Glossary

Terms

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

References

Journal Papers and Books

Dictionaries

Websites

Note

Glossary information has been compiled from a wide variety of sources. For the sake of brevity, clarity and accuracy some term definitions have been reproduced verbatim but references are given only at the end of this document without in-text citation.

We provide definitions drawn from authoritative IPCC reports, technical dictionaries and the academic literature, but other online technical resources were also consulted. In the interest of internal consistency, we also list definitions that were used by CoastAdapt content authors.

A

abutment	A solid structure, usually a pier or wall, which provides support to an arch, bridge, or vault.
accreting coast	Coasts that are marked by a deposition of sand instead of erosion. Accretion occurs during the calmer seasons. Beach accretion is generally much slower than beach erosion.
accretion	Natural accretion is the build-up of land, solely by the action of the forces of nature, on a beach by deposition of water or airborne material. Artificial accretion is a similar build-up of land by reason of an act of man, such as the accretion formed by a groyne or breakwater, or beach fill deposited by mechanical means.
acid sulfate soil	see **acid sulphate soil**
acid sulphate soil	Acid sulphate soil is the common name for soils that contain metal sulphides. In an undisturbed and waterlogged state, these soils may pose no or low risk. However, when disturbed or exposed to oxygen, acid sulphate soils undergo a chemical reaction known as oxidation. Oxidation produces sulfuric acid which has led to these soils being called acid sulphate soils.
acidification	see **ocean acidification**
adaptation	The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment.
adaptation pathway	An analytical approach to planning that explores and sequences a set of possible actions that are based on external developments over time.
adaptive capacity	The ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.
adaptive management	A process of iteratively planning, implementing, and modifying strategies for managing resources in the face of uncertainty and change. Adaptive management involves adjusting approaches in response to observations of their effect and changes in the system brought on by resulting feedback effects and other variables.
administrative law	Administrative law is the body of law that allows citizens to challenge decisions made by government officials.
aeolian	Wind-borne; applied to the processes of erosion, transport, and deposition of material due to the action of the wind at or near the Earth's surface.
ambiguous risk	Probability of this risk cannot be calculated with precision, e.g. terrorist attacks, natural disasters and political upheaval.
Annual Exceedance Probability	AEP - The probability associated with a given event being exceeded in any one year. For example an event with an AEP of 0.1 has a 10% chance of occurring every year.
anticipatory adaptation	Adaptation that takes place before the impacts of climate change are observed.

aragonite	Aragonite is a mineral and, like calcite, it contains calcium carbonate ($CaCO_3$) but it has a different crystal structure. Aragonite forms orthorhombic crystals, whereas calcite is trigonal. Aragonite forms the shells of some marine organisms.
aragonite saturation	Studies on the impact of ocean acidification on coral and algae calcification are mainly reported as a factor of the concentration of carbonate ion [CO_3^{-2}] or its surrogate aragonite saturation state, known as Ωa. If Ωa > 1, seawater is supersaturated with respect to calcium carbonate ($CaCO_3$) and conditions are favourable for $CaCO_3$ precipitation, the process necessary to form corals; conversely, if Ωa < 1, seawater is undersaturated with respect to $CaCO_3$ and the dissolution of $CaCO_3$ is favoured.
armour units	Rock or concrete blocks designed to form the outer protective layer for a breakwater or seawall.
Arnstein's ladder	An influential typology that can be helpful in clarifying the degree of citizen/service user participation involved in particular services or contexts. Arnstein identified eight levels of citizen participation, classified according to whether she regarded them as examples of non-participation, tokenism, or citizen power.
artificial reef	Artificial structures to provide habitat for reef organisms, including soft and stony corals and the fishes and invertebrates that live among them.
ascribed values	Ascribed (or assigned) values are second-order preferences, generally associated with goods or services that individuals are prepared to ascribe relative values to and make trade-offs between.
astronomical tide	Refers to the periodic rise and fall of water along the coast due to gravitational interactions between the moon, sun and the earth.
Australian Height Datum	The Australian Height Datum (AHD) forms the vertical geodetic datum for Australia and is thus the framework for all heights, including those used to establish digital elevation models (DEMs).
autonomous adaptation	Adaptation in response to experienced climate and its effects, without planning explicitly or consciously focused on addressing climate change. Also referred to as spontaneous adaptation.
Average Recurrence Interval	ARI - The expected time between the events that exceed a given value (for example rainfall or wave height). Also referred to as the 'return period', it is usually expressed in years. For example, the 1 in 100 year rainfall experienced during a storm event will on average only be exceeded once every 100 years. However it does not mean it cannot happen more or less frequently than every 100 years.
average wave period	The average time taken for the passage of two successive wave crests to pass a fixed point.

B

balance sheet finance	A form of debt finance where money is borrowed based on the cash flows and assets of an entire organisation.
bank	The edge of a landform adjacent to a waterbody, which has been primarily formed by the action of water currents (rather than waves). Typically banks occur on rivers, streams and estuaries, although they may also occur on ocean coasts subject to strong tidal action.
barometric setup	Change in coastal water level as a consequence of the overlying air pressure.
barrage	see tidal barrage
bathtub model	This approach uses projected sea level rise heights overlaid on the elevation of the land surface. As the name suggests, this approach is similar to filling a bathtub, water is added (representing sea level rise) and rises uniformly. As a result, any land surfaces at a lower elevation than the increased sea surface are considered to be inundated.
bathymetry	Bathymetry is the study and mapping of seafloor topography. It involves obtaining measurements of the depth of the ocean and is equivalent to mapping the topography on land.
Bayesian Belief Network	(BBN) Statistical model that integrates knowledge and information from multiple sources into a single assessment. This is achieved by describing (in a probabilistic manner) the cause and effect relationships between different factors.
Bayesian models	see Bayesian Belief Network
beach	The zone of unconsolidated material that extends landward from the low water line to the place where there is marked change in material or physiographic form, or to the line of permanent vegetation (usually the effective limit of storm waves). The seaward limit of a beach—unless otherwise specified—is the mean low water line. A beach includes foreshore and backshore.
beach dewatering	The artificial lowering of the water table within beaches by a system of drains and pumps.
beach erosion	Removal of material from the shoreline and adjacent areas, and results in a landward displacement of the shoreline, either temporarily or semi-permanently
beach nourishment	see beach replenishment
beach profile	A cross-section taken perpendicular to a given beach contour; the profile may include the face of a dune or sea wall, extend over the backshore, across the foreshore, and seaward underwater into the nearshore zone.
beach replenishment	The deliberate addition of sand to beaches where erosion is a major problem, in order to stabilize losses and restore badly eroded (and sometimes unsightly) beaches. Also known as beach nourishment.

benefit transfer	(BT) The results of one study are used to inform decision-making in another location based on assumptions about commonalities across the two locations.
benefit-cost ratio	The sum of all the benefits divided by the sum of all the costs (all expressed as the present day equivalent of values).
biological oxygen demand	A measure of the amount of oxygen that organisms would require to decompose the organic material in an estuary and is indicative of pollution levels.
bivalves	Mollusc animals with two hinged shells e.g. mussels, cockles, and oysters.
blackwater	Component of the sewage that originates from toilets.
blue carbon	The carbon stored and sequestered in mangrove forests, seagrass meadows, and tidal salt marshes.
bonds	A form of debt finance where an organisation that requires money issues bonds to a public market. The bond issue will have specific characteristics such as the repayment timing and interest rate.
BOO	Private sector builds, owns and operates infrastructure with public sector involvement.
BOOT	Private sector builds, owns, operates and then transfers infrastructure to public sector.
BOT	Private sector builds and operates the infrastructure and then transfers it to the public sector.
breakwater	A structure protecting a shore area, harbour, anchorage or basin from waves. The most common breakwaters are in the form of a sloping wall protected by rocks or concrete armour units.
Bruun Rule	The Bruun Rule is commonly used to explain the erosion of sandy shores in response to sea level rise. It is expressed as a ratio between a rise in sea level and the extent of recession on a sandy shoreline with no cliff or platform impeding landward movement. A 1 cm rise in sea level will lead to approximately 1 m retreat of the coastline.
bryozoans	Aquatic invertebrate animals of the group Bryozoa, which form colonies often suggesting mossy growths on rocks, seaweeds, etc.
bucket-fill	see **bathtub model**
built environment	All the structures people have built when considered as separate from the natural environment.
C	
C3 plant	Plants with a type of photosynthesis where the first product of carboxylation is 3-phosphoglycerate, a compound with three carbon atoms. Most broadleaved plants and plants of temperate climates use the C3 pathway.
C4 plants	Plants with a type of photosynthesis, in which the first product of carboxylation is the four-carbon compound oxaloacetate. Most C4 plants occur in low latitudes and are adapted to high temperatures and high light intensities; many are grasses.

cadastral	Refers to the ownership, administration and boundaries between land parcels
calcification	Formation and deposition of calcium carbonate by marine organisms to form hard body parts. The majority of marine calcification occurs in planktonic organisms.
capital reserves	Capital that insurers are required by law to maintain to cover a particular percentage of their aggregated expected losses.
carbon dioxide	A colourless, odourless gas that occurs naturally and is also emitted by fossil fuel combustion and land clearing. The atmospheric concentration of carbon dioxide has increased by about 31% since the Industrial Revolution. It is the main anthropogenic influence greenhouse gas affecting climate change.
carbonate	A mineral that is mostly found in limestones and dolomites (such as calcite).
catchment	An area of land which, through run-off or percolation, contributes to the water in a stream or stream system.
catchment sediments	Sediments derived via catchment erosion, biological activity and/or aeolian (wind-borne) transport.
choice modelling	Respondents are presented with a series of choices between bundles of environmental goods at different prices based on the status quo. Choices reveal the importance of certain attributes and the monetary values attached to each one – revealing either a willingness to pay to preserve a certain asset or willingness to accept a payment for the loss of access to an asset.
climate	Climate relates to the average weather over a period of months to thousands or millions of years.
climate change	Climate change refers to a change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use.
climate change adaptation	The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.
climate change projections	see **climate projection**
climate change scenario	A plausible and often simplified representation of the future climate, based on an internally consistent set of climatological relationships that has been constructed for explicit use in investigating the potential consequences of anthropogenic climate change, often serving as input to impact models.

climate legal risk	Climate legal risk is the risk of exposure to legal action that accompanies a decision that relates to climate change impacts. It encompasses the above elements of factual and legal uncertainty, and specifically concerns the risk arising from legal duties and obligations as they relate to the impacts of climate change. See also **legal risk.**
climate model	A numerical representation of the climate system based on the physical, chemical and biological properties of its components, their interactions and feedback processes, and accounting for some of its known properties.
climate projection	A climate projection is the simulated response of the climate system to a scenario of future emission or concentration of greenhouse gases (GHGs) and aerosols, generally derived using climate models.
climate risk	The potential, when the outcome is uncertain, for adverse consequences on lives, livelihoods, health, ecosystems and species, economic, social and cultural assets, services (including environmental services), and infrastructure.
climate scenario	see **climate change scenario**
coast	For the purpose of CoastAdapt, the coast encompasses the area from the upper coastal catchments to the near-shore environment. This definition also includes offshore ecosystems such as coral reefs and islands, and inland areas which have a direct effect on the coast.
coastal adaptation	Future modification of behaviour through construction of infrastructure or change in land-use practices that prevents or reduces adverse impacts associated with coastal hazards.
coastal compartment	An area of coast bounded along shore by large geologic structures, changes in geology or geomorphic features.
coastal erosion	Erosion occurs when winds, waves and coastal currents act to shift sediments away from an area of the shore, often during a storm. In most locations this is a short-term process and the shore gradually regains sediment.
coastal geomorphology	The physical structures, processes and patterns associated with the coast, including landforms, soils, geology and the factors that influence them.
coastal hazard	The interaction of coastal processes with human use, property or infrastructure, the action of which adversely affects or may adversely affect human life, property or assets.
coastal inundation	A combination of marine and atmospheric processes causing the sea level at the coast to be raised above its normal elevation, resulting in the flooding of normally 'dry' land.
coastal lagoon	Coastal lagoons are shallow brackish or marine bodies separated from the ocean by a barrier island, spit, reef, or sand bank and connected at least intermittently to the open ocean by one or more restricted tidal inlets.
coastal processes	Marine, physical, meteorological and biological activities that interact with the geology and sediments to produce a particular coastal system.

coastal recession	A continuing landward movement of the shoreline or a net landward movement of the shoreline within a specified time.
coastal sediment cell	A length of coast and adjacent areas within which the movement of sediment is apparent through identification of land features which function as sediment sources, transport pathways and sediment sinks. Typically sediment exchange to adjacent cells is restricted, although cells are rarely isolated completely.
coastal sediment compartment	see **coastal compartment**
coastal storm event	A meteorological event that results in elevated tidal heights as a result of high wind and increased wave heights (also referred to as storm surge).
coastal terrace	A coastal landform comprising of a wide, near-horizontal surface, with steeper gradients above and below. Terraces typically occur as subtidal or inter-tidal features and are common on low energy estuary beaches.
coastal vulnerability (to climate change)	The threat to coastal landforms, associated infrastructure or land-use that may be caused by a sustained shift in environmental conditions.
coastal zone	Includes the foreshore and near-shore zone, and the coastal region that is likely to be affected by sea-level rise and marine-related climate change (storm surge and exposure to storms tracking inland from the sea). This includes the region adjacent to the coastline itself as well as estuaries which may be affected by processes such as riverine flooding.
coastal-trapped waves	Caused by remote meteorological disturbances and can travel along continental shelves freely in the absence of wind effects.
collapsing breakers	A wave type where the crest remains unbroken while the lower part of front face steepens and then falls, producing an irregular turbulent water surface.
common law	It prevails in England and its former colonies. It is based on the principles and rules of action, embodied in case law rather than legislative enactments, applicable to the government and protection of persons and property that derive their authority from the community customs and traditions that evolved over the centuries as interpreted by judicial tribunals.
community engagement	A two way process of dialogue by which the aspirations, concerns, needs and values of the community are incorporated into policy development, planning, decision making, service delivery and assessment.
consequence of failure	(CoF or COF) The result of an engineering structure or system failing. The result of an asset reaching functional failure.
Consumer Price Index	The Consumer Price Index (CPI) is a measure of changes, over time, in retail prices of a constant basket of goods and services representative of consumption expenditure by resident households
coral bleaching	Loss of coral pigmentation through the loss of intracellular symbiotic algae (known as zooxanthellae) and/or loss of their pigments.

coralline algae	Red algae that have an upright coralline growth form. They deposit calcium carbonate in their cell walls for protection from grazers and for strength.
Coriolis force	An apparent force deflecting the motion of an object or a fluid moving over the surface of a rotating body such as a planet or star.
cost-benefit analysis	The quantification of the total social costs and benefits of a policy or a project, usually in monetary terms. It includes external costs, such as pollution, noise, and disturbance to wildlife, and external benefits such as reductions in travelling time or traffic accidents.
cost-effectiveness analysis	(CEA) Compares the relative costs and outcomes (as opposed to financial benefits only) of two or more courses of action. CEA is most often used when benefits are unable to be monetised.
Coupled Model Intercomparison Project	(CMIP) A standard experimental protocol for studying the output of coupled atmosphere-ocean general circulation models
CPI	see Consumer Price Index
crest height	Wave height. The height of the highest part of a wave (crest) down to the bottom (trough).
cryptosporidiosis	Enteric disease caused by infection with *Cryptosporidium parvum*. This is commonly transmitted through ingestion of food or water contaminated with animal faeces. Characterized by severe diarrhoea, abdominal cramps, fever, and headache.
D	
debt finance	Borrowed money that is paid back with interest within an agreed time frame. Includes both project finance and balance sheet finance.
decile map	A decile is one tenth of the values in a record. A decile map shows the extent that a climate variable is above average, average or below average for a specified period, in comparison with the entire record.
deltaic coast	Coastline where a river forms a delta as it drains into the sea e.g. Nile River Delta.
depth of closure	The water depth beyond which repetitive profile or topographic surveys (collected over several years) do not detect vertical sea bed changes, generally considered the seaward limit of littoral transport. Note that this does not imply the lack of sediment motion beyond this depth.
desalination	The removal of salt from seawater used to provide potable water for drinking or irrigation purposes.
design storm	A hypothetical extreme storm with waves that coastal protection structures will often be designed to withstand. The severity of the storm (i.e. return period) is chosen in view of the acceptable level of risk of damage or failure. A design storm consists of a design wave condition, a design water level and a duration.

design wave	In the design of harbour works, coastal protection works etc., the type or types of waves selected as having the characteristics against which protection is desired.
detritivore	An animal that feeds on dead material (known as detritus).
detritus	Particulate organic material from dead and decomposing organisms
dialogic model	Model of communication based on dialogue
Digital Elevation Model	(DEM) An array of regularly spaced elevation values referenced horizontally either to a Universal Transverse Mercator (UTM) projection, or to a geographic coordinate system.
disaster resilience	Disaster resilience is the capacity to prevent, mitigate, prepare for, respond to, and recover from the impacts of disasters.
discount rate	A rate that is used to convert future costs or benefits to their present value, based on assumptions about how to discount or reduce the value of each in the future.
discounting	The practice of adjusting the values of benefits and costs of a project, activity or programme into a comparable unit at a particular point in time, usually the present.
dissipative beach	A dissipative beach is gently sloping, running from the seaward edge of the forezone to the surfzone.
dissolved oxygen	The level of oxygen that is available to support estuarine ecology.
downdrift	The predominant direction of movement (towards) for sediment transported along the coast by the actions of waves and currents.
downscaling	Downscaling climate data is a strategy for generating locally or regionally (10 to 100km) scaled data from larger Global Circulation Models (GCMs).
DPSIR framework	DPSIR = Driving forces - Pressures - State - Impact - Responses. This approach can encourage and support decision-making, by pointing to clear steps in the causal chain where the chain can be broken by policy action.
dredging	Dredging is the removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies.
E	
East Coast Low	Intense low pressure system that occurs off the east coast of Australia, bringing storms, high waves and heavy rain. Generally occurs in autumn and winter off New South Wales, southern Queensland and eastern Victoria.
eccentricity	The extent to which an elliptical orbit departs from a circular one. It is usually expressed as a decimal fraction, regarding a circle as having an eccentricity of 0.

ecologically sustainable development	Ecologically sustainable development (ESD) is seen as development that aims to balance the needs of present and future generations. This balance (not trade-off) includes the protection of ecological processes, economic development, and the preservation of cultural and social wellbeing. The principle of ESD holds that decision-makers should seek to integrate these factors in any given decision to reach sustainable methods of development.
ecosystem resilience	The rate at which a system regains structure and function following a stress or perturbation.
ecosystem services	Ecological processes or functions having monetary or non-monetary value to individuals or society at large. These are frequently classified as (1) supporting services such as productivity or biodiversity maintenance, (2) provisioning services such as food, fibre, or fish, (3) regulating services such as climate regulation or carbon sequestration, and (4) cultural services such as tourism or spiritual and aesthetic appreciation.
ecosystem-based adaptation	Sustainable management, conservation, and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change.
El Niño	El Niño is the warming of the oceans in the equatorial eastern and central Pacific. Over much of Australia, El Niño brings drought. See also **El Niño Southern Oscillation**.
El Niño Southern Oscillation	(ENSO) Refers to widespread 2–7 year oscillations in atmospheric pressure, ocean temperatures and rainfall associated with El Niño (the warming of the oceans in the equatorial eastern and central Pacific) and its opposite, La Niña. Over much of Australia, La Niña brings above average rain, and El Niño brings drought.
embayment	Recess in the coastline forming a bay.
emission scenario	A plausible representation of the future development of emissions of substances that are potentially radiatively active (e. g. greenhouse gases, aerosols) based on a coherent and internally consistent set of assumptions about driving forces (such as demographic and socioeconomic development, technological change, energy and land use) and their key relationships.
enhanced greenhouse effect	Synonym for 'climate change'. See **climate change.**
epiphyte	A plant that uses another plan for its physical support, but which does not draw nourishment from it.
equity finance	Raising funds for an entity through the sale of partial ownership of the entity or an entity's assets. This generally involves the transfer of shares for a price.
erosion	The wearing away of land by the action of natural forces. On a beach, the carrying away of beach material by wave action, tidal currents, littoral currents, or by deflation.
estuarine	Refers to the part of a river that is affected by tides or the region near a river mouth in which the fresh water of the river mixes with the salt water of the sea.
estuary	The part of a river that is affected by tides; or the region near a river mouth in which the fresh water of the river mixes with the salt water of the sea.

estuary inundation	Flooding around the shoreline of an estuary or coastal lake, by a mixture of tidal water and catchment flood water.
eutrophication	The nutrient enrichment (usually by nitrates and phosphates) of an aquatic ecosystem, such that the productivity of the system ceases to be limited by the availability of nutrients. An increase in photosynthetic activity is often followed by a depletion of dissolved oxygen as plants die and are decomposed by aerobic organisms. Deoxygenation has an adverse effect on the aquatic animal life.
evolutionary adaptation	One way for populations or species to cope with environmental and other pressures is to adapt via selection acting on heritable traits.
exposure	The degree to which a system is exposed to a given hazard (e.g. sea level rise)
external costs	Costs that are external to the market. Many of the environmental, health and social impacts of climate change fall into this category.
extreme sea levels	Extremely high sea levels due to the combination of tides, storm surges and wind waves.
extreme storm event	Storm for which characteristics (wave height, period, water level etc.) were derived by statistical 'extreme value' analysis. Typically these are storms with average recurrence intervals (ARI) ranging from one to 100 years.
F	
factual certainty	The application of decision-makers' obligations and duties depends not only on an interpretation of the law and is a legal issue but also on the factual information available. Hence decisions may be uncertain with regard to these facts.
failure consequence	see **consequence of failure**
fetch	Distance or area of water over which the wind blows.
flocculation	Process in which clay and other soil particles adhere to form larger groupings or aggregates.
flood (or hazard) zone	The area of land that is expected to be inundated during a given flood event. Generally flood zones are based on a flood event with a 100 year ARI, but can be determined for events with a shorter ARI such as a 20 year ARI.
foraminifers	Single-celled planktonic animals with a perforated chalky shell through which slender protrusions of protoplasm extend. Most kinds are marine, and when they die thick ocean-floor sediments are formed from the breakdown of their shells.
forbland	Forblands are barren-looking stony deserts with a few scattered saltbushes, but when the rains come, many types of herbs germinate and blossom overnight.
fully arisen sea	When additional wind energy is offset by whitecapping so that the waves are no longer growing

functional values	Non-preference-based values derived from a quantification of the biological or physical relation of one entity to another, for example, the value of nesting habitats for birds. Such values are free from human preferences and as such are outside the realm of valuation.
fuzzy-cognitive map	A fuzzy cognitive map (FCM) can be understood as a graphical representation of the knowledge about or the perception of a given system.
G	
gantry	A spanning framework structure. Used to span carriageways and rail tracks to display information; carry travelling cranes (gantry crane), bogies, and derricks at a raised level in an industrial workplace; carry pipework, or provide a walkway at an elevated level.
gastropods	A member of the Gastropoda class of molluscs, which includes snails and slugs. Gastropods have a head, unsegmented body, and a broad, flat foot.
General Circulation Models	General Circulation Models (GCMs) are numerical models that represent physical processes in the atmosphere, ocean, cryosphere and land surface, used for simulating the response of the global climate system to increasing greenhouse gas concentrations
geomorphology	That branch of physical geography which deals with the form of the Earth, the general configuration of its surface, the distribution of the land, water, etc.; or the investigation of the history of geologic changes through the interpretation of topographic forms.
giardiasis	A disease caused by the parasitic protozoan *Giardia lamblia* in the small intestine. Symptoms include diarrhoea, nausea, bellyache, flatulence, and the passage of pale fatty stools (steatorrhoea).
Global Climate Model	Alternative name for **General Circulation Model**, also abbreviated to **GCM**.
global warming	Global warming refers to the gradual increase, observed or projected, in global surface temperature, as one of the consequences of radiative forcing caused by anthropogenic emissions.
green infrastructure	Nature or landscape that provides ecosystem services e.g. parks
greenhouse gases	Gases that increase atmospheric temperature by selectively absorbing and emitting radiation. Principal greenhouse gases include: water vapour, carbon dioxide, methane, nitrous oxide and ozone.
Gross Domestic Product	The Gross Domestic Product (GDP) measures the monetary value of final goods and services—that is, those that are bought by the final user—produced in a country in a given period of time (say a quarter or a year). It counts all of the output generated within the borders of a country. GDP is composed of goods and services produced for sale in the market and also includes some nonmarket production, such as defence or education services provided by the government.
groyne	A shore protection structure built (usually perpendicular to the shoreline) to trap littoral drift or retard erosion of the shore.

H	
hard engineering	Traditional engineering solutions. See also **soft engineering.**
HAT	see **Highest Astronomical Tide**
hazard	In the context of climate change, hazard refers to any potential occurrence of a natural or human-induced physical event that may cause damage to property, infrastructure, livelihoods, service provision, environmental resources etc.
heat island effect	Refers to the event where air temperatures in an urban environment are higher than those in the surrounding rural environment.
Hedonic Pricing Method	Based on the premise that goods are valued for their utility, this method establishes a quantitative relationship between environmental attributes (e.g. a wide beach, a view etc.) and distributed markets such as the property market.
held values	These are deeply held first-order values that influence subsequent, second-order (ascribed) values. Examples of held values are ideas of justice, identity, sustainability and freedom. These form the conceptual basis for decision making. These are difficult to quantify and attempts to do so tend to result in valuations that lack legitimacy in the eyes of the public.
Highest Astronomical Tide	The highest level of water that can be predicted to occur under average meteorological conditions and any combination of astronomical conditions. This level may not be reached every year.
Holocene	An epoch of the quaternary period, from the end of the Pleistocene, about 8,000 years ago to the present time.
human capital	The stock of knowledge, skills, and abilities that determine the labour productivity of an individual. Investment in human capital through education and training can increase the stock, and such investment is one of the sources of economic growth.
hydroisostacy	Hydro-isostasy occurs during sea-level rise when seawater floods onto the continental shelves following the melting of the ice sheets (eustatic rise in sea level) and this depresses the sea floor and the adjacent land along the new coast rises resulting in a relative fall in sea level.
hydro-isostatic flexure	The response of ocean basins to loading of water.
I	
IAP2 spectrum	Produced by the International Association of Public Participation to help public administrators decide how deeply they need to engage with communities. The spectrum ranges from 'inform', 'consult', 'involve' and 'collaborate', to 'empower'.
ice sheet	A mass of land ice that is sufficiently deep to cover most of the underlying bedrock, so that its shape is mainly determined by the flow of the ice as it deforms internally and/or slides at its base.

impact	Effects on natural and human systems of extreme weather and climate events and of climate change. Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate changes or hazardous climate events occurring within a specific time period and the vulnerability of an exposed society or system.
incremental adaptation	A series of relatively small actions and adjustments aimed at continuing to meet the existing goals and expectations of the community in the face of the impacts of climate change.
Indian Ocean Dipole	A measure of the difference in sea surface temperature in the western and eastern equatorial Indian Ocean. When positive, there is cooler than normal water in the tropical eastern Indian Ocean and warmer than normal water in the tropical western Indian Ocean.
infauna	Organisms that dig into the sea bed or construct tubes or burrows.
infragravity wave	Waves with a longer wavelength than sea or swell waves with up to a kilometre between the wave crests.
infrastructure charges	Infrastructure charges (sometimes called 'developer charges' or 'developer contributions') are fees levied on developers to compensate governments for providing facilities necessary for land development.
instrumental value	The value or worth of objects that provide a means to some desirable end, thereby satisfying some human needs and wants.
integrated coastal zone management	The fundamental goal of Integrated Coastal Zone Management (ICZM) is to maintain, restore or improve the quality of coastal zone ecosystems and the societies they support.
integrated soil fertility management (ISFM) technology	A set of soil fertility management practices that necessarily include the use of fertilizer, organic inputs and improved germplasm, combined with the knowledge on how to adapt these practices to local conditions, aimed at maximizing agronomic use efficiency of the applied nutrients and improving crop productivity. All inputs need to be managed in accordance with sound agronomic principles.
intensity-duration-frequency curve	Graphical representations of the amount of water that falls within a given period of time in catchment areas.
intensity-frequency-duration analysis	Analysis of the amount of water that falls within a given period of time.
Interdecadal Pacific Oscillation (IPO)	The Interdecadal Pacific Oscillation (IPO) is a lengthy interdecadal fluctuation in atmospheric pressure. When the IPO is low, cooler than average sea surface temperatures occur over the central North Pacific, and vice versa.
interglacial period	The warm periods between ice age glaciations. The 'Last Interglacial' (before the current one), dated approximately 130,000 to 115,000 years ago.

intermediate beach	Typically involve plunging breakers on the bar and the beach, and the dominant surf zone currents are feeder currents that travel alongshore for relatively short distances before turning and flowing offshore as rip currents.
intrinsic value	A value system in which ecosystems or species have intrinsic rights to a healthful, sustaining condition that is on a par with human rights to satisfaction. The value of any action or object is measured by its contribution to maintaining the health and integrity of an ecosystem or species, per se, irrespective of human satisfaction.
inundation	Flooding in the coastal zone during a storm when low atmospheric pressure and onshore winds can cause storm surge and extreme wave heights along the coast, especially when these coincide with high tide.
inundation risk	The chance of flooding being experienced in a particular location is known as inundation risk. The level of risk can vary depending on the event being referenced. For example, a location may be at risk of inundation during an event with a 100 year ARI but not a 20 year ARI.
isostacy	Isostasy is the state of gravitational equilibrium between the Earth's crust and the mantle below.
isostatic adjustment	The vertical movement of the land in response to loading and unloading due to processes such as erosion, deposition, water loading, desiccation, ice accumulation, and deglaciation
J	
joint probability analysis	The practice of determining the probability of two or more events occurring at the same time. With respect to flooding and inundation, it usually relates to the probability of a downstream water level of high magnitude occurring at the same time as intense rainfall. It is a statistical tool that requires high quality datasets and the analysis is usually limited to events that occur at regionally regular intervals.
judicial review	Judicial review is a narrower form of review. It allows the judge to consider only whether the decision-maker followed correct statutory procedures, and acted within their authority.
K	
king tides	Any high water level that is well above the average, commonly applied to two tides that follow a new or full moon and that are the highest for the year (spring tides), one during summer and one in winter.
L	
La Niña	La Niña is the cold phase of the El Niño-Southern Oscillation (ENSO). The ENSO is basin-wide warming of the tropical Pacific Ocean east of the dateline associated with fluctuation of a global-scale tropical and subtropical surface pressure pattern, the Southern Oscillation.

landform	A naturally shaped feature of the Earth's surface. Landforms range in size from small features apparent at a local scale to large structures apparent at a land system or regional scales.
lateral connectivity	Hydrologic connectivity across the landscape from floodplain to waterbody, as opposed to longitudinal connectivity up- and downstream, or vertical connectivity between ground and surface water.
laterite	Greatly weathered and altered strata of tropical ground. Horizons are unclear and the nutrient status of the soil is low.
leachate	The liquid in which soil substances are dissolved during the process of leaching which in turn is the removal of material in solution.
legal certainty	see legal uncertainty
legal risk	The risk of legal consequences due to the organisation not considering the law, being uncertain about or mistaking the law, or as a result of poor legal advice received.
legal uncertainty	The application of decision-makers' obligations and duties depends on an interpretation of the law and is a legal issue. Hence decisions may be uncertain with regard to the law.
leptospirosis	An infectious disease, caused by bacteria of the genus *Leptospira* (especially *L. icterohaemorrhagiae*), that occurs in rodents, dogs, and other mammals and may be transmitted to people whose work brings them into contact with these animals.
LiDAR	Laser Imaging Detection and Ranging high resolution technology for measuring elevation. A type of aircraft-based remote sensing, using laser-driven pulses of light and multispectral cameras to scan and process digital information about a landscape.
limit to adaptation	Inability of adaptation to address the full extent of climate impacts.
littoral	Of or pertaining to a shore, especially of the sea. Often used as a general term for the coastal zone influenced by wave action, or, more specifically, the shore zone between the high and low water marks.
littoral drift	see longshore drift
longshore currents	Water currents that flow along the shore line parallel to the beach and water line.
longshore drift	Longshore drift is the movement of sand along the coastline. This movement of sand is influenced by the surf zone currents created by waves and the predominant wave direction.
longshore transport	see longshore drift
Lowest Astronomical Tide	(LAT) The lowest level of water which can be predicted to occur under any combination of astronomical conditions.

M

macroalgae	Macroalgae is a collective term used for seaweeds and other attached marine algae that are generally visible to the naked eye. Larger macroalgae are also referred to as 'seaweeds'.
macrophytes	An aquatic plant that is large enough to be seen with the naked eye. The term is often applied to aquatic mosses, ferns, and rooted plants.
Madden-Julian Oscillation	Monsoon related eastward movement of large regions of higher and lower tropical rainfall.
maladaptation	A maladaptation is defined by the IPCC (2014) as 'an action that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future'. Barnett and O'Neill (2010) define maladaptation as "action taken ostensibly to avoid or reduce vulnerability to climate change that impacts adversely on, or increases the vulnerability of other systems, sectors or social groups". They also suggest "five different types of maladaptation that can arise in the form of (1) increasing GHG emissions, (2) disproportionately burdening the most vulnerable, (3) high opportunity costs, (4) reducing incentives to adapt, and (5) path dependency."
maladaptive actions	Actions that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future.
marine sediments	Sediments delivered from the continental shelf in front of the estuary. The sediments are transported due to the inequalities in tidal currents (ebb versus flood tide) to supply sediment on various timescales.
Mean Sea Level	The average level of the surface of the sea, over a nominated period of time. A range of different periods are commonly used for averaging, including monthly, annual or over a 19-year tidal cycle.
melioidosis	A disease of wild rodents caused by the bacterium *Pseudomonas pseudomallei*. It can be transmitted to humans, possibly by rat fleas, causing pneumonia, multiple abscesses, and septicaemia. It is often fatal.
merits review	Merits review is a broader type of review, whereby the judge gets to 'stand in the shoes' of the original decision-maker, consider the evidence and the law afresh, and make a new decision.
misfeasance in public office	The only tort available solely against public authorities or persons holding public office. It consists of an abuse of power by a public authority or person holding public office that is affected by malice or bad faith and that deprives the plaintiff of some benefit or causes him some loss.

monitoring and evaluation	(M&E) Monitoring is a continuous or periodic process in which data on specific indicators are systematically collected to provide information about performance of a project. Evaluation is a systematic and objective feedback of a completed or ongoing action, aimed at providing information about design, implementation and performance.
moral hazard	The expectation by an insured entity of coverage in the event of a disaster can act as a disincentive to take proactive action to reduce the potential impacts of that disaster.
motivational values	These are ethical precepts or beliefs that determine the way people select actions and evaluate events e.g. power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security.
multi criteria decision analysis	(MCDA) see **multi-criteria analysis**
multi-criteria analysis	(MCA) Describes any structured approach used to determine overall preferences among alternative options, where the options accomplish several objectives. In MCA, desirable objectives are specified and corresponding attributes or indicators are identified.
multi-variate data analysis	Multi-variate data analysis refers to any statistical technique used to analyse data that arises from more than one variable. This essentially models reality where each situation, product, or decision involves more than a single variable.
N	
natural capital	The stock of natural resources and environmental assets within an area, country, or the world, which includes water, soil, air, plants, animals, and minerals.
negligence	Negligence essentially consists of three elements: a duty of care was owed, that duty of care was breached, and this breach caused damage.
Net Present Value	A method of capital budgeting in which the value of an investment is calculated as the total present value of all cash inflows and cash outflows minus the cost of the initial investment.
Net Social Benefit	(NSB) The sum of all the benefits less the sum of all the costs (all expressed as the present day equivalent of values).
niche	The functional position of an organism in its environment, comprising the habitat in which the organism lives, the periods of time during which it occurs and is active there, and the resources it obtains there. In other words, its niche is the role that a species plays in a community.
nuisance	A private nuisance is an unlawful interference with a person's use or enjoyment of land, or some right over, or in connection with it. In a government context, a private nuisance claim may arise where some action or inaction on the part of government causes damage to someone's land.

O	
ocean acidification	Ocean acidification refers to a reduction in the pH of the ocean over an extended period, typically decades or longer, which is caused primarily by uptake of carbon dioxide from the atmosphere, but can also be caused by other chemical additions or subtractions from the ocean.
ooid	Also called oolith. Subspherical, sand-sized, carbonate particle that has concentric rings of calcium carbonate surrounding a nucleus of another particle.
option	Often defined as the right, but not the obligation, to take action.
orbital parameters	Orbital parameters affect the amount of insolation received by the Earth at various times.
outfall	A place where a river (or drainage pipe) discharges into the sea (or a treatment works).
P	
P&C association	Parent and Citizen Association
palustrine habitats	Wetland or marsh habitat.
path dependency	When early action may create lock-in to a determined future pathway, which may be impossible to undo without prohibitive expense and effort.
pathways approach	see **adaptation pathways**
pelagic	Describing organisms that swim or drift in a sea or a lake, as distinct from those that live on the bottom.
penstock	A valve or sluice gate used to control the flow of water or the discharge of sewage, or a pipe or channel to supply water, typically under pressure, to something, for example, to a hydroelectric plant.
perched dune lake	Non-tidal freshwater lakes in silicious sand along coastal dunes well above sea level and the water table and contained by an impermeable organic layer known as 'coffee rock'.
pH	The pH is a measure of acidity or alkalinity. A pH below 7 is considered acidic, and a pH greater than 7 is considered alkaline, or basic.
phenology	The study of the ways in which the timing and other aspects of periodic events, such as flowering in plants and breeding and migration in animals, are affected by climate and other environmental factors.
physical capital	Capital in the form of physical goods, either fixed capital or stocks and work in progress.

phytoplankton	Aquatic organisms that drift with water movements, generally having no locomotive organs. Phytoplankton comprises mainly diatoms, which carry out photosynthesis and form the basis of the aquatic food-chains.
planned retreat	Management response to move existing coastal development and built infrastructure back from the danger of rising sea levels, erosion, and other coastal hazards.
plunging breakers	A wave type where the crest curls over the front face and falls into the base of the wave, resulting in a high splash.
polishing	Final purification of water or wastewater.
portfolio analysis	(PA) An examination of the performance of a range of portfolios or options that are likely to be effective under different circumstances, which allows a decision-maker to offset risks across a portfolio of investments over the longer-term.
precautionary principle	The precautionary principle is the key tenant of ecologically sustainable development. It recognises that if there is risk that an action will cause harm, in the absence of scientific certainty, the burden of demonstrating that no harm will occur falls with the person taking the action.
precession	The wobbling of the Earth on its polar axis, which has a return period of 26000 years. This change in movement and orientation alters the amount and location of solar radiation reaching the Earth.
primary producer	An organism that captures energy from the environment and turns it into biomass through photosynthesis or chemosynthesis, and forms the base of a food chain. Examples include green plants on land and phytoplankton in oceans.
private adaptation	There are two modes of private adaptation: a) with private benefit, which is adaptation taken by a person or business that is of benefit only to that particular actor; and b) with public benefit, which is adaptation taken by a person or business that is of benefit both to that particular actor and to the public.
proactive adaptation	Adaptation that takes place before impacts of climate change are observed.
project finance	A form of debt financing where money is borrowed based on the projected cash flows and value of an asset to be created by the project.
projections	Climate change projections are based on our understanding of the climate system, historical trends and model simulations of the climate response to global scenarios of greenhouse gas and aerosol emissions.
propeller wash	A current of water or air created by the action of a propeller or rotor.
protozoa	Single celled eukaryotic organisms that do not photosynthesise but feed heterotrophically to obtain vital nutrition.
public adaptation	Adaptation undertaken by a public entity to benefit the broader community.
Public Private Partnerships	(PPP) A spectrum of private sector involvement in public project delivery contracting approaches, which sits between full government control and full privatisation.

R

radiative forcing	Greenhouse gases trap energy from the sun in the Earth's atmosphere. In contrast, airborne solid or liquid particles called aerosols can reflect energy back into space. Combined, they affect what is called radiative forcing, or the net amount of energy that enters the Earth's atmosphere.
ratoon	Crop cycle that has been grown from underground plant parts or stubble after harvesting the crop previously. Common in the cultivation of sugar cane.
RCMs	see Regional Climate Models
RCPs	see Representative Concentration Pathways
reactive adaptation	Adaptation that is undertaken in response to an effect of climate change which has been experienced.
Real Options Analysis	Quantifies the investment risk associated with uncertain future outcomes. It is useful when considering the value of flexibility of investments as it can inform how a project adapts, expands or scales back in response to unfolding events.
recession	A continuing landward movement of the shoreline; or a net landward movement of the shoreline over a specified time.
reedbed	Wetland dominated by stands of common reed.
reflective beach	Reflective beaches are characterised by breakers collapsing or surging onto the beach and a general lack of surf zone currents
Regional Climate Models	A climate model at higher resolution over a limited area. Such models are used in downscaling global climate results over specific regional domains.
relative sea level	Sea level measured by tide gauge with respect to the land upon which it is situated.
Representative Concentration Pathways	The Representative Concentration Pathways (RCP) are based on selected scenarios from four modelling teams/models working on integrated assessment modelling, climate modelling, and modelling and analysis of impacts. They are consistent sets of projections of only the components of radiative forcing (the change in the balance between incoming and outgoing radiation to the atmosphere caused primarily by changes in atmospheric composition) that are meant to serve as input for climate modelling.
resilience	The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.
revetment	A facing of stone, concrete, etc., built to protect a scarp, embankment, or shore structure against erosion by wave action or currents.
riparian zone	A stream and all vegetation on its banks.

risk	Risk is the potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events (likelihood) or trends multiplied by the impacts (or consequences) if these events or trends occur.
risk assessment	A systematic process of evaluating the potential risks that may be involved in a projected activity or undertaking
Robust Decision Making	(RDM) Differs from Real Options Analysis in that rather than seeking optimality, RDM seeks to discover decisions that perform well (but not necessarily optimally) under multiple future scenarios.
S	
salinity	The amount of salts dissolved in water
sand bypassing	Hydraulic or mechanical movement of sand from the accreting updrift side to the eroding downdrift side of an inlet or harbour entrance. The hydraulic movement may include natural movement as well as movement caused by human action.
scenario	see **climate change scenario**
scenario planning	A foresighting tool to engage a diverse range of stakeholders in a strategic planning or thinking exercise, with the aim of examining knowledge and beliefs and mapping pathways. Useful when a systems approach to decision-making is required.
scour	The erosion of a river, a seabed, or river bank by moving water.
sea levee	Also known as a dyke. A barrier constructed to contain sea water from entering low-lying land.
sea-level rise	An increase in the mean level of the ocean. Eustatic sea level rise is a change in global average sea level brought about by an increase in the volume of the world ocean. Relative sea level rise occurs where there is a local increase in the level of the ocean relative to the land, which might be due to ocean rise and/or land level subsidence. In areas subject to rapid land-level uplift, relative sea level can fall.
seawall	A structure separating land and water areas, primarily designed to prevent erosion and other damage due to wave action.
sedgeland	Landscape dominated by a cover of sedge grass.
sediment	Inorganic and previously organic loose material that is, or has previously been, mobilised by physical agents including wind, waves, currents and gravity. Sediment is primarily characterised by its size and composition.
sediment budget	A sediment budgeting exercise involves identification and (relative) quantification of all the sediment sources, transport pathways and sinks.
sediment cells (tertiary)	Small and relatively contained sediment compartments. A tertiary sediment cell may apply to a single beach/embayment.

sediment compartment	see **coastal compartment**
sediment transport	The process whereby sediment is moved offshore, onshore or along shore by wave, current or wind action.
sensitivity	In the context of a risk assessment, the term sensitivity refers to the degree to which a system is affected by, or responsive to a hazard.
shoaling	The behaviour of waves as they approach a shelving shore. The waves cease to be symmetrical and sinusoidal and become asymmetrical and solitary. Wavelength and wave velocity decrease, wave height and wave steepness increase, and wave period remains constant.
shoreface	The subtidal coastal zone between the low-water mark and a depth of about 10–20m, within which wave action governs the sedimentary processes. Below the lower limit of the shoreface waves do not affect the sea bed.
shoreline	A discrete line representing the landward limit of the sea at some point in time. Methods to define shoreline vary and may be based upon a fixed vertical level, or by the apparent interface of water and land using a particular means of detection, such as aerial photography.
shoreline rotation	A process that occurs on embayed beaches and causes a response similar to beach recession
shrubland	An open or closed stand of shrubs up to about two metres tall.
significant wave height	Average of the largest one-third of the waves in a record.
social capital	Links, shared values and understandings in society that enable individuals and groups to trust each other and so work together.
socio-cultural values	Socio-cultural values are intangible, place-based, and emerge from people's emotions and attitudes toward nature. These values are created in the minds of the beneficiaries of ecosystem services and therefore vary depending on the person.
soft engineering	Alternative approach to traditional (hard) engineering solutions using environmentally more sensitive interventions such beach replenishment, beach dewatering, vegetation planting or weed management.
Southern Annular Mode	Describes the north-south movement of the westerly wind belt that circles Antarctica.
spilling breakers	A wave type where the crest becomes unstable and flows down the front face of the wave producing a foamy water surface.
Stevenson screen	A widely used shelter that contains meteorological instruments, arranged so that they give standard readings. The screen consists of a box, with sides ventilated by louvres, a ventilated floor and upper part, and an air space between an inner and outer roof.
storm surge	Elevated sea level at the coast caused by the combined influence of low pressure and high winds associated with a severe storm such as a tropical cyclone. Includes wave run up and wave set up.

storm tide	The total elevated sea height at the coast above a datum during a storm, combining storm surge and the predicted tide height.
strategic asset management	Strategic asset management involves inventorying public assets and making economic decisions as to how to extract maximum value from them, including land and developed property.
surging breakers	A wave type where the crest remains unbroken and the front face of the wave advances up the beach with minor breaking.
swash	Oscillation in shoreline elevation.
swell	Long-period waves that have built up sufficient energy to move away from the area where wind stresses created them. The waves assume a uniform pattern and move even through areas where winds are weak or absent.
T	
thermal expansion	Refers to the increase in volume that results from warming water.
thermohaline circulation	Large-scale vertical motions of water in the ocean which are driven by density differences caused by variations in temperature and salinity.
threshold	The condition under which an asset or process is no longer able to achieve its desired objectives because of changing environmental conditions.
tidal barrage	Type of flood gate placed in an estuary to prevent flooding from elevated ocean water levels. Such structures may also be associated with tidal power generation.
tidal prism	The volume of water exchanged between a lagoon or estuary and the open sea in the course of a complete tidal cycle.
tide	The periodic rising and falling of the water surface resulting from gravitational attraction of the moon and sun and other astronomical bodies acting upon the rotating earth.
tide barrier	see **tidal barrage**
tipping point	A level of change in system properties beyond which a system reorganizes, often abruptly, and does not return to the initial state even if the drivers of the change are abated. Usually biophysical thresholds where the magnitude of change means the current management strategies will no longer meet their intended goal. An example is permanent inundation of a salt marsh or mangrove.
tort law	A body of rights, obligations, and remedies that is applied by courts in civil proceedings to provide relief for persons who have suffered harm from the wrongful acts of others. The person who sustains injury or suffers pecuniary damage as the result of tortious conduct is known as the plaintiff, and the person who is responsible for inflicting the injury and incurs liability for the damage is known as the defendant or tortfeasor.

tradeable development rights	TDR is the sale of one parcel's development rights to the owner of another parcel, which allows more development on the second parcel while reducing or preventing development on the originating parcel.
trained entrance	Estuary entrance fixed by artificial rock or other armour material walls, often extending seaward of the adjacent shoreline. In addition to controlling the position of estuary entrances, the structures act as sea walls for the banks of the estuary.
training wall	A wall to divert or contain the flow of water.
transformational adaptation	Adaptation actions which result in a significant change to community goals and expectations, or how they are met, potentially disrupting those communities and their values.
transformative adaptation	see **transformational adaptation**
Travel Cost Method	(TCM) Surveys are used to collect trip expenditure, frequency data and place of origin from visitors to a site. TCM creates proxies for the value of non-traded goods and services.
tropical cyclone	A non-frontal low pressure system (below 1000hPa) rotating clockwise (in the southern hemisphere) that is of tropical origin and in which 10-minute mean wind speeds exceed gale force (63km/hr, 34kt or 17.5m/s).
turbidity	Measure of water clarity or the capacity of water to transmit light.
U	
uncertainty	A state of incomplete knowledge that can result from a lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from imprecision in the data to ambiguously defined concepts or terminology, or uncertain projections of human behaviour.
V	
valuation	The act of assessing, appraising or measuring value or importance.
value	The importance, worth, or usefulness of something or an individual's judgment of what is important in life.
value capture	Value capture funding methods identify and collect an equitable portion of the value released through new zoning and other public improvements so the communities that create this value share in the wealth it generates.
value-articulating institutions	Institutions (rules) that allow individuals and groups to express their values and enable these values to be accommodated in decision making processes.
vulnerability	The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

W

wave diffraction	When the wave energy is transferred laterally along a wave crest as the wave passes an obstruction such as a headland, island or breakwater
wave height	The vertical difference in elevation between the wave crest and the adjacent wave trough.
wave refraction	The process by which the direction of waves moving in shallow water at an angle to the submarine contours is altered.
Wave Rider Buoys	Buoy with equipment fitted to continuously measure wave height, wave direction and wave period.
wave run up	The ultimate height reached by waves (storm or tsunami) after running up the beach and coastal barrier.
wave set up	The super-elevation in water level across the surf zone caused by energy expended by breaking waves.
wave shoaling	An increase in wave height as a consequence of waves entering progressively shallower water depths
wavelength	Average distance between two successive wave crests.
weather	The weather describes short term changes in variables such as temperature and rainfall.
weir	A low dam built across a stream in order to raise the water level or divert the flow.
whitecapping	Whitecapping refers to the steepness-induced wave dissipation in deep water during which some air is entrained into the near-surface water, forming an emulsion of water and air bubbles (foam) that appears white.
wicked problems	Widely accepted concept of intractable problems for which there are no clear and easily identifiable solutions or indeed a measure or endpoint that suggests that the problem has been solved. The concept of wicked problems was developed by Rittel and Webber in 1973 in the planning context but has wide application across social policy and planning domains.
wind setup	The vertical rise of a body of water above still water level, caused by wind stresses on the surface of the water.
wind waves	Wind waves are either sea or swell. Sea is generated by local winds at the time of observation. Swell has travelled to the coast after being generated by winds at a distant location.

Z

zooplankton	Animal component of the plankton community.
zooxanthellae	Unicellular dinoflagellates (usually classified as algae) that live symbiotically with certain corals.

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