

Commissioners of  
**IRISH LIGHTS** | *Navigation  
and Maritime  
Services*

# Dublin Bay Digital Diamond e-Navigation Demonstrator

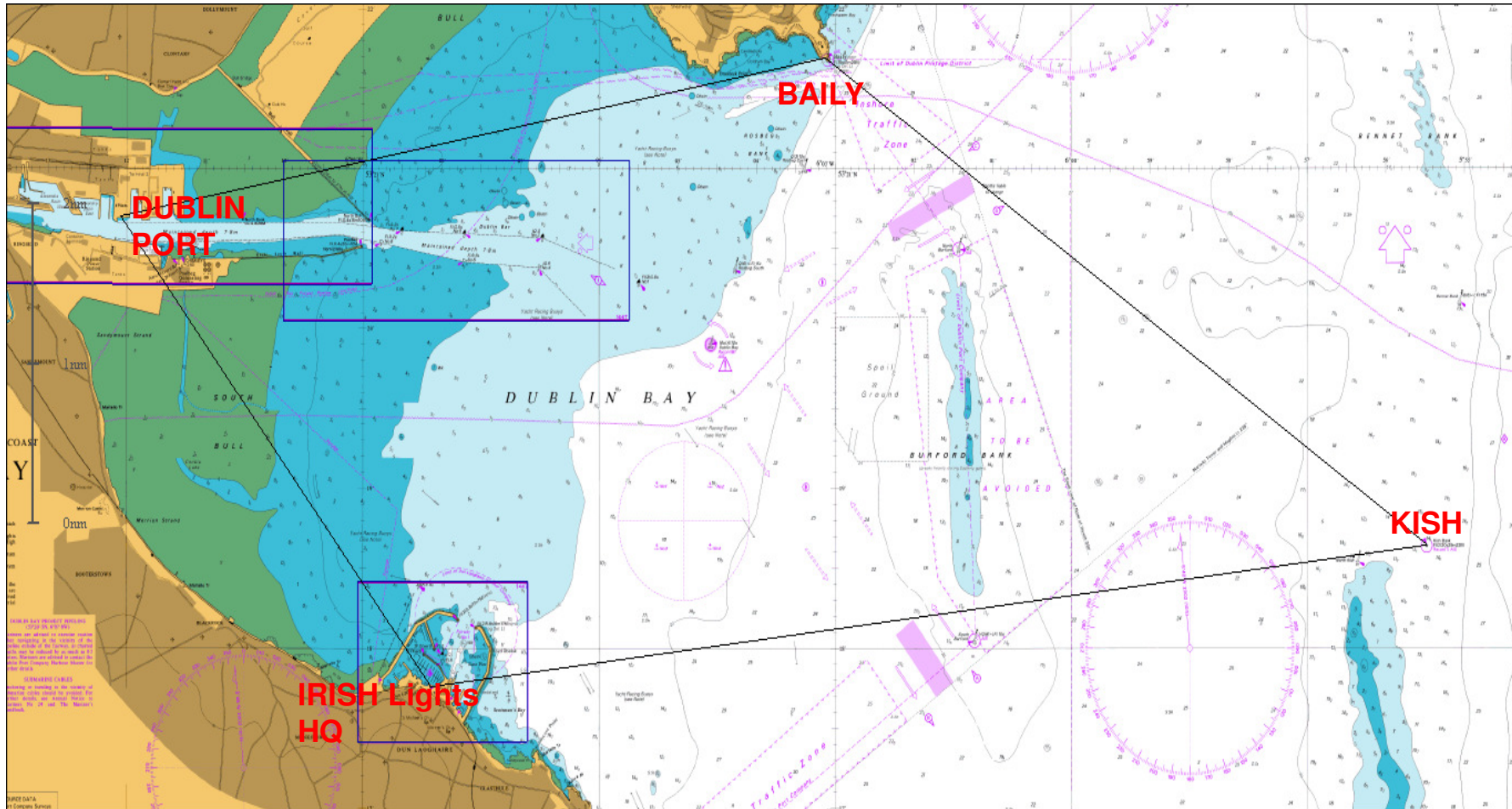
e-Navigation Underway 2017

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## Dublin Bay Digital Diamond (DBDD)

- Engage with the user community in the development of an e-Navigation demonstrator project
- Located in Dublin Bay and co-ordinated by Irish Lights
- Use existing Irish Lights and partner organisation infrastructure to provide platforms for the core communications network required
- Modest demonstrator that could show users across the maritime sector the practical benefits they could expect from a future e-Navigation environment

# DBDD Primary Stations



## DBDD Objectives

Develop & demonstrate e-Nav services by:

- Improve safety & efficiency of maritime transport
- Deliver stakeholder value
- Encourage optimal use of the services provided
- Effective communication of the potential of e-Navigation to the maritime community and public

## Stakeholder Requirements

A number of stakeholder meetings were held to ensure user focussed outcomes:

- DATA DATA and more DATA
- Met/ Ocean Data
- Automatic exchange of data e.g. Safeseas
- Camera looking at Dublin Bay anchorage
- Wind speed and direction read out from a height of approx. 20 m (RO RO vessel)

## Technical Advisory Committee (TAC)

Criteria for membership was the ability to deliver benefit to and derive benefit from the project

- Advise on the technical feasibility of tests
- Advise on resource requirements, environmental issues, and project outputs
- Advise on strategies and recommendations for action
- Ensure user focussed outcomes across the sector



# Technical Advisory Committee

TAC Representatives:



- Ports
- Safety
- Leisure
- Shipping
- Technology

## @DublinBayBuoy

Dublin Port Pilot: “the weather data is of significant help for choosing where and on what course to board an inbound vessel in the bay”

- Wind Speed
- Wind Direction
- Wave Height
- Wave Period



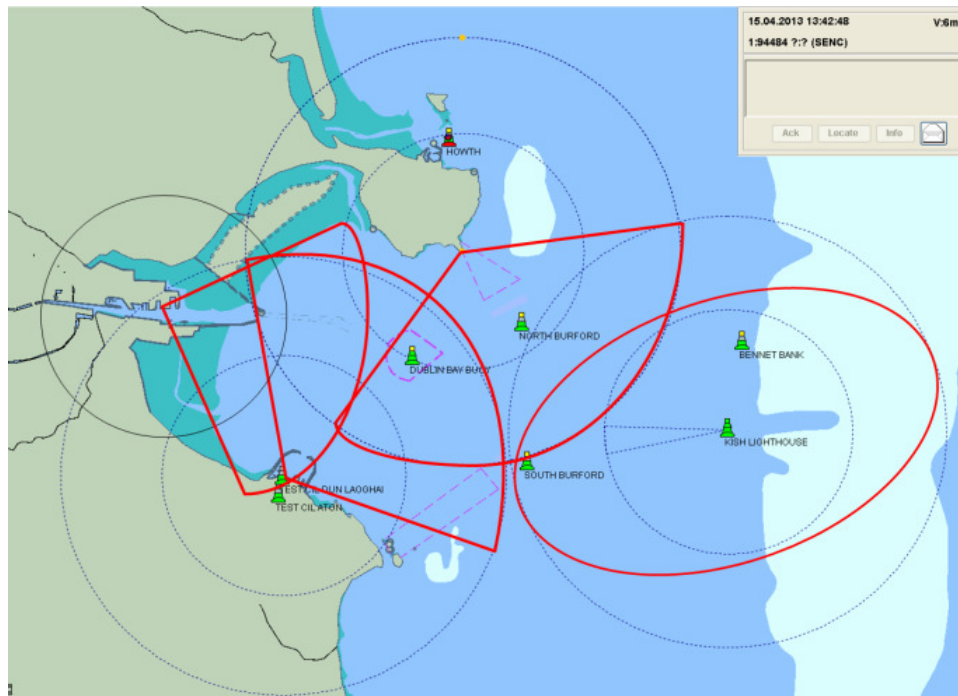
Oxygen, salinity and temperature sensor





# Wi- Fi Trial

- Wi-Fi for data transfer between the four nodes
- Plenty of signal strength but too much interference from other Wi-Fi nodes



## Stereoscopic Positioning

- 2 photos of the same object/view taken a few meters apart compared with real-time onboard camera images and processed for a match at a particular bearing
- Images sent to NUIM for processing
- Accuracy poor
- The performance of this system is highly dependent on quality and spread of land marks

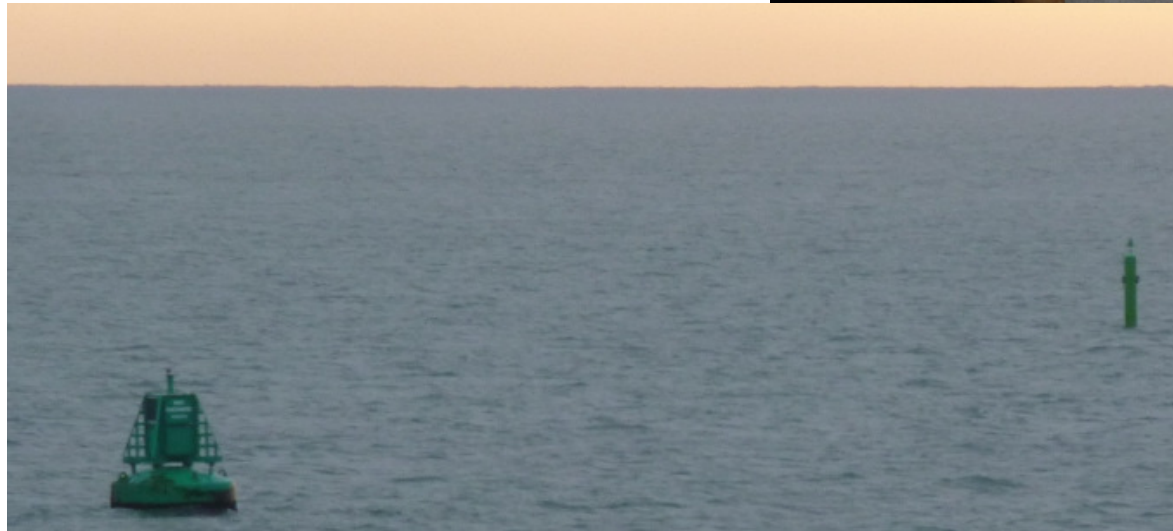


# Spar Buoy Trial

e-Nav context use of sensors on constant tension mooring buoys

Finish Company Meritaito

- Location
- Wave Height
- Water Temp
- Sea How Web Portal



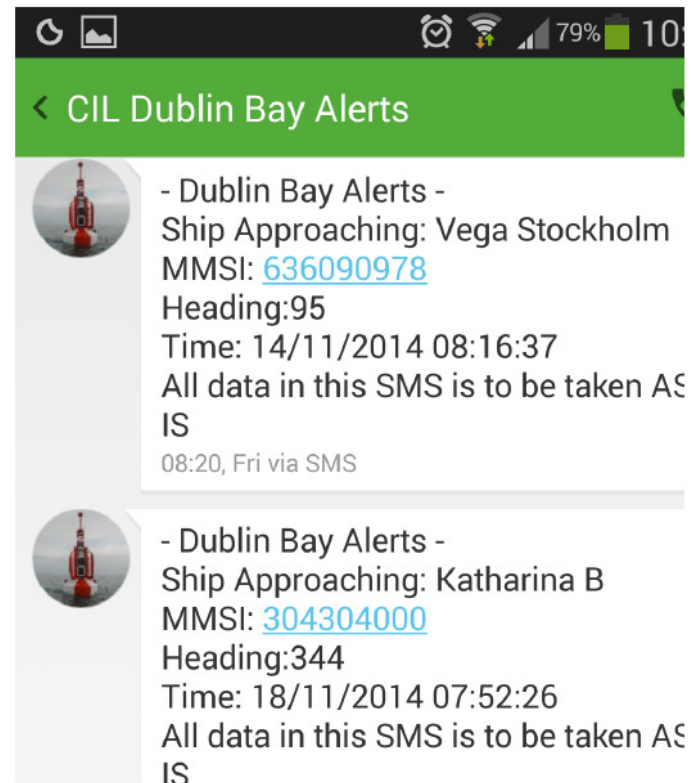
# Camera

- Demonstrations conducted with various types of cameras, including thermal imaging camera
- Marine Environment
- Accessibility
- Good Vantage point
- Bosch MIC IP dynamic 7000 HD camera mounted at East Pier Lighthouse
- Multiple remote operators
- Initial firewall issues



## AIS to Text

System monitors AIS message Types 1,2 and 3 to determine if a vessel has entered/ exited a pre-defined area, an SMS message is then forwarded to the relevant contact



## Bridge Surveys

- All stated they were aware of e-Navigation but thought that ECDIS meant e-Navigation
- Lack of standardisation of equipment
- Poor procedures in the event of loss of GNSS
- Balance of information is good
- Radar still remains an important and reliable tool for safe navigation
- Improvement/ Advancement in technology is good



## e-Nav News

- Publication and distribution of e-Nav News
- Engaging with the maritime community



## What We Learned!

- Precise outputs and their timing changed based on partner input and available technology
- Learned more about sensors, their correct mounting and maintenance
- Safety & efficiency of maritime transport could be enhanced by the “AIS to text” tool and elements of this tool could be expanded into MSPs in the future
- The limitations associated with constraining a test bed to a Geographic area
- The value of an effective TAC with good TOR
- The value of pro-actively engaging with stakeholders

Thank You!



<http://www.irishlights.ie/technology-data-services/e-navigation.aspx>

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