere existence of POQA. POQA analysis and feedback enhance that compliance.

b) Inadequate SOPs and Inadequate Published Procedures

But if SOP compliance is not consistent, it is perhaps sensible to consider first that the SOPs could be improved

c) Ineffective Training and MPex delivery

It is relatively straight forward to use POQA to assess effectiveness of training and compliance

Poor decision-making should diminish and may result in better Mpex delivery.

Consistency of delivery of service should improve

Unsafe practices should diminish

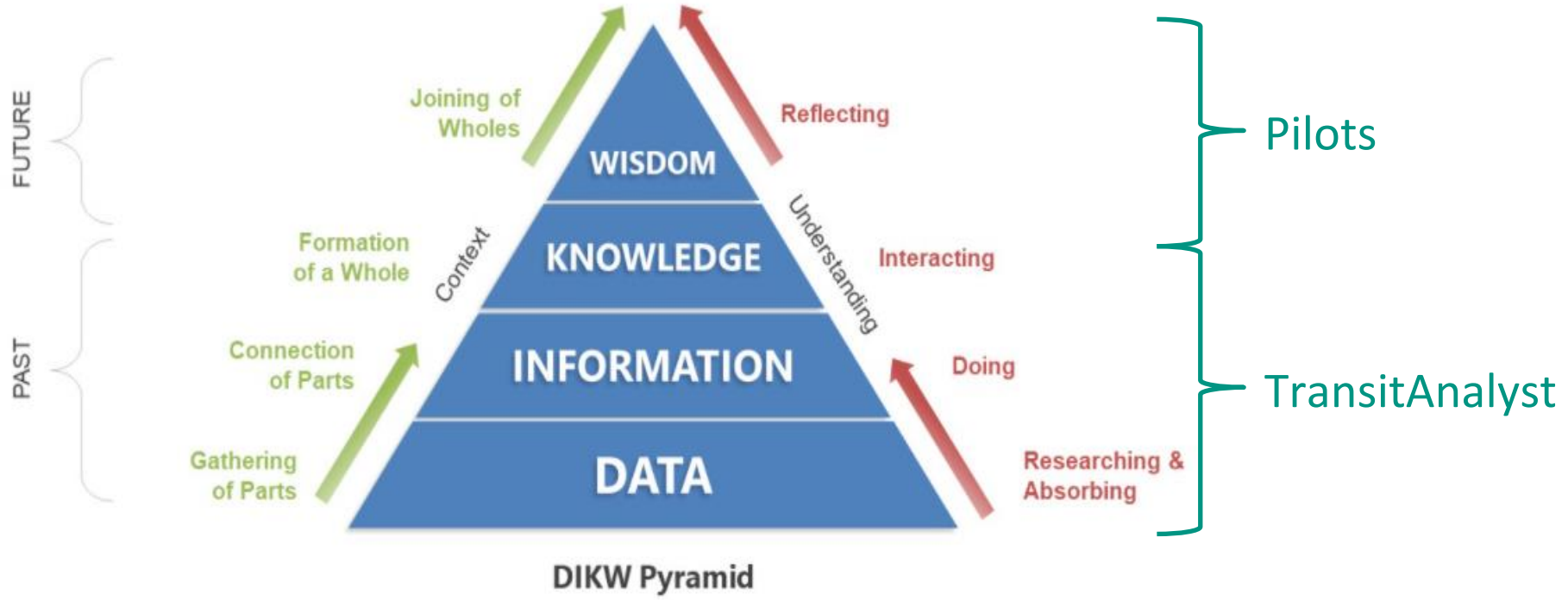
POQA also identifies pilots who need help in re-learning handling skills.

d) Channel and Safety Corridor Assessment

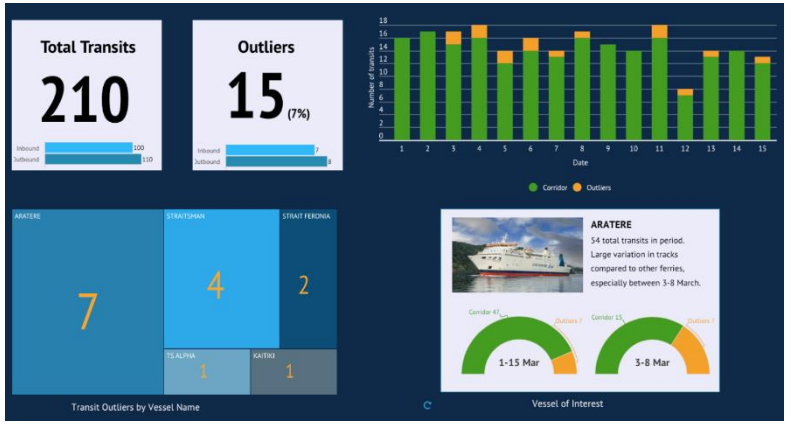
Statistical analysis of route assists in refining transit planning.

POQA raison d'être

The search for wisdom *will* lead to safer piloting



POQA Use Cases



- Fact-based decision making on pilotage issues
- Determination of safety and reserve corridors
- Development of pilotage operating procedures
- Pilot training, self-assessment and check pilotage
- Monitoring compliance with pilotage procedures
- Planning and preparation for upcoming pilotages
- Operational risk assessments (“go”-“no go”)
- Preliminary (within team) incident analysis
- Channel design, dredging optimisation
- Marine structure monitoring

Differentiators to other commercial products

- Focuses on port scale not voyage scale
- Working with the port/pilot to target analysis of their issues
- Proactive (not reactive) monitoring
- Pilot comments and notes attached
- Pilot-led self investigation (zero threshold for use)
- Localised inputs, charts and thresholds
- Augmented by local weather observations
- “Calibration" and improvement of ais data
- Dedicated search and filtering, with deidentification if required
- Services enhanced/implemented through pilot feedback
- Experienced marine pilot overview and assistance

Introducing : TransitAnalyst

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.

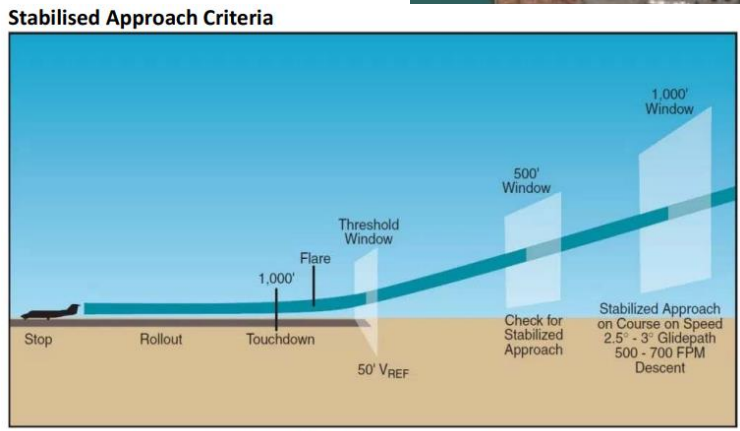
A proactive approach to safety management. Capturing and acting upon events, trends, incidents, and outliers in a timely fashion.

TransitAnalyst stores and facilitates reporting against many parameters i.e:

- Use of plan corridors,
- **R**eserve and no-go areas,
- **S**peed zones,
- **R**ate of turn limits,
- **Impact of environmental conditions on pilotage operations,**
- Use of tug **and** pilot boats.

Facilitates:

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



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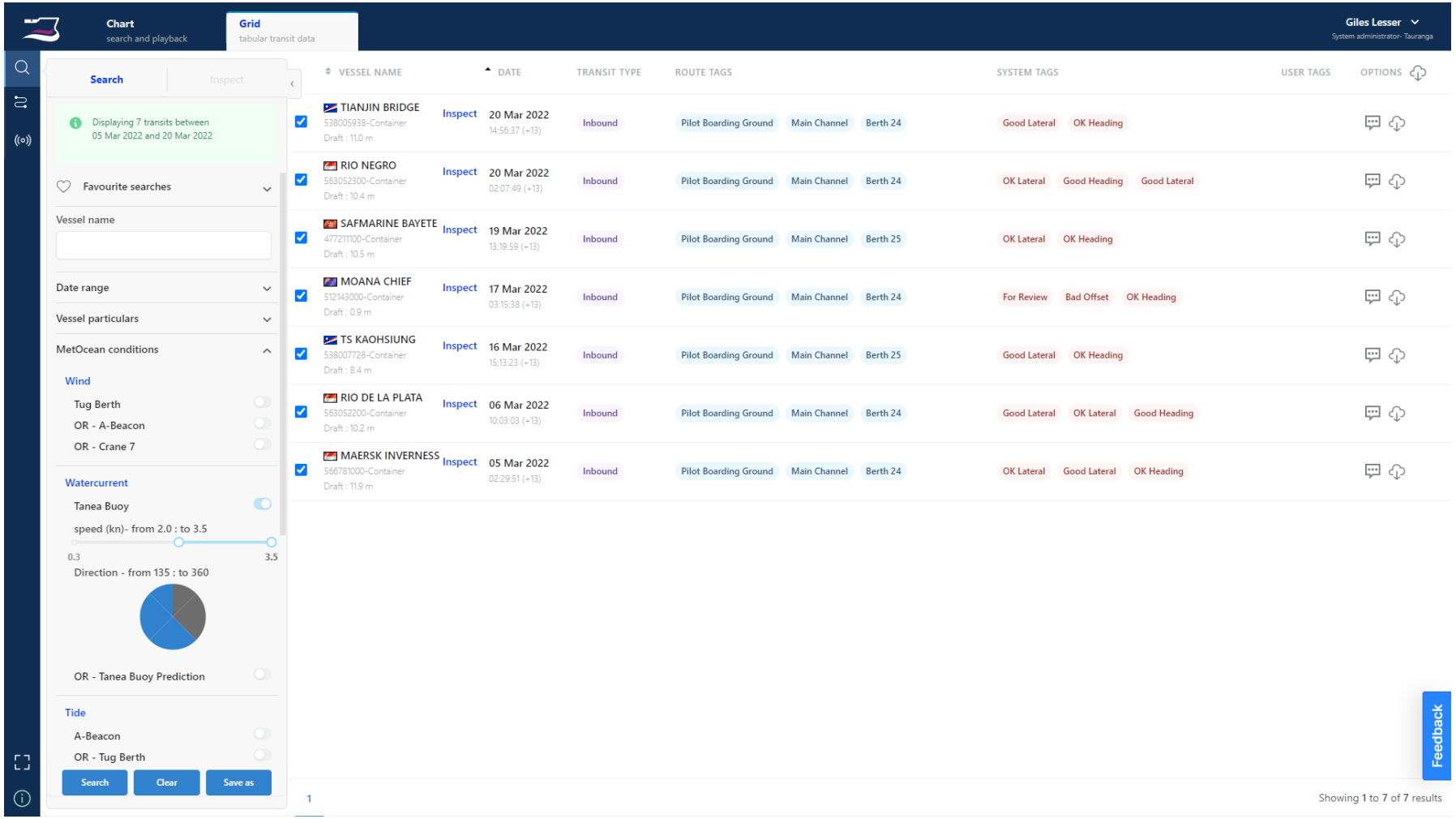
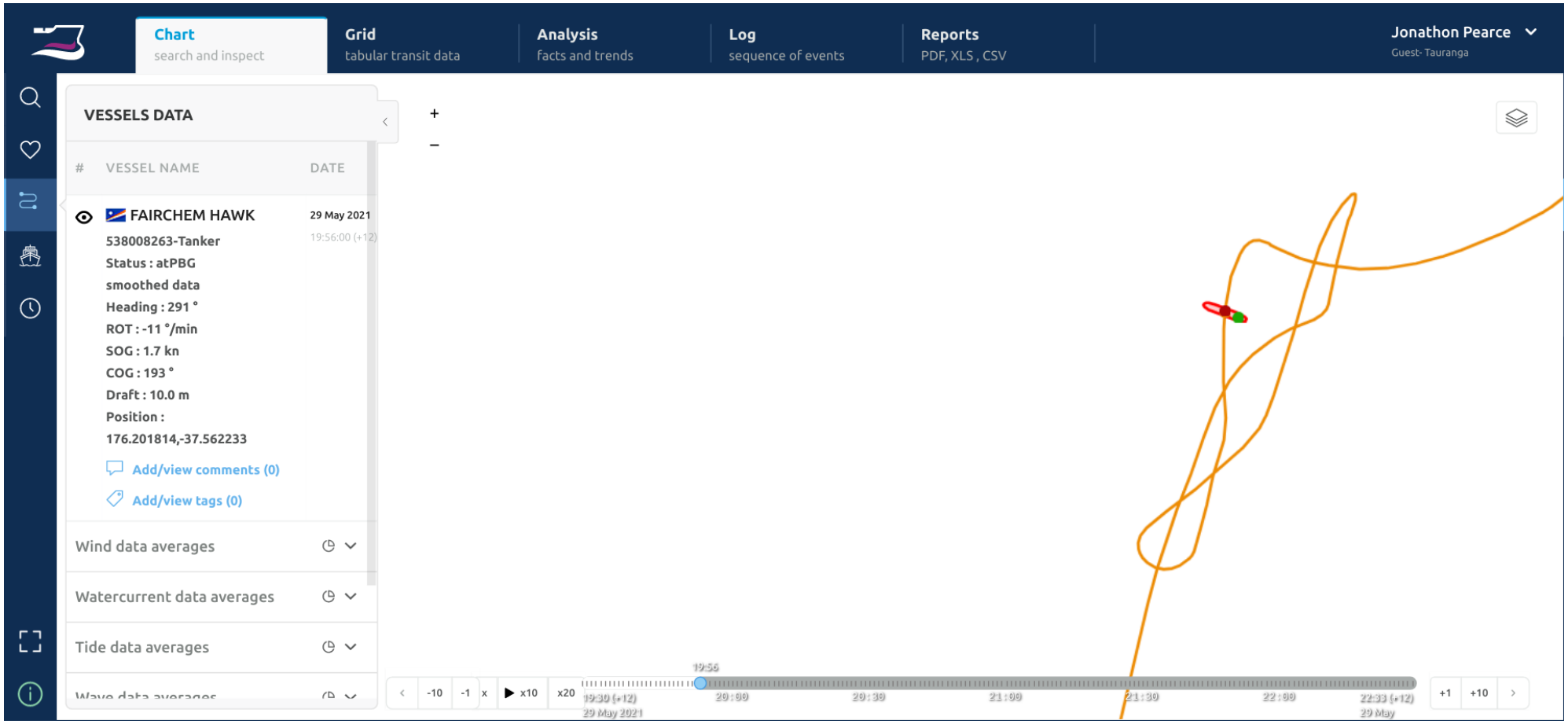
TRANSITANALYST

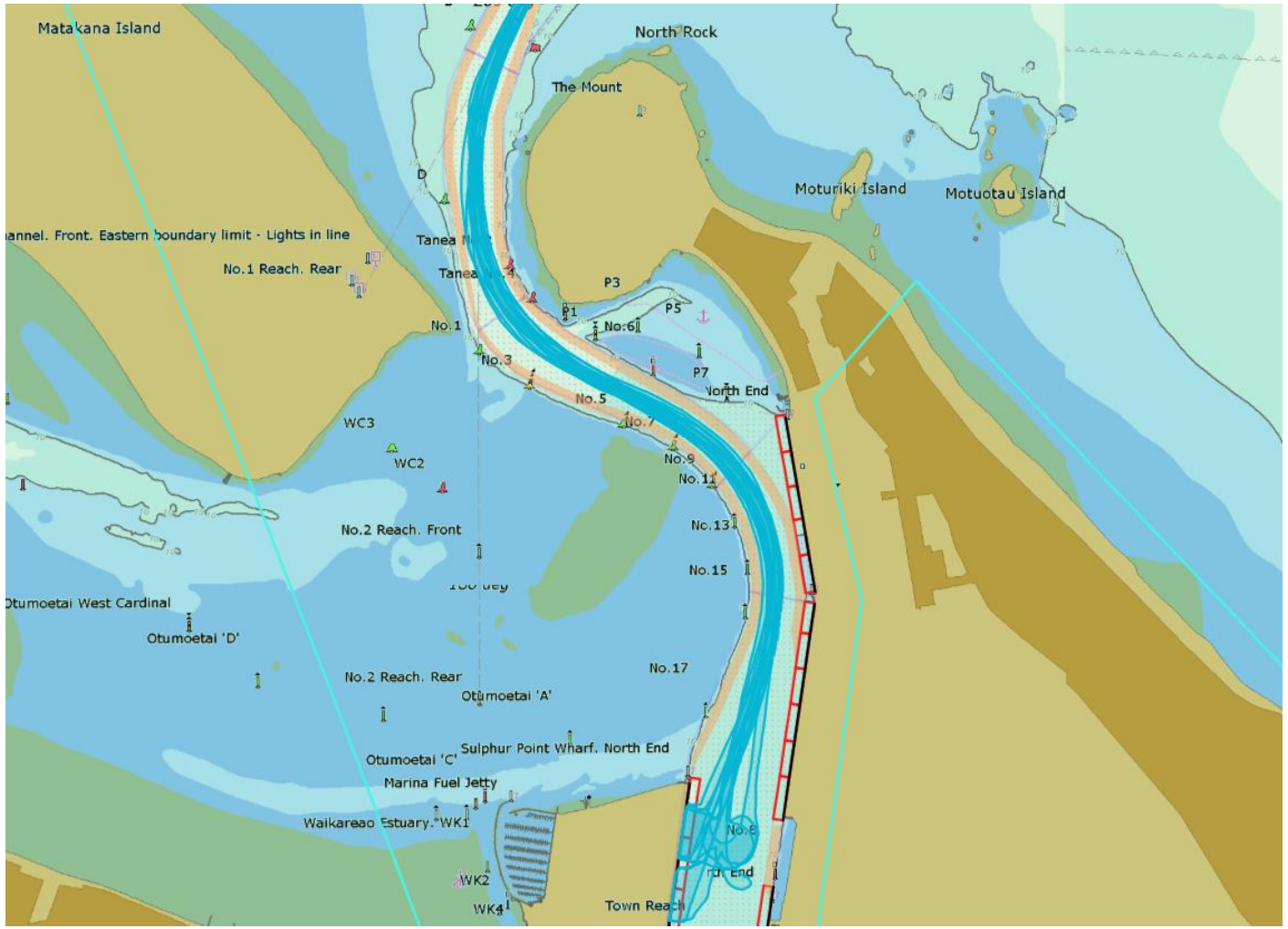
Sophisticated filters and tags

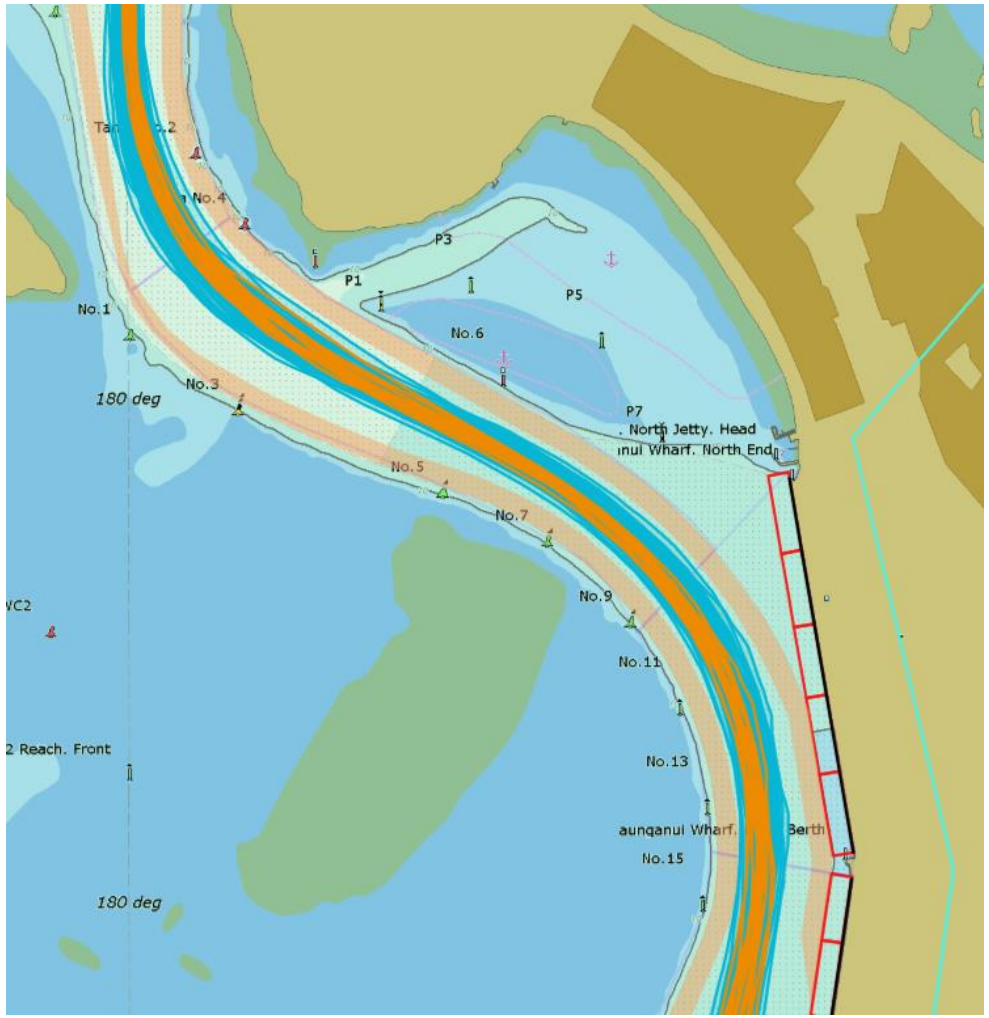


Peripatetic (+AIS) Smoothing for Accurate Turns and Swept Paths

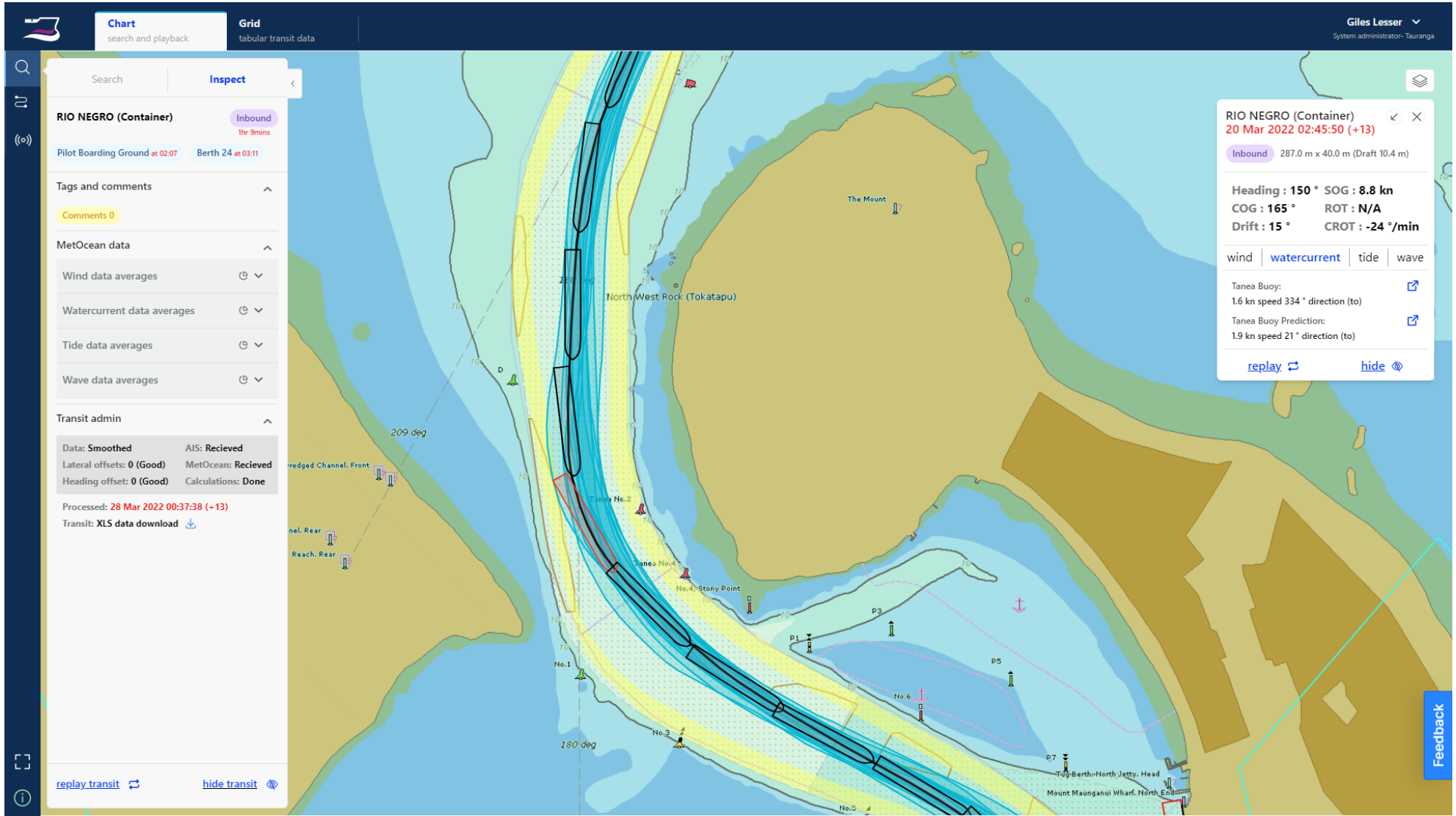


Channel and Safety Corridor Assessment

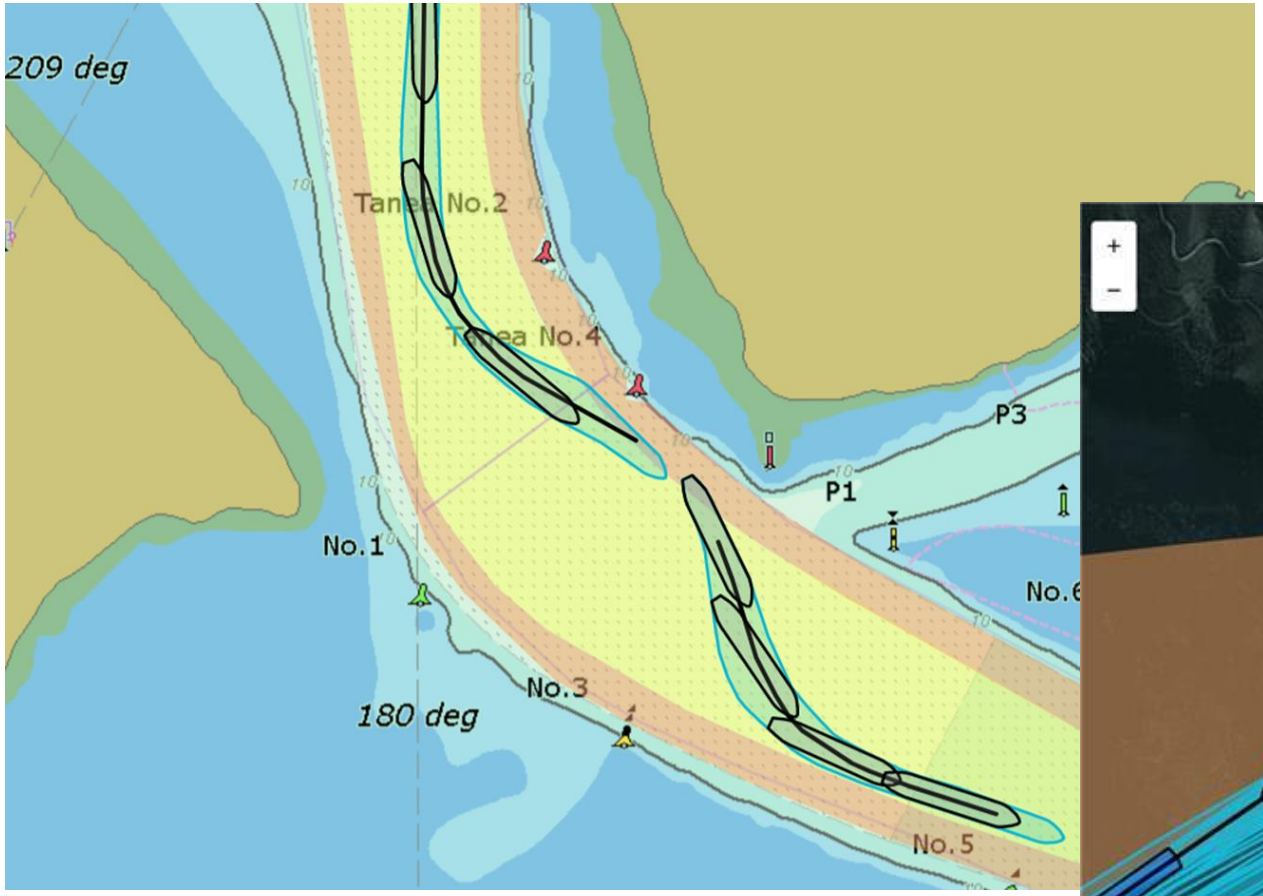


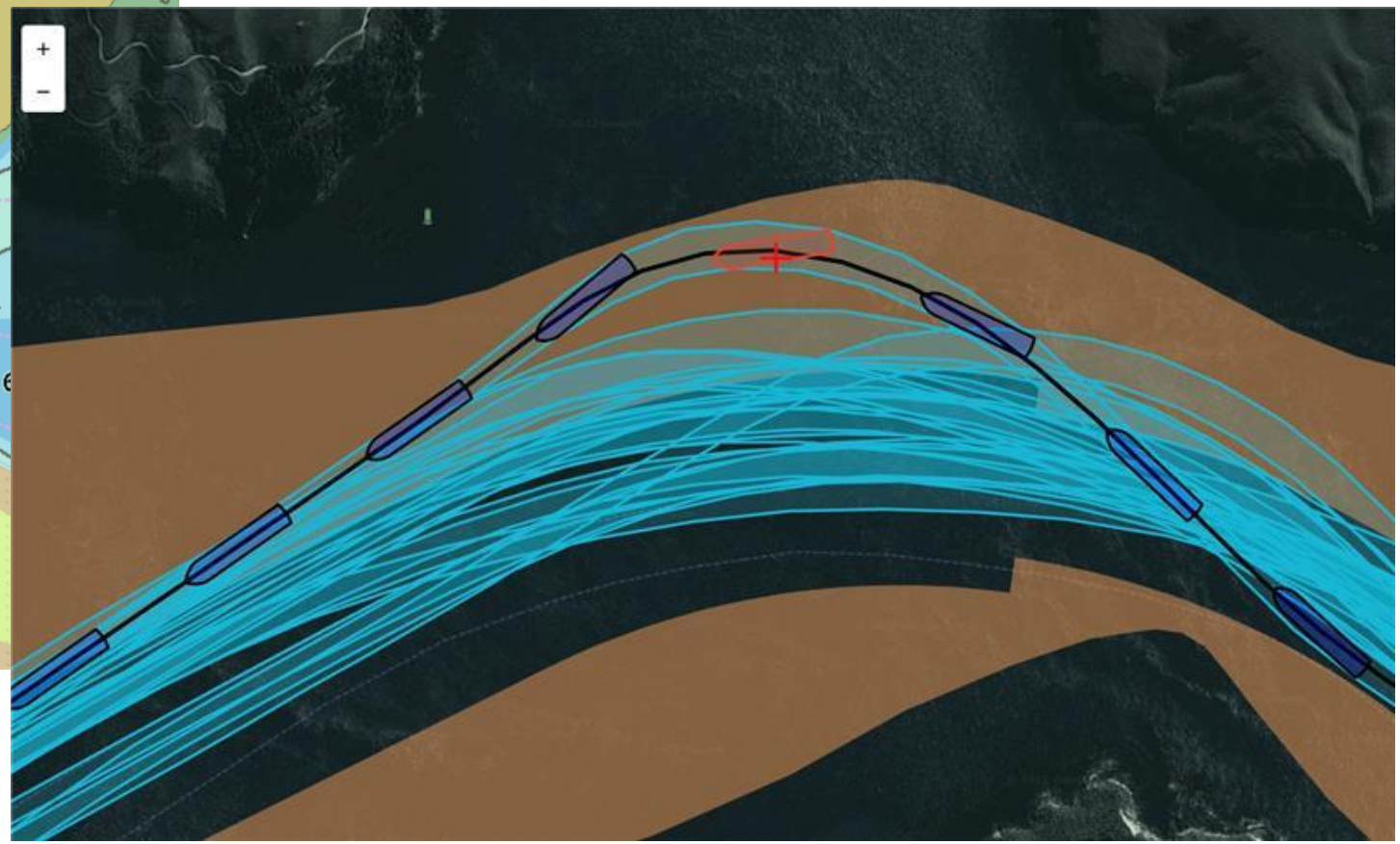


Transit Inspection



Incident Assessment





Personalisation : Colour Coding and Alternative Maps (Google)

Potential uses

Operational Planning

- Vessel Planning (Wx augmented)
- Risk Analysis Integration
- Historical decision inclusion
- Previous transit reports/notes

Training

- Historical record of vessels (individual/ group)
- Experience of type/berth/conditions
- Training requirements / simulator planning
- Retired pilot legacy database (retention of experience)

And finally

https://youtu.be/7BbuUW37oJw


ABC NEWS