

SHOULD I BE MEASURING CURRENTS?

A large vessel is due alongside.

The forecast looks acceptable;
the tide and wind are within limits...
but something feels marginal.

The question: **Do we have enough
data to bring this vessel in safely?**



This article is written for Harbour Masters, pilots and port teams who carry responsibility for safe navigation and efficient operations every day. We look at how measuring currents can help you make better, safer decisions.

In ports, harbours and coastal approaches, currents rarely behave in a simple or uniform way. They can change significantly over short distances, vary through the water column and differ from predictions due to weather or river discharge.

While tides and wind are routinely monitored, real-time current variability is often the missing piece.

Why now?

Ports are under growing pressure:

- Larger vessels with deeper drafts
- Tighter turnaround schedules
- Increased regulatory and environmental scrutiny
- More frequent extreme weather events

At the same time, operational teams are expected to make confident, evidence-based decisions – often in time-critical situations.

Understanding currents in real time can provide that extra layer of reassurance when it matters most.

When charted data isn't enough

Traditional tools such as tidal diamonds and current predictions remain useful, but they come with limitations:

- They are location-specific and may not cover critical manoeuvre points
- They often represent surface conditions only
- They cannot account for short-term changes caused by weather or river flow.

In reality, currents can differ markedly with depth – something that becomes especially important for deep-draft vessels.

Measuring currents in situ, in real time, allows you to understand how representative predicted or charted values really are.

How real-time current data supports better decisions

1. Greater confidence at the point of decision

Having live, local data available alongside tide and wind information gives operational teams a clearer picture of actual conditions – not just what was expected to happen.

2. Improved efficiency without compromising safety

More accurate environmental data can support:

- The review and refinement of operational limits
- Increased cargo loads or vessel movements within existing constraints

In some cases, this delivers commercial benefits without the need for major capital works such as dredging.

3. Stronger resilience to change

Ports and harbours are on the frontline of climate change. Flood events, storm surges and altered tidal behaviour are becoming more frequent.

A sustained current measurement programme helps build a long-term understanding of how your environment responds to these pressures – supporting safer operations today and better planning for tomorrow.

Who actually uses current data?

One of the most important – and often overlooked – questions is: *who needs this data?*

Each group may need different views of the same dataset, whether that's real-time access, integration into PPUs or VTS, or historical records for analysis and modelling.

Thinking about users early ensures the data you collect is genuinely fit for purpose.

Where and how should currents be measured?

There is no one-size-fits-all solution. Sensor location and deployment depend on local knowledge and operational priorities.

Key considerations include:

- Critical manoeuvre points (turning circles, narrow channels, berth approaches)

- Whether surface data is sufficient or measurements are needed through the water column
- Existing infrastructure, such as navigation buoys or quayside structures.

So... should you be measuring currents?

If your role involves making or supporting navigational decisions, the honest answer is: probably yes.

Not because currents are new – but because expectations, vessel sizes and environmental pressures have changed.

Measuring currents isn't about adding complexity. It's about reducing uncertainty. And when safety, efficiency and confidence matter, that reduction can make all the difference.



OceanWise supports ports and harbours worldwide with environmental monitoring, data management and advisory services. If you'd like to explore whether current measurement is right for your operation, please get in touch.

 www.oceanwise-global.com  info@oceanwise-global.com  +44 (0)1420 768262

