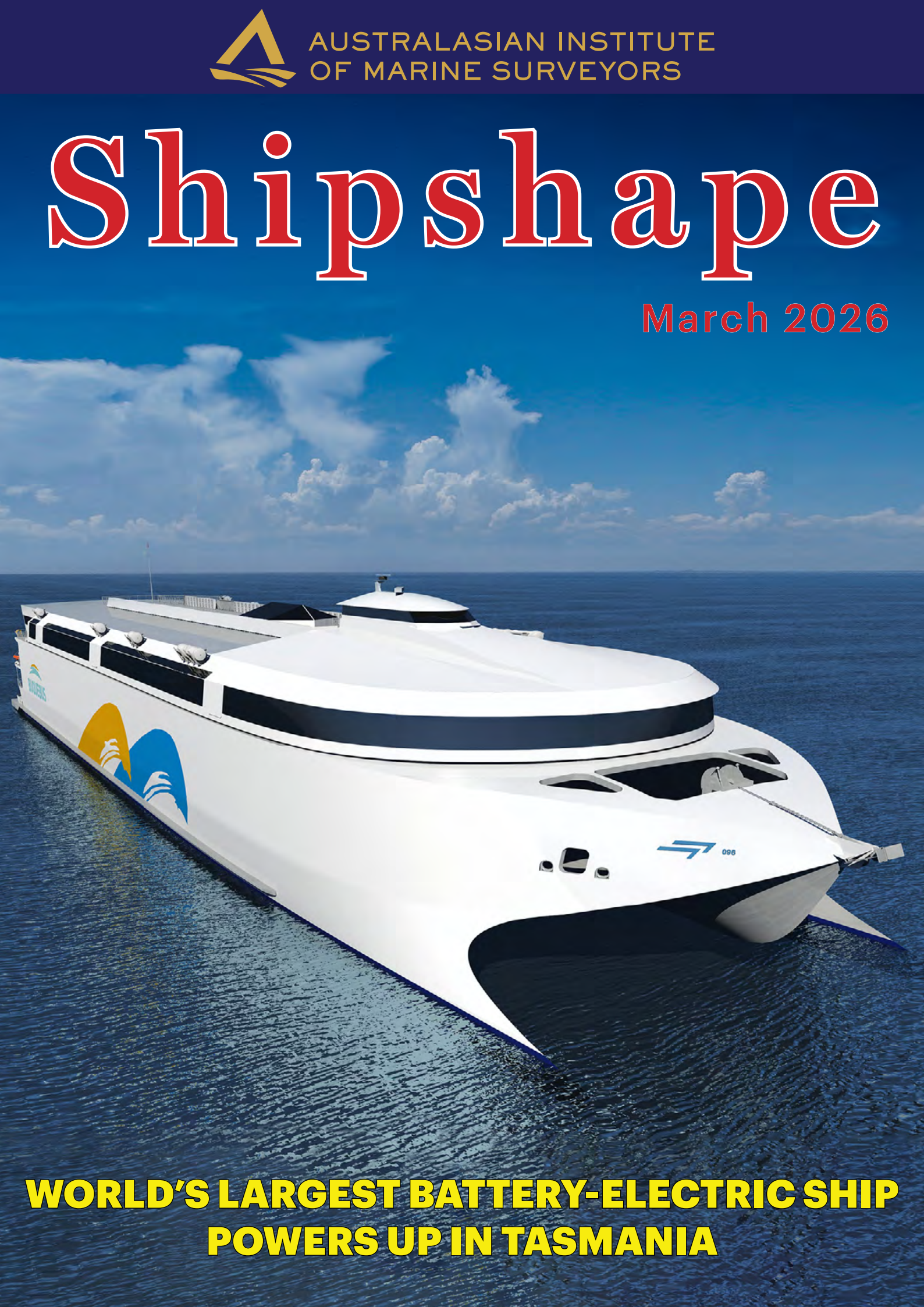
AUSTRALASIAN INSTITUTE
OF MARINE SURVEYORS

Shipshape

March 2026



WORLD'S LARGEST BATTERY-ELECTRIC SHIP POWERS UP IN TASMANIA

Slow brain, fast brain: understanding panic decisions under chronic unease in marine survey operations

IN the marine survey industry, technical competence is only one dimension of safe and effective practice. Equally critical, yet often overlooked, is the cognitive environment in which surveyors make decisions.

Whether conducting a hull inspection under time pressure, assessing a machinery space with incomplete information or managing trimming survey with tidal time pressures, the quality of our decisions is shaped not only by our expertise but also by the state of our minds.

Two complementary modes of thinking, commonly referred to as "slow brain" and "fast brain", play a central role in how surveyors interpret risk, respond to uncertainty and act under pressure. When chronic unease is present, these systems can shift in ways that increase the likelihood of reactive, sub-optimal or panic-driven decisions.

This article explores these cognitive dynamics and their implications for marine survey practice.

Fast Brain vs Slow Brain: a brief overview

Modern cognitive science distinguishes between two broad modes of thought:

Fast Brain (System 1):

- automatic, intuitive and rapid;
- operates with minimal conscious effort;
- useful for pattern recognition and routine tasks; and
- vulnerable to bias, assumption and emotional influence.

Slow Brain (System 2):

- deliberate, analytical and methodical;
- requires conscious attention and energy;
- essential for complex assessments and risk-based decisions; and
- more resilient to bias but slower to activate.

In marine surveying, both systems are essential. Fast Brain allows experienced surveyors to identify anomalies quickly – an unusual vibration, a non-compliant fitting or unexpected drafts. Slow Brain, however, is required to validate those impressions, weigh evidence and document findings with professional rigour.

The challenge arises when operational conditions suppress Slow Brain and allow Fast Brain to dominate.

Take this example. A vessel travels 30 nautical miles at 10 knots, then 30 nautical miles at 20 knots. What is the vessel's average speed over the full 60 nautical miles?

Your fast brain will probably say: "Easy, The average of 10 and 20 knots is 15 knots."

Now, slow it all down. Break it down into three steps.

Step 1: At 10 knots, the vessel has steamed for 30 -:- 10 = 3 hours.

Step 2: At 20 knots, the vessel has steamed for 30 -:- 20 = 1.5 hours.

Step 3: Total steaming time = 4.5 hours. Distance covered = 60 nm. Average speed = 60 -:- 4.5 = 13.33 knots

Chronic unease: a double-edged sword

Chronic unease is a well-recognised concept in high-reliability industries. It describes a persistent, low-level vigilance – a sense that something may be wrong even when no immediate hazard is visible. In moderation, chronic unease is protective. It encourages thoroughness, cross-checking and a healthy scepticism of assumptions.

However, when chronic unease becomes excessive or prolonged, it can degrade cognitive performance in the following ways.

- Reduced capacity for analytical thinking: Slow Brain becomes harder to engage, especially under fatigue or time pressure.
- Increased reliance on heuristics: Fast Brain shortcuts such as "this looks fine" or "I've seen this before" take over.
- Heightened emotional reactivity: stress hormones narrow attention, making it harder to consider broader context.
- Lower tolerance for ambiguity.

Surveyors may rush to conclusions simply to resolve discomfort.

In this state, even highly experienced professionals can make decisions that feel decisive in the moment but are poorly aligned with best practice.

Panic decisions: how they emerge

Panic decisions are not always dramatic. In marine surveying, they often appear as subtle deviations from standard procedure, such as:

- accepting incomplete evidence because the environment feels pressured;
- over-relying on memory rather than documenting observations;
- avoiding a difficult conversation with a client or crew;
- rushing a report to "get it off the desk"; and
- failing to notice that continuing to load may result in being over-draft and a cancelled departure.

These behaviours are rarely the result of incompetence. More often, they reflect a cognitive system overwhelmed by chronic unease and defaulting to Fast Brain responses.

Operational implications for marine surveyors

The marine environment is inherently dynamic and surveyors routinely work in conditions that challenge cognitive stability: confined spaces, variable lighting, noise, time constraints, commercial pressure, and the need to maintain independence and objectivity.

Understanding the interplay between Fast Brain, Slow Brain and chronic unease provides several practical benefits.

1. Improved Risk Recognition: Surveyors who recognise when they are operating in Fast Brain mode can pause, recalibrate and re-engage analytical thinking before making critical judgments.
2. Enhanced Report Quality: Slow Brain thinking supports structured reasoning, evidence-based conclusions and defensible documentation – essential in a regulatory or legal context.
3. Better Client Communication: Awareness of cognitive state helps surveyors manage difficult conversations without slipping into reactive or overly cautious responses.
4. Stronger Safety Culture: Teams that openly discuss cognitive load and decision pressure create an environment where uncertainty can be acknowledged rather than concealed.

Strengthening Slow Brain thinking in practice

Marine survey organisations can support better decision-making through several strategies.

- Structured checklists and decision frameworks: these reduce cognitive load and help ensure Slow Brain engagement.
- Time-out protocols: a brief pause before finalising a conclusion can prevent premature decisions.
- Peer consultation: discussing ambiguous findings activates analytical thinking and reduces isolation.
- Fatigue management: adequate rest is essential for maintaining Slow Brain capacity.
- Psychological safety: teams must feel comfortable expressing doubt, raising concerns, and challenging assumptions.
- Boy Scout principle: being prepared for any scenario will ease chronic unease by way of shutting out fast brain thoughts.

Conclusion

Marine surveyors operate at the intersection of technical expertise, environmental complexity and commercial expectation. In this demanding context, understanding how the mind functions under pressure is not a theoretical exercise, it is a practical necessity.

Wrong Fast Brain decisions made under pressure can snowball, resulting in poor and or dangerous outcomes. Being armed with the correct tools is essential in avoiding these outcomes.

By recognising the influence of Fast Brain and Slow Brain thinking, and by managing the effects of chronic unease, surveyors can strengthen the quality of their decisions, enhance safety outcomes and uphold the professional standards on which the industry depends.

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