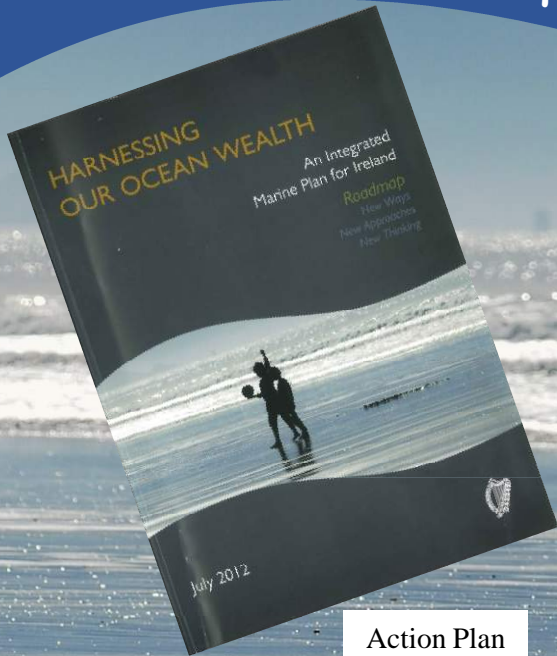


# Our Ocean Wealth: 1<sup>st</sup> Annual Conference

New Ways - New Approaches - New Thinking



Action Plan  
July 2012



Peter Heffernan  
Chief Executive,  
Marine Institute,  
[www.marine.ie](http://www.marine.ie)

[www.OurOceanWealth.ie](http://www.OurOceanWealth.ie)

Our Ocean Wealth 1<sup>st</sup> Annual Conference:  
The Printworks, Dublin Castle, June 18 2014



# A New Era of Trans-Atlantic Cooperation

Signed in Galway on 24 May 2013 in three originals in the English language.

For the European Union

For the Government of  
Canada

For the Government of the  
United States of America

*Maire Geoghegan*

Máire GEOGHEGAN-  
QUINN  
Commissioner for Research,  
Innovation and Science

Edward FAST  
Minister of International  
Trade and Minister for the  
Asia-Pacific Gateway

*Kerri-Ann Jones*  
Dr Kerri-Ann JONES  
Assistant Secretary of State  
for Oceans and International  
Environmental and Scientific  
Affairs

*Maria Damadaki*

Maria DAMANAKI  
Commissioner for Maritime  
Affairs and Fisheries



## The Galway Statement on Atlantic Ocean Cooperation

Launching a European Union – Canada – United States of America Research Alliance

24th May 2013

To provide a vision for enhanced cooperation on both sides of the Atlantic and a set of jointly agreed priority actions to provide the means to achieve these goals .

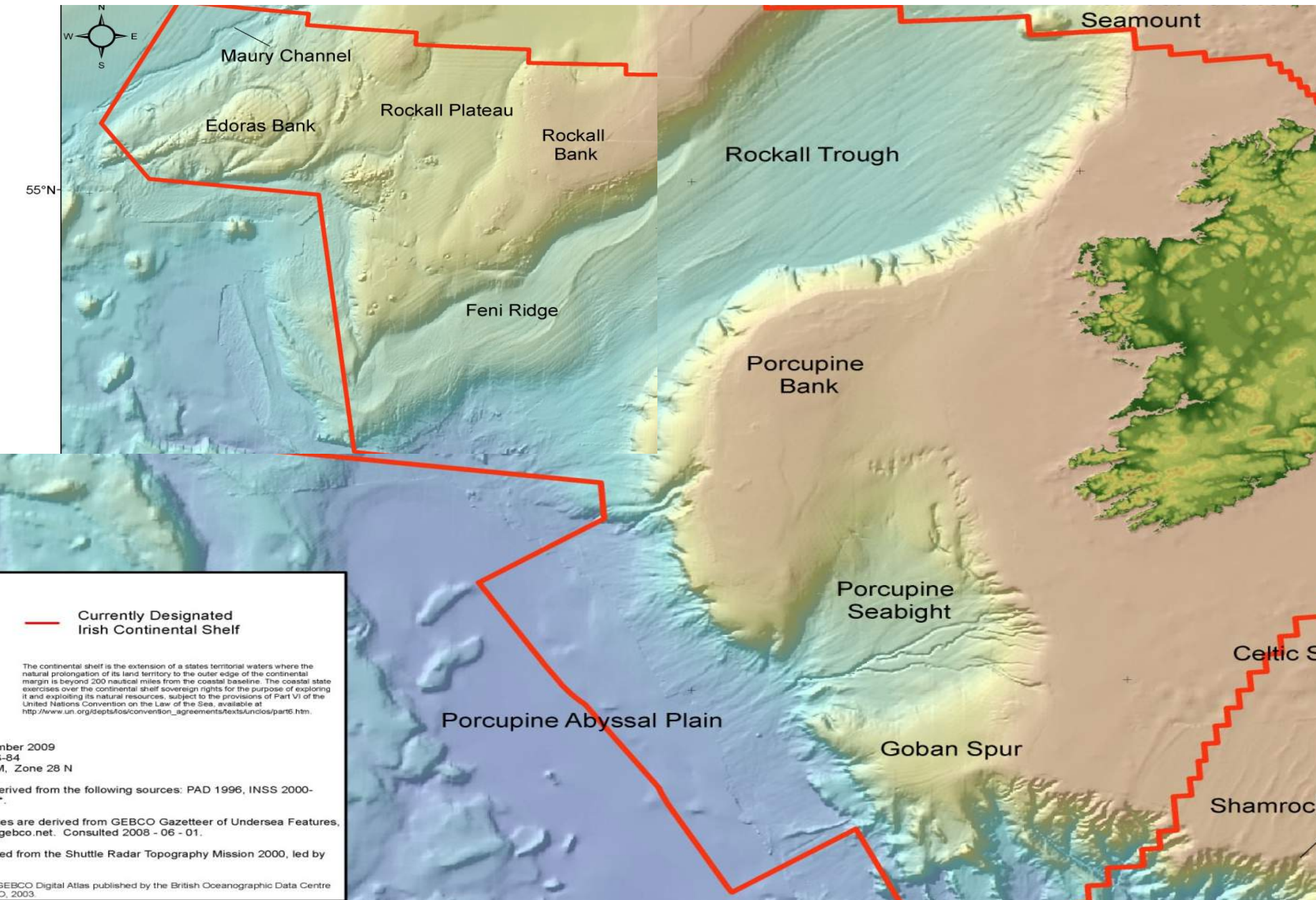


[www.marine.ie/atlanticasharedresource](http://www.marine.ie/atlanticasharedresource)









# Building on Existing Capabilities and Infrastructures

Shelf and coastal seas

## Satellites

Active and passive sensors enable measurements of ocean surface parameters (SST, wind, sea level height, sea state, sea ice, ocean colour) and of the geoid  
Data gathering (e.g. from drifter, Argo profilers)  
[www.esa.int](http://www.esa.int)

## Satellites

Remote sensing of shelf sea ecosystems  
[www.esf.org/research-areas/marine-board/publications.html](http://www.esf.org/research-areas/marine-board/publications.html)

Sea ice observations  
in situ and remotely sensed  
[www.damodcs.eu.org](http://www.damodcs.eu.org)

## Ocean reference sites

Wide variety of variables  
Time series  
Surface to full ocean depth  
[www.oceansites.org](http://www.oceansites.org)

## Ship of Opportunity Programme

Repeat XBT line network measuring temperature profiles  
[www.jcommops.org/soopp/](http://www.jcommops.org/soopp/)

## Sustained and repeated ship-based hydrography and carbon network

Research ship full depth T, S & carbon profiles  
Identified lines  
[www.iocep.org](http://www.iocep.org)

## Volunteer Observing Ship (VOS) fleet

Surface meteorology, SST  
VOSclim  
Includes extensive ship metadata  
[www.jcommops.org/sst](http://www.jcommops.org/sst)  
Carbon VOS  
pCO<sub>2</sub> and surface T&S  
[www.iocep.org](http://www.iocep.org)

## Oil and gas platforms

Meteorological data

## Shelf and near-shore moorings; coastal observatories

SST, SSS, S, V profiles  
Chemical and biological sampling  
Coastal HF radar networks

## Ferry box

Measurements include:  
SST, SSS, oxygen, nitrate, sound velocity, fluorescence, light, redox levels, PH, dissolved organic material, turbidity, chlorophyll  
[www.ferrybox.org](http://www.ferrybox.org)

## Moored buoys arrays

Surface meteorology, SST, SSS, SLP  
Ocean T, S, V profiles  
[www.meteo.shimri.fr/gos](http://www.meteo.shimri.fr/gos)

## Surface drifter array

Surface V, SST, SLP  
[www.meteo.shimri.fr/gos](http://www.meteo.shimri.fr/gos)

## Research vessels

Discrete sampling  
e.g. T, S, biology, chemistry  
[www.gosud.org](http://www.gosud.org)  
[www.isom-info.org](http://www.isom-info.org)  
[www.euroceat.org](http://www.euroceat.org)  
[www.iocep.org](http://www.iocep.org)

## Tide gauges networks

Sea level  
Regional and national  
[www.glass-sea-level.org](http://www.glass-sea-level.org)

## Argo profiling float array

T, S profiles every 10 days  
V at ~2000m  
[www.ifremer.fr/euro-argo](http://www.ifremer.fr/euro-argo)

## Gliders

Provide long path T, S, and vertical water velocity with depth  
[www.ocean-ipsl.upmc.fr/gliders/EGO/](http://www.ocean-ipsl.upmc.fr/gliders/EGO/)

## Autonomous underwater vehicles

Sensors include: compasses, depth sensors, sonars, magnetometers, thermistors and conductivity probes

## Continuous plankton recorder

Measures ecology and biogeography of plankton  
[www.sahfos.ac.uk](http://www.sahfos.ac.uk)

## Drifters, autonomous vehicles, gliders, ROVs

Measurements include: temperature, salinity, velocity, biogeochemistry, positional and other information, depending on vehicle

## Cable networks, ocean transport measurements

Acoustic doppler current profilers  
Moored or ship-based

Remote operating vehicles  
Includes benthic landers and corers  
Sampling of the deep ocean and sea bed

## Key

SST = Sea surface temperature  
SSS = Sea surface salinity  
SLP = Sea level pressure  
T = Temperature  
S = Salinity  
V = Ocean current data  
pCO<sub>2</sub> = Partial pressure of carbon dioxide  
XBT = Expendible bathy-thermograph

## Coastal zone monitoring

Land and sea-based instrumentation  
Physical, biological and chemical sampling  
Sediments

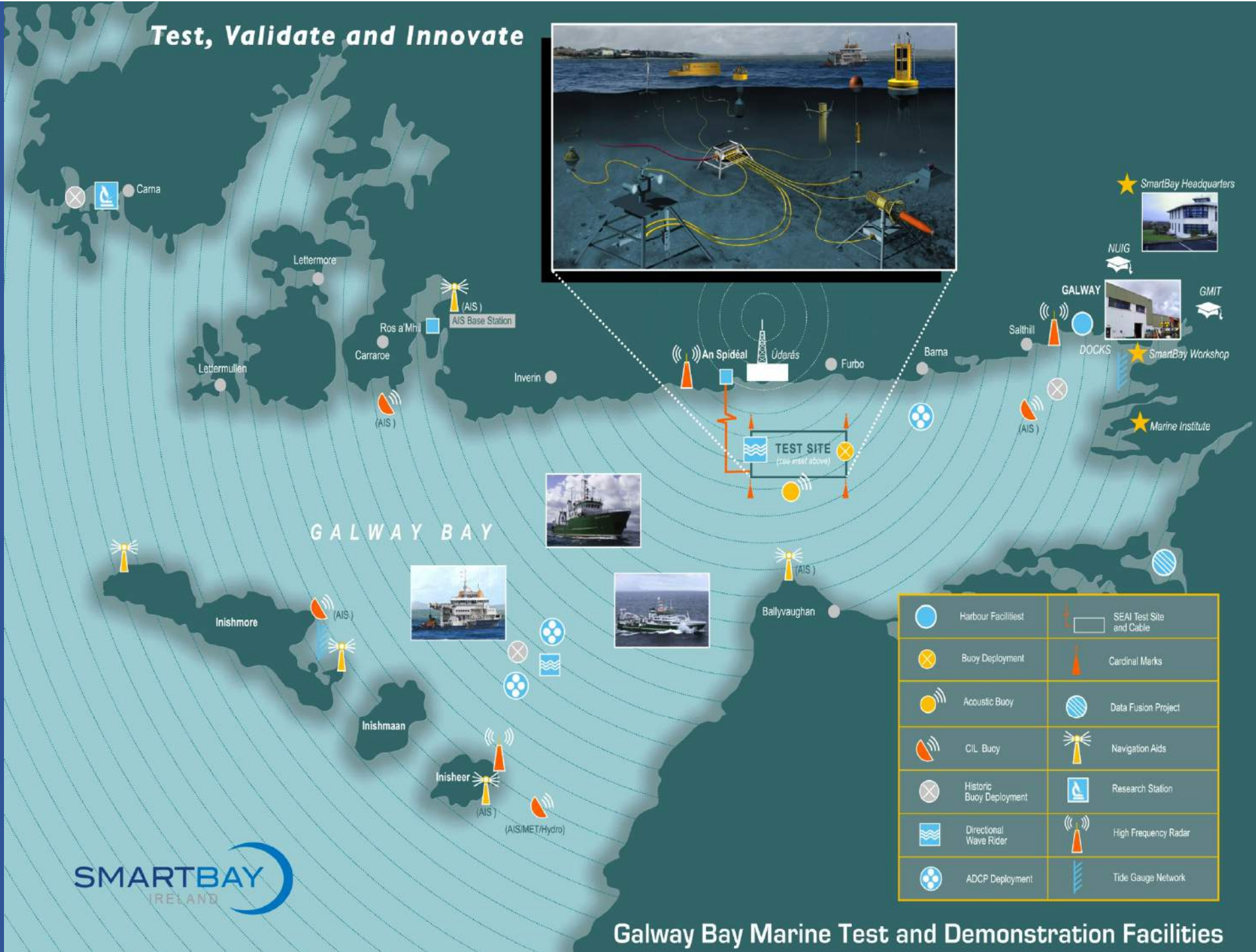


GOOS illustration modified for Plymouth Marine Laboratory by glyn@gonick.co.uk



[www.ioce-goos.org](http://www.ioce-goos.org)

# Test, Validate and Innovate

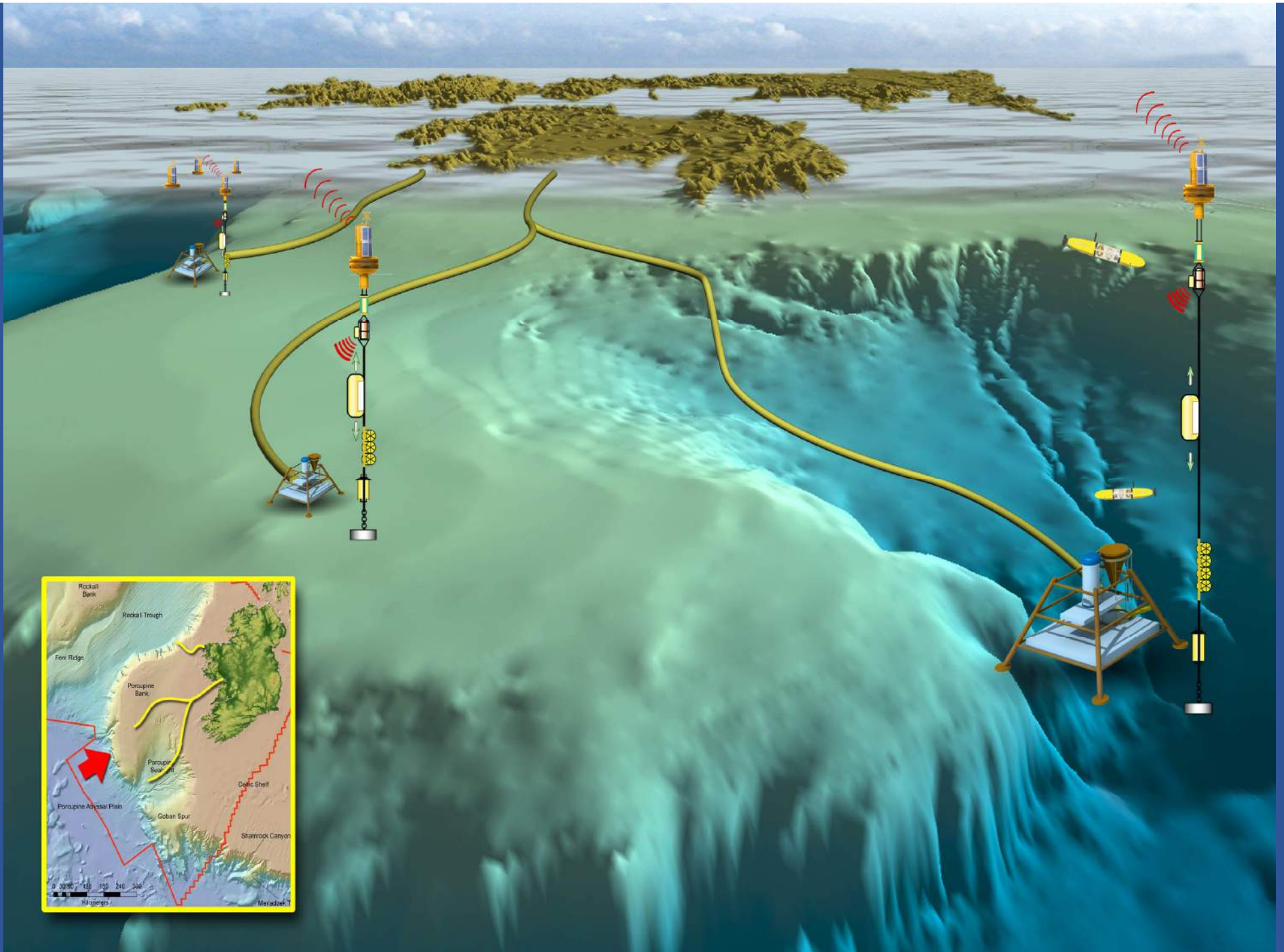


- ★ SmartBay Headquarters
- NUIG
- GALWAY
- GMIT
- SmartBay Workshop
- Marine Institute

	Harbour Facilities		SEAI Test Site and Cable
	Buoy Deployment		Cardinal Marks
	Acoustic Buoy		Data Fusion Project
	CIL Buoy		Navigation Aids
	Historic Buoy Deployment		Research Station
	Directional Wave Rider		High Frequency Radar
	ADCP Deployment		Tide Gauge Network



## Galway Bay Marine Test and Demonstration Facilities







## A parting thought:

*“The greater danger for most of us lies not in setting our aim too high and falling short; but in setting our aim too low, and achieving our mark”.*

Michelangelo : 1474-1564

