



EWEA2011 March 16, 2011
ORECCA SIDE EVENTS

OFFSHORE RENEWABLE RESOURCES IN EUROPE

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Prot.RSE 11001207

ORECCA PROJECT WP2

WP2: Resource characterization, environmental impact, financial and legislative framework for the target areas

(Leader: K. Lynch, HMRC, Ireland)

Estimating the resources for different technologies and structures and also for the combined use (multi purpose platforms)

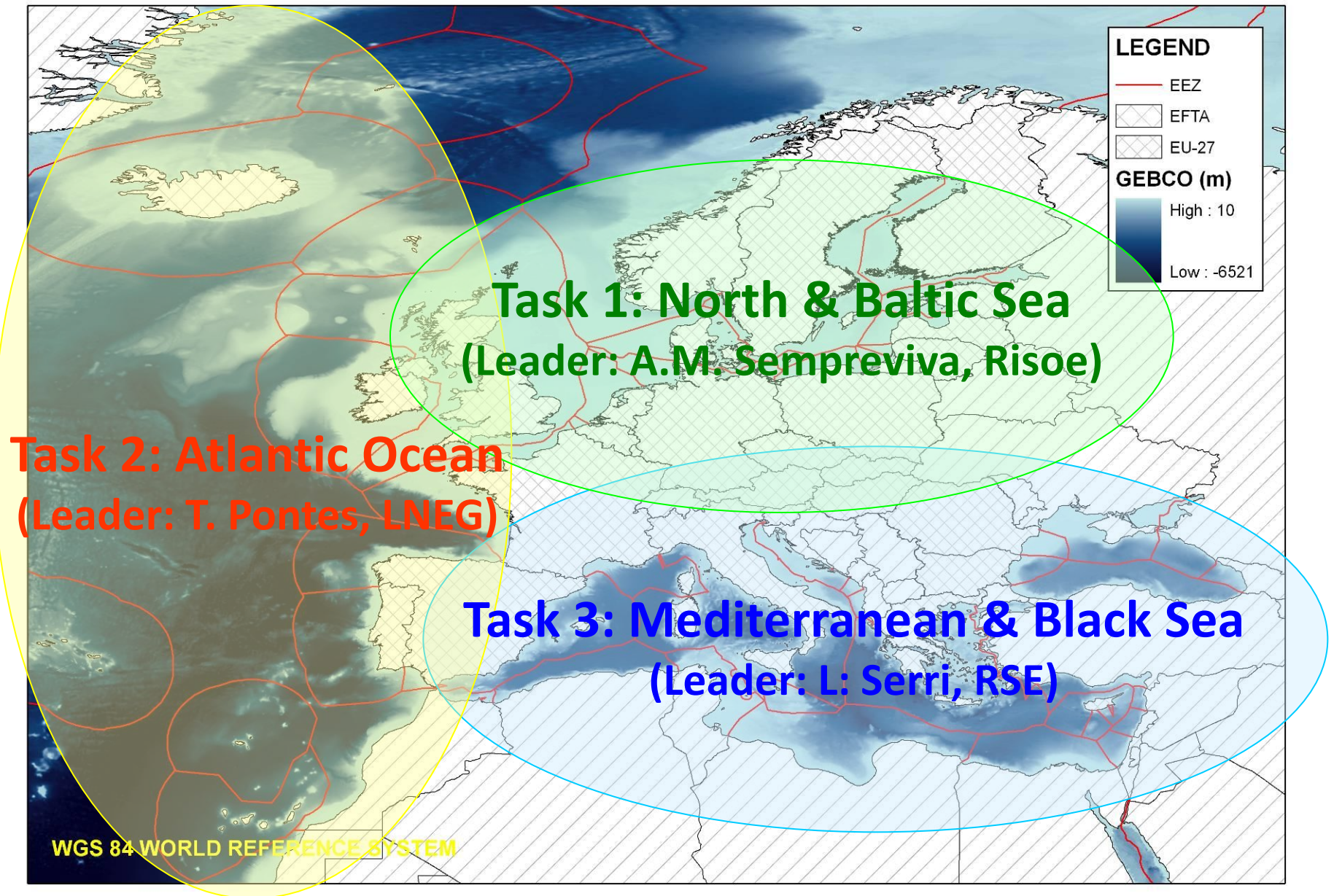
Information to be collected:

- wind statistics, wave spectra, ocean currents, temperatures,
- bathymetry, seabed morphology and geology
- existing and planned use - marine spatial planning
- environmental conditions (marine life, habitats, ecosystems)
- competing other uses such as navigation routes

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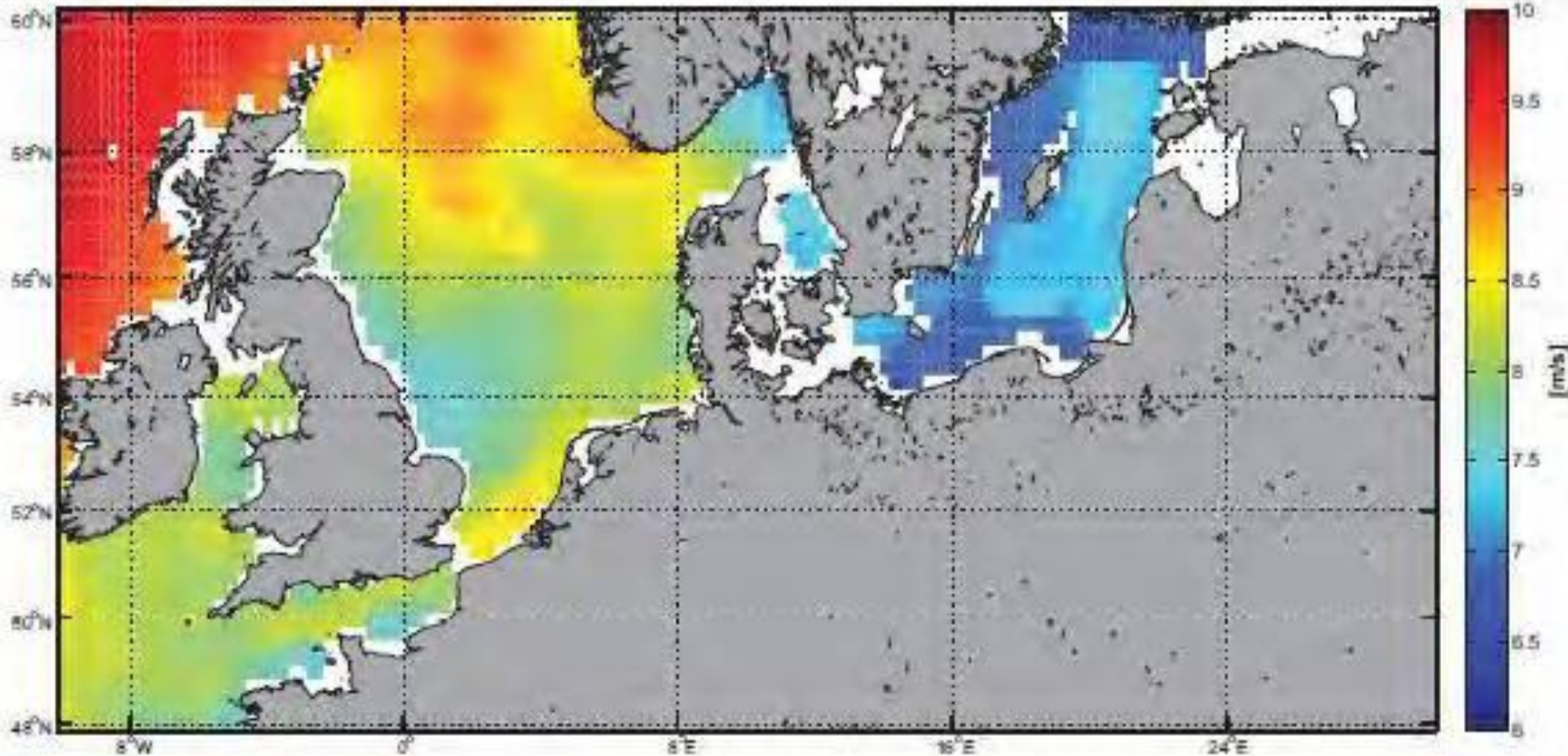
Different levels: macroarea, county/region, site

ORECCA: THREE GEOGRAPHICAL AREAS



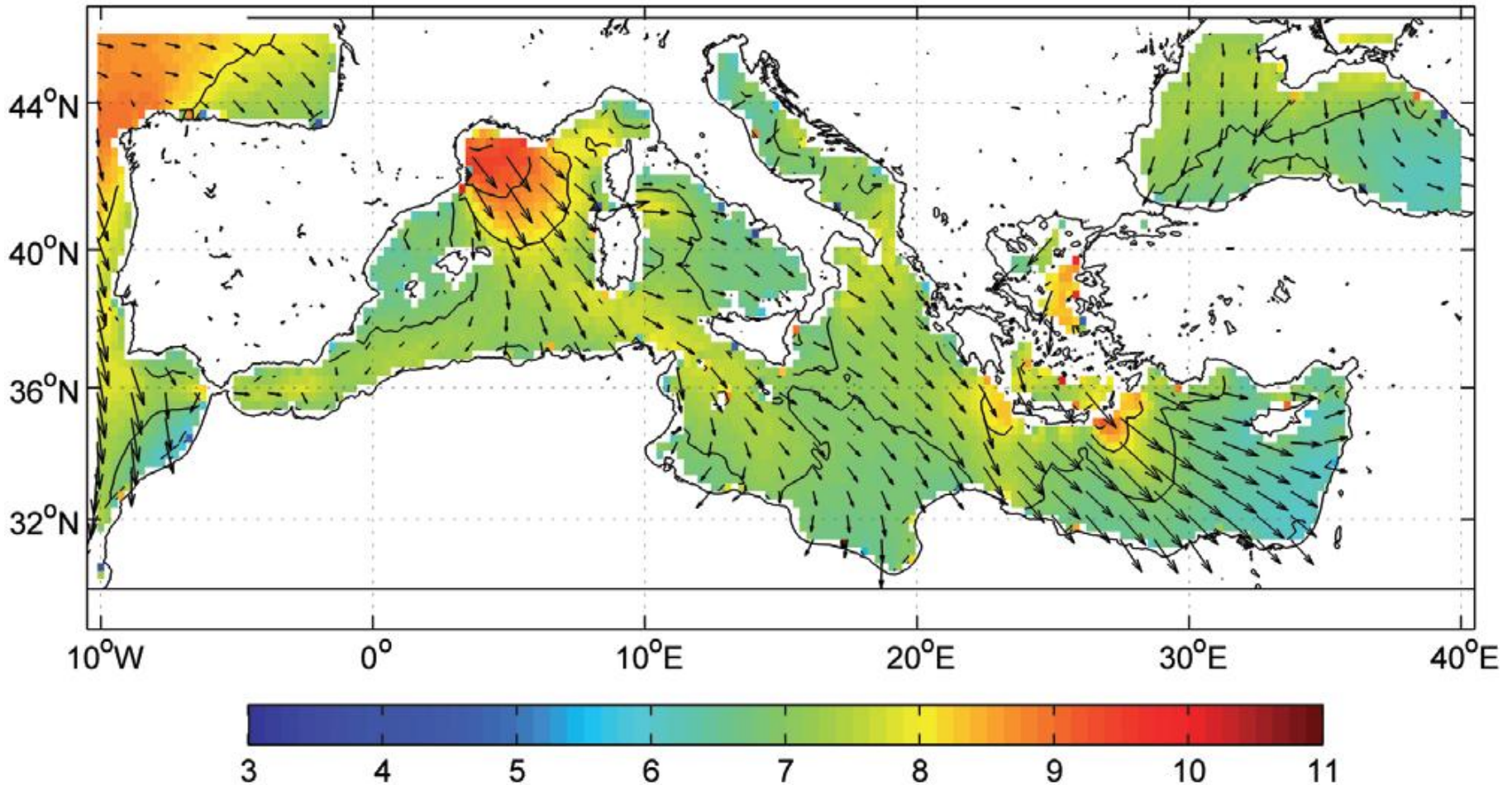
Offshore Wind Map

Mean Wind Speed



Authors: Risoe-DTU: Karagali & Sempreviva, Task 2

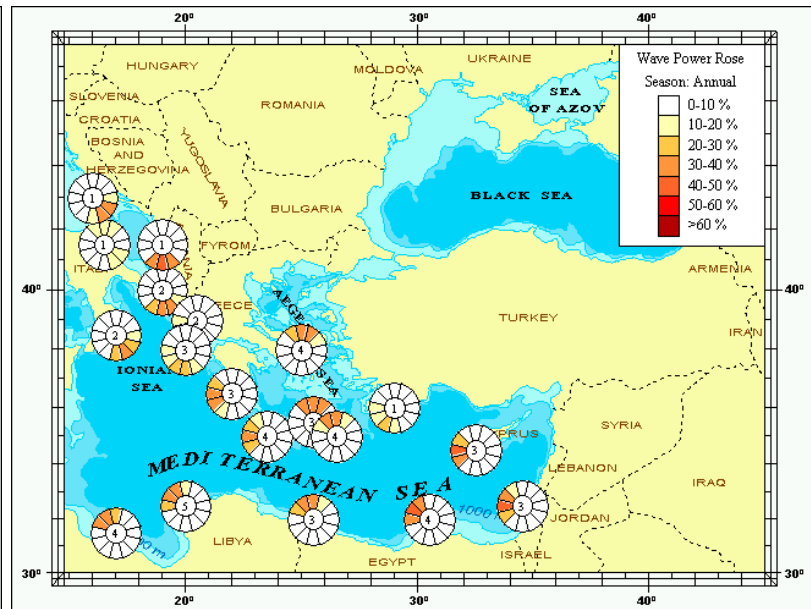
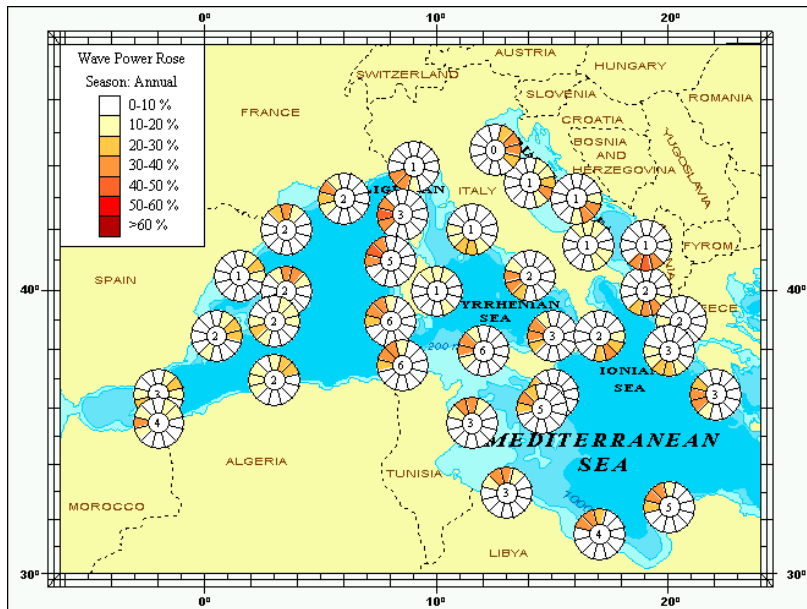
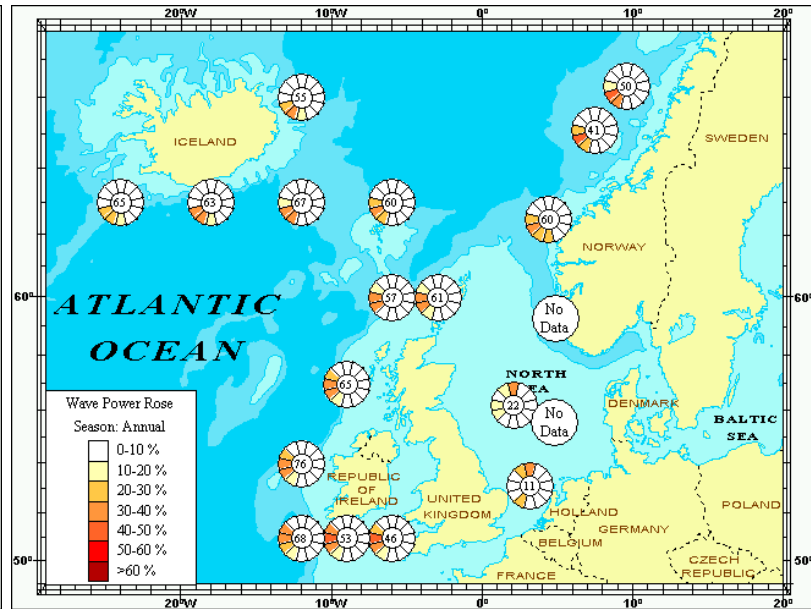
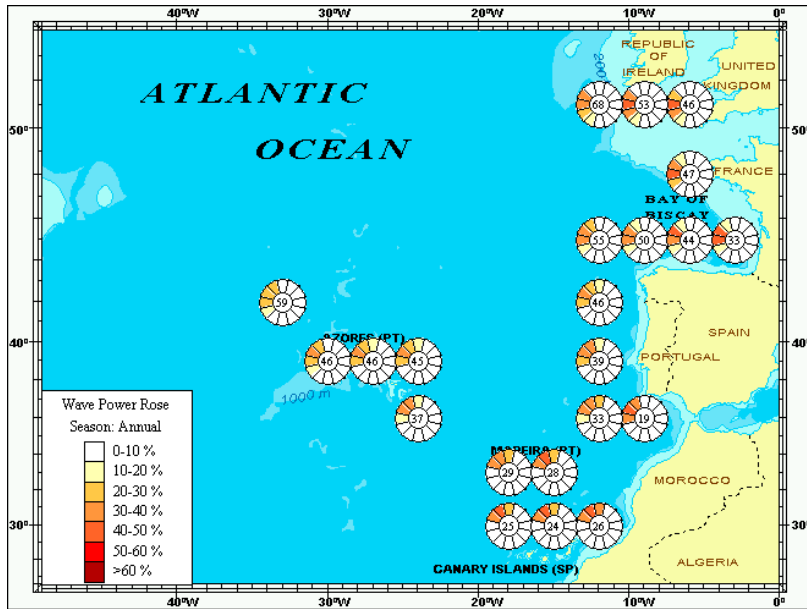
Offshore Wind Map



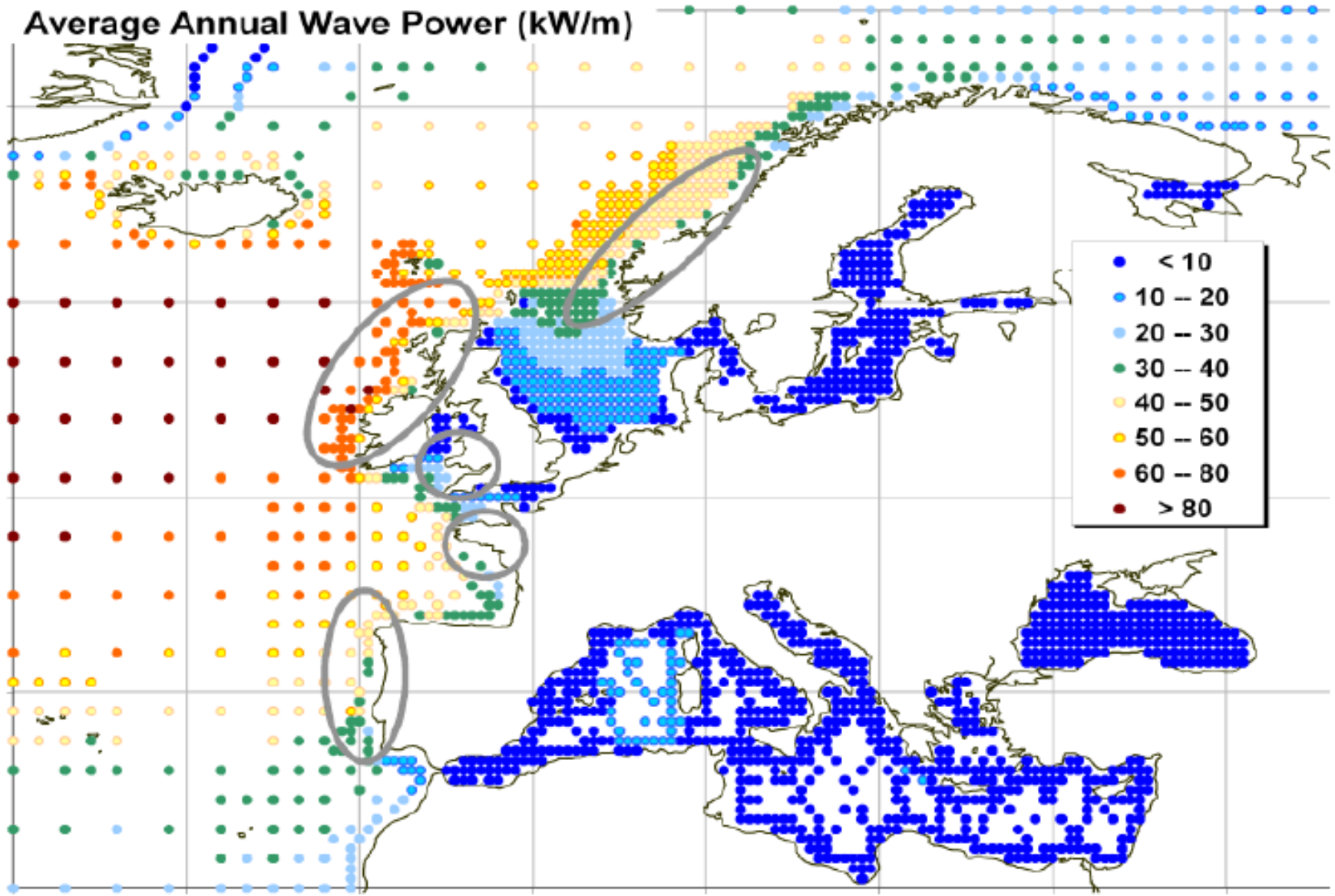
QuikScat mean wind speed (m s^{-1}) (2000–2007) and mean wind direction. The wind speeds are reduced using the correction of the ECMWF for winds above 19 m s^{-1}

B.R. Furevik, A. M. Sempreviva, L. Cavaleri., J.M. Lefèvre, C. Transerici, “Eight years of wind measurements from scatterometer for wind resource mapping in the Mediterranean Sea”, *Wind Energ.* (2010), DOI: 10.1002/we

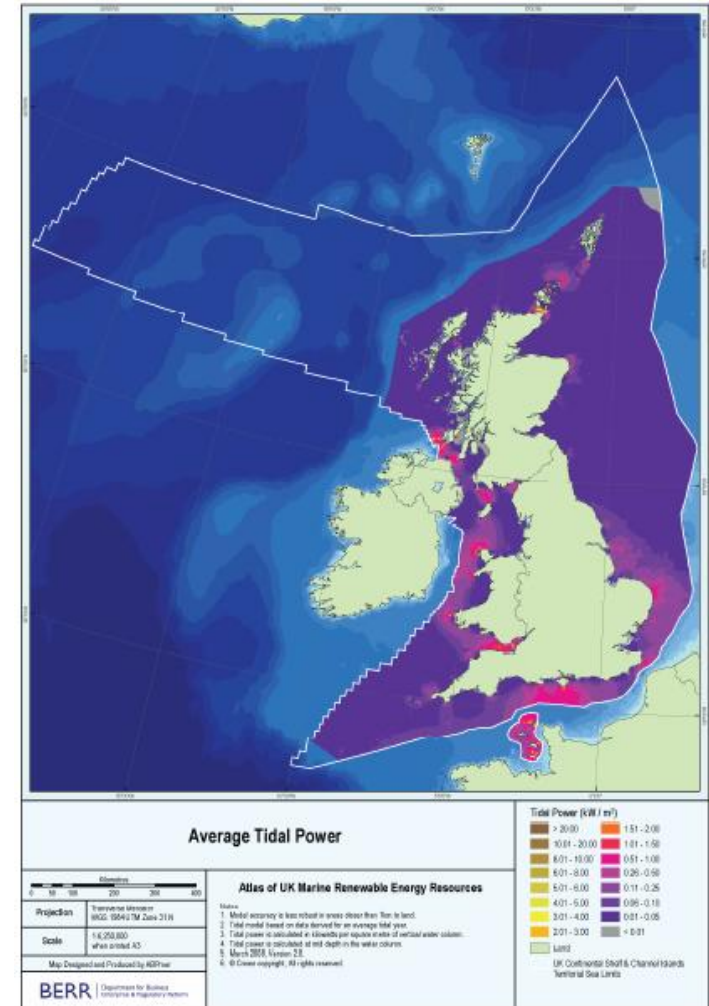
WERATLAS (source INETI)



WORLD WAVE ATLAS (source OCEANOR)



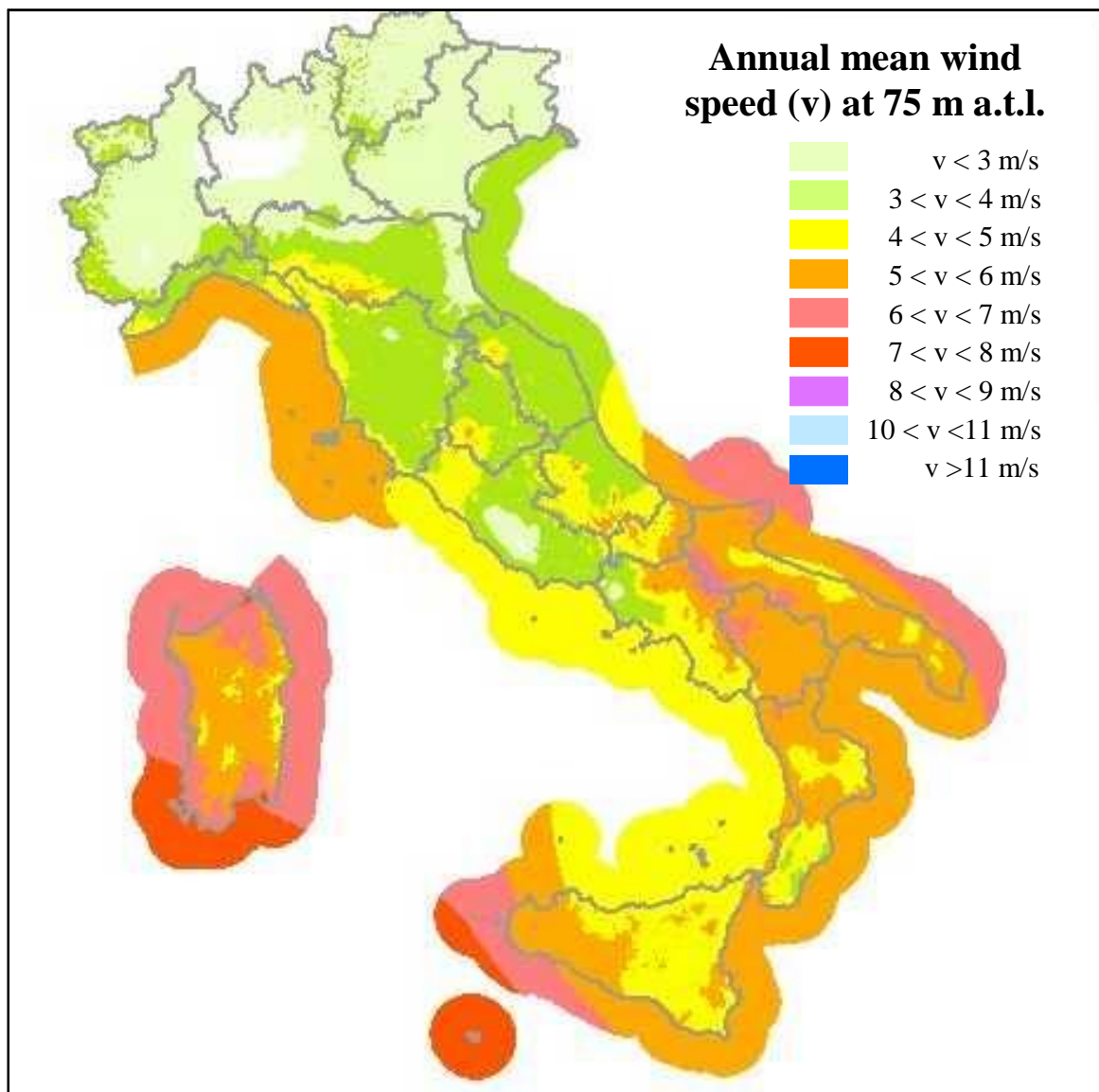
CURRENT-TIDAL



http://www.emec.org.uk/marine_renewables.asp

Atlas of UK Marine Renewable Energy Resources

Example of Information by Country: Italy - Wind



WIND ATLAS OF ITALY

G.Botta, C.Casale,
E.Lembo, S.Maran,
L.Serri, G.Stella, S.Viani,
"THE ITALIAN WIND
ATLAS – STATUS AND
PROGRESS ", EWEC 2007,
Milan, 7th-10th May
2007



<http://atlanteeolico.rse-web.it/viewer.htm>

Sea-Depth Classification for Wind Power Installation

Fixed Foundations Systems

0-25 m



North Sea wind farms

25-60 m



Beatrice, UK

Floating Systems (Prototypal stage)

60-200 m



Hywind



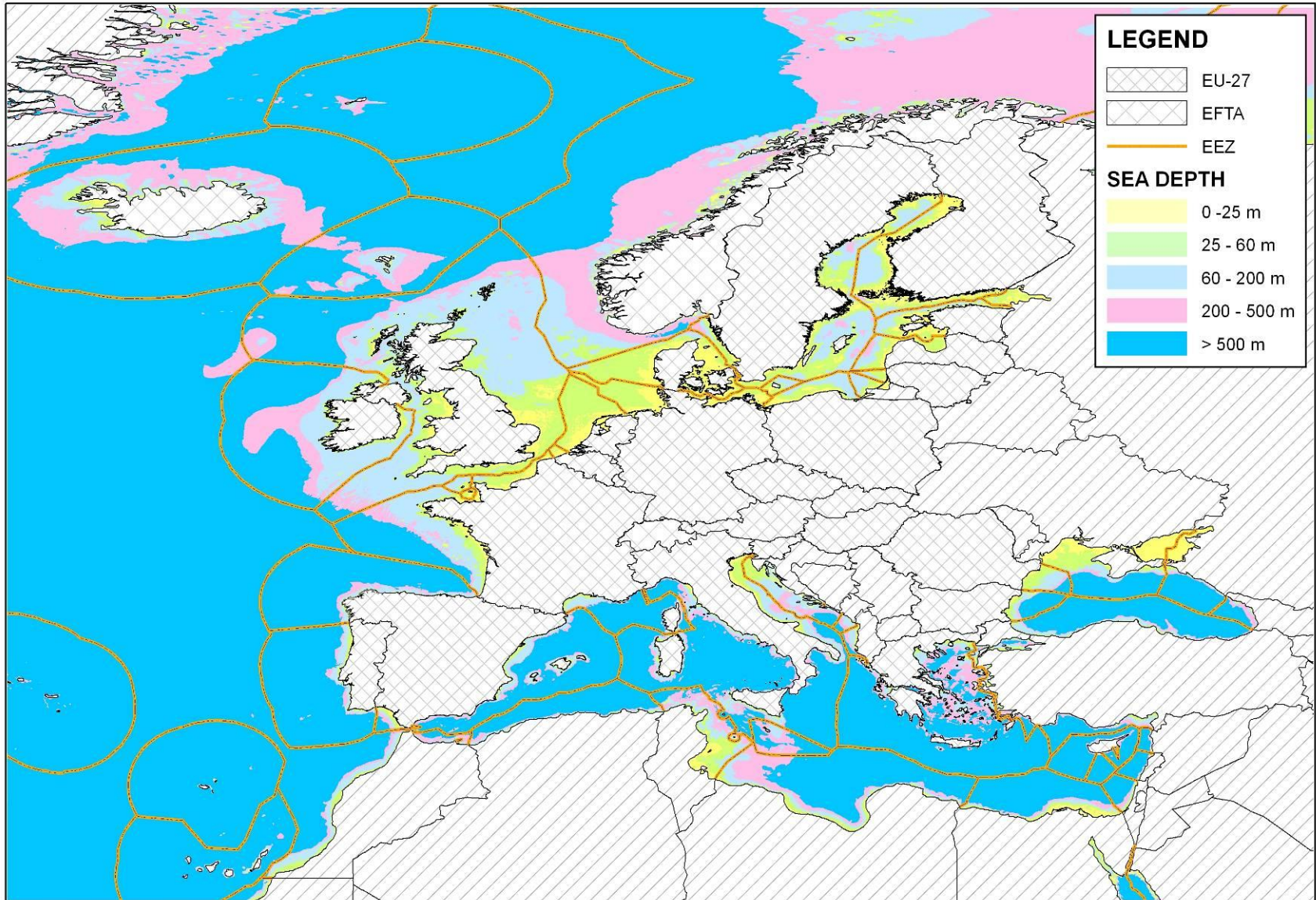
BlueH



Principle Power

200-500 m

Sea Depth Classification



WGS 84 WORLD REFERENCE SYSTEM

OTHER COLLECTED INFORMATION

Countries: classification for EU-countries; EFTA countries; other countries

Cities: classification for population

EEZ: Exclusive Economic Zone

Distance from Shore: 50 and 90 km

Ports: classification for draft and for installed issues

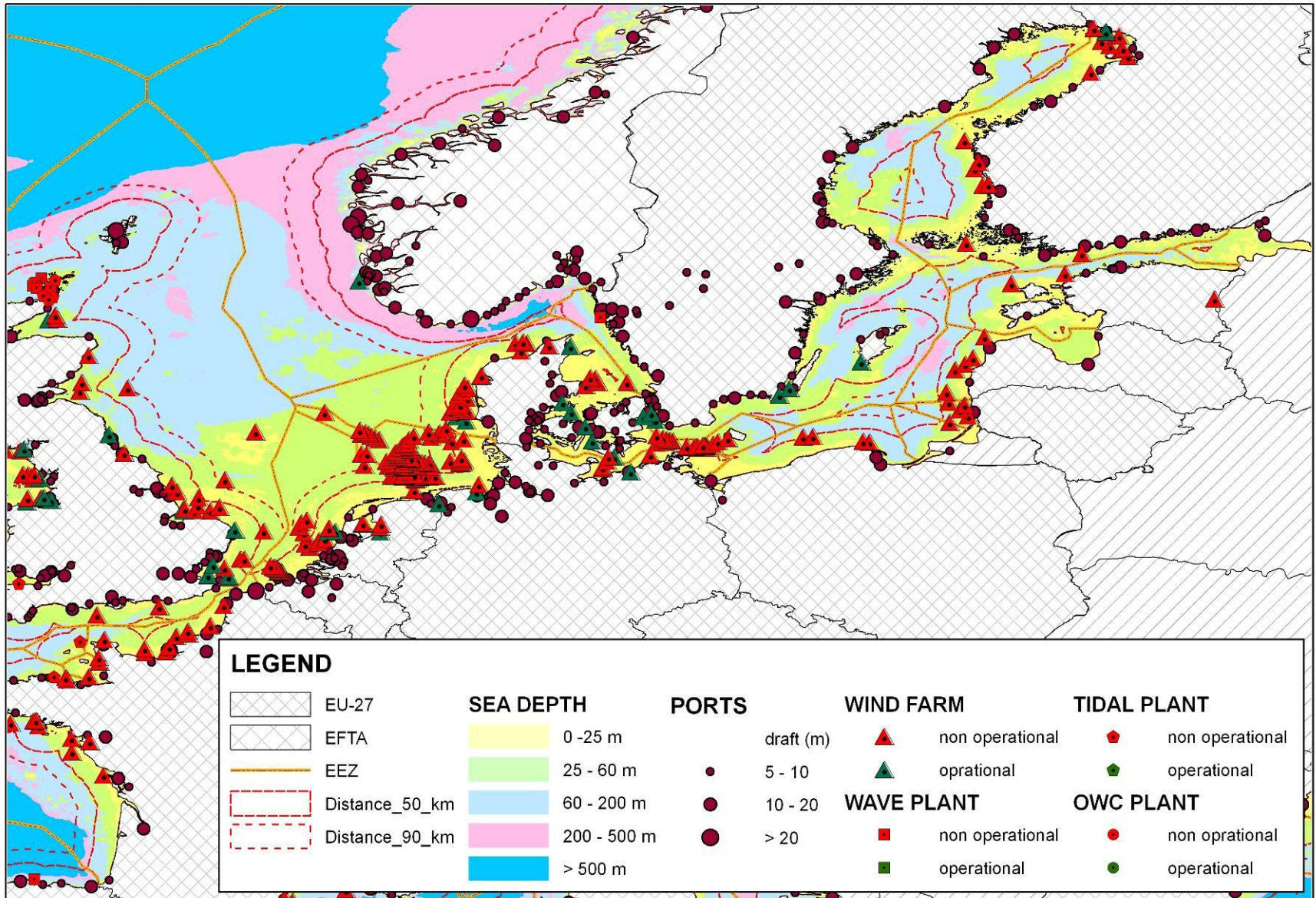
Offshore wind farms: operational, non operational, under consideration

Offshore wave,tidal,OWC converters: operational, non operational

Natura2000 sites

MPA (Marine Protected Areas)

NORTH & BALTIC SEA AREA: COMBINED MAP



WGS 84 WORLD REFERENCE SYSTEM

Work in Progress & Conclusions

In the frame of ORECCA Project (WP2):

- ✧ information about offshore renewable resources, bathymetry, environmental and infrastructural issues in all European waters at different level (macroarea, country, site) has been collected
- ✧ implementation in ORECCA GIS project of resource maps is ongoing
- ✧ by combining collected and implemented information:
 - *analysis of geographical distribution of resources in each geographical area as a function of parameters such as water depth and distance from shore will be carried out
 - * indications of the more promising marine areas for installation of offshore renewable energy converters (also for combined use – multipurpose platforms) will be obtained



THANK YOU FOR YOUR ATTENTION