



Glossary

A	
A-weighted	A sound level which has been weighted to correlate closely with the response of the human ear.
Above Ordnance Datum (AOD)	Height in metres relative to the average sea level at Newlyn, Cornwall.
Acoustic Fish Deterrents (AFDs)	Sound emitting devices which are used to discourage fish entrainment.
Acoustic Wave and Current Profiler (AWAC)	An instrument that measures the current velocities and wave height in moving water.
Admiralty Chart	Admiralty Charts are supplied by the United Kingdom Hydrographic Office and are nautical charts that identify information such as the coastline, land and underwater contour lines, seabed depth and composition, hazards, prominent features and anything that may assist with navigation on the water.
Air-borne noise	This refers to noise which is fundamentally transmitted by way of the air and can be attenuated by the use of barriers and walls placed physically between the noise and receiver.
Air Guns	Air guns release a volume of air under high pressure, creating a sound wave from the expansion and contraction of the released air bubble. They are used for seismic or seabed surveys typically in arrays to yield high acoustic properties.
Ambient sound	The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.
Anthropogenic	Actions, consequences or material originating from Human activities.
Area of Outstanding Natural Beauty	Area designated by the Natural Resources Wales where the primary purpose is the conservation and enhancement of natural beauty including flora, fauna, geology and landscape.
Artificial Reef	An artificial reef is a man-made, underwater structure, typically built for the purpose of promoting marine life. Artificial reefs are designed to provide hard surfaces to which algae and invertebrates (like barnacles, corals, and oysters) attach, which in turn provides intricate structure and food for assemblages of fish.
Assessment	A general term for description, analysis and evaluation.
Aquifer	A water bearing bed of strata, either by virtue of its porosity or because it is pervious.
Audible range	The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.
Automated Identification System (AIS)	Short range coastal tracking system.
Axial Water Velocity	The axial water velocity at the turbine blades is a function of the geometry of the turbine and discharge rate.

B	
Background noise	Background noise is the term used to describe the noise measured in the absence of the noise under investigation. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period.
Barrier effects	An impact resulting from blockage by a structure or barrier.
Baseline	The existing environmental conditions against which any future changes can be measured or predicted and assessed.
Bathing Waters	Fresh or sea water in which bathing is either explicitly authorised or is not prohibited and is traditionally practiced by large numbers of bathers.
Bathymetry	Measurement of ocean or lake depth and the study of floor topography.
Bathymetric contour	Depict elevations, shape, and slope of marine features offshore (usually the bottom floor of bays, seas and oceans).
Bedload transport	Particles (usually coarser material such as sands and gravels) that move, roll or bounce along the seabed as they are transported by currents, waves or a combination of both.
Beaufort scale	An empirical method of wind speed
Bedrock	The unweathered rock below the soil and drift cover.
Benthic	Area of the water column that concerns the sea bed or adjacent to the sea bed.
Benthos	Those organisms attached to, or living on, in or near, the seabed. This community lives in or near marine sedimentary environments, from tidal pools along the foreshore, out to the continental shelf, and then down to the abyssal depths.
Bioaccumulation	The increase in concentration of a substance in an organism over time.
Biodiversity	The variation of life forms, including plants, animals and microorganisms, the genes that they contain, and the biotypes and ecosystems that they form.
Biodiversity Action Plan	A conservation programme deriving from the 1992 Convention on Biological Diversity. It describes biological resources, prioritising certain species and habitats and setting out plans and targets for their conservation. The UK BAP provides a national framework for a series of Local BAPs, usually compiled and managed by local authorities. In Wales there is also a BAP managed by the Welsh Assembly Government.
Biotopes	An area of the same environmental conditions that supports a specific collection of species.

Biotype	The physical habitat with its associated distinctive biological communities. A biotype is the smallest unit of habitat that can be delineated conveniently and is characterised by the community of plants and animals living there. Several biotypes will usually constitute an ecosystem.
Bivalves	A class of marine and freshwater mollusc, that include clams, scallops, oysters, mussels, borers, trough shells and many others, that has a shell consisting of two hinged valves.
Breakwater	A structure constructed on coasts as part of coastal defence or to protect an anchorage from the effects of both weather and longshore drift.
Bund	A bund is an outer wall designed to retain the contents of an inner tank.
Broadband	Containing the full range of frequencies
Bronze Age	c2,300-800BC
Bulb turbine	A type of hydro turbine in which the entire generator is mounted inside the water passageway as an integral unit with the turbine. These installations can offer significant reductions in the size of the powerhouse.
C	
Cadw	The Welsh Government's historic environment service, whose primary role is to conserve and protect the historic environment and to promote distinctive regeneration and sustainable development within Wales.
Carboniferous	Denoting or formed in the fifth period of the Palaeozoic era, between the Devonian and Permian periods, lasting for 80 million years during which coal measures were formed.
Cavitation	Is the formation of vapour cavities in a liquid – i.e. small liquid-free zones (bubble or “voids”) – that are the consequence of forces acting upon the liquid. It usually occurs due to a rapid change in pressure in a liquid that results in cavities forming in low pressure zones.
Centre for Environment, Fisheries and Aquaculture Science (CEFAS)	An agency of DEFRA and an international aquatic science research and consultancy centre.
Cetaceans	A group of marine mammals including dolphins, porpoises and whales.
Chart Datum	Approximately the level of the lowest astronomical tide excluding meteorological effects.

Clupeid species	Clupeids (herrings, shads, and sardines) are mostly marine forage fish, although a few species are found in freshwater. No species has scales on the head, and some are entirely scaleless. Clupeids spawn huge numbers of eggs near the surface of the water. After hatching, the larvae live among the plankton until they develop a swim bladder and transform into adults. They typically feed on plankton and are preyed upon by larger fish, seabirds and marine mammals. Clupeids compensate for their small size by forming schools which can become immense shoals.
Coals	The general name given to stratified accumulations of carbonaceous material derived from vegetation.
Coal Gasification	An industrial process which converts coal into synthesis gas (syngas). It is used to convert coal into gas underground using a series of boreholes operated remotely from the surface. Air or a combination of oxygen and steam are injected into the gasification panel within the coal stream. The coal is then heated and controlled reactions convert solid coal into syngas.
Coastal squeeze	Term used to describe a situation where the coastal margin is squeezed between the fixed landward boundary (artificial or otherwise) and the rising sea level.
Coast Protection Act (CPA) 1949	An amendment to the law regarding the protection of the coast of Great Britain against erosion and encroachment by the sea; section 34 is concerned with the restriction and removal of works detrimental to navigation.
Consented Development	A development that has been granted planning permission, although has not yet been constructed.
Consultee	Any body specified in the relevant EIA regulations which the competent authority must consult in respect of the EIA, and which also has a duty to provide a scoping opinion and information.
Country Park	Designated under the Countryside Act of 1968, they are parks managed by local authorities, set up to provide a place that is natural and within close proximity to centres of population.
Circalittoral	The area of the seabed that lies below the zone of periodic tidal exposure.
Cofferdam	A temporary structure built around a site to allow the removal of water and to permit free access to the area within. It may take various forms such as an earth embankment, a single row of steel or timber sheet piling, or a double row of sheet piling with the space between filled with impermeable material.
Commissioning	The process of assuring that all systems and components of a building or industrial plant are designed, installed, tested, operated, and maintained according to the operational requirements of the owner or final client.

Computational fluid dynamic (CFD) analysis	CFD simulate fluid (either liquid or gas) passing through or around an object and heat transfer. The analysis can be very complex – for example in one calculation it could incorporate heat transfer, mixing, and unsteady and compressible flows.
Concrete Batching Plant	A device that combines various ingredients to form concrete. Some of these inputs include sand, water, aggregate (rocks, gravel, etc.), fly ash, potash, and cement.
Crane Rails	Track upon which a running crane moves.
Crane Vessel	A crane vessel, crane ship or floating crane is a ship with a crane specialized in lifting heavy loads. The largest crane vessels are used for offshore construction.
Crawler Crane	A crawler crane is a self-propelled crane mounted on two endless tracks that revolve.
Crown Estate	The Crown Estate belongs to the reigning monarch ‘in right of The Crown’, that is, it is inherent with the accession to the throne. Apart from owning extensive areas of land it owns about 55% of the foreshore around the UK coastline and the seabed to 12 nautical miles offshore.
Cumulative effects	The combined effect of more than one development on the environment.
Cutter Suction Dredger	A cutter-suction dredger (CSD) is a vessel that sucks sediment from the sea bed through a long tube, like some vacuum cleaners but on a larger scale. The suction tube has a cutting mechanism at the suction inlet, which loosens the bed material and transports it to the suction mouth. The dredged material is usually sucked up by a wear-resistant centrifugal pump and discharged either through a pipe line or to a barge.
D	
dB re 1µPa	Decibels (dB) relative to a reference pressure of water of one micro Pascal (1µPa).
dB(ht) species metric	References the sound level to the hearing threshold of an individual fish.

Decibel	<p>The level of noise is measured objectively using a Sound Level Meter. This instrument has been specifically developed to mimic the operation of the human ear. The human ear responds to minute pressure variations in the air. These pressure variations can be likened to the ripples on the surface of water but of course cannot be seen. The pressure variations in the air cause the eardrum to vibrate and this is heard as sound in the brain. The stronger the pressure variations, the louder the sound is heard.</p> <p>The range of pressure variations associated with everyday living may span over a range of a million to one. On the top range may be the sound of a jet engine and on the bottom of the range may be the sound of a pin dropping.</p> <p>Instead of expressing pressure in units ranging from a million to one, it is found convenient to condense this range to a scale 0 to 120 and give it the units of decibels. The following are examples of the decibel readings of every day sounds;</p> <ul style="list-style-type: none"> ▪ Four engine jet aircraft at 100m 120 dB ▪ Riveting of steel plate at 10m 105 dB ▪ Pneumatic drill at 10m 90 dB ▪ Circular wood saw at 10m 80 dB ▪ Heavy road traffic at 10m 75 dB ▪ Telephone bell at 10m 65 dB ▪ Male speech, average at 10m 50 dB ▪ Whisper at 10m 25 dB ▪ Threshold of hearing, 1000 Hz 0 dB
Decking System	A platform extending horizontally likened to a ship's deck.
Demersal Fish	Fish that live and feed on or near the bottom of seas or lakes (the demersal zone). Demersal fish species encompasses crustaceans (shrimps, langoustines, lobster and crabs), cephalopods (octopus, squid, calamari) as well as miscellaneous fish belonging to the benthic or benthic-pelagic species and living in shallow water or on the sea bed.
Department of Energy and Climate Change (DECC)	A government body which works to ensure the UK has secure, clean and affordable energy supplies and promotes action to mitigate climate change.
Department for Environment, Food and Rural Affairs (DEFRA)	The government department responsible from environmental protection, food production and standards, agriculture, fisheries and rural communities in the United Kingdom. It now holds responsibility for the guidelines for Conservation Access and Recreation reporting.
Designated site	An area listed under a Convention, Law, European Directive, or UK Statutory Instrument specifically for the protection of the resource, for instance for nature conservation purposes.

Dewatering	Construction dewatering, unwatering, or water control are common terms used to describe removal or draining groundwater or surface water from a riverbed, construction site, caisson, or mine shaft, by pumping or evaporation.
Development Consent Order (DCO)	Applicants promoting nationally significant infrastructure Projects in the fields of energy, transport, water and waste will apply for a DCO rather than for planning permission. A DCO, when issued, combines the grant of planning permission with a range of other consents that in other circumstances have to be applied separately, such as listed building consent.
Diadromous Fish	Migratory fish that travel between salt water and fresh water.
Digital Terrain Model	Digital relief map that represents the bare ground topography of the earth's surface.
Direct Impacts	An impact that is directly attributable to the proposed development.
Directional Drilling	Direction drilling is a steerable trenchless method of installing underground pipes, conduits and cables in a shallow arc along a prescribed bore path by using a surface-launched drilling rig, with minimal impact on the surrounding area.
Dredged Channel	An artificially maintained sea lane extending from an inland water body into the marginal sea to accommodate vessel traffic through coastal shallows.
E	
Ebb Tide	The period between high tide and the next low tide in which the sea is falling.
Ebb tide generation	The Lagoon is filled through the sluices until high tide. Then the sluice gates are closed. The turbine gates are kept close until the sea level falls to create sufficient head across the barrage, and then opened so that the turbines generate until the head is again low.
Ecosystem Services	Essential services and beneficial outcomes that are derived from a fully functioning natural environment, including management of basic resources such as water, and sequestration of carbon.
Effluent	Effluent is a liquid waste product (whether treated or untreated) discharged from an industrial process or human activity into the environment.
Elasmobranch	A subclass of cartilaginous fish that includes skates, rays (batoidea), and sharks (selachii).
Electrosensitive	Sensitivity to electrical current.
Electromagnetic Interference	Interference to or from an electromagnetic source.
Enhancement	Restoration, reconstruction or creation of an element to make an improvement
Entrainment	The process of entrapment of fish, fish larvae and zooplankton in the turbines of the Project.

Environmental Impact	A change, brought about in the existing environment, which results in an effect, adverse, beneficial, or both.
Environmental Impact Assessment	In this context, the process by which information about the environmental effects of a project is evaluated and mitigation measures are identified.
Epibenthic species	Epibenthos are animals living on or immediately above the seafloor. Some are attached to the substrate, others are mobile. Examples are sponges, corals and seastars.
Eulittoral	Applied to the habitat formed on the lower shore, below the intertidal zone. The marine eulittoral zone is marked by the presence of barnacles (<i>Balanus</i> and <i>Chthamalus</i> species).
Eutrophication	Eutrophication is the movement of a water body's trophic status in the direction of more plant biomass, by the addition of artificial or natural substances, such as nitrates and phosphates, through fertilizers or sewage, to an aquatic system. In other terms it is the 'bloom' or increase in phytoplankton in a water body. Negative environmental effects include hypoxia, the oxygen depletion in water.
Existing development	A development that has been constructed following planning consent and is fully operational.
Exploded Ordnance Disposal (EOD)	The detection, identification, evaluation, rendering safe, recovery and disposal of UXO.
F	
Filter-Feeder	An animal that eats by filtering or straining small particles of food from the water.
Food and Environmental Protection Act (FEPA) 1985	FEPA licenses mainly permit construction within the marine environment, or the deposition of materials at sea.
Flood Tide	The period between low tide and the next high tide in which the sea is rising.
Flood Tide Generation	The Lagoon is filled through turbines, which generate at tide flood. This is generally much less efficient than ebb generation, because the volume contained in the upper half of the Lagoon (which is where the ebb generation operates) is greater than the volume of the lower half (filled first during flood generation). Therefore the available level difference – important for the turbine power produced – between the Lagoon side and the sea side of the seawall, reduces more quickly than it would in ebb generation.
Foreshore	The land along the edge of a body of water.
G	
Gastropods	Also called univalves, these are a type of mollusc that have a single valve (a shell, which is sometimes reduced or even absent) and a muscular foot. Gastropods include snails, whelks and slugs
Generator	An arrangement of magnets spinning inside a coil of wire to produce electricity.

Geographic(al) Information System (GIS)	A system which captures, stores, analyses, manages, and displays spatially referenced data for solving complex planning and management problems.
Geomorphological	The geological structure of an area
Grid	A nationwide network of high voltage transmission lines.
Ground Investigation (GI)	A complete examination, investigation, and testing of surface and subsurface soil and conditions. The report resulting from the investigation is used in design of the structure.
Groundwater	Water occupying openings, cavities and spaces in rocks.
GPS	A navigational system supported by a large number of low orbit satellites.
H	
Habitat fragmentation	Alteration of a habitat resulting in spatial separation of habitat units from a previous state of greater continuity.
Habitat heterogeneity	An increase in the number of habitats leads to an increase in species diversity in a landscape.
Habitats Directive	A European Union directive adopted in 1992. It is one of the EU's two directives in relation to wildlife and nature conservation, the other being the Birds Directive.
Haul-out	Behaviour of seals, coming to rest on land. Also the terrestrial site that hauled-out seals occupy.
Head	The vertical change in elevation between two bodies of liquid.
Heritage Coast	Designated by Natural Resources Wales and managed by the local authority, they are stretches of outstanding, unspoilt coastline.
Hertz	Empirical measurement of frequency.
Heterogeneous	Measure of the variation of habitats in a specific area.
Hydraulic continuity	The same body of water is present across more than one horizon, i.e. there is no impermeable layer entirely separating the horizons.
Hydraulic Modelling	The use of mathematical or physical techniques to simulate water systems and make Projections relating to water levels, flows and velocity.
Hydrodynamic pressure	The difference between pressure of a fluid and the hydrostatic pressure.
Hydrokinetic	Relating to fluids in motion or the forces that produce or affect such motion.
Hydrology	The study of water on the surface of the earth, including rainfall, rivers, streams and embraces the concept of the hydrological cycle.
Hydrogeology	The study of the geological factors relating to the Earth's water.
Hydromorphology	The physical characteristics of the shape, boundaries and content of a water body.

Hydrostatic pressure	The pressure exerted by a fluid at equilibrium at a given point within the fluid, due to the force of gravity. Hydrostatic pressure increases in proportion to depth measured from the surface because of the increasing weight of fluid exerting downward force from above.
Hyperplasia	An abnormal increase in number of cells in an organ or a tissue with consequent enlargement.
Hypertrophy	Excessive growth of tissue or of an organ due to an increase in size of the cells.
I	
ICES statistical rectangles	ICES statistical rectangles are the smallest spatial unit used for the collation of regional fisheries statistics by the European community and member states.
Ichthyoplankton	Term used to describe fish eggs and larvae.
Indirect Effects	Impacts on the environment, which are not a direct result of the development but are often produced away from it or as a result of a complex pathway. Sometimes referred to as secondary impacts
Individual-Based Modelling (IBM) models	Individual-based models are a widely used ecology tool which allow scientists to explore the mechanisms through which population and ecosystem ecology arises from how individuals interact with each other and their environment.
Infralittoral	Always submerged, below the low-tide within the euphotic zone. Rocky seabed dominated by algae, and variable water column temperature.
Infrasound	Sound lower in frequency than 20 Hz (Hertz) or cycles per second.
Interbedded	Literally 'between two layers' e.g. a limestone may be interbedded between two layers of shale.
International Council for the Exploration of the Sea (ICES)	A multidisciplinary scientific forum for the exchange of information and ideas on all aspects of marine sciences pertaining to the North Atlantic, Baltic Sea and North Sea. Its principle functions are to: (i) promote, encourage, develop, and coordinate marine research; (ii) publish and otherwise disseminate results of research; and (iii) provide non-biased, non-political scientific advice to member nation governments and international regulatory commissions.
International Council on Monuments and Sites (ICOMOS)	A non-governmental international organisation dedicated to the conservation of the world's monuments and sites.
International Union for Conservation of Nature (IUCN) red list	A compilation of species and their conservation status.
Intertidal Area	The area of the shore that lies between the average high tide mark and the average low tide mark.

Inter-visibility	The ability to see with the naked eye between two or any number of given points.
Invertebrate	An animal lacking a backbone and internal skeleton.
Iron Age	c800BC-AD43
J	
Jack-Up Barge	A jack-up barge is specialised barge that consists of a buoyant hull fitted with a number of movable legs, capable of raising its hull over the surface of sea. The buoyant hull enables transportation of the unit and all attached machinery to a desired location. Once on location the hull is raised to the required elevation above the sea surface on its legs supported by the sea bed.
Joint Nature Conservation Committee (JNCC)	A statutory advisor to UK government on international nature conservation.
K	
L	
L₁₀ & L₉₀	<p>If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L₁₀ is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L₉₀ is the average minimum level and is often used to describe the background noise.</p> <p>It is common practice to use the L₁₀ index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.</p>
L_{eq} :	<p>The concept of L_{eq} (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.</p> <p>L_{eq} is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc).</p> <p>The use of digital technology in sound level meters now makes the measurement of L_{eq} very straightforward.</p> <p>Because L_{eq} is effectively a summation of a number of noise events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute noise limit.</p>
L_{max} :	L _{max} is the maximum sound pressure level recorded over the period stated. L _{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L _{eq} noise level.

Lagoon	A body of water separated from a larger body of water by a barrier
Lateral line system	A system of sensory organs in fishes and aquatic amphibians consisting of cells on the head and along the sides of the body that detect pressure changes and vibrations.
LANDMAP	A GIS (Geographical Information System) based landscape resource where landscape characteristics, qualities and influences on the landscape are recorded and evaluated into a nationally consistent data set.
Landscape Assessment	An umbrella term for the description, classification and analysis of landscape.
Landscape Capacity	The degree to which a particular landscape character type or area is able to accommodate change without unacceptable adverse effects on its character. Capacity is likely to vary according to the type and nature of change being proposed.
Landscape Character	The distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how these are perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement. It creates the particular sense of place of different areas of landscape.
Landscape Character Type	A landscape type will have broadly similar pattern of geology, landform, soils, vegetation, land use, settlement and field pattern discernible in maps and field survey records.
Landscape Effects	Change in the elements, characteristics, character and qualities of the landscape as a result of development. These effects can be positive or negative.
Landscape Evaluation	The process of attaching value (non-monetary) to a particular landscape, usually by the application of previously agreed criteria, including consultation and third party documents, for a particular purpose (for example, designation or in the context of the assessment).
Landscapes of Outstanding/Special Historic Interest	Register of landscapes of outstanding or special historic interest, compiled by Cadw/ICOMOS and which are considered to be the best examples of different types of historic landscapes. Used to inform decision makers and landscape managers, to help ensure that the historic character of the landscape is sustained, and that where change is contemplated, it is well-informed
Landscape Quality (or Condition)	Term used to indicate value based on character, condition and aesthetic appeal. Landscape quality is based on judgements about the physical state of the landscape, and about its intactness, from visual, functional, and ecological perspectives. It also reflects the state of repair of individual features and elements that make up the character in any one place.
Landscape receptor	The physical landscape resource that will experience a landscape effect.

Landscape Resource	The combination of elements that contribute to landscape context, character and value.
Landscape Sensitivity	The extent to which a landscape can accept change of a particular type and scale without unacceptable adverse effects on its character.
Landscape Type	These are distinct types of landscape that are relatively homogenous in character. They are generic in nature in that they may occur in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern.
Landscape Value	The relative value that is attached to different landscapes. In a policy context the usual basis for recognising certain highly valued landscapes is through the application of a local or national landscape designation. Yet a landscape may be valued by different communities for many different reasons without any formal designation, recognising, for example, perceptual aspects such as scenic beauty, tranquillity or wilderness; special cultural associations; the influence and presence of other conservation interests; or the existence of a consensus about importance, either nationally or locally.
Listed Building	A building which has been identified by the Secretary of State for the Environment as being of special architectural or historic interest and is entered on the list of such buildings.
Lithophilic spawners	Gravel-spawning species of fish such as herring which do not look after their young.
Local Biodiversity Action Plan (LBAP)	A BAP (see previously) which has been developed by a local authority.
Local Nature Reserve	Area designated by the Countryside Council for Wales for being of particular importance to nature conservation and where public understanding of nature conservation issues is encouraged.
Local Seascape Unit	A section of the coastline divided into areas of broadly similar pattern based on coastline features, including estuaries, inlets, harbour walls etc; composition of the seabed, water depth and wave patterns.
M	
Macrobenthic Community	Comprise benthic organisms (animals or plants) whose shortest dimension is greater than or equal to 0.5 mm. In some classifications these organisms have to be larger than 1 mm. They include polychaete worms, pelecypods (Bivalves),echinoderms (starfish, sea urchins, etc), sponges, ascidians (sea squirts) and crustaceans.
Macrophyte	A plant large enough to be visible to the naked eye.
Made Ground	Soil deemed to be man-made or not natural
Magnitude	A combination of the scale, extent and duration of effect.

Mariculture	The cultivation of marine organisms in their natural environments, usually for commercial purposes.
Marine Management Organisation (MMO)	A non-departmental public body established and given powers under the Marine and Coastal Access Act 2009 to make a significant contribution to sustainable development in the marine area and to promote the UK government's vision for clean, healthy, safe, productive and biologically diverse ocean and seas.
Mean High Water Neap (MHWN)	The height of mean high water neaps is the average throughout a year of the heights of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is least.
Mean High Water Spring (MHWS)	The height of mean high water springs is the average throughout a year of the height of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest.
Mean Low Water Neap (MLWN)	The height of mean low water neaps is the average throughout a year of the heights of two successive low waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is least.
Mean Low Water Spring (MLWS)	The height of mean low water springs is the average throughout a year of the heights of two successive low waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest.
Mechanosensory organs	Pertains to sensory activation in response to mechanical pressures or distortions. Such as nocturnal animals using whiskers to navigate by gathering information about position, size, shape, orientation and texture of objects and the lateral line system in fish.
Metocean	Data relating to meteorology and oceanography.
Mesolithic period	Between 8500 BC to 4000BC (Before Christ)
Mitigation	Measures, including any process, activity or design to avoid, reduce, remedy or compensate for adverse effects.
N	
Natal Rivers	Stream or river in which an andromous fish was spawned
National Cycle Routes	A signed network of over 21,500km of cycle routes throughout the United Kingdom that include, scenic traffic free paths, quiet roads and lanes, signed on-road routes and themed long-distance routes.
National Trails/Long Distance Paths	Long distance routes for walking, cycling and horse riding and maintained by the local authority. They have been created by linking existing local footpaths, bridleways and minor roads and by developing new ones where there were gaps exist.
Natural Environment and Rural Communities (NERC) Act 2006	NERC provides that any public body or statutory undertaker in England and Wales must consider impacts to biodiversity when determining planning applications.

Natural Resources Wales	Principal adviser to the Welsh Government on the environment, enabling the sustainable development of Wales' natural resources for the benefit of people, the economy and wildlife.
National Vegetation Classification	A standardised method for describing plant communities. It involves recording the relative abundance of species of plants in an area of relatively uniform vegetation, and comparing this against a series of published vegetation descriptions derived from a national database.
Nautical mile	1 nautical mile = 1.85200km or 1.15077945 miles
Neolithic	C 4,400-2,300BC
Noise monitor	See "sound level meter".
Non-Technical Summary	A brief report summarising the principle sections of a document eg the Environmental Statement, in non-technical language.
National Vocational Qualification (NVQ) Level 3	The equivalent to two or more A levels
O	
Oceanodromous fish	Occur widely throughout the world's oceans and live and migrate wholly in the sea.
Olfactory	Relating to, or contributing to, the sense of smell.
Ontogenic	The origin and development of an individual from embryo to adult.
OSPAR Commission	The current legal mechanism for international cooperation for the protection of the environment in the North-East Atlantic.
Outgassing	The release if a gas that was dissolved, trapped, frozen or absorbed in some material.
Oxygen Deficiency	Hypoxia or oxygen deficiency is a phenomenon that occurs in aquatic environments as dissolved oxygen become reduced in concentration to a point detrimental to aquatic organisms living in the system.
P	
Particle Size Analysis (PSA)	A laboratory technique which determines the size range, and/or the average, or mean size of the particles in a powder or liquid sample.
Pelagic Fish	Live near the surface or in the water column of coastal, ocean and lake waters, but not on the bottom of the sea or the lake such as tuna and sardines.
Pelagic Spawners	Spawn in the open sea, mostly near the surface and are usually pelagic fish. Pelagic spawning means water currents widely disperse the young. The eggs, embryos and larvae of pelagic spawners contain oil globules or have a high water content. As a result, they are buoyant and are widely dispersed by currents. The downside is that mortality is high as they can be eaten by pelagic predators or drift into unsuitable areas. To compensate for this females spawn a large number of eggs and have extended spawning periods.

Percid Fish Species	The percid fishes are freshwater species which includes perch, pikeperch, yellow perch, walleye and darters.
Permanent threshold shift (PTS)	The irreversible hearing loss that results from exposure to intense impulse or continuous sound.
Phase 1 Habitat Survey	A standardised system for classifying and mapping wildlife habitats in all parts of Great Britain.
Photomontage	The superimposition of an image onto a photograph for the purpose of creating a representation of potential changes to any view.
Physoclist	Physoclist fish have a swimbladder that is completely closed off from any external sources of air. The gases essential to maintaining buoyancy are retrieved from the blood, instead of from the atmosphere (as in Physostomes).
Physoclistostome	Physostome fish have an open swimbladder. Gases for the filling of this bladder are retrieved from just above the surface of the water. In order for the bladder to hold and release these gases, there is a channel that connects the bladder to the esophagus called the pneumatic duct. Through the pneumatic duct fish can gulp and burp atmospheric gases from just above the surface of the water in their bladder in order to maintain buoyancy and are usually found in fish that live near the surface of the water.
Phytoplankton Blooms	Phytoplankton are floating microscopic plants that obtain their energy requirements through photosynthesis. A phytoplankton bloom is caused by a high concentration of phytoplankton in an area as a result of increased reproduction. A bloom will occur when sunlight and nutrients are readily available, the phytoplankton grow and reproduce to a point where they are so dense that their presence can change the colour of the water they reside in.
Piscivorous predators	Fish-eating predators
Planktonic	An organism that spends part or all of its lifecycle in the plankton. Plankton are microscopic organisms whose direction are controlled by water movements. Plankton may be able to swim by means of flagella or other appendages, but they are not strong enough to swim against the current.
Plateau	A wide mainly level area of elevated land.
Planning Policy Guidance	Provide statements of Government policy on nationally important land use and other planning matters, supported where appropriate by a locational framework.
Post Medieval	16 th century to present
Pre-Casting Yard	A location where items relating to or being a structural member, especially of concrete, that have been cast into form before being transported to its site of installation.
Proposed Development	A development for which a planning application has been submitted, though any decision is still pending.

Propped	Where an object is placed beneath or against a structure to keep it from falling or shaking; a support.
Protected Species	Species with special protection under the terms of the Wildlife and Countryside Act 1981 and the Wildlife and Countryside (Amendments) Act 1985.
Public Right of Way	A route where the public has a right to walk, and in some cases ride horses, bicycles, motorcycles or drive motor vehicles, which will be designated either as a footpath, a bridleway, a road used as a public path (RUPP) or a byway.
Q	
Q₁₀ Value	A temperature coefficient used to measure the rate of change of a biological or chemical system as a consequence of increasing the temperature by 10°C.
R	
Ramsar Site	Wetlands of international importance, designated under the Ramsar Convention. Wetlands are defined as areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six metres. Ramsar sites may also incorporate riparian (banks of a stream, river, pond or watercourse) and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands.
Receptor	A component of the natural or man-made environment that is affected by an impact, including people.
Regional Seascape Unit	An area of the coastline that extends between two major headlands and including all seaward components of the sea visible out to a distance of 15km.
Registered Park & Garden of Special Historic Interest	Register of parks and gardens, compiled by Cadw/ICOMOS, which are thought to be of national importance. Used to aid the informed conservation of historic parks and gardens by owners, local planning authorities, developers, statutory bodies and all concerned with them. Sites on the Register are graded I, II* and II.
Reinforced Concrete	Concrete in which steel is embedded in such a manner that the two materials act together in resisting forces.
Residual Impacts	Impacts predicted as a consequence of the development assuming implementation of proposed mitigation measures.
Re-suspension	Dispersion of particles back into water, as when wave action or re-dredging stir up sediments that have fallen out of suspension and settled.
Rheotaxis	Movement of an organism in response to a current of water or air.

Rock armour	Rock or other material used to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour, water or ice erosion.
Rock Revetment	Revetments are sloping structures placed on banks or cliffs in such a way as to absorb the energy of incoming water. River or coastal revetments are usually built to preserve the existing uses of the shoreline and to protect the slope as defence against erosion.
Roman	AD43-410
Ro-Ro	Roll-on/roll-off (RORO or ro-ro) ships are vessels designed to carry wheeled cargo, such as automobiles, trucks, semi-trailer trucks, trailers and railroad cars that are driven on and off the ship on their own wheels. This is in contrast to lo-lo (lift-on/lift-off) vessels which use a crane to load and unload cargo.
Runners	The part of a turbine , consisting of curved vanes, blades, or buckets on a wheel or hub, that is turned by the pressure of high velocity water, thereby transforming falling water energy into rotating mechanical energy.
S	
Sandstones	A detrital sedimentary rock, in which the particles range in size from 1/16 th to 2 mm. A type of Arenaceous rock.
Scoping	The process of identifying the likely significant effects of a development in the environment.
Scour (marine)	Sea-floor erosion caused by strong tidal currents, resulting in removal of inshore sediments and formation of deep
Screening Opinion	A written statement of the opinion of the relevant planning authority as to whether development requires an EIA.
Seascape and Landscape Visual Impact Assessment	A tool used to identify and assess the likely significance of the effects of change resulting from a development both on the seascape/landscape as an environmental resource in its own right and on people's views and visual amenity.
Seascape/Landscape Impact	Change in the elements, characteristics, character and qualities of the landscape as a result of development.
Seascape/Landscape Value	The relative value that is attached to different seascapes/landscapes by society.
Semi-improved grassland	Grassland that has been modified to increase its agricultural value, perhaps by drainage or treatment with fertilisers and/ or herbicides. However, still including a reasonable proportion of species that are characteristic of the unimproved state.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor .
Sessile Organisms	An organism that does not move, but stays attached to one place on the sea floor, such as a mussel or a sea fan.
Seston	Particulate matter suspended in seawater

Shear Stress	Shear stress is a state where the stress is parallel to the surface of the material/object. Shear stress is generated from the motion of fluids on surfaces.
Sheet Pile Wall	Sheet pile walls are made out of steel, vinyl or wood planks which are driven into the ground. A proportion of the wall will be above ground and a proportion below ground.
Shutters (Concrete)	Wood or purpose made steel in planks used as a temporary structure to contain setting concrete
Site of Importance for Nature Conservation (SINC)	An area of land designated by a local authority because it supports nature conservation of significance in a county context. Designation criteria and policy context may vary between different local authority areas but they are usually linked with planning policies relating to nature conservation.
Site of Special Scientific Interest (SSSI)	An area identified by Natural Resources Wales as having flora, fauna, or geological features of special interest.
Sites and Monuments Record (SMR)	Inventory of archaeological and historical features, usually held by County Councils and mapped at 1:10,000.
Soakaways	A deep hole used for drainage, where rainwater and other wastewater drains directly into the ground, without connection to any mains drainage or sewerage pipes.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound Exposure Level (SEL)	The sum of acoustic energy over a given measurement period or the total noise energy produced from a single noise event.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound Pressure Level (SPL):	Sound level is usually defined in terms of SPL. SPL is the ratio of the absolute sound pressure and a reference value (usually the threshold of hearing, or the lowest intensity sound that can be heard by an organism). It is measure in decibels (dB).
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Spawning Substrate	The surfaces on which fish prefer to deposit their eggs.
Special Area of Conservation	Land protected under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. Data supplied has a status of 'Candidate'.
Special Protection Area	Land classified under Directive 79/409 on the Conservation of Wild Birds. Data supplied has a status of 'Classified'.
Special Site of Scientific Interest (SSSI)	An area of land or water notified by the Nature Conservancy Council or its successor agencies under the Wildlife and Countryside Act 1981 as being special in nature (can include geological) conservation importance.
Spring	Water from an underground source issuing at the surface.

Spring Tide	The tides of increased range occurring near the times of full moon and new moon. The gravitational forces of the moon and the sun act to reinforce each other. Since the combined tidal force is increased the high tides are higher and the low tides are lower than average.
Stay Ring	A large metal ring that is cast into the structure that allows the turbine to be attached to.
Stop Logs	A log, plank, cut timber, or a steel or concrete beam fitting into end guides between walls or piers to close an opening in a dam or conduit to the passage of water. The logs usually are handled or placed one at a time.
Storm overflow	A weir, orifice or other device for permitting the discharge from a combined sewer of the flow in excess of that which the sewer is designed to carry.
Strata	A distinct layer into which sedimentary rocks are divided.
Substrate	The surface or material on which an organism lives – rock, sand, mud, pilings, shells etc.
Subtidal	Depths greater than the intertidal zone. Where the intertidal zone is the area of seabed between high water mark and low water mark which is exposed each day as the tide rises and falls (also known as the littoral zone).
Susceptibility	The ability of a defined seascape/landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.
Suspended Sediment (SS)	Fine particles that remain in suspension in water for a considerable period of time without contact with the bottom. Such material remains in suspension due to the upward component of turbulence and currents and/or by suspension.
Swimbladder	An internal organ that allows fish to control their buoyancy
T	
Taxa	A distinct category of organism at any level in the taxonomic hierarchy from species to family to kingdom.
Target note	A brief description of a habitat recorded during a phase 1 habitat survey.
Tidal excursions	The net horizontal distance over which a water particle moves during one tidal cycle of flood and ebb.
Tidal flushing	The systematic replacement of water in a bay or estuary as a result of tidal flow.
Till	Also known as Boulder Clay. All the glacial and fluvio-glacial deposits left after the retreat of glaciers and ice sheets.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch
Topography	The land forms or surface configuration of a region.

Townscape	“is the physical and social characteristics of the built and unbuilt urban environment and the way in which we perceive those characteristics. It is this mix of characteristics and perceptions that make up and contribute to townscape character and give a 'sense of place' or identity.” Department of Transport (2004)
Trained Entrance	A trained entrance often consists of rock walls that force the water into a deeper more stable channel
Transect	A method of surveying an area by sampling along linear routes through it (as was used for the bat and bird surveys in this study).
Transformer	An electromagnetic device for reducing or increasing the voltage of an alternating current.
Tranquillity	A state of calm and quietude associated with peace, considered to be a significant assets of landscape.
Transitional slip	Slip along a generally planar surface
Trophic levels	The classification of natural communities or organisms according to their place in the food chain. A food chain represents a succession of organisms that eat another organism and are, in turn, eaten themselves. The number of steps of an organism is from the start of the chain is a measure of its trophic level.
Trophic interactions	Interactions between producers and consumers in an ecosystem (i.e. being eaten).
Turbid	Water which contains suspended particles (of silt and other debris) and appears ‘muddy’.
Turbidity	Can be defined as the weight of particulate matter per unit volume of sea water and is a measure of water clarity.
Turbine	A rotary engine that converts the energy of a moving stream of water, steam or gas into mechanical energy.
U	
Ultra High Frequency	Frequencies in the range of 300MHz-3GHz
Unconfined	An aquifer with no overlying low permeability rocks.
Unexploded Ordnance (UXO)	Unexploded ordnance (or UXOs/UXBs,UO) are explosive weapons (bombs, bullets, shells, grenades, land mines, naval mines, etc.) that did not explode when they were employed and still pose a risk of detonation, potentially many decades after they were used or discarded.
United Nations Framework Convention on Climate Change	An International treaty that began to look at mitigation of Climate Change. The creation and ratification of the Kyoto Protocol exists within this framework
UV disinfection	Water is passed in close proximity to a light source in the ultra-violet spectrum. UV kills pathogens and free algae organisms.
V	
Valued Ecological Receptors (VER)	Species and habitats that are indicative of the ecological quality of the Assessment Site and which could be adversely affected by the proposed development.

Velocity gradient	The rate of change in velocity per unit distance.
Very High Frequency	Frequencies in the range of 30MHz-300MHz
Vibro Compaction	Vibro Compaction is a deep compaction technique for increasing the density of sandy soils in place by means of an electric vibrating unit. Under the influence of simultaneous vibration and saturation, loose sand particles are repacked into a more compact state, and lateral confining pressure within the sand mass is increased.
Visual Amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through the area.
Visual and Sensory Area	One of the five evaluated layers or “Aspect Layers” for which information about the landscape is collected.
Visual Envelope	Extent of potential visibility to or from a specific area or feature
Visual Impact	Change in the appearance of the seascape or landscape as a result of a development.
Visual Impact Assessment	An umbrella term for the description and analysis of potential visual effects of development on particular views.
Visual Receptor	A special interest or viewer group that may experience an impact.
W	
Watching Brief	Undertaken during construction, whereby a qualified archaeologist is present to examine any uncovered remains or artefacts.
Water column	The entire depth of a water body, from its surface to the bottom.
Water Framework Directive (WFD)	An EU directive for the protection and improvement of the quality of surface freshwater (including lakes, streams and rivers), groundwater and any dependent ecosystems, estuaries and coastal waters out to 1 mile from low water.
Well Point System	A method of keeping an excavated area dry by intercepting the flow of groundwater with a series of perforated tubes driven into the ground to collect water from the surrounding area located around the excavation area.
Wicket Gates	Wicket gates are adjustable elements that control flow through the turbine.
Wireframe	A computer generated image of a view using 3D digital data. Usually produced as a forerunner to production of a photomontage.
X	
Y	
Z	
Zone of Theoretical Visibility	Area within which a proposed development may be seen and have an influence or effect on visual amenity.