

ABERDEEN HARBOUR EXPANSION PROJECT ENVIRONMENTAL STATEMENT

November 2015



Aberdeen
Harbour



Co-funded by the
Ten-T programme
of the European Union





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VOLUME 2
ENVIRONMENTAL STATEMENT



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GLOSSARY

AADF/T Annual Average Daily Flow/Total	A daily total traffic flow (24 hours), expressed as a mean daily flow across all 365 days of the year.
Accuracy	A measure of how well a set of data fits the true value.
Air quality objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air quality standard	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective).
Alien species	Alien species is the term used by the Convention on Biological Diversity (CBD). It refers to a species, subspecies or lower taxon, introduced (i.e. by human action) outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce or have self-sustaining populations.
Allision	An event when a moving object, such as a ship, strikes a fixed object, such as a reef or dock
Amphipod	A crustacean belonging the Order Amphipoda.
Anemone	Any of numerous flowerlike marine coelenterates of the class Anthozoa, having a flexible cylindrical body and tentacles surrounding a central mouth.
Annex I Habitat	Habitat, listed on the Habitats Directive, considered most in need of conservation within Europe.
Annex II Species	Species (not including birds), listed on the Habitats Directive, considered most in need of conservation within Europe.
Annual Average	The average concentration of a pollutant substance in samples taken over a period of a year.
Annual Mean	The average (mean) of the concentrations measured for each pollutant for 1 year. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between 2 years, which is useful for pollutants that have higher concentrations during the winter months.
Aquifer	Is an underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravel, sand, or silt) from which groundwater can be extracted using a water well.
Assemblage	A generic term used chiefly by some British marine ecologists which does not assume interdependence within a community or association, but appears to have the same broad definition as 'community'.
Auks	Group of seabirds belonging to the family Alcidae in the order Charadriiformes and in the UK includes guillemot, razorbill and puffin.
Baseline	Existing environmental conditions present on, or near, a site against which future changes may be measured or predicted.
Bathing Water	According to the Bathing Water Directive, a body of water where a large number of people are expected to bathe and a permanent bathing prohibition

	or permanent advice against bathing has not been issued.
Bathymetry	The measurement of water depths in oceans, seas and lakes.
Benthic	Adjective pertaining to anything related to the seabed.
Benthopelagic	Living and feeding near the bottom as well as in midwaters or near the surface.
Benthos	Those organisms attached to, or living on, in or near, the seabed, including that part which is exposed by tides as the littoral zone.
Berm	A level space, shelf, or raised barrier separating two areas. It can serve as a border barrier.
BGS	British Geological Survey
Bioaccumulate	The ability of organisms to retain and concentrate substances from their environment. The gradual build-up of substances in living tissue; usually used in referring to toxic substances; may result from direct absorption from the environment or through the food-chain.
Bioaccumulation	The uptake and concentration of elements or compounds within an organism.
Bioavailability	The proportion of a substance which is able to enter the body and thus have an effect.
Biodiversity	According to the UN Convention on Biological Diversity (1992), <i>"The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems"</i> .
Biological Oxygen Demand	A measure of the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down the organic material present.
Biota	The total flora and fauna of a given area.
Biotope	The physical habitat with its biological community; a term which refers to the combination of physical environment (habitat) and its distinctive assemblage of conspicuous species. A physical habitat and its associated biological community which is distinct. It can be defined at a variety of scales (with related corresponding degrees of similarity) and has a regularly occurring association to justify its inclusion within the marine classification system.
Biotope complex	Groups of biotopes with similar overall character (e.g. seagrass beds, rockpools, dense fucoids).
Birds Directive	European directive to protect habitats of wild bird species through the designation of SPAs. The directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. The objective is to create a coherent network of protected sites which meets the Protection requirements of endangered and migratory bird species.
Bivalve	Characteristically a shell of two calcareous valves joined by a flexible ligament.
Borehole	A narrow shaft bored in the ground, either vertically or horizontally.
Bow riding	The activity where a marine mammal positions itself in a way which allows itself to be carried forward and ride the bow wave which has been created as

	a result of the advancing vessel.
Breaching	'Breaching' or 'leaping' is where a cetacean intentionally jumps from the water.
Breakwater	Structures which are constructed along the coast as part of coastal protection works or to protect an anchorage from the effects of both weather and sedimentation.
Bryozoa	The Phylum Bryozoa is characterized by sessile colonies made up of many small individuals ca. 0.5 mm long called zooids. Each zooid is surrounded by a protective case, which is oval, box-like or tubular in shape. Colonies have a wide variety of forms, including encrusting sheets or mats, soft fleshy lobes, erect twiggy growths, or bushy tufts.
Buffer Zone	Is generally a zonal area that lies between two or more other areas (often, but not necessarily, countries), but depending on the type of buffer zone, the reason for it may be to segregate regions or to conjoin them.
Calves	Young dolphins/porpoises.
Catworm	Catworm or 'Cat worm' is the common name for polychaete worms belonging to the Family Nephtyidae, e.g. <i>Nephtys cirrosa</i> .
Cephalopods	Marine molluscs including squid, octopus and cuttlefish.
Cessation	Process of ending or being brought to an end.
Cetaceans	Aquatic mammals including whales, dolphins and porpoises.
Chart Datum	Set reference point on charts for water depth in relation to tides. On metric charts for which the UK Hydrographic Office is the charting authority, chart datum is a level as close as possible to Lowest Astronomical Tide (LAT), the lowest predictable tide under average meteorological conditions.
Chemical Oxygen Demand	A measure of the capacity of a body of water to consume oxygen during the decomposition of organic matter and the oxidation of inorganic chemicals such as ammonia and nitrite.
Circalittoral	The subzone of the rocky sublittoral below that dominated by algae (the infralittoral), and dominated by animals. The upper limit is where 1% light reaches the seabed and the lower limit can be defined by the wave base.
CO ₂	Carbon dioxide.
Collision	An event when two moving objects, such as ships, strike each other.
Colonisation	The process of establishing populations of one or more species in an area or environment where the species involved are not present.
Colony	A group of individuals living in close proximity to each other.
Conservation Area	An area designated under the Planning (Listed Buildings and Conservation Areas) Act 1990 as being of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance.
Construction	The action of buildings, typically a large structure.
Contamination	Presence of an unwanted constituent, contaminant or impurity in a material, physical body, natural environment.
Contaminants	Substances which may cause impurity or pollution.

Continental Shelf	The edge of a continent that lies under the ocean.
Community	A group of organisms occurring in a particular environment, presumably interacting with each other and with the environment, and identifiable by means of ecological survey from other groups.
Composite Bulk	Drilling fluids/muds/powders.
Coralline	Relating to or resembling, coral, especially any calcareous red alga impregnated with calcium carbonate.
Crustaceans	Arthropods (mostly aquatic) usually having a segmented body and chitinous exoskeleton e.g. crabs, lobsters, shrimps.
Cumacea	The Cumacea are a distinctive group of crustaceans with an inflated carapace, giving them the appearance of tadpoles.
Decibel (dB)	A unit used in the comparison of two power levels relating to sound (one tenth of a Bel).
DECC	Department of Energy and Climate Change (previously known as BERR).
Decommissioning	Shutdown of the development with system cleaning and dismantling of facilities.
Demersal	Living or occurring in the water at the bottom of a water body.
Designation/Designated Area	An area which exists within a demarcated boundary which has been afforded a level of legal protection for the site's ecological value, and has thus been designated underneath relevant nature conservation legislation.
Detoxification	The physiological removal of a toxic substance the body.
Diadromous	Migrating between fresh and marine waters.
Displacement	An effect whereby an individual organism is forced to move from the area in which it previously resided. The individual is unable to return so long as the driving mechanism for the initial displacement continues to operate in the same manner, but may return on cessation of the driver activity (i.e. temporary displacement); or, the individual is permanently displaced following the initial displacement event, regardless of whether the driving mechanism for the initial displacement ceases.
Dissolved Oxygen (DO)	The level of free, non-compound oxygen present in a liquid.
Divers	Small family of large water birds. All are migratory, breeding on freshwater lakes, but moving to the sea coast in winter.
Diversity	The state or quality of being different or varied. In relation to species, the degree to which the total number of individual organisms in a given ecosystem, area, community or trophic level is divided evenly over different species, i.e. measure of heterogeneity. Species diversity can be expressed by diversity indices, most of which take account of both the number of species and number of individuals per species.
Dredging	Is an excavation activity or operation usually carried out at least partly underwater, in shallow seas or fresh water areas with the purpose of gathering up bottom sediments and disposing of them at a different location.
Echinoderms	Any of numerous radially symmetrical marine invertebrates of the phylum Echinodermata, which includes the starfishes, sea urchins, and sea

	cucumbers, having an internal calcareous skeleton and often covered with spines.
Echolocation	The sophisticated sonar systems developed by dolphins and other cetaceans through evolution, which allows them to explore their environment and forage.
Economy	Production, distribution or trade, and consumption of limited goods and services by different agents in a given geographical location.
Ecosystem	A community of organisms and their physical environment interacting as an ecological unit.
Elasmobranchs	Is a subclass of Chondrichthyes or cartilaginous fish, that includes the sharks and the rays, skates
Emission rate	The quantity of a pollutant released from a source over a given period of time.
Energetic consequences	The consequences of an effect which has the ability to affect the energy balance (i.e. energy intake vs energy expenditure) of an individual, with further potential implications on the fitness of the individual.
Environmental Impact Assessment (EIA)	Systematic review of the environmental effects a proposed project may have on the environment.
Environmental Management System (EMS)	System established to manage an organisation's processes and resultant environmental impacts.
Environmental Quality Standard	The standards for polluting substances in water which, if exceeded, could result in adverse effects to ecosystems.
Environmental Statement (ES)	Formal document presenting the findings of an EIA process for a proposed project.
Epibenthos/Epifauna	All organisms living on the surface of the seabed.
Epidermis	The outer surface of an animal's skin, which overlies the dermis and the tissues below.
Eulittoral	The main part of the littoral zone characterized by limpets, barnacles, mussels, furoid algae (other than those characteristic of the littoral fringe), with red algae often abundant on the lower part.
European Protected Species (EPS)	Species that are listed on Annex IV of the Habitats Directive are afforded protection, particularly from killing, injury and disturbance.
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate air quality standard.
Flare	A vent for burning of unwanted gases or to burn off hydrocarbons which, due to temporary malfunction or maintenance of process plant, cannot be safely stored or retained in process vessels.
Flowline	Pipe laid on the seabed for the transportation of production or injection fluids. It is generally an infield line, linking a subsea structure to another structure or to a production facility. Its length ranges from a few hundred meters to several kilometres.
Fly-tipping	Dumping waste illegally instead of using an authorised method such as relying on kerbside collection or using an authorised rubbish dump.
Foraging	The searching and capturing of food by an individual.
Formation Fluids	Any fluid that occurs in the pores of a rock. Strata containing different fluids,

	such as various saturations of oil, gas and water, may be encountered in the process of drilling an oil or gas well.
Glacier Till	Is unsorted glacial sediment.
Grab	A mechanical bottom-sampling device which is lowered vertically from a stationary ship, for collection of sublittoral sediment and infauna.
Groundwater	Is the water present beneath Earth's surface in soil pore spaces and in the fractures of rock formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water.
Gulls	Gulls often referred to as seagulls are seabirds of the family Laridae in the sub-order Lari. They are most closely related to the terns.
Habitat	The natural home or environment of an animal, plant, or other organism
Habitats Directive	The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. All in all the directive protects over 1,000 animal and plant species and over 200 so called "habitat types" (e.g. special types of forests, meadows, wetlands, etc.) which are of European importance.
Habituation	Where an individual shows a reduced adverse behavioural response to a stressor than may be typically expected for the species, thus indicating a tolerance of the stressor and enabling co-existence of the individual and the stressor.
Harbour Order Under the 1964 Harbour Act	Affords permitted development rights to all works within its boundaries.
Hatchery	Facility where eggs are hatched under artificial conditions, especially those of fish or poultry.
Haul-out areas	Locations on land where seals come ashore (i.e. haul-out) to rest, moult or breed.
Heavily Modified Water Body	A water body substantially changed in character, for which any changes to its hydromorphological characteristics necessary to achieve 'good' status would have a significant adverse effect on its current uses.
Hydrocarbons	Organic chemical compounds of carbon and hydrogen atoms. There are a vast number of these compounds and they form the basis of all petroleum products. They may exist as gases and liquids. Examples include methane, hexane and asphalt.
Hydrodynamic	The scientific study of the motion of fluids.
Hydrogeology	The study of water flow in aquifers and the characterization of aquifers.
Hydroid	A general term for members of the cnidarian Class Hydrozoa, and includes 'sea firs' and 'white weeds'.
Hydrologic Cycle	Water resources and environmental watershed sustainability.
Hydrology	Scientific study of the movement, distribution, and quality of water on Earth and other planets.
Immunosuppression	A reduction in the efficacy of the immune system or the activation of the system.
Immunotoxic effects	Adverse effects on the operation of the immune system which occur as a

	result of exposure to chemical substances.
Infauna	Benthic animals which live within the seabed.
Infralittoral	A subzone of the sublittoral in which upward-facing rocks are dominated by erect algae, typically kelps. The upper limit is mean low water and the lower limit is considered to be where 1% light reaches the seabed.
Intertidal	The zone between the highest and lowest tides.
Invasive non-native species	An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment, the economy, our health and the way we live.
Invertebrates	Are animals that neither possess nor develop a vertebral column, derived from the notochord
Isobath	A line on a map which connects points that are equal in depth below the surface of a water body.
IUCN Red List	A list provided by the International Union for Conservation of Nature which details taxonomic, conservation status and distribution information for a range of plants, fungi and mammals.
Jack-up	A mobile, self-elevating unit that typically consists of a buoyant hull fitted with a number of movable legs, capable of raising its hull over the surface of the sea.
Landfill	Site for the disposal of waste materials by burial.
Landmark	An object or feature of a landscape or town that is easily seen and recognized from a distance.
Littoral	The area of the shore that is occupied by marine organisms which are adapted to or need alternating exposure to air and wetting by submersion, splash or spray.
Littoral Fringe	The upper subzone of the littoral zone, bordering the supralittoral. It is characterized by marine lichens, littoral molluscs and algae tolerant of exposure to air for long periods; its lower boundary is characteristically the upper limit of dense barnacles.
LR.LLR.F.Fves.FS	<i>Fucus vesiculosus</i> on full salinity moderately exposed to sheltered mid eulittoral rock.
LR.MLR.BF.Fser.R	<i>Fucus serratus</i> and red seaweeds on moderately exposed lower eulittoral rock.
Cr.MCR.EcCr	Echinoderms and crustose communities.
IR.MIR.KR.Ldig	<i>Laminaria digitata</i> on moderately exposed sublittoral fringe rock.
LR.FLR.Eph.EntPor	<i>Porphyra purpurea</i> and <i>Enteromorpha</i> spp. on sand scoured mid or lower eulittoral rock.
LR.FLR.Eph.EphX	Ephemeral green and red sea weeds on variable salinity and/or disturbed eulittoral mixed substrata.
LR.FLR.Eph.EphX	<i>Laminaria digitata</i> on moderately exposed sublittoral fringe rock.
LR.FLR.Lic.Ver.B	<i>Verrucaria maura</i> and sparse barnacles on very exposed to very sheltered upper littoral fringe littoral rock.

LR.FLR.Lic.Ver.Ver	<i>Verrucaria maura</i> on exposed littoral fringe littoral rock.
LR.FLR.Lic.YG	Yellow and grey lichens on supralittoral rock.
LR.FLR.Rkp.Cor	Coralline crust dominated shallow eulittoral rockpools.
LR.HLR.FR.Mas	<i>Mastocarpus stellatus</i> and <i>Chondrus crispus</i> on very exposed to moderately exposed lower eulittoral rock.
LR.HLR.MusB.MytB	<i>Mytilus edulis</i> and barnacles on very exposed eulittoral rock.
LR.HLR.MusB.Sem.LitX	<i>Semibalanus balanoides</i> and <i>Littorina</i> spp. on exposed to moderately exposed eulittoral boulders and cobbles.
LR.HLR.MusB.Sem.Sem	<i>Semibalanus balanoides</i> , <i>Patella vulgata</i> and <i>Littorina</i> spp. on exposed to moderately exposed or vertical sheltered eulittoral rock.
LR.LLR.F.Pel	<i>Pelvetia canaliculata</i> on sheltered littoral fringe rock.
LR.MLR.BF.FvesB	<i>Fucus vesiculosus</i> and barnacle mosaics on moderately exposed lower eulittoral rock.
LS.LCS.Sh.BarSh	Barren littoral shingle.
LS.LSa.MoSa	Barren or amphipod dominated mobile sands.
Ls.LSa.St.Tal	Talitrids on the upper shore and strandline.
Macrobenthic	Organisms living in or on aquatic substrates and generally greater than 1.0 mm in size.
Macrofauna	Animals exceeding 1 mm in length or retained on a 1 mm or 0.5 mm sieve; often applied to organisms >0.5 mm.
Marine mammals	Marine mammals which include seals, whales, dolphins, porpoises, manatees, otters, walrus form a diverse group of that rely on the ocean for their existence
Marine Mammal Observer (mmo)	An operative who works to provide mitigation for marine mammals during activities associated with the offshore and coastal industries. This will primarily consist of visual monitoring from the vessel and may also potentially include passive acoustic monitoring. The MMO's role is to ensure operations are stopped or managed appropriately, should a marine mammal be detected within the agreed and pre-defined buffer area (mitigation zone).
Masking Effects	Effects which may result as a consequence of the noises of interest to marine mammals (e.g. noises used during communication and echolocation) being reduced in range due to the increases in anthropogenic noise at similar frequencies to those noises of interest.
Maximum Allowable Concentration	The maximum allowed concentration of a pollutant substance as a result of a short-term pollution peak.
Metalliferous	Yielding or containing metal.
Metasediment	Is sediment or sedimentary rock that appears to have been altered by metamorphism.
Migration	The movement is typically over long distances and from one country to another.
Mitigation	The action of reducing the severity, seriousness of something.
Model Adjustment	Following model verification, the process by which modelled results are amended. This corrects for systematic error.

Mollusc	Invertebrates of the phylum Mollusca, typically having a calcareous shell of one, two, or more pieces that wholly or partly enclose the soft, unsegmented body, including the chitons, snails, bivalves, squids, and octopuses.
Natura 2000	An EU wide network of nature protection areas established under the 1992 Habitats Directive. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) designated under the 1979 Birds Directive. In line with UK Government policy although not Natura 2000 sites, Ramsar sites (designated under the Ramsar Convention 1971) are afforded the same level of protection.
Non-native species	Non-native species is the equivalent of 'alien species' as used by the Convention on Biological Diversity (CBD).
NOx	A generic term for the nitrogen oxides NO and NO ₂ (nitric oxide and nitrogen dioxide).
OSPAR	The Convention for the Protection of the Marine Environment of the North-East Atlantic (The OSPAR Convention) was adopted in Paris, France in September 1992. The UK ratified OSPAR in 1998.
Organisms	Organisms are a biotic, or living, part of the environment. They have five basic needs and need air, water, nutrients (food), energy and a place to live.
Oviparous	Producing young by means of eggs which are hatched after they have been laid by the parent.
Passive Acoustic Monitoring (PAM)	A form of monitoring where a relevant technology (such as a hydrophone) is deployed under the water to monitor for the noises which are produced by cetaceans, thus giving an indication of cetacean presence and activity.
Pelagic	Referring to the ocean water column and the organisms living therein.
Pelite	A very fine-grained sediment or sedimentary rock composed of clay or mud particles.
Phocine Distemper Virus (PDV)	A virus which is pathogenic for pinnipeds. The virus has been known to cause significant mortalities in northern European seal populations, most notably in 1988 and 2002.
Phytoplankton	Microscopic planktonic plants, e.g. diatoms and dinoflagellates.
Pinnipeds	Marine mammals that include the seals, sea lions and walruses.
Plankton	Tiny plants and animals that drift in the surface water of seas and lakes. Of great economic and ecological importance as they are a major component of marine food chains.
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.
Pocket Beach	A beach contained within bounding headlands; a cove.
Pods	Cetaceans form social groups known as pods, which are groups of individuals that group together for various reasons such as foraging, mating and to help protect each other.
Pollution	Introduction of contaminants into the natural environment that cause adverse change.

Polychaete	A general term for members of the class Polychaeta (segmented worms of the Phylum Annelida).
Population-level consequences	The consequences of an effect which have the potential to affect any of the structure, size, integrity or viability of a population.
Potential Biological Removal (PBR)	The number of individual seals that can be removed from a population without causing a decline in the population.
Priority Marine Features (PMF)	Habitats and species which are considered to be marine nature conservation priorities in Scottish waters.
Psammite	A general term for sandstone.
Pup	The young of a seal.
Quarry	Place, typically a large, deep pit, from which stone or other materials are or have been extracted.
Quaternary	The Quaternary Period is the current and most recent period in the Cenozoic Era, is divided into two epochs which are the Pleistocene and the Holocene (up to the present time).
Recolonisation	To form a colony
Recruitment	Term used for the arrival of young in a given population per unit of time.
Reservoir	Large natural or artificial lake used as a source of water supply.
Resilience (ecological)	The ability of a system to absorb disturbances and still maintain structure and functions.
Revetment	Hard-faced sloping coastal protection.
Road link	A length of road which is considered to have the same flow of traffic along it. Usually, a link is the road from one junction to the next.
Scientific Beam Trawl Survey	A semi-quantitative survey that is usually undertaken with a 2 m beam trawl net to sample mobile bottom dwelling fauna.
Sea ducks	Form a sub family of the duck, goose and swan family of birds Anatidae. Most but not all are essentially marine outside the breeding season.
Seal scarers	Seal scarers are acoustic deterrent devices (ADDs) that are a form of mitigation which can deter seals from entering a particular area. The technology works by producing noise at a specific frequency of relevance to seals, at a level sufficient to cause temporary discomfort in seals that get too close to the source.
Sedentary	Doing or requiring much sitting : characterized by a lack of physical activity.
Sediment plumes	Where seabed sediments are disturbed, some particles are entrained into the water column as suspended sediments. Tidal flows act to carry the suspended sediments over varying spatial extents through tidal movements and other hydrodynamic processes. The areas where suspended sediment concentrations (SSCs) are elevated significantly form part of a plume in which SSCs and turbidity will be higher than those of waters adjacent to the plume. The plume disperses as the coarser sediments settle to the seabed once flows are of an insufficient velocity to carry these sediments for longer durations, whilst fine sediments will typically be carried for longer periods of time before becoming part of the background SSCs or before settling out on the seabed.

Seismic Survey	A survey conducted to map the depths and contours of various rock strata by timing the reflections of sound waves. 2-D seismic surveys measure depths from the reflections. 3-D seismic takes simultaneous oblique measurements that provide a more accurate picture. 4-D seismic incorporates time as the 4th dimension to a standard 3-D seismic survey.
Sessile	Permanently attached to a substratum.
Shellfish	Shellfish is a broad term used to describe marine mollusc and crustacean species which are of commercial importance.
Sidescan sonar	Is a specialized system for detecting objects on the seafloor.
Smolts	A young salmon/trout at the stage when it migrates from fresh water to sea.
Spar Buoy	Spar-style buoy, fixed and joint-socketed to the seabed.
Spawning	Reproductive stage of fish and other marine animals when eggs are released into the water column or deposited on to the seabed or other substrata.
Special Area of Conservation (SAC)	<p>Areas considered important for certain habitats and non-bird species of interest in a European context. One of the main mechanisms by which the EC Habitats and Species Directive 1992 is implemented. In addition, there are four designations below full SAC status:</p> <p>Sites of Community Importance (SCIs) are sites that have been adopted by the European Commission but not yet formally designated by the government of each country; Candidate SACs (cSACs) are sites that have been submitted to the European Commission, but not yet formally adopted;</p> <p>Possible SACs (pSACs) are sites that have been formally advised to UK Government, but not yet submitted to the European Commission;</p> <p>Draft SACs (dSACs) are areas that have been formally advised to UK government as suitable for selection as SACs, but have not been formally approved by government as sites for public consultation.</p>
Special Protection Area (SPA)	Sites designated under the EU Birds Directive as a Special Protection Area.
SS.SCS.ICS	Infralittoral coarse sediments.
SS.SCS.ICS.Glap	<i>Glycera lapidum</i> in impoverished infralittoral mobile gravel and sand.
SS.SSa.IFiSa.NcirBat	<i>Nephtys cirrosa</i> and <i>Bathyporeia</i> spp. in infralittoral sand.
Stranding Records	Records of marine mammals that have been washed ashore, dead or alive.
Strandline	A line on the shore comprising debris deposited by a receding tide; commonly used to denote the line of debris at the level of Extreme High Water.
Strategic Environmental Assessment (SEA)	Is a systematic decision support process, aiming to ensure that environmental and possibly other sustainability aspects are considered effectively in policy, plan and programme making.
Sublittoral	The zone exposed to air only at its upper limit by the lowest spring tides, although almost continuous wave action on extremely exposed coasts may extend the upper limit high into the intertidal region. The sublittoral extends from the upper limit of the large kelps and includes, for practical purposes in nearshore areas, all depths below the littoral.
Sublittoral	The area below the low spring tide level of a shore.
Sublittoral Fringe	The upper part of the sublittoral zone which is uncovered by the tide. On hard substrata, the zone is characterized by the kelps <i>Laminaria digitata</i> and <i>Alaria</i>

	esculenta.
Subtidal	A physical term for the seabed below the mark of Lowest Astronomical Tide.
Supratidal	The areas above the spring high-tide line which may be splashed but not submerged by the sea water.
Suspended Sediment Concentrations (SSCs)	The concentration levels of sediments which are held in suspension by hydrodynamic processes.
Tagging (seals)	The attachment of GPS tag devices to a seal's fur, typically involving the use of an epoxy resin.
Telemetry (seals)	Seal tagging studies enable the GPS locations of seals to be continuously monitored, with the recorded data (referred to as 'telemetry data') being transmitted to receiving equipment for processing and analysis.
Tellin	The common name for the family Tellinidae of bivalve molluscs. The tellins (Tellinidae) are bivalves with thin, flattened, oval to subtriangular shells. Their shells are often very colourful and they are good burrowers.
Temporary Threshold Shift (TTS)	A temporary decrease in hearing sensitivity caused by exposure to loud noise.
Terns	Are seabirds in the family Sternidae that have a worldwide distribution and are normally found near the sea, rivers, or wetlands.
Terrestrial	On or relating to the earth.
Territorial waters	Is a belt of coastal waters extending at most 12 nautical miles
Total Organic Carbon	A measure of the amount of organic carbon in a sample of sediment.
Trawling	Method of fishing in which a large bag-shaped net is dragged or trawled. Mouth of the bag is kept open by a variety of methods including wooden beams (beam trawl) or a large flat (otter) board (otter trawl).
Trophic	Involving the feeding habits or food relationship of different organisms in a food chain.
Trust Port	Is a statutory body run by an independent board, it is not controlled by a local authority and it is not a private business.
Tubenoses	Is an order of seabirds Procellariiformes which contains the albatrosses and various families of petrels. They get their names from their prominent nostrils, which are covered by tubes on their upper beak. In this EIA it contains the species Northern Fulmar and Manx and Sooty Shearwaters.
Turbidity	The clarity or cloudiness of a fluid, due to a change in the concentration of particles within the body of water.
$\mu\text{g}/\text{m}^3$ micrograms per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of $1 \mu\text{g}/\text{m}^3$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.
Uncertainty	A measure, associated with the result of a measurement, which characterizes the range of values within which the true value is expected to lie. Uncertainty is usually expressed as the range within which the true value is expected to lie with a 95% probability, where standard statistical and other procedures have been used to evaluate this figure. Uncertainty is more clearly defined than the closely related parameter 'accuracy', and has replaced it on recent European legislation.

Validation (modelling)	Refers to the general comparison of modelled results against monitoring data carried out by model developers.
Validation (monitoring)	Screening monitoring data by visual examination to check for spurious and unusual measurements (see also ratification).
Vantage Point (VP) surveys	Visual observation surveys which are undertaken from set vantage points.
Verification (modelling)	Comparison of modelled results versus any local monitoring data at relevant locations.
View Sheds	The geographical area that is visible from a given location.
Volatile Organic Compound	A class of organic compounds that have a high vapour pressure.
Waders	Wading birds and shorebirds refer to members of the order Charadriiformes, essentially birds with long legs and long bills that tend to feed in the intertidal zones of estuaries.
WeBS	Wetland Bird Survey - a partnership between the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee (the last on behalf of the statutory nature conservation bodies: Natural England, Natural Resources Wales and Scottish Natural Heritage and the Department of the Environment Northern Ireland) in association with the Wildfowl and Wetlands Trust".
Zooid	One of the individual animals connected together in a common mass constituting a colony.
Zooplankton	Animals that drift in the plankton, mostly microscopic.

ABBREVIATIONS AND ACRONYMS

aa* (Section 7)	Annual Average
AA	Appropriate Assessment
AADF	Annual Average Daily Flow
ABS	Acoustic Backscatter
ACC	Aberdeen City Council
AAWT	Annual Average Weekly Traffic
ACD	Above Chart Datum
ADT	Articulated Dump Trucks
AFPO	Aberdeen Fish Producers Organisation
AHB	Aberdeen Harbour Board
AHD	Aberdeen Harbour Development
AHEP	Aberdeen Harbour Expansion Project
AICSM	Aberdeen Institute for Coastal Science and Management
AIS	Automatic Identification System
AL	Action Level
ALARP	As Low as Reasonably Practicable
ALDP	Aberdeen Local Development Plan
AONB	Area of Outstanding Natural Beauty
AOD	Above Ordnance Datum
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
ARPA	Automatic Radar Plotting Aid
ASCOBANS	Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas
ASFB	Association of Salmon Fisheries Board
AST	Atlantic Salmon Trust
ATC	Automatic Traffic Count
AURN	Automatic Urban and Rural Network
AWACs	Acoustic Wave and Current Profiler
AWPR	Aberdeen Western Peripheral Route
BAC	Background Assessment Concentration
BAP	Biodiversity Action Plan
BCT	Botney Cut Formation
BDK	Bolders Bank Formation
BGS	British Geological Survey

BH	Backhoe
BHD	Backhoe Dredger
Bn	Billion
BoCC	Birds of Conservation Concern
BOD	Biological Oxygen Demand
BODC	British Oceanographic Data Centre
BOWL	Beatrice Offshore Wind Farm
BP	Before Present
BPEO	Best Practicable Environmental Option
BPM	Best Practicable Means
BRE	Building Research Establishment
BS	British Standard
BTA	British Tug Owners Association
BTO	British Trust for Ornithology
BW	Bathing Water
BWD	Bathing Water Directive
CA	Cruising Association
CBD	Convention on Biodiversity
CCS	Carbon Capture and Storage
CCTV	Closed Circuit Television
CD	Chart Datum
CDM	Construction, Design and Management
CDMR	Construction, Design and Management Regulations
CEC	Crown Estate Commission
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction and Environmental Management Plan
CEMP	Coordinated Environmental Monitoring Programme (OSPAR)
CERC	Cambridge Environmental Research Consultants
CGOC	Coastguard Operations Centres
CHE	Cargo Handling Equipment
CI	Confidence Interval
CIA	Cumulative Impact Assessment
CIEEM	Chartered Institute of Ecology and Environmental Management
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMACS	Centre for Marine and Coastal Studies
CMC	Construction Marine Coordinator

CMS	Construction Method Statement
COD	Chemical Oxygen Demand
COLREG	Collision Regulations 1972
CoPA	Control of Pollution Act 1974
COSHH	Control of Substances Hazardous to Health
CPA	Coastal Protection Act
C-POD©	Porpoise Detector manufactured by Chelonia Limited
CPT	Cone Penetration Test
CREEM	Centre for Research into Ecological and Environmental Modelling
CRRU	Cetacean Research and Rescue Unit
CRTN	Calculation of Road Traffic Noise
CSD	Cutter Suction Dredging
CSO	Combined Sewer Overflow
CTMP	Construction Traffic Management Plan
CV	Coefficient Of Variation
DASSH	Data Archive for Seabed Species and Habitats
Db	Decibel
DBA	Desk Based Assessment
DBht	Decibel Hearing Threshold (a unit for measuring noise responses by marine species)
D&B	Design and Build
DCLG	Department for Communities and Local Government
DDSF	Dee District Salmon Fishery Board
DECC	Department of Energy & Climate Change
DFT	Department for Transport
DGPS	Differential GPS
DIA	Drainage Impact Assessment
DIN	Dissolved Inorganic Nitrogen
DMRB	Design Manual for Roads and Bridges
DO	Dissolved Oxygen
DP	Dynamic Positioning
DPH	Detection Positive Hours
DPM	Detection Positive Minutes
dSAC	Draft Special Area of Conservation
dSPA	Draft Special Protection Area
DSV	Diving Support Vessel
DTI	Department of Trade and Industry

DWR	Deep Water Routes
DWT	Dead Weight Tonnage
EA	Environment Agency
EC	European Commission
ECoW	Environmental Clerk of Works
ECS	European Cetacean Society
EDR	Effective Detection Range
EEMP	Environmental Management and Monitoring Plan
EEZ	Economic Exclusion Zone
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
EMP	Environmental Management Plan
EMS	European Marine Sites
END	Environmental Noise Directive
EOWDC	European Offshore Wind Deployment Centre
EPUK	Environmental Protection UK
EPS	European Protected Species
EQRs	Ecological Quality Ratios
EQS	Environmental Quality Standards
ERCoP	Emergency Response Cooperation Plan
ERL	Effects Range Low
ERMC	Environmental Risk Management Capability
ERP	Emergency Response Procedures
ES	Environmental Statement
ESAS	European Seabirds at Sea
EU	European Union
EUNIS	European Union Nature Information System
FCS	Favourable Conservation Status
FEPA	Food and Environmental Protection Act
FHWG	Fisheries Hydroacoustic Working Group
FIR	Fishing Industry Representatives
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
FMA	Fishermen's Mutual Association
FRA	Flood Risk Assessment
FRM	Flood Risk Management

FRPB	Forth River Purification Board
FSA	Formal Safety Assessment
FTE	Full Time Equivalent
Fugro EMU	Fugro EMU Limited
GCR	Geological Conservation Review
GI	Ground Investigation
GIS	Geographical Information Systems
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GPS	Global Positioning System
GRT	Gross Registered Tonnage
GT	Gross Tonnage
GVA	Gross Value Added
ha	Hectares
HAP	Habitat Action Plans
HAT	Highest Astronomical Tide
HCMP	Habitat Creation and Management Plan
HDD	Horizontal Directional Drilling
HDM	Hydrodynamic Modelling
HEO	Harbour Empowerment Order
HER	Historic Environment Records
HGDL	Historic Garden and Designed Landscape
HGV	Heavy Goods Vehicle
Hmax	Maximum Wave Height
HMCG	Her Majesty's Coastguard
hMPA	Historic Marine Protected Areas
HMWB	Heavily Modified Water Body
HPA	Health Protection Agency
HRA	Habitat Regulations Appraisal
HRO	Harbour Revision Order
Hs	Significant Wave Height
HS	Historic Scotland
HSC	Hazardous Substances Consent
HSE	Health, Safety and Environment
Hz	Hertz
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IAPP	International Air Pollution Prevention Certificate

IAQM	Institute of Air Quality Management
IARC	International Agency for Research on Cancer
IBA	Important Bird Area
ICES	International Council for the Exploration of the Sea
ICOMAS	International Council on Monuments and Sites
ICPC	International Cable Protection Committee
IEEM	Institute of Ecology and Environmental Management
IEMA	Institute of Environmental Management and Assessment
IFA	Institute for Archaeologists
IFREMER	French Institute For Exploitation Of The Sea
IFG	Inshore Fisheries Group
IHO	International Hydrographic Organisation
IHT	Institute of Highways and Transport
IMO	International Maritime Organisation
IMS Code	International Management Safety Code
IODE	International Oceanographic Data and Information Exchange
IPPC	Integrated Pollution Prevention and Control
IQI	Infaunal Quality Index
IROPI	Imperative Reasons of Overriding Public Interest
IRPCS	International Regulations for Preventing Collisions at Sea
ISM	International Safety Management
ISPS	International Ship and Port Facility Security
ISQG	Interim Sediment Quality Guidelines
IUCN	International Union for the Conservation of Nature
JAMP	Joint Assessment and Monitoring Programme
JNAPC	Joint Nautical Archaeology Policy Committee
JNCC	Joint Nature Conservation Committee
kg	Kilogram
KHz	Kilohertz
km	Kilometre
KIS-ORCA	Kingfisher Information Service Offshore Renewables and Cable Awareness
KOWL	Kincardine Offshore Wind Farm Limited
LA	Local Authority
LAQM	Local Air Quality Management System
LAT	Lowest Astronomical Tide
LBAP	Local Biodiversity Action Plan

LCA	Landscape Character Area
LDP	Local Development Plan
LED	Light Emitting Diode
LHA	Local Highways Authority
LI	Landscape Institute
LNCS	Local Nature Conservation Site
LNR	Local Nature Reserve
LSE	Likely Significant Effect
LSO	Long Sea Outfall
LTS	Local Transport Strategy
LVIA	Landscape and Visual Impact Assessment
LWSs	Local Wildlife Sites
m	Metres
MAC	Maximum Allowable Concentrations
MAGIC	Multi-Agency Geographic Information for the Countryside
MAIB	Marine Accident Investigation Branch
MarLIN	United Kingdom Marine Life Information Network
MARPOL	The International Convention for the Prevention of Pollution from Ships
MaRS	Marine Resource System
MCA	Maritime and Coastguard Agency
MCEU	Marine Consents and Environment Unit
MCZ	Marine Conservation Zone
MEDIN	Marine Environment Data information Network
MEHRA	Marine Environmental High Risk Areas
MESH	Mapping European Seabed Habitats
MHWS	Mean High Water Springs
mg	Milligram
mg/l	Milligrams per Litre
MGN	Marine Guidance Note
ML	Marine Licence
MLWS	Mean Low Water Springs
mm	Millimetres
MMO	Marine Mammal Observer
MMO	Marine Management Organisation
MMOP	Marine Mammal Protection Programme
MMMP	Marine Mammal Mitigation Protocol

MMPP	Marine Mammal Protection Plan
MNNS	Marine Non-Native Species
MOD	Ministry of Defence
MPA	Marine Protected Area
MPS	Minimum Performance Specifications
MPS	Marine Policy Statement
MRCC	Marine Rescue Coordination Centre
MS	Marine Scotland
m/s	Metres per Second
MSDSs	Material Safety Data Sheets
MSFD	Marine Strategy Framework Directive
MSL	Mean Sea Level
MS-LOT	Marine Scotland Licensing Operations Team
MSS	Marine Scotland Science
MSW	Multi Sea Winter
NAMAs	Nationally Appropriate Mitigation Actions
Natura 2000	EU wide network of nature protection areas established under the 1992 Habitats Directive comprised of sites designated either as SACs or SPAs
NBN	National Biodiversity Network
NCAP	National Collection of Aerial Photography
NCMPA	Nature Conservation Marine Protected Area
NCN	National Cycle Network
NELBAP	North East Scotland Local Biodiversity Action Plan
NERC	Natural Environment Research Council
NERCA	Natural Environment and Rural Communities Act
NESBReC	North East Scotland Biological Records Centre
NESTRANS	North East of Scotland Transport Partnership
NEWT	Not Environmentally Worse Than
NFFO	National Federation Fishermen's Organisation
NNR	National Nature Reserve
NPF	National Planning Framework
NLB	Northern Lighthouse Board
NLH	National Lobster Hatchery
nm	Nautical Mile
NMBAQC	National Marine Biological Analytical Quality Control Scheme
NMFS	National Marine Fisheries Services

NMOC	National Maritime Operations Centre
NMPi	National Marine Plan Interactive
NMRS	National Monuments Record of Scotland
NNR	National Nature Reserve
NNSS	Non-Native Species Secretariat
NO	nitric oxide
NO ₂	nitrogen dioxide
NO _x	A generic term for the nitrogen oxides NO and NO ₂ (nitric oxide and nitrogen dioxide)
NPPG	National Planning Policy Guidance
NPS	National Policy Statement
NRA	Navigation Risk Assessment
N-RIP	National Renewables Infrastructure Plan
NSRAC	North Sea Regional Advisory Council
NtM	Notice to Mariners
NoMO	Notice of Marine Operations
NTS	Non-technical Summary
NVC	National Vegetation Classification
O&M	Operation and Maintenance
OBS	Optical Backscatter
OEMP	Operation Environmental Management Plan
OSBW	Old South Breakwater
OS	Ordnance Survey
OSPAR	The Convention for the Protection of the Marine Environment of the north-east Atlantic
OSRCP	Oil Spill Response Contingency Plans
Pa	Pascals
PAD	Protocol for Archaeological Discoveries
PAH	Polycyclic Aromatic Hydrocarbon
PAM	Passive Acoustic Monitoring
PAN	Planning Advice Note
PAR	Precision Approach Radar
PBR	Potential Biological Removal
PCB	Polychlorinated Biphenyls
PDV	Phocine Distemper Virus
PEL	Probable Effect Levels
PERA	Preliminary Environmental Risk Assessment

PEXA	Practice and Exercise Area
PMF	Priority Marine Feature
PMI	Potential Mortal Injury
PMP	Piling Management Protocol
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guideline
PPP	Pollution Prevention Plan
PPP	Planning Permission in Principle
PPS	Planning Policy Statement
PPV	Peak Particle Velocity
PROW	Public Rights of Way
PSA	Particle Size Analysis
pSAC	Possible Special Area of Conservation
pSPA	Possible Special Protection Area
PSD	Particle Size Distribution
PSV	Platform Supply Vessel
PTS	Permanent Threshold Shift
PWD	Pier/Wharf/Dock
PVA	Population Viability Analysis
PVV	Plant, Vehicles and Vessels
RACON	Radar and Beacon
Ramsar	The Ramsar Convention on Wetlands
RBMP	River Basin Management Plan
RCAHMS	Royal Commission on the Ancient and Historical Monuments of Scotland
RCEP	Royal Commission on Environmental Pollution
RDA	Regional Development Agency
RI	Recoverable Injury
RIGSs	Regionally Important Geological Sites
RMS	Route Mean Square
RNLI	Royal National Lifeboat Institution
ROMS	Regularly Occurring Migratory Species (Birds)
RO/RO	Roll-on/Roll-off
ROW	Receiver of Wreck
RPE	Respiratory Protective Equipment
RPS	RPS Group
RSPB	Royal Society for the Protection of Birds

RTS	Regional Transport Strategy
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SAM	Scheduled Ancient Monument
SAP	Species Action Plans
SAR	Search and Rescue
SBL	Scottish Biodiversity List
SBP	Sub-bottom Profiling
SCANS	Small Cetaceans in the European Atlantic and North Sea
SCOS	Special Committee on Seals
SDP	Strategic Development Plan
SDPA	Strategic Development Planning Authority
SEA	Strategic Environmental Assessment
SEL	Sound Exposure Level
SEMP	Site Environmental Management Plan
SEPA	Scottish Environment Protection Agency
SFF	Scottish Fishermen's Federation
SHEP	Scottish Historic Environment Policy
SIAS	Seal Injury Avoidance Scheme
SLVIA	Seascape Landscape and Visual Impact Assessment
SMP	Shoreline Management Plan
SMRU	Sea Mammal Research Unit
SNFAS	Salmon Net Fishing Association of Scotland
SNH	Scottish Natural Heritage
SNS	Southern North Sea Sediment Transport Study
SOLAS	Safety of Life at Sea
SPA	Special Protection Area
SPL	Sound Pressure Level
SPM	Suspended Particulate Matter
SPP	Scottish Planning Policy
SPUE	Sightings Per Unit Effort
SR	Sensitive Receptors
SSC	Suspended Sediment Concentration
SSF	Scottish Surfing Federation
SSP	Scottish Planning Policy
SSSI	Site of Special Scientific Interest

STW	Scottish Territorial Waters
SUDS	Sustainable Urban Drainage Systems
TA	Transport Assessment
TAN	Technical Advice Note
TBT	Tributyltin
TCE	The Crown Estate
TEL	Threshold Effect Levels
TEN-T	Trans-European Transport Networks
TEZ	Temporary Exclusion Zone
TMP	Traffic Management Plan
TOC	Total Organic Carbon
TON	Total Oxidised Nitrogen
TPH	Total Petroleum Hydrocarbons
TSHD	Trailer Suction Hopper Dredger
TS	Transport Scotland
TSS	Traffic Separation Scheme
TTS	Temporary Threshold Shift
UFI	United Fish Industries
UFP	United Fish Products
UK	United Kingdom
UKAS	United Kingdom Accreditation Service
UKBAP	United Kingdom Biodiversity Action Plan
UKCP	UK Climate Projections
UKCS	United Kingdom Continental Shelf
UKHO	United Kingdom Hydrographic Office
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	Updating and Screening Assessment
UXO	Unexploded Ordnance
VDR	Voyage Data Recorders
VMS	Vessel Monitoring System
VOC	Volatile Organic Compounds
VP	Vantage Point
VMP	Vessel Management Plan
VTS	Vessel Traffic Services
WAC	Waste Acceptance Criteria

WANE	Wildlife and Natural Environment
WB	Water Body
WCA	Wildlife and Countryside Act
WDC	Whale and Dolphin Conservation
WeBS	Wetland Bird Survey
WEWS	Water Environment and Water Services
WFD	Water Framework Directive
WFDA	Water Framework Directive Assessment
WHO	World Health Organisation
WIE	Waterman Infrastructure & Environment Limited
WSI	Written Scheme of Investigation
WWTW	Water Waste Treatment Works
Zol	Zone of Influence
ZTV	Zone of Theoretical Visibility