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Enterprise & Regulatory Reform

Atlas of UK Marine Renewable Energy Resources:

Atlas Pages

**A Strategic Environmental
Assessment Report
March 2008**

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Produced By:

**ABPmer
The Met Office
Proudman Oceanographic Laboratory**

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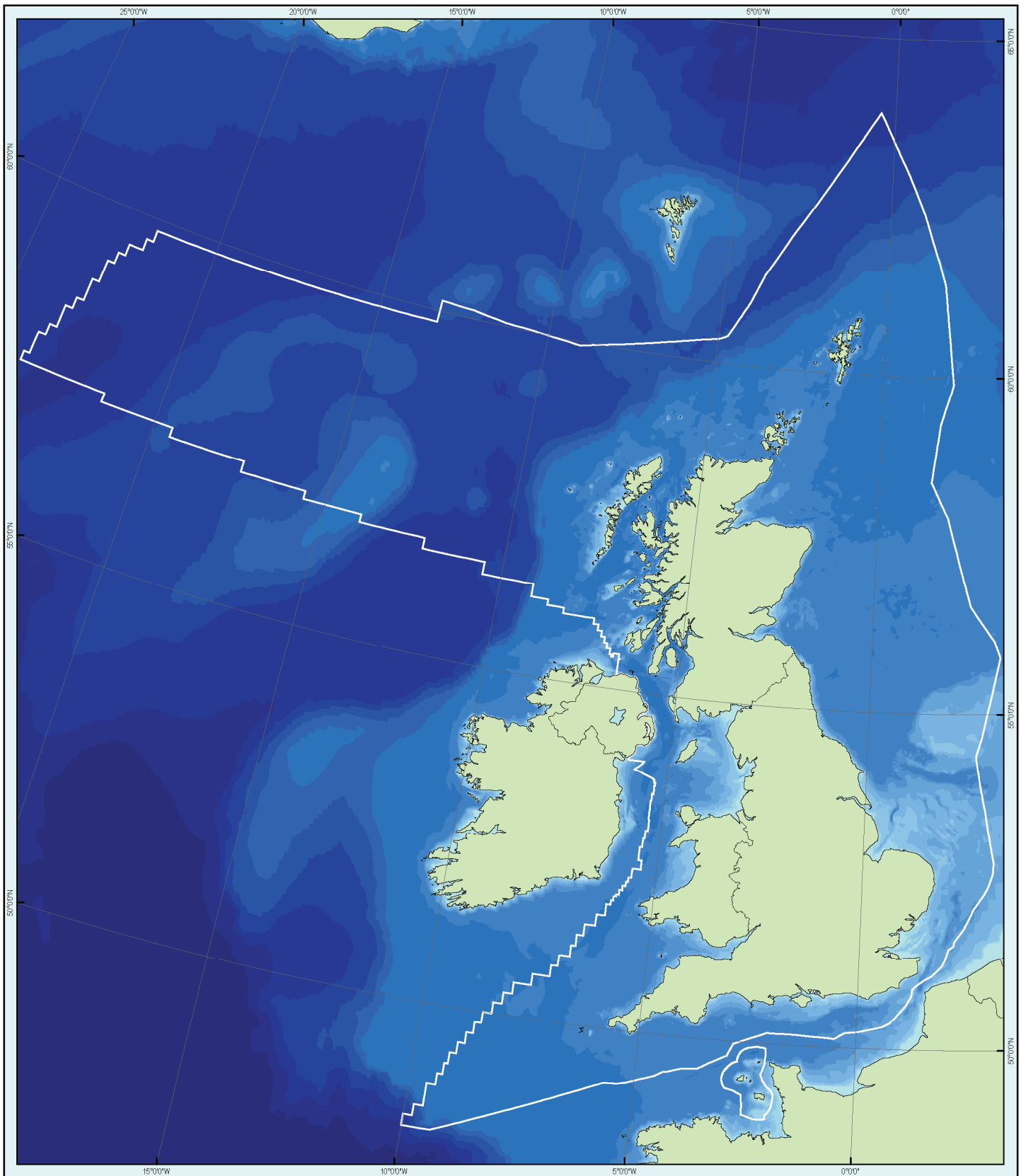
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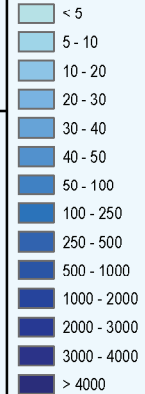
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Bathymetry

Depth MSL (m)



- Land
- UK Continental Shelf & Channel Islands Territorial Sea Limits



Projection Transverse Mercator
WGS 1984 UTM Zone 31 N

Scale 1:6,250,000
when printed A3

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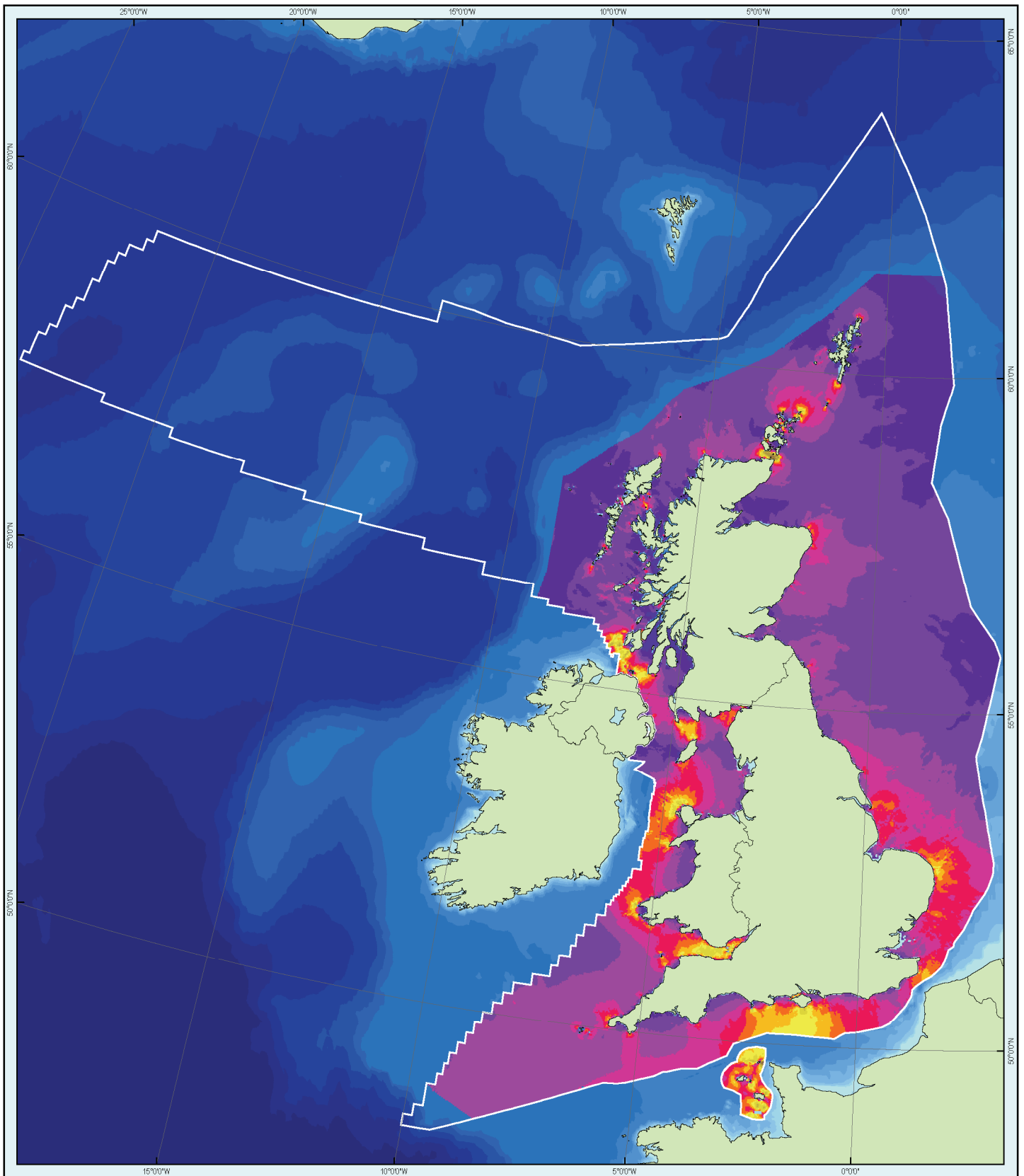
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Notes

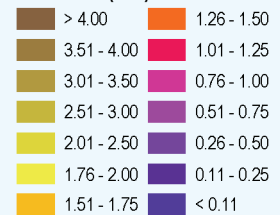
1. Derived from US Naval Oceanographic Office DBDB0-V Version 4.2 bathymetry.
2. Bathymetry recorded to Mean Sea Level (MSL) in metres.
3. Coastline obtained from the DEAL Data Registry.
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TIDAL RESOURCE



Peak Flow for a Mean Spring Tide

Peak Flow (m/s)



Land

UK Continental Shelf & Channel Islands
Territorial Sea Limits



Projection Transverse Mercator
WGS 1984 UTM Zone 31 N

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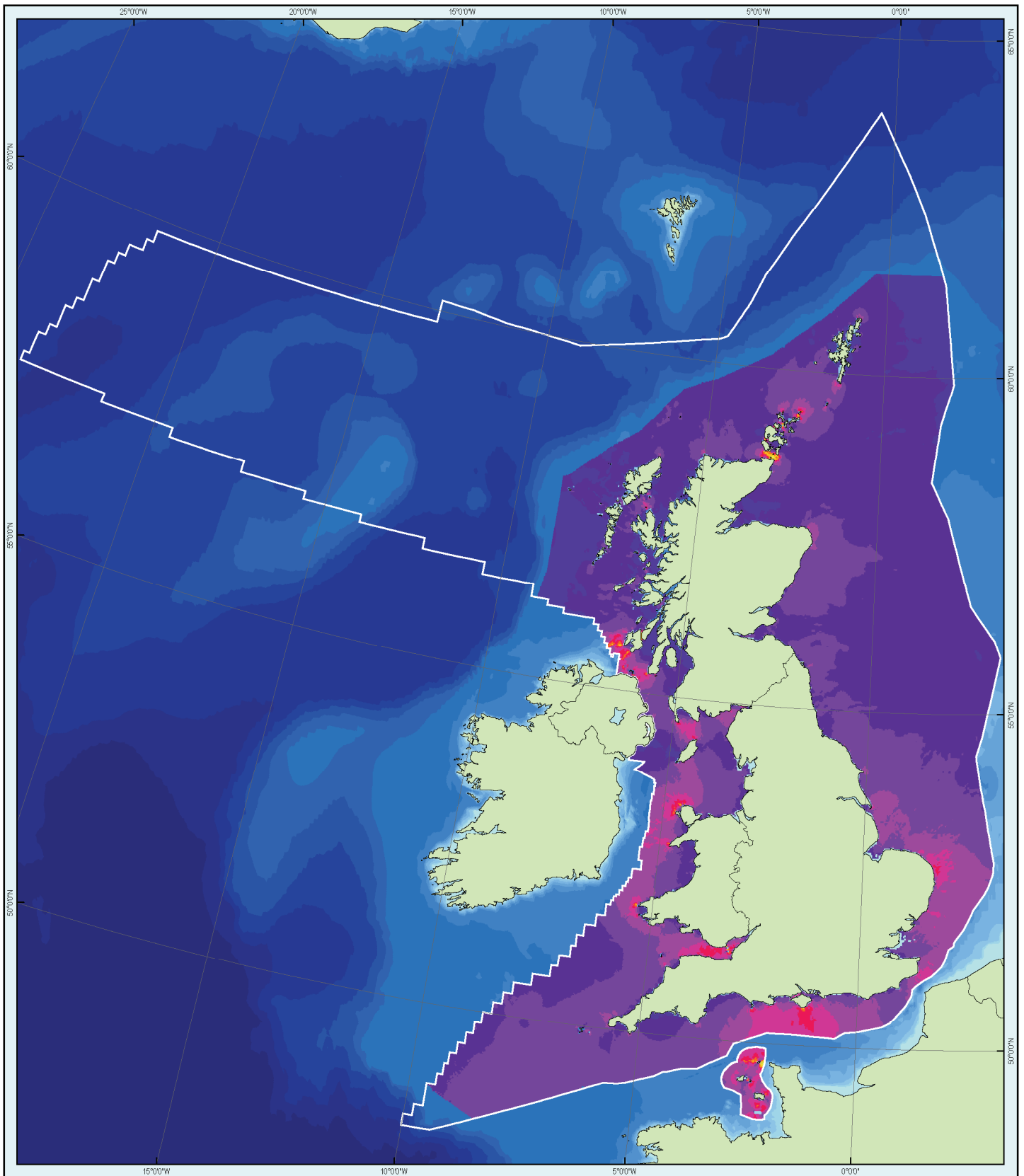
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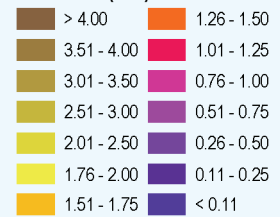
Notes

1. Model accuracy is less robust in areas closer than 1km to land.
2. Tidal model based on data derived for an average tidal year.
3. Tidal flow is calculated in metres per second.
4. Tidal flow is calculated at mid depth in the water column.
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Peak Flow for a Mean Neap Tide

Peak Flow (m/s)



Land

UK Continental Shelf & Channel Islands Territorial Sea Limits



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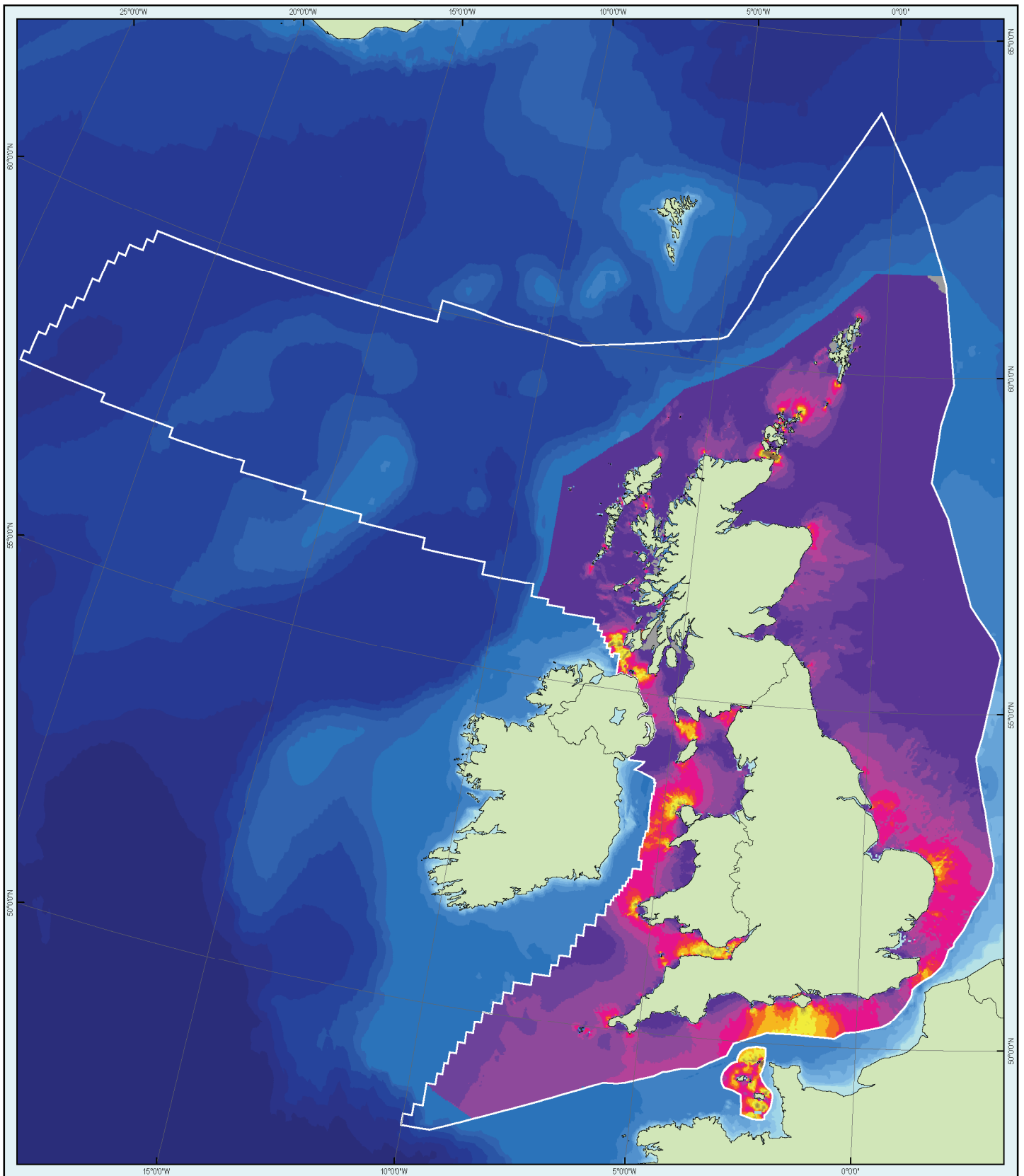
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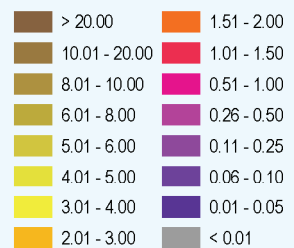
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Mean Spring Tidal Power

Tidal Power (kW / m²)



Land

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Territorial Sea Limits



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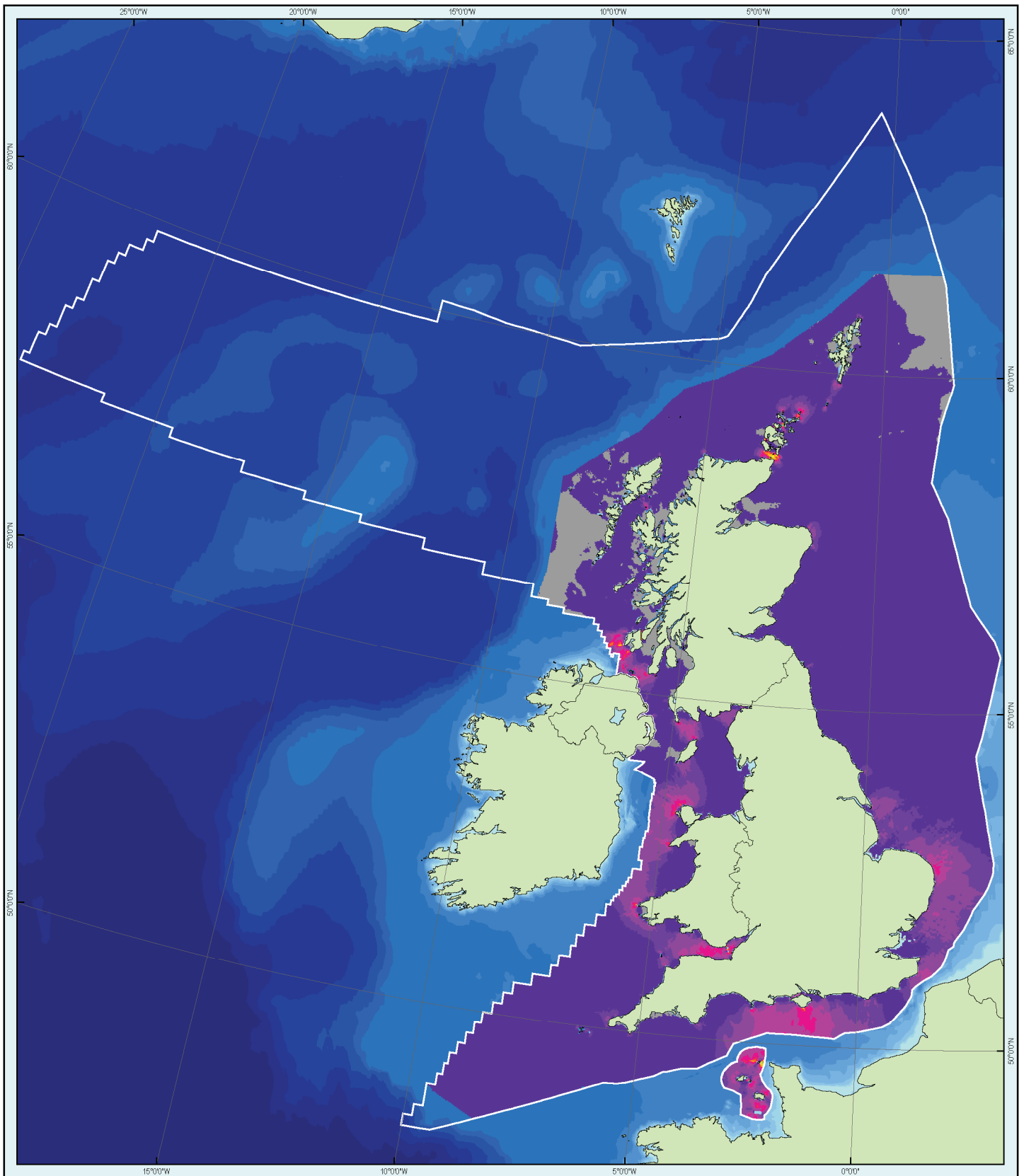
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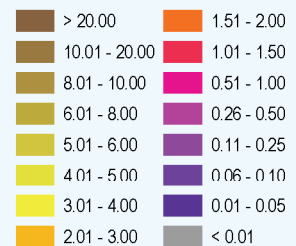
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3. Tidal power is calculated in kilowatts per square metres of vertical water column.
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Mean Neap Tidal Power

Tidal Power (kW / m²)



Land

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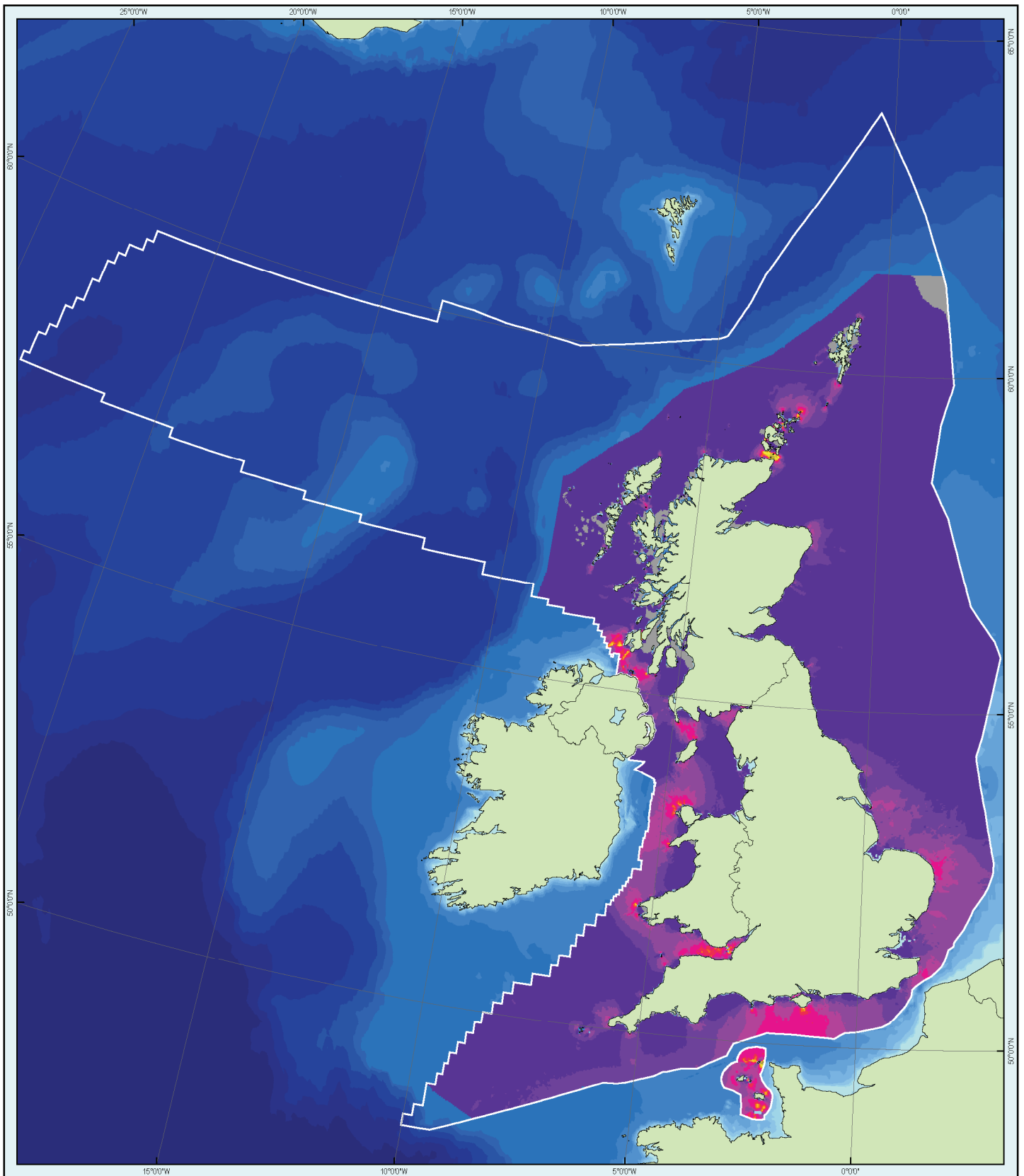
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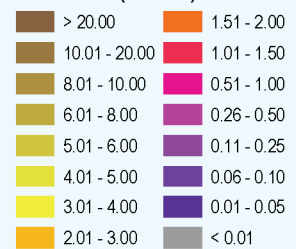
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Average Tidal Power

Tidal Power (kW / m²)



Land

UK Continental Shelf & Channel Islands
Territorial Sea Limits



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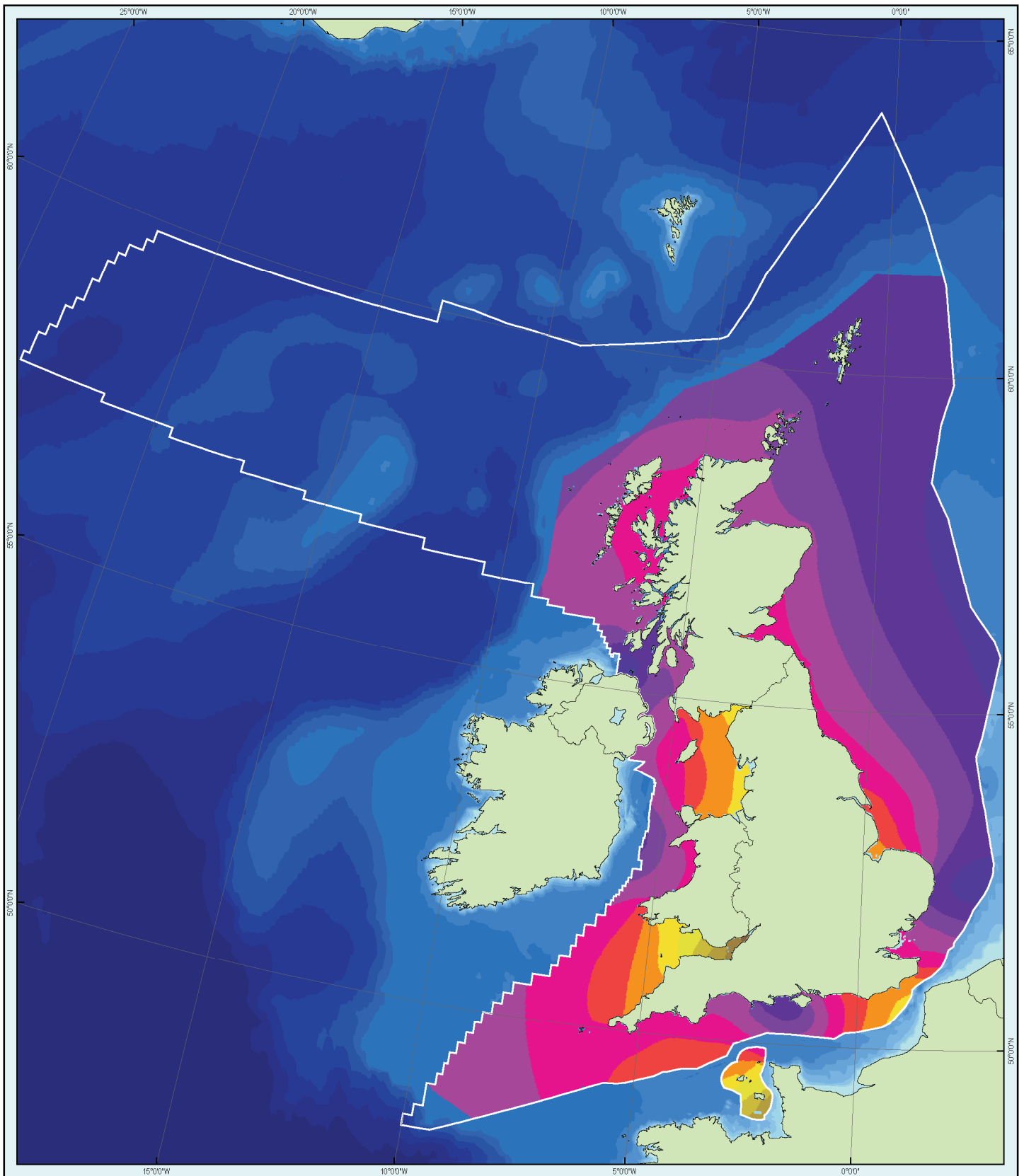
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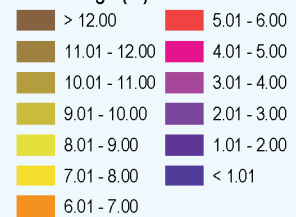
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Mean Spring Tidal Range

Tidal Range (m)



Land

UK Continental Shelf & Channel Islands
Territorial Sea Limits



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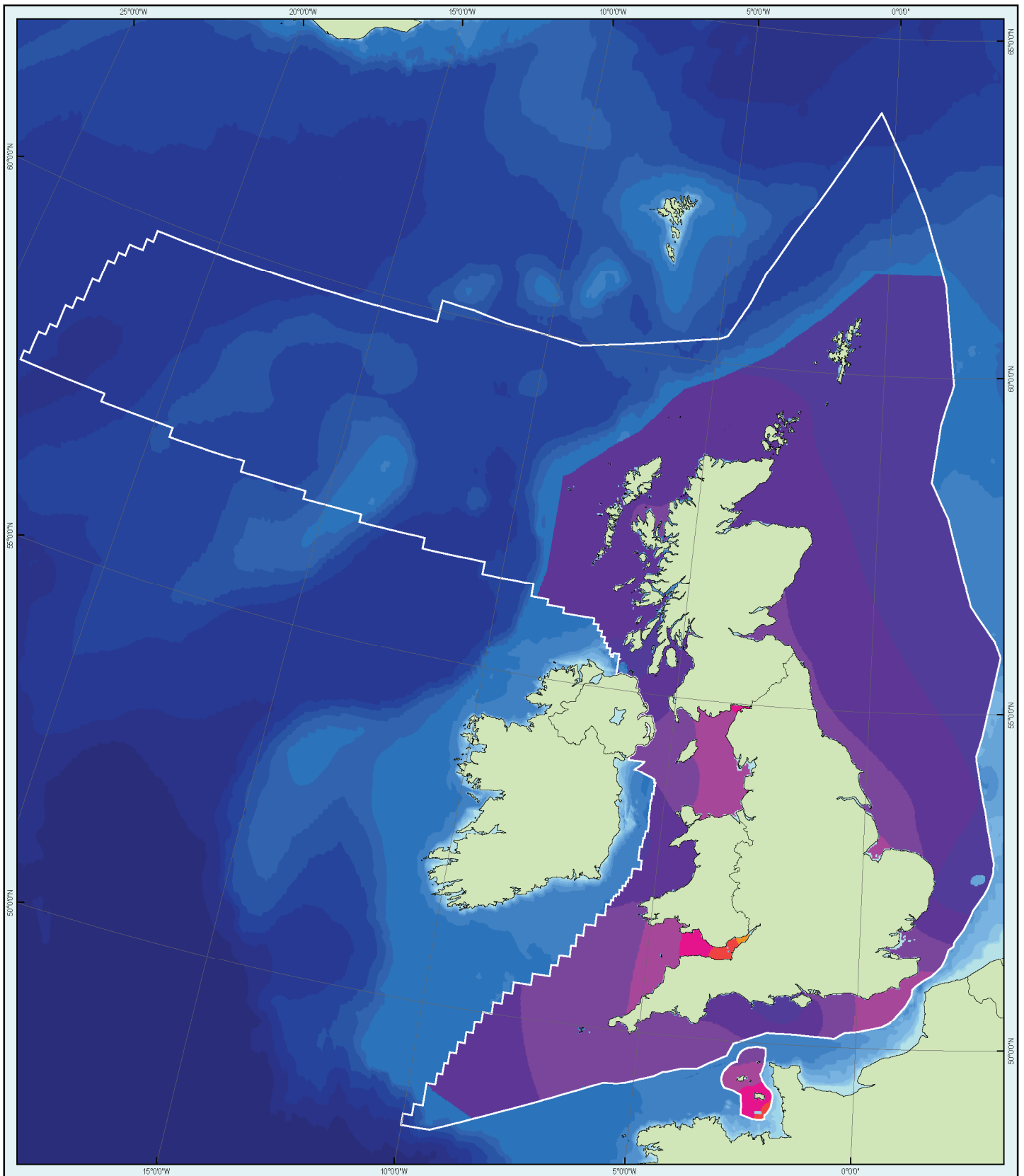
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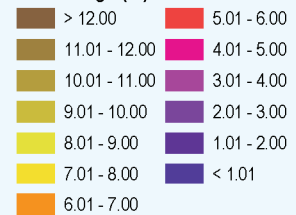
Notes

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2. Tidal model based on data derived for an average tidal year.
3. Tidal range is calculated in metres.
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Mean Neap Tidal Range

Tidal Range (m)



Land

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Territorial Sea Limits



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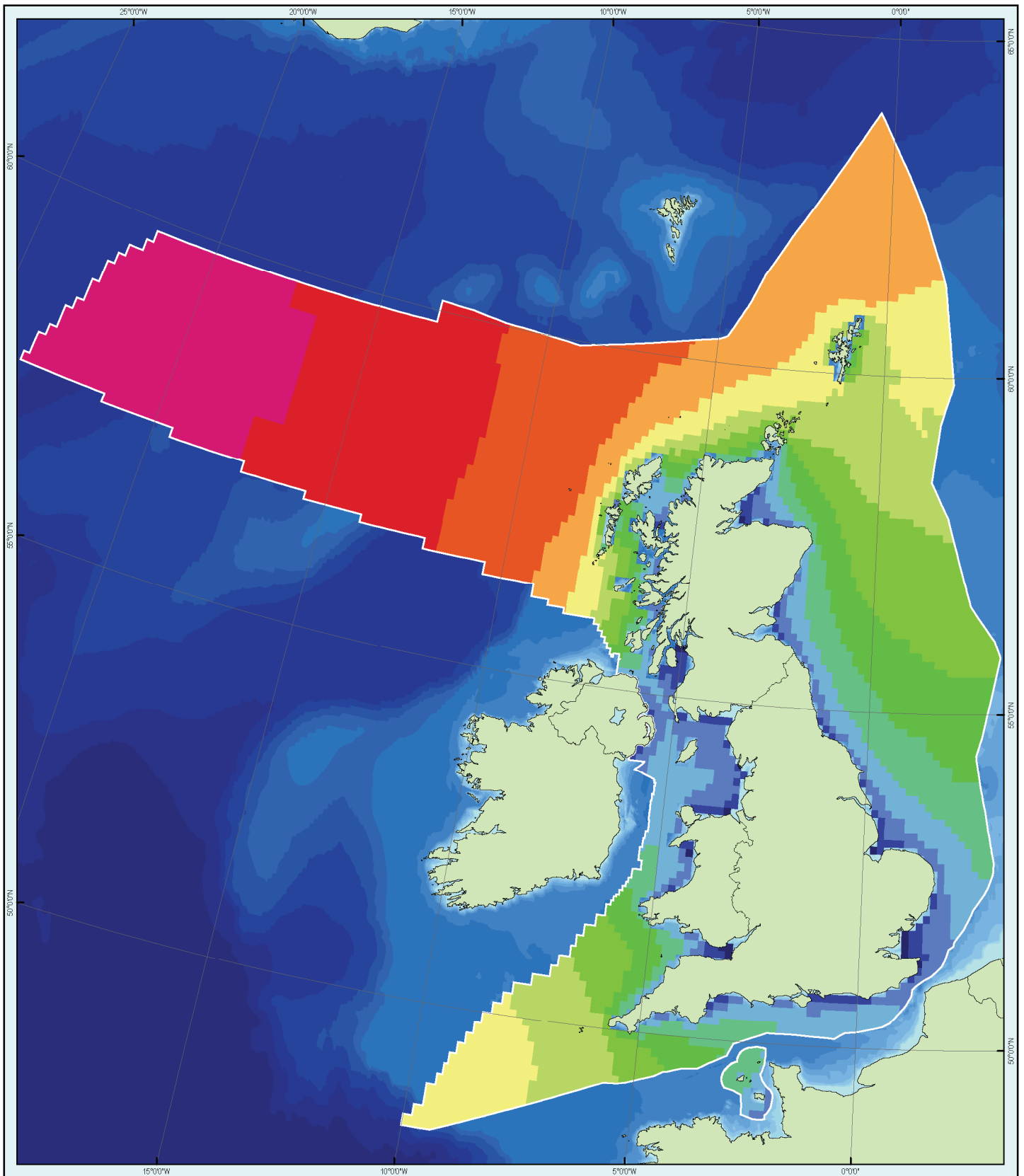
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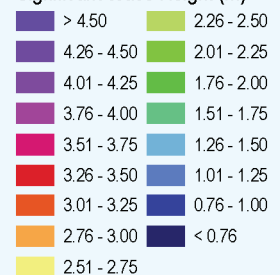
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WAVE RESOURCE



Annual Mean Significant Wave Height

Significant Wave Height (m)



Land

UK Continental Shelf & Channel Islands
Territorial Sea Limits



Projection Transverse Mercator
WGS 1984 UTM Zone 31 N

Scale 1:6,250,000
when printed A3

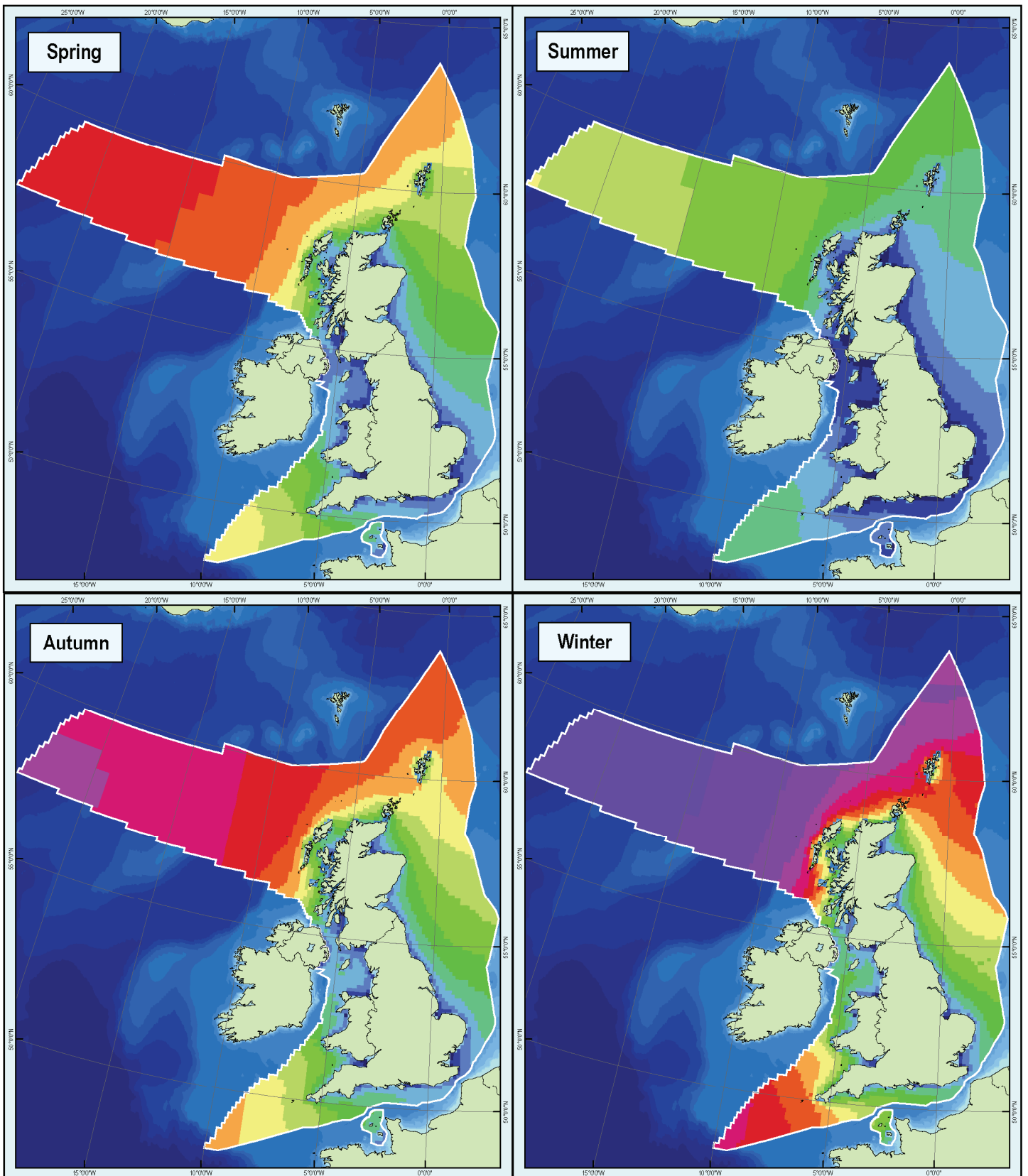
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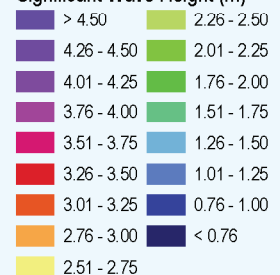
Notes

1. North of 63° N and West of 12° W, model cell size approximately 60km. Model cell size approximately 12km in all other areas.
2. Modelled wave data will be less robust in shallow water (<20m) and areas of complex bathymetry.
3. Wave data are based on hourly model hindcast values over 7 years.
4. Wave height is measured in metres.
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Seasonal Mean Significant Wave Height

Significant Wave Height (m)



Land

UK Continental Shelf & Channel Islands
Territorial Sea Limits



Projection Transverse Mercator
WGS 1984 UTM Zone 31 N

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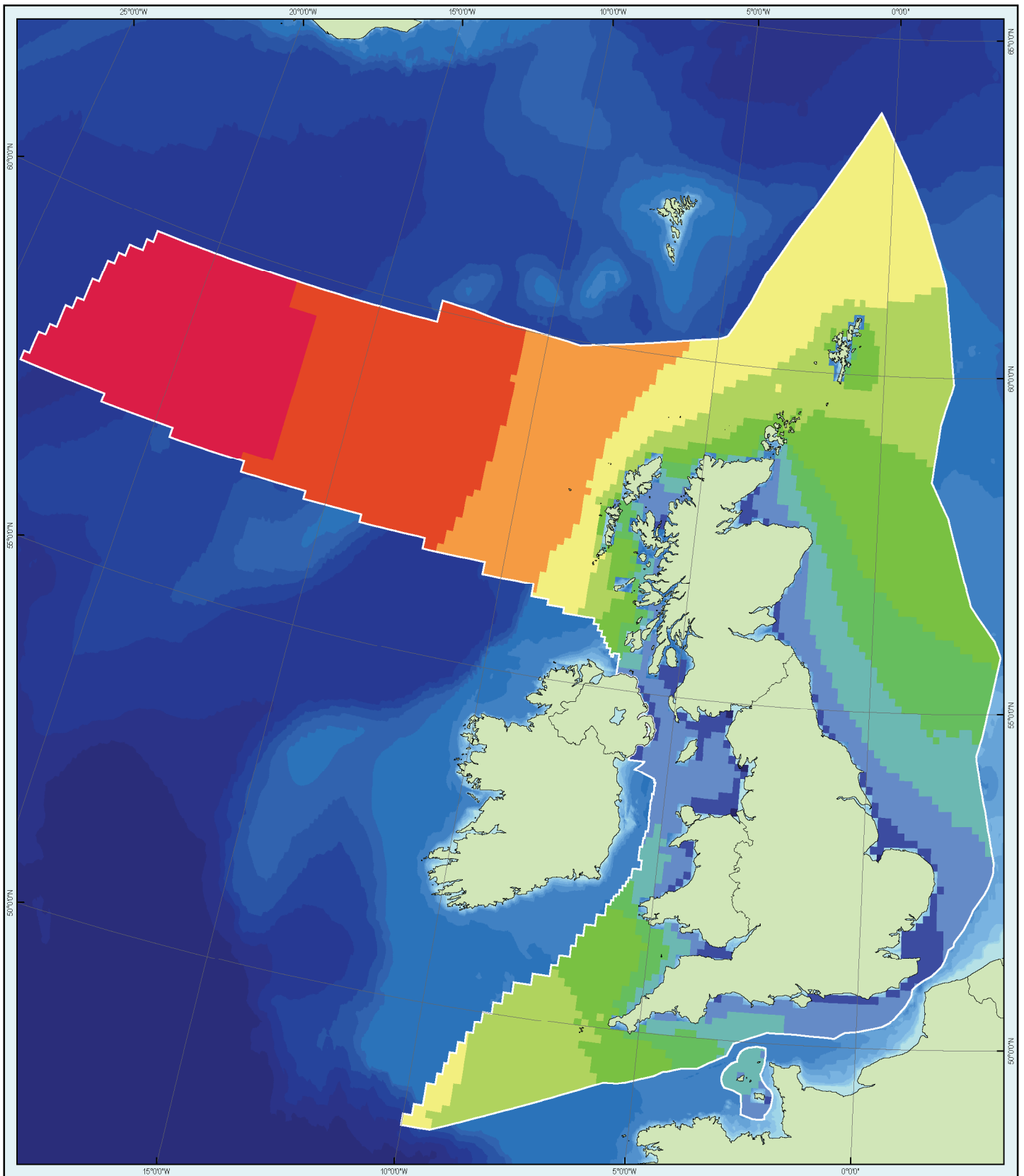
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Annual Mean Wave Power - Full Wave Field



Projection Transverse Mercator
WGS 1984 UTM Zone 31 N

Scale 1:6,250,000
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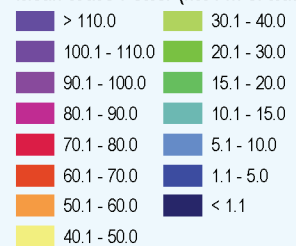
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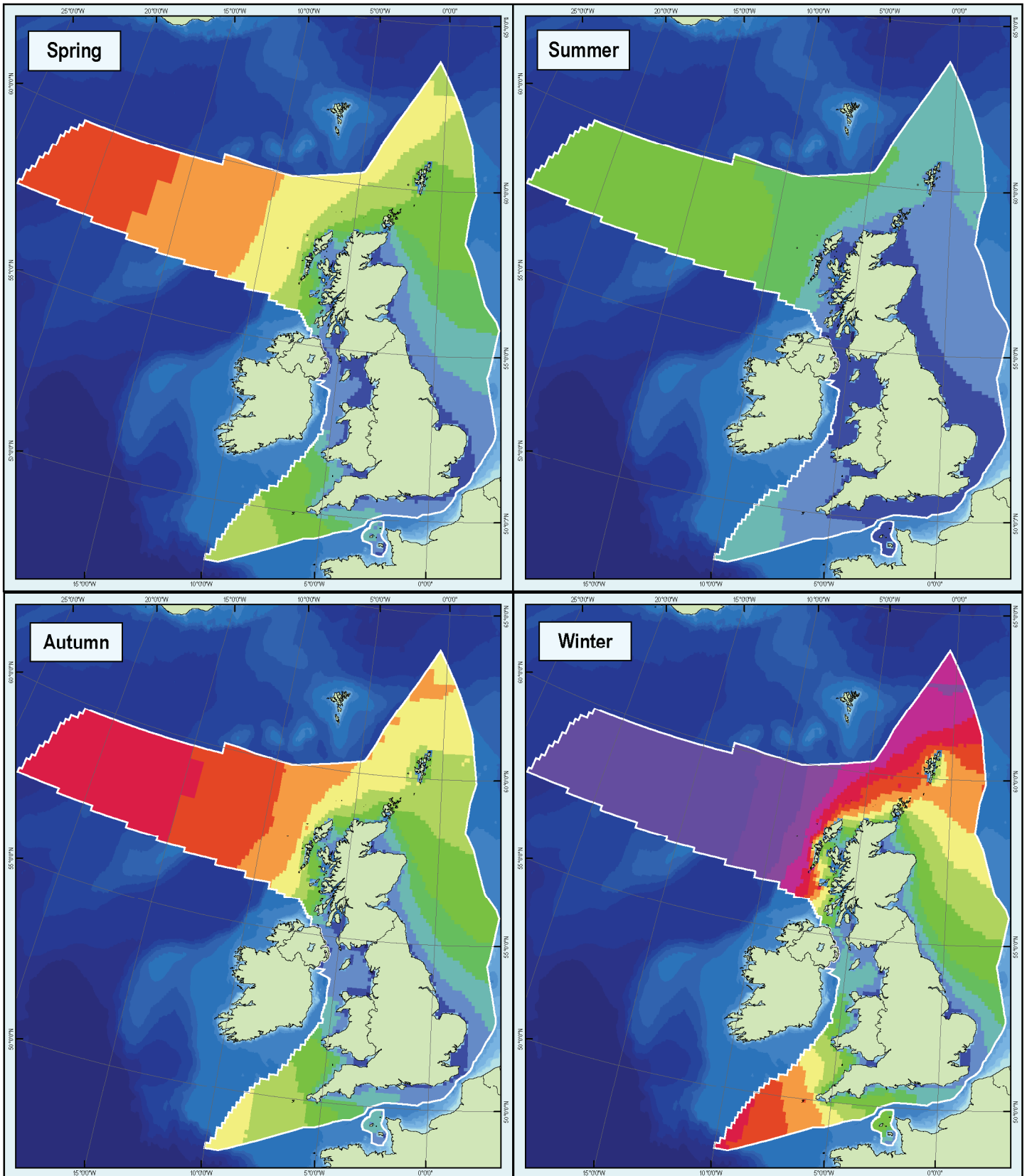
1. North of 63° N and West of 12° W, model cell size approximately 60km. Model cell size approximately 12km in all other areas.
2. Modelled wave data will be less robust in shallow water (<20m) and areas of complex bathymetry.
3. Wave data are based on hourly model hindcast values over 7 years.
4. Full Wave Field Power is calculated using the summation of wave power attributed to wind-wave and swell components.
5. Wave power is calculated for each horizontal metre of wave crest using the energy period calculation (T_e).
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Mean Wave Power (kW / m of wave crest)



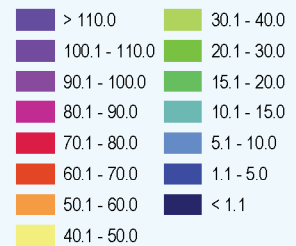
Land

UK Continental Shelf & Channel Islands
Territorial Sea Limits

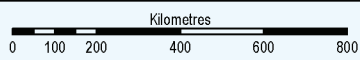


Seasonal Mean Wave Power - Full Wave Field

Mean Wave Power (kW / m of wave crest)



Land
 UK Continental Shelf & Channel Islands
 Territorial Sea Limits



Projection: Transverse Mercator
WGS 1984 UTM Zone 31 N

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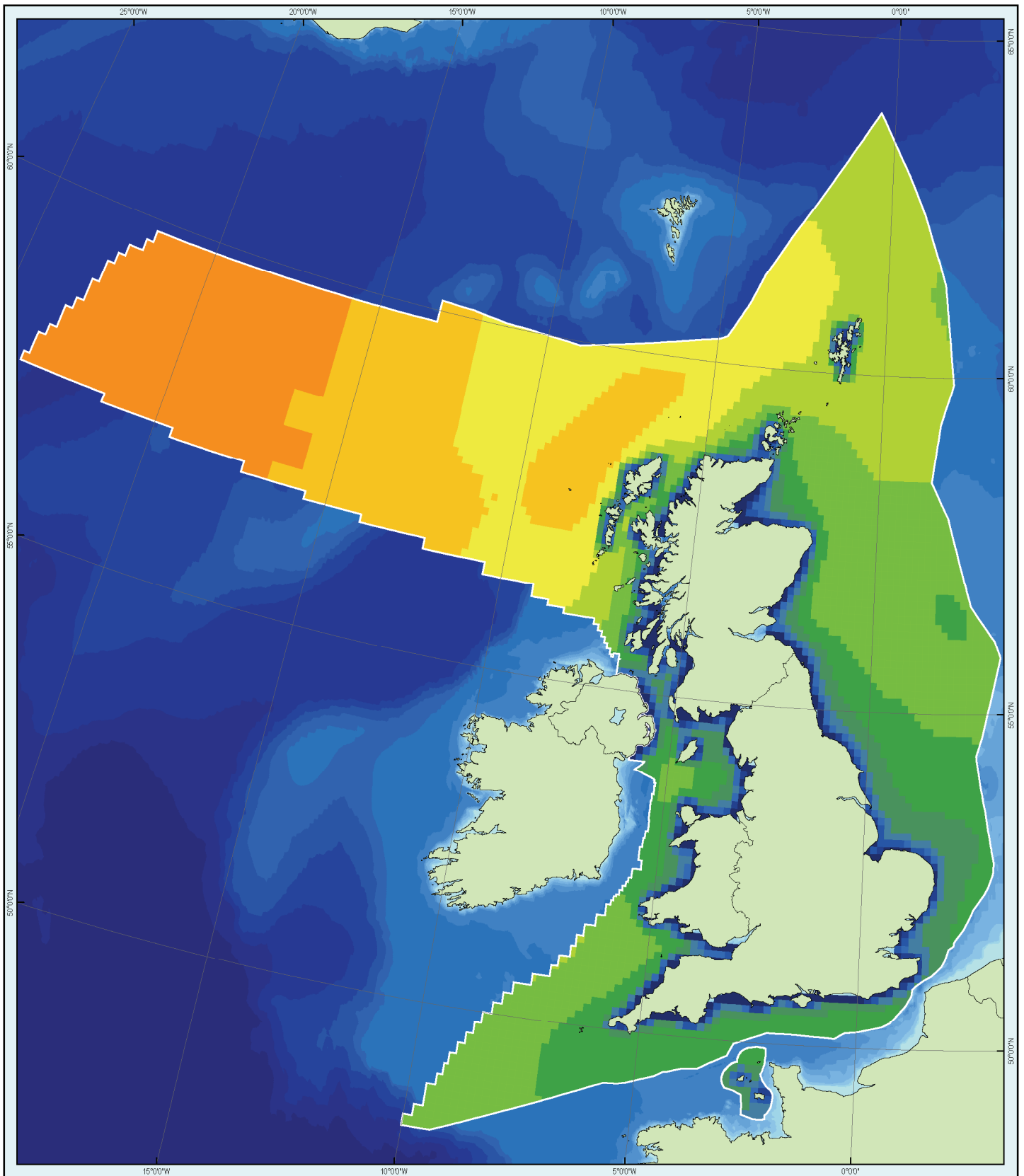
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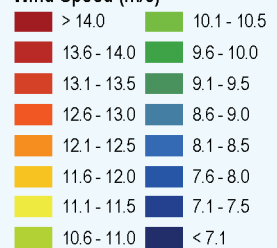
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OFFSHORE WIND RESOURCE



Annual Mean Wind Speed at 100m

Wind Speed (m/s)



Land
 UK Continental Shelf & Channel Islands Territorial Sea Limits



Projection Transverse Mercator
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Scale 1:6,250,000
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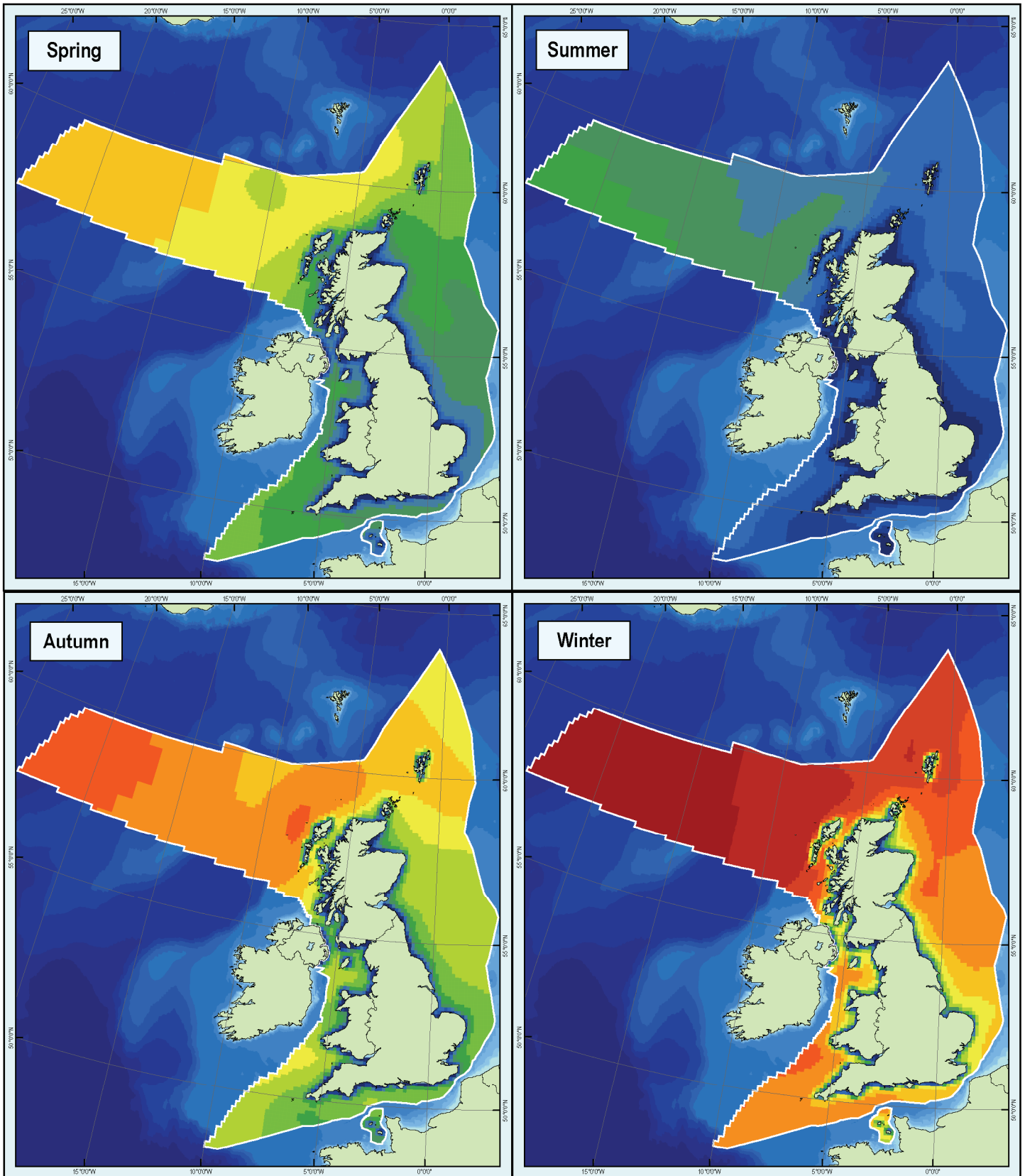
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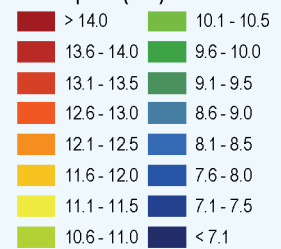
Notes

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2. Modelled wind data will be less robust at land-sea boundary points.
3. Wind data are based on hourly model hindcast values over 7 years.
4. Wind speed at 100 metres above sea level.
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Seasonal Mean Wind Speed at 100m

Wind Speed (m/s)



Land
 UK Continental Shelf & Channel Islands
 Territorial Sea Limits



Projection Transverse Mercator
 WGS 1984 UTM Zone 31 N

Scale 1:12,800,000
 when printed A3

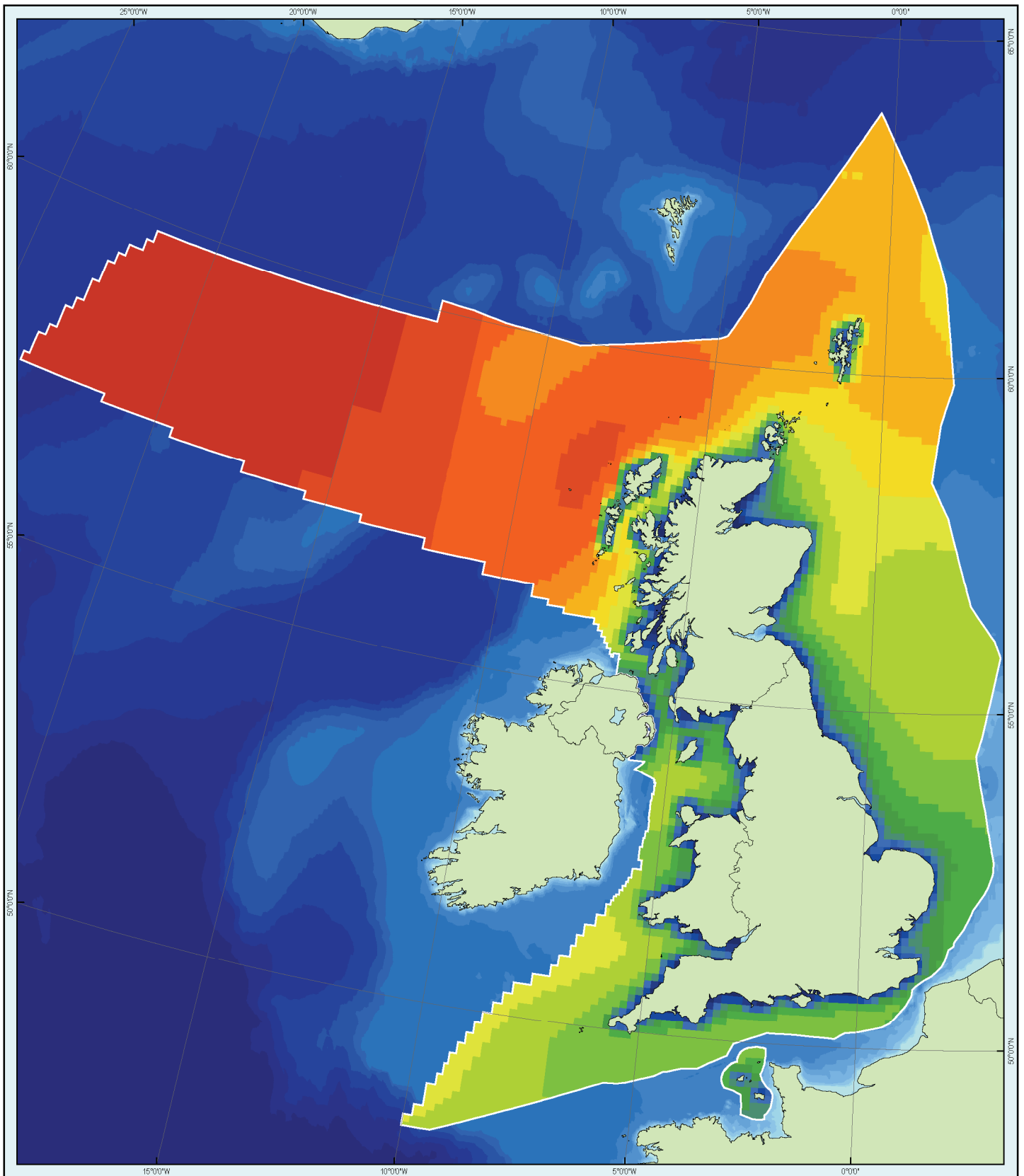
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Annual Mean Wind Power Density at 100m



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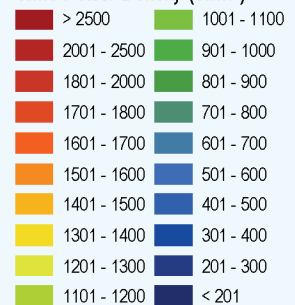
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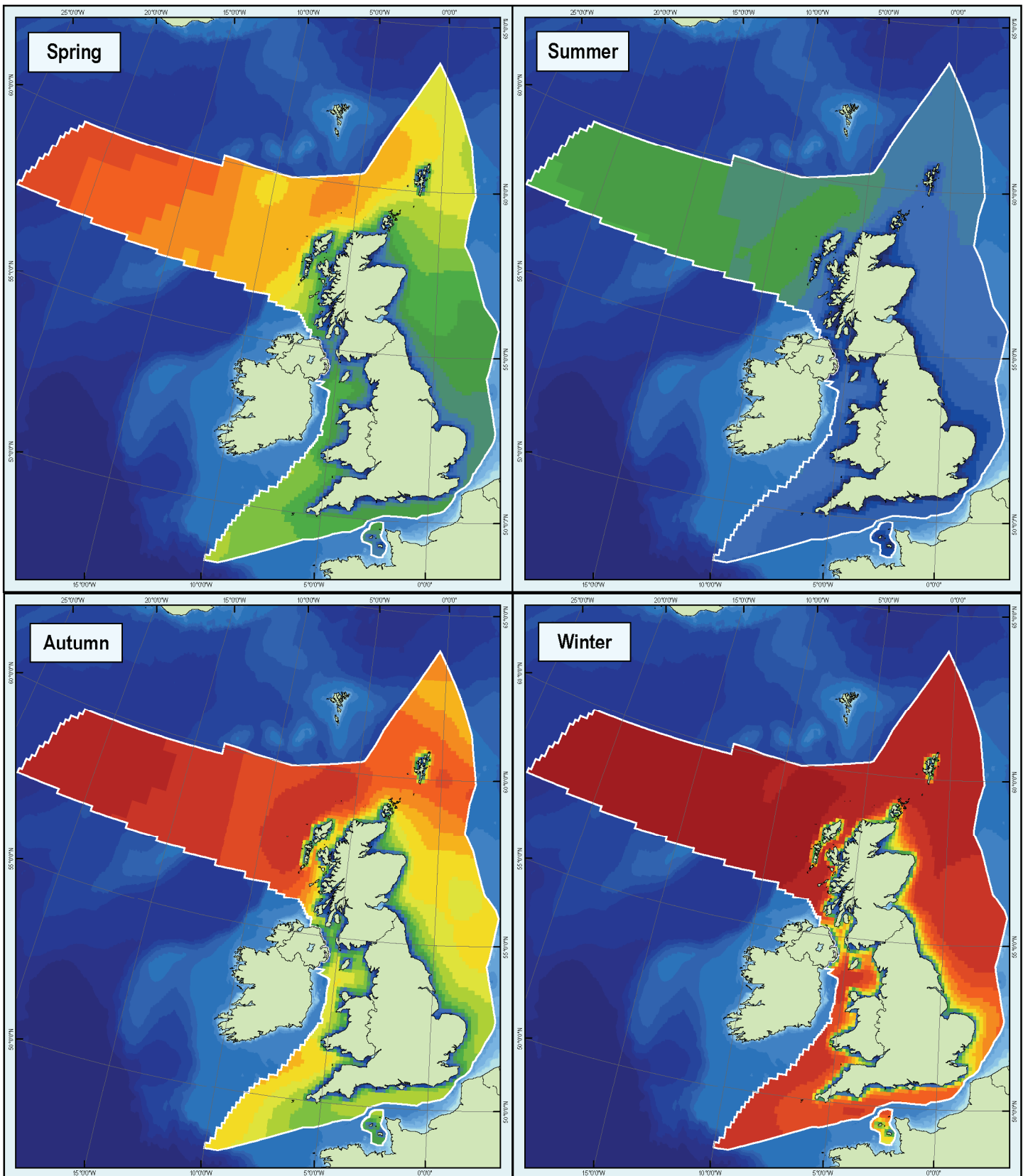
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4. Wind power density at 100 metres above sea level.
5. Wind power density per metre squared of rotor swept area.
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Wind Power Density (W/m^2)



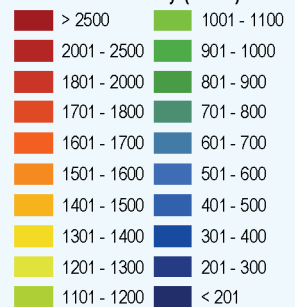
Land

UK Continental Shelf & Channel Islands
Territorial Sea Limits



Seasonal Mean Wind Power Density at 100m

Wind Power Density (W/m^2)



Land
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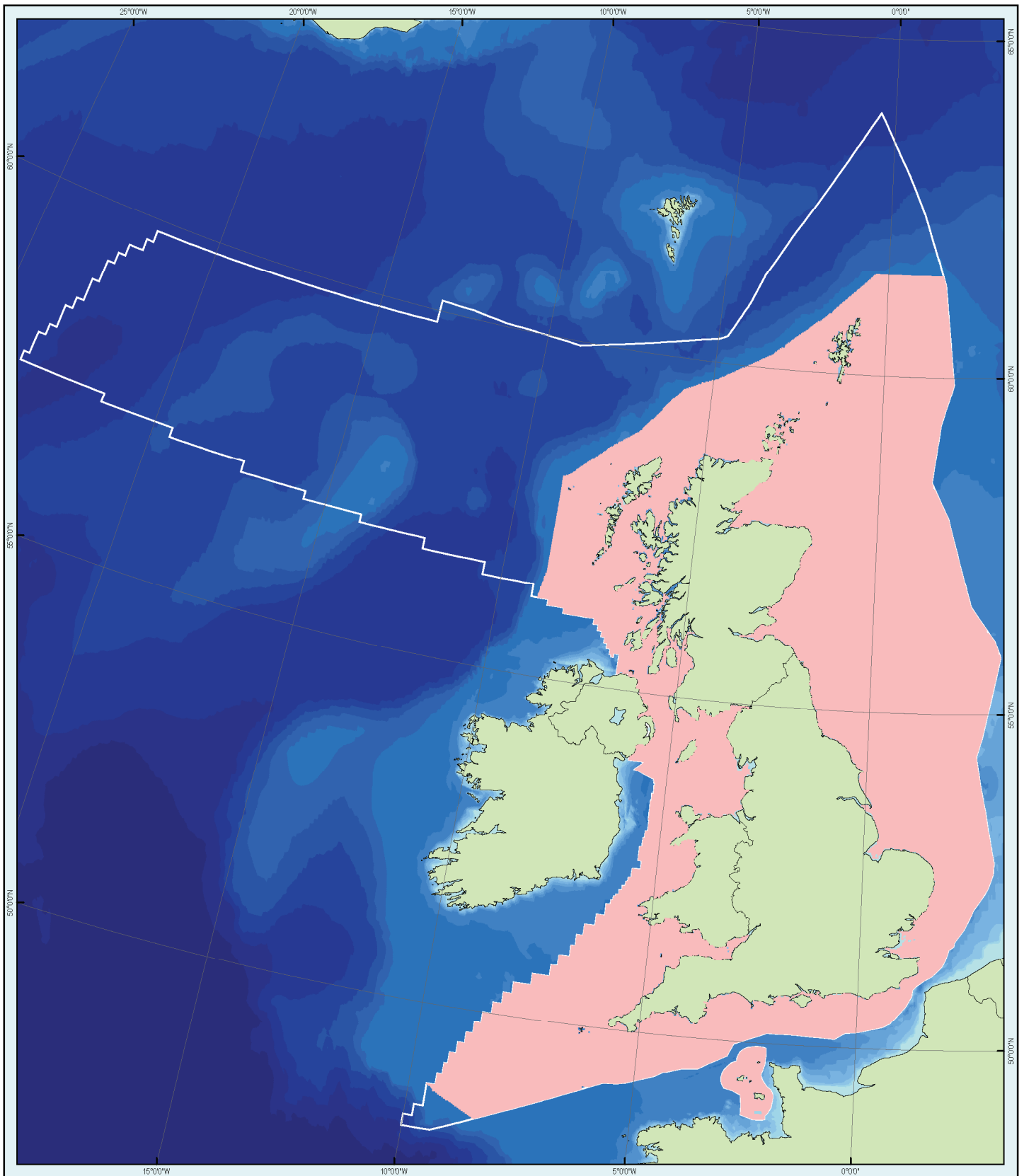
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5. Wind power density per metre squared of rotor swept area.
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ADDITIONAL INFORMATION



Location of Tidal Model Grids

Model

- HRCS (approximately 1.8km)
- Land
- UK Continental Shelf & Channel Islands Territorial Sea Limits



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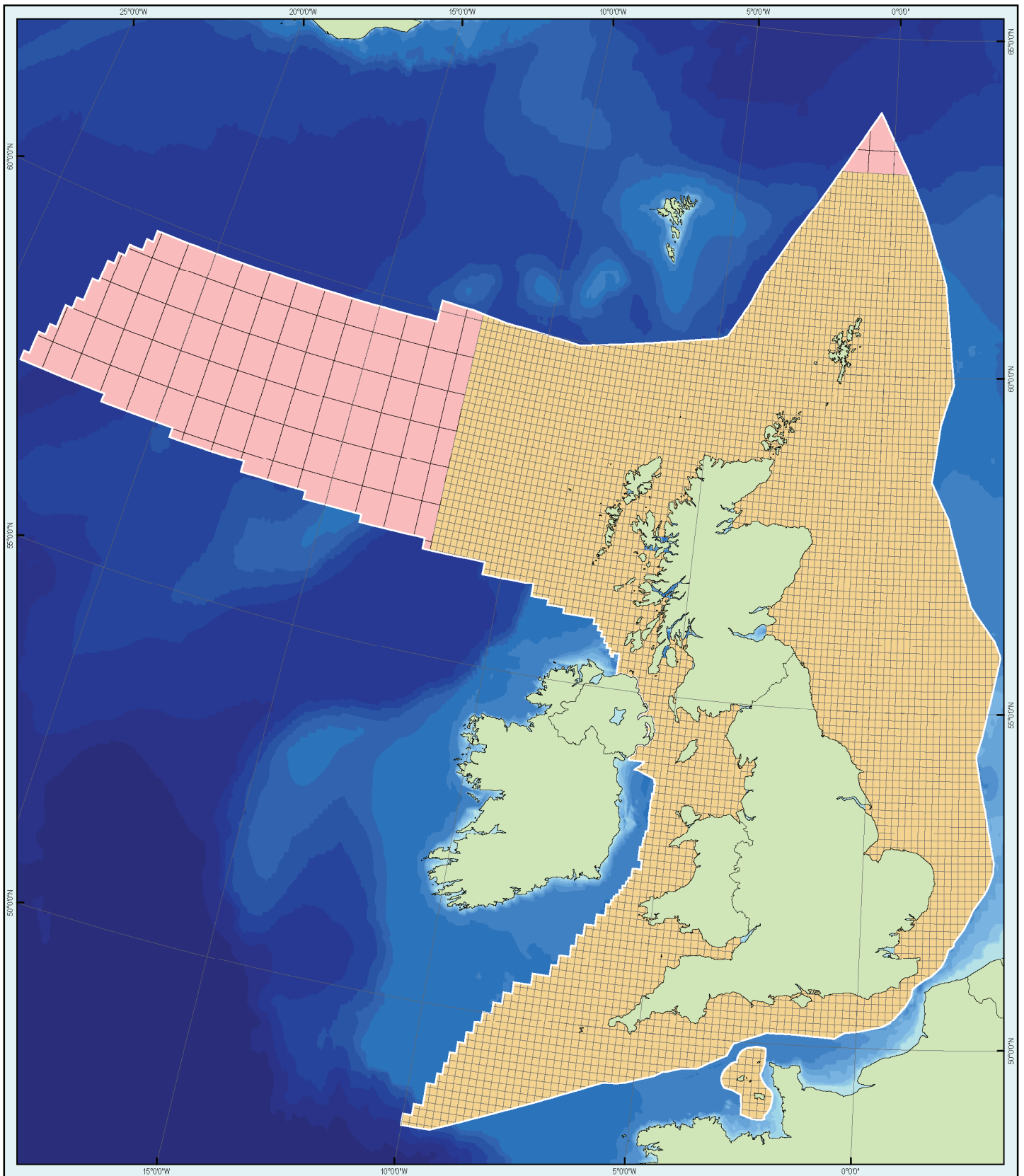
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3. Tidal model based on data derived for an average tidal year.
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Location of Wave Model Grids

Model

- Global (approximately 60km)
- UK (approximately 12km)
- Land
- UK Continental Shelf & Channel Islands Territorial Sea Limits



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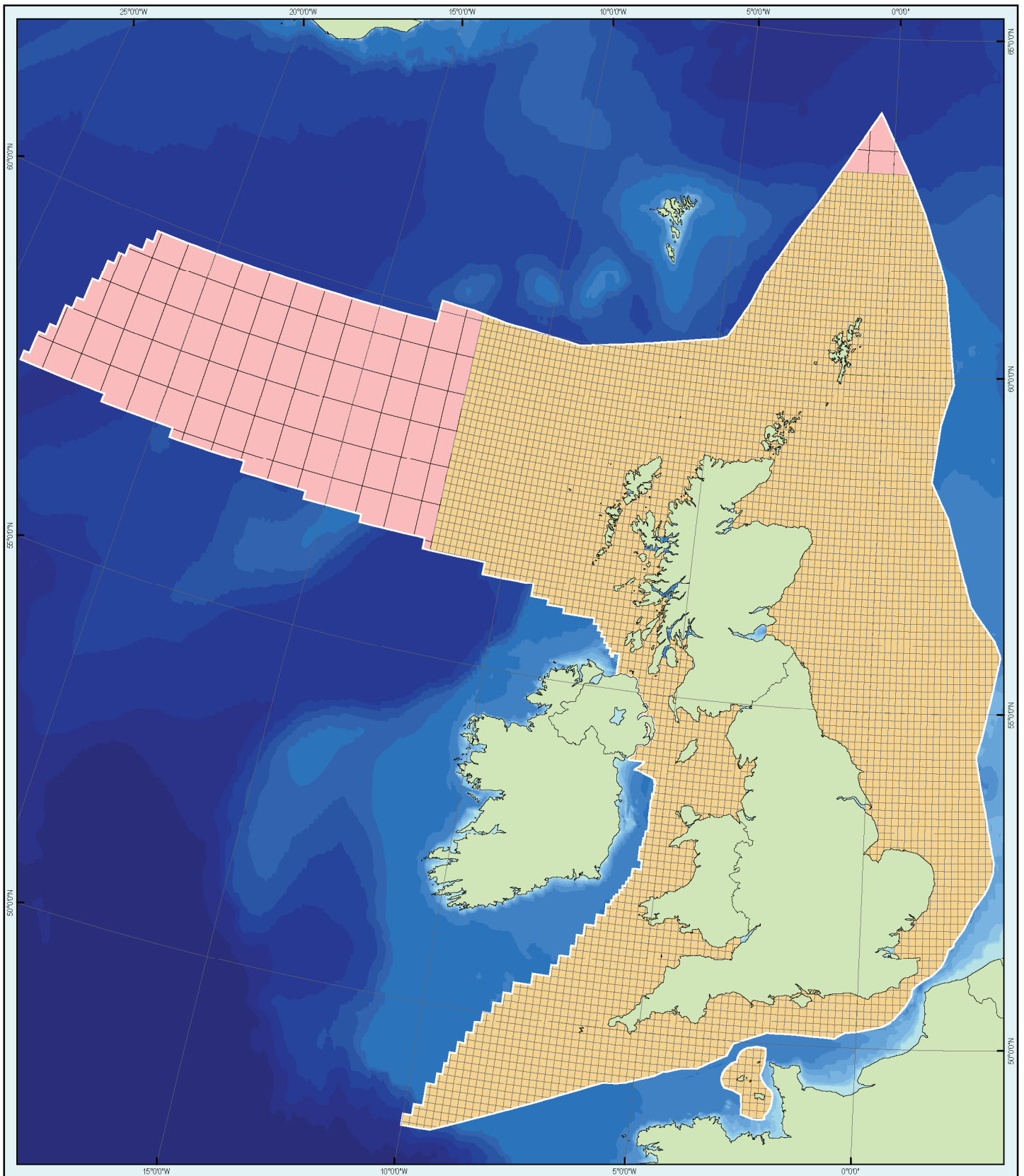
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3. Modelled wave data will be less robust in shallow water (<20m) and areas of complex bathymetry.
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Location of Wind Model Grids

Model

- Global (approximately 60km)
- UK (approximately 12km)
- Land
- UK Continental Shelf & Channel Islands Territorial Sea Limits



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