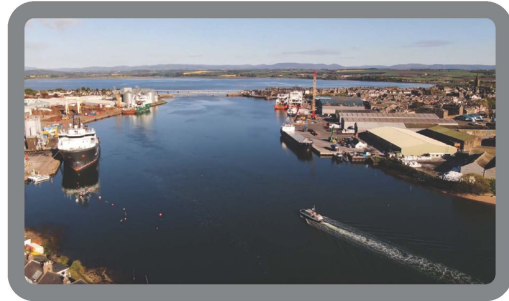


# ENVIRONMENTAL MONITORING IN PORTS

## Data Led Emissions Management (D-LEMA) Project

### OBJECTIVE

D-LEMA aims to demonstrate a proof-of-concept digital solution for monitoring vessel emissions in port, allowing port managers to identify activities that contribute to high levels of greenhouse gas emissions.



### PARTNERS



Marlin Software and Analytics Platform



Project Management, Validation and Dissemination



Port and Vessel Activity Data and Interpretation



Marine Testing and Proving Ground

Ports emit roughly **3%** of global GHG emissions. There is no widely accepted tool for measuring waterside GHG emissions.

### METHODOLOGY

- Plymouth Marine Laboratory supplied AIS data.
- ION's Marlin software tracked vessel activity in specific port zones.
- Marlin data was exported to a database and processed using an algorithm devised by the IMO GHG study.
- A complete six-year data set was analyzed.



**AIS** - Automatic Identification System (AIS) is an automatic tracking system that uses transceivers on ships.

**Automatic Identification System (AIS)**

### KEY FINDINGS: Emissions by Vessel Type

#### PLEASURE CRAFTS



Accounted for **25%** of vessels in the test area  
Produced **37%** of emissions  
Stationary **78%** of the time  
Active **2.2** Hours A Day

Pleasure craft generally stay within port and spend little time in the central dockyard. Biggest contributors to congestion.



#### TANKERS

Accounted for **2.3%** of vessels in the test area  
Produced **9.2%** of emissions  
Stationary **87.9%** of the time  
Active **2.7** Hours A Day

Oil tankers are often required to anchor outside port, increasing emissions. Employing Just-in-Time arrival in the port and reducing turnaround times for these vessels will make a major contribution to tackling emissions in the port area.

### NEXT STEPS

- Further D-LEMA data set analytics
- Future controlled projects will include new locations, vessel classes, and data from weather and air quality sensors.

For more information and detailed report contact:

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