

## The Real Map of Ireland Lesson Plans

### Teachers Introduction: The Real Map of Ireland

**“Geography is the study of Earth, its inhabitants and the inter-relationships between them in the context of place, space and environment”**

*(Geography SESE Guidelines)*

#### Background:

#### The Real Map of Ireland and Ireland’s 220 million acre marine resource

The marine environment is a fantastically valuable resource and it is important that Ireland is able to research and develop it through science and technology in a sustainable way. Irish students, schools and communities are therefore encouraged to develop an informed appreciation of Ireland’s land and marine resource so they can take responsibility for its care and development for future generations.

#### PLACE:

The island of Ireland itself covers 20,863,360 acres of land. Ireland can also claim over **220 million acres of marine and undersea territory** which is ten times greater than the size of the island of Ireland.

When introducing the size of Ireland’s marine resource, it is helpful to understand the concept of place and space. This can be done by comparing it to areas of land that we are more closely associated with. Use the illustrations in a class discussion “What would you do with...” and ask students:

- What would you do with one acre of land?
- What would you do with 1000 acres of land?
- What would you do With 1 million acres of land?
- What would you do With 220 million acres of land?

This area of marine resource is over ten times the size of Irelands land area, and a significant portion of the European Union’s Marine Economic Zone.

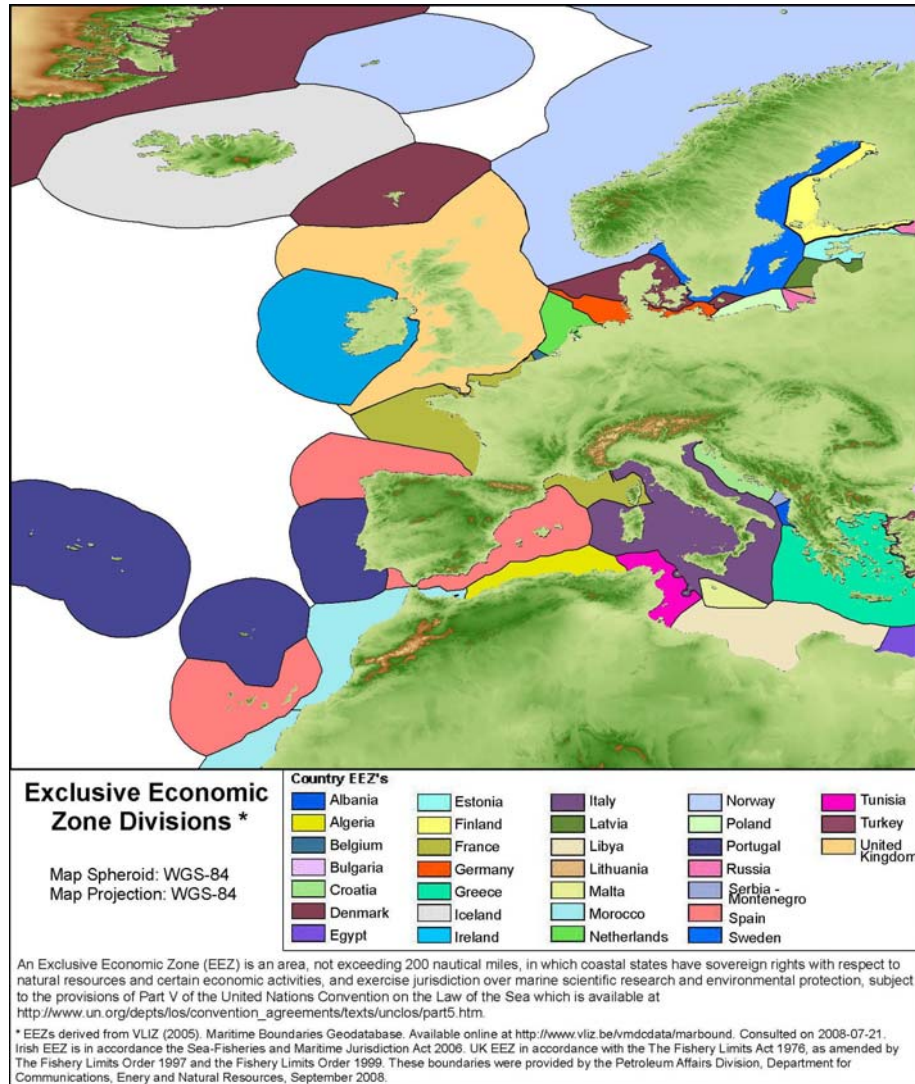
An exclusive economic zone is granted to a country by the United Nations Convention on the Law of the Sea.



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If we were to look at each countries exclusive economic zone, nearly 50% of Europe is underwater. This area comprises of exclusive economic zones and continental shelves of member states that extend from the Arctic through the North – Atlantic, the Baltic Sea, to the Mediterranean and Black Seas.

Under international maritime law, an **Exclusive Economic Zone (EEZ)** is a sea zone which a state has special rights over the exploration and use of marine resources. The EEZ extends to a distance of 200 nautical miles (370 km) out from each states coast, except where resulting points are closer to another country.



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### SPACE:

Seventy percent of the Earth's surface is covered by oceans and seas and more than half the world's population lives within 60 km of the coast. Ireland, like the rest of the world is reliant on its oceans and seas for many things including food, energy sources (wind power, oil and gas, etc) and leisure activities.

Therefore it is important to know the condition of the oceans, seas and coastal areas around Ireland and to consider how best to protect and manage these areas in the future. In order to do this communities, industry and scientists need to work together in observing, measuring, and collecting data, making predictions, testing hypotheses, drawing conclusions and making recommendations to policy and decision makers about Ireland's marine resources.

By reviewing the Real Map of Ireland, the Irish EEZ extends out across the Atlantic Ocean and includes parts of the Irish and Celtic Sea. This area has been mapped by a number of organisations over time including surveys dating back hundreds of years. More recently surveys such as the Irish National Seabed Survey and INFOMAR have been undertaken by the Marine Institute and the Geological Survey of Ireland.

### ENVIRONMENT:

If a plug was pulled and the ocean disappeared, the geological features under the sea would be similar to physical environments on land such as channels, plains, plateaus, ridges and canyons to name a few.

The Real Map of Ireland shows a selection of names that have been used that incorporate the physical environment of the areas under the sea.

The names given to areas on the Real Map of Ireland is done using a method of standardisation of names which is called nomenclature. For example the names comprise of two parts which are broken down into 'feature name + category'.

The first part of the name is usually associated with a 'feature' description which includes elements of words associated with the vicinity, history, folklore, people, research vessel and fictional works (i.e. Maury; Edoras; Feni etc).

The second part of the name often describes the physical environment such as the structural geology and or bathymetric feature of the area. (i.e. Channel; Bank; Plateau).

Some of the names given to areas on the Real Map of Ireland cover a wide range of categories. These often refer to whether they are geological or bathymetric in nature.



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**Geology** is the scientific study of the solid and liquid matter that constitutes the Earth. Geologists study of the composition, structure, physical properties, dynamics, and history of Earth materials. They look at the way that it is processed, formed, moved, and changed. The field is important to learn about what lies beneath the land for industry (i.e. fuels) to the mitigation of natural hazards, and learn about past climate and climate change.

**Bathymetry** is the measurement of the depth of water from the water surface to the seafloor in oceans, seas and lakes. Depths can be displayed as soundings (point values), contours or colour coding of the sea floor according to its depth.

Early techniques used a pre-measured heavy rope or cable (fathom) lowered over a ship's side until it reached the bottom. The depth was calculated by counting the number of knots that went into the water e.g. One fathom would equal six feet.

In the INFOMAR and Irish National Seabed Survey project bathymetry data is collected using single beam and multi-beam echo sounders. These systems send a pulse of sound energy from a sensor down to a seafloor. The energy is reflected from the seafloor and the time taken for the sound to travel from the sensor to the seafloor and back is calculated giving the water depth.

A single beam system uses just one pulse sent at regular intervals. A multi-beam system sends many pulses arranged in a fan like swath down to the sea floor at regular intervals to retrieve information.

Similarly in shallow waters LIDAR systems use a pulse of light energy instead of sound energy. This is usually sent from a plane flying over the water to measure the depth.



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### Terms of reference for areas on the Real Map of Ireland:

**Abyssal Plain** is a large area that is flat or gently sloping at abyssal depths.

**Bank** is a raised area of land under the water where the depth of water is relatively shallow.

**Channel** is a narrow stretch of water between two larger bodies of water. It is often the deeper part of a moving body of water which is where the main current is.

**Plateau** is the higher area with a considerable level surface which often drops off on one or more sides.

**Ridge** is a long narrow elevation with steep sides.

**Seamount** is a large isolated elevation often in a cone shape.

**Spur** is an elevation that projects outward from a main area and descends towards the floor.

**Trough** is used to describe a long depression or the seafloor which is often flat bottomed and steep sided.

