

Table S1. Themes of survival likelihood characterisation based on reflexive thematic analysis of expert opinion from questionnaire 1, transcribed as intelligent verbatim

Final theme	Original terms
Animal returns to normal life and full functioning in its natural environment	<p>The likelihood that an animal will return to a normal life with conspecifics; Being fit enough to return to effective function back in the ocean - a compromised animal will likely have prolonged suffering if not able to function; The likelihood that a cetacean will swim away from a stranding and return to an independent life in the wild; Survival likelihood is the probability that the animal will recover to function fully (swim, feed and reproduce); A stranded cetacean returning to the ocean and living the rest of its natural life with no long-term effects from the stranding event; The probability to persist (and thrive i.e. Reproduce and return to a 'normal' life i.e. Wild in natural habitat) after a stranding incident; The ability to return to a pre-stranding life and have a "normal" life and reproductive expectancy; The possibility to survive stranding and carry on a normal life again; The capability of an animal to recover to its normal healthy conditions in order to be able to survive on its own in the wild; Living to an average lifespan for that species in that situation/country/environment; Able to survive in the same way as other unstranded members of that species; Breeding normally after stranding; Probability of an animal that has been refloated returning to normal behaviours and not re-stranding within the days following a stranding; Animal resumes typical behaviours and life history strategies when refloated; Potential to return to a normal physiological state; Stranded animal will not only swim away but also continue to function as part of a population and contribute to the population's success (e.g. Reproduce); Survive and function out in the wild with little to no physical or behavioural deficiencies; Will it be able to make it's migrations? Will it be able to feed? Will it be able to mate, carry a calf a calf, give birth?; Chances of living a normal or close to normal life in the wild; Individual will survive for long enough to return to its natural habitat and resume normal feeding/breeding/migration behaviour; Ability to return to the wild and resume a productive and adaptable lifestyle, Survivability includes the ability to forage, defend against predators, be accepted and maintained within an appropriate social structure with conspecifics, breed, and shelter; Return to the sea of the animal without returning to beach itself again, and able to hunt and swim in a proper way; Long-term survival means that the animal re-joined its group, is reproducing and ensuring that its population survives; Long and full life; Recommencing natural behaviours in the natural environment; Number of cases retrieved to the wild and which go back to their normal social group and/or habitat and survive for at least a month to several months post stranding event; Individual will survive for long enough to return to its natural habitat and resume normal feeding/breeding/migration behaviour; Home range similar to previous; Recommencing natural behaviours in the natural environment</p>
Animal returns to pre-stranding life and health status	<p>The likelihood that the animal can return to the same or similar status in the wild to its pre-stranding status; Probability that animal will recover to its pre-stranding state of health with no change between pre- and post-stranding likelihood in its daily point probability of death; Survival likelihood means the potential for individuals to reach the survival rates that were applicable prior to the stranding (e.g. Survival of juveniles may be lower than adults in line with general survival rates); The</p>

	ability to return to a pre-stranding life and have a "normal" life and reproductive expectancy; Likelihood of the individual being able to continue life as it was 'before' the stranding
Animal survives after re-floating	The probability that the animal will live following refloat; How likely an animal is to survive after a refloat (not die as a result of the stranding); The probability of an individual stranded cetacean being successfully refloated; Animal resumes typical behaviours and life history strategies when refloated; Whether there is a chance the animal may survive given the circumstances - i.e. how long ashore, how many tides, temperature, species; Is the animal able to survive once released?; Just surviving the initial refloating event and then dying at sea without anybody noticing is clearly not related to a positive survival likelihood; Chance of being refloated; How likely it is for an animal at a stranding event to survive if refloated and released
The chance that the animal survives after stranding	That the animal will most likely survive; How likely it is for an animal to survive after being ashore for a given period of time; Probability and physical ability of an individual to live out its full lifespan following a certain event; The chance that an animal will survive in the midterm future; Survival probabilities for an animal to survive after a live stranding; The possibility to survive stranding and carry on a normal life again; How likely the animal is to survive; Probability of survival; Can we return this animal to the sea with a good chance of survival; The chance of that cetacean going on to have long term survival
Animal does not die of stranding related injuries or damage	Must survive long enough to overcome the stranding event, that is, not to die after days or weeks as a result of problems caused by the stranding; That the animal lives out the full length of its normal life AND is not encumbered by physical or other damage; How likely an animal is to survive after a refloat (not die as a result of the stranding); A stranded cetacean returning to the ocean and living the rest of its natural life with no long-term effects from the stranding event; Does not die a few weeks later from organ damage or physical injuries sustained during stranding or rescue efforts; Probability that the stranding event will not ultimately result in the death of the animal; Dying due to injuries suffered as a result of stranding and efforts to refloat; Animal was able to survive any trauma, injury or impacts of the stranding event; Animal that is rescued (refloated or rehabilitated) and released, will survive in the wild until dying due to sources unrelated to the original cause of the stranding event or sequelae of the stranding event; Long-term survival and an eventual death unrelated to the stranding event; The chance of that cetacean going on to have long term survival (i.e. survival not shortened due to the stranding event) following refloatation
Animal does not re-strand within days of being re-floated	If re-stranding occurs immediately and within a few days, the likelihood of survival is lower than in an animal that may swim into deeper waters; Probability of an animal that has been refloated returning to normal behaviours and not re-stranding within the days following a stranding; Successfully refloated and not re-stranding in the immediate future
Animal's body condition	Good body condition; Muscle condition are sub optimal we will elect to euthanise the animal
Animal's health condition, disease and illness status	In cases where stranding is suspected to be a product of pre-existing illness, I feel that the stranding event underpins low survival likelihood and these animals should be euthanised e.g. Neurological signs prior to stranding; Refloated/released based on the information on the animal's health/condition; Survival likelihood involves the health conditions of an animal

	that enable it to return to the sea and survive; Survival likelihood has a lot to do with whether the individual has a life-threatening illness; All other possibilities need to be considered on a case by case basis; Sick animal has bad survival expectations; No obviously significant clinical disease or injuries; Animal without brucellosis
Animal is able to respond and cope with natural conditions to ensure its survival	The capability of an animal to recover to its normal healthy conditions in order to be able to survive on its own in the wild; Extent to which the stranding event affected the animal's ability to maintain responses that ensure/enhance survival; How well an animal can cope with its natural conditions and anthropogenic pressures given its current health and mental state; Survive and function out in the wild with little to no physical or behavioural deficiencies; Will the animal survive and thrive? Will it be able to make its migrations? Will it be able to feed? Will it be able to mate, carry a calf a calf, give birth?; Old enough to be self-sufficient or obvious potential mother around; Ability to return to the wild and resume a productive and adaptable lifestyle; Return to the sea of the animal without returning to beach itself again and able to hunt and swim in a proper way
Animal alive 1 month after stranding	The probability the animal will be alive one month after the stranding event; Percentage of individuals who survive a pre-defined time; So here, it would be something like the % of animals surviving for 1 day/1 week or one month after stranding; Number of cases retrieved to the wild which go back to their normal social group and/or habitat and survive for at least a month to several months post stranding event; Survival is a long term outcome - not just the ability to swim away short term
Animal alive 6 months after stranding	Likelihood that a cetacean will swim away from a stranding and return to an independent life in the wild for at least the next six months, anything less may mean the animal has been in distress that entire time and then strands again/dies; Ability of animal to survive for extended time (months) after refloated
Animal alive 1 year after stranding	Surviving long term; Long-term viability in the population following re-floatation; Animal reaching benchmark milestones (such as living past a certain timeframe - for some studies this is listed as weeks, for others a year); Chance that the cetacean will survive for a year post refloating
Animal returns and socially re-integrate with its conspecific group/pod	The likelihood that an animal will return to a normal life with conspecifics; The probability to persist (and thrive i.e. Reproduce and return to a 'normal' life i.e. Wild in natural habitat) after a stranding incident; Potential to re-join a pod; Stranded animal will not only swim away but also continue to function as part of a population and contribute to the population's success (e.g. Reproduce); Number of cases retrieved to the wild which go back to their normal social group and/or habitat and survive for at least a month to several months post stranding event; Individual will survive for long enough to return to its natural habitat and resume normal feeding/breeding/migration behaviour; Social re-integration, independent (and cooperatively) foraging; Survivability includes the ability to defend against predators, be accepted and maintained within an appropriate social structure with conspecifics, breed; Long-term survival means that the animal has re-joined its group, is reproducing and ensuring that its population survives; Survival in the wild of an individual as a viable member of its society

Response of animal when re-floated	Response of the animal when reintroduced to shallow water
Survival is affected by species and size	Survival likelihood depends in general on the size in combination with the species of the animal; Size, fully beached large sperm, beaked and bottlenose whales unlikely viable; Tolerance of different species is critical here - in terms of ability to survive stranding and have positive outcomes
The number of re-stranded animals	% of stranded cetaceans back on the beach in the near future after a refloat
Avoids suffering	Survival likelihood should allow to avoid unnecessary sufferings and to refloat animals that have more chances to survive

Table S2. Themes of knowledge gaps relating to survival likelihood based on reflexive thematic analysis of expert opinion from questionnaire 1, transcribed as intelligent verbatim

Final theme	Original terms
Ability to determine presence of myopathy	Determining presence of cardiomyopathy in the live animal; Pathophysiology of capture type myopathies in stranded cetaceans; Increased knowledge on capture myopathy; Ability to diagnose common findings such as capture myopathy
Lack of data for species-specific survival	More solid evidence on the role of species in stranding survivorship; We need baseline or normal blood values for the different species of cetaceans; Lack of parameters for blood tests in many species; Post stranding survival by species; Extrapolate that a certain species or an animal in a certain condition (length of being drydocked, blood parameters) is not worth saving, while others (that might have previously been deemed unworthy) are; There is no international standard protocol for this (is that a 'knowledge gap'? Feels like it is - and whilst it would probably need to be species-specific with some regional aspects - this would be useful; Outcomes vary dramatically by species and location; One good example of predicting survivability is the case of <i>Kogia</i> sp. in the USA where most rehab facilities no longer attempt rehab with these animals as a species because of poor survivability in rehab to release
Lack of normal/baseline blood parameters and profiles	We need baseline or normal blood values for the different species of cetaceans; Lack of parameters for blood tests in many species; Short and long term clinical chemistry and endocrine disturbances associated with standings; Extrapolate that a certain species or an animal in a certain condition (length of being drydocked, blood parameters) is not worth saving, while others (that might have previously been deemed unworthy) are; Blood profiles; Blood parameters; Lacking information of prognostic indicators from blood analysis; Blood profiles
Lack of post release monitoring to measure survival outcomes	More use of satellite tags in re floated cetaceans; Decent post-release survivability data; Post stranding survival by species; Satellite telemetry; Post release monitoring; Lack of reliable outcome data; Long-term survival from chronic impacts; Better knowledge of outcomes of stranding events; Satellite tag monitoring of animals post release to assess

	<p>survival after strandings; Lack of knowledge of survival rates and thorough assessments of operational responses that can influence the outcomes; Studies of survival post stranding to prove that its low; Post-rescue survival; Tagging; Putting telemetry devices on all animals released; Lack of data on what happens to the animal after it leaves the beach is an issue; Important to monitor animals after release; Techniques and post release monitoring for large whales; Post release monitoring of small cetaceans, and beyond just location data, additional data is needed (dive data, behaviour); Lack of data on the outcome of most re-floatations; Lack of clear and measurable method to assess survival likelihood; Information on post-stranding movements of the animal; A lack of tracking and information on the survival of past releases; There is a paucity of information in this area due to relatively few examples other than anecdotal information found from specific response groups to a localized area i.e. Mote Marine Lab in Sarasota FL has a good record of the success rate of animal's they have rehabilitated and released in the Gulf of Mexico but there needs to be a more global coordination of these efforts with regional specific considerations; One good example of predicting survivability is the case of <i>Kogia</i> sp. in the USA where most rehab facilities no longer attempt rehab with these animals as a species because of poor survivability in rehab to release; Little data on survival of single stranded odontocetes post refloating; We don't tag enough animals so we have no idea if the actions and decisions we took on the beach 'worked' or not; Post release survival; Without suction tagging or other method to monitor the swimming pattern, range and detection of foraging activity, it is difficult to assess the impact of stranding on individual or mass strandings; Number of rescued animals to the number that can be monitored for knowledge gain; Don't think we have good knowledge of whether animals survive post release from most strandings; We make decisions based on health assessments and logistics, but don't have the follow through to see the results, unless the animal restrands; Telemetry or tagging to prove survival after refloating, particularly long-term i.e. months to years (rather than days/weeks); Data on survival following re-floating; Very little post stranding data on which to assess this; Telemetry is often proposed as the main tool but clearly involves an increased level of stress for the animal; Information from tagged individuals and their post-release survival; Some individuals have been tagged after stranding to assess post-release survival; Lacking knowledge on the survival of the animals after releasing; With little or no data to confirm whether refloating has been successful, information on survival probability seems like "educated guessing"; Very few case studies and many involve tagging the animals, which adds another layer of stress and can compromise the individuals; Limited information available to assess survival likelihood; Proper documentation of individuals at strandings, including species-specific identification features (e.g., eye patches of orca, callosities of southern right whales)</p>
Ability to assess internal body temperature	Internal temperature
How to make decisions about when and how to euthanise stranded cetaceans	Whether it is more humane to euthanise or provide palliative care, which might prolong the animal's life (and thus its suffering)

Ability to assess body condition and blubber thickness	Measuring blubber thickness/weight vs length/girth
Ability to triage current state/condition	Triaging the current state would give an indication of whether an underlying condition might impact the cetacean's survival chances
Lack of trained and skilled responders	Trained staff are not always available; A lack of skilled people who know; There is not a lot in literature or taught as a skill
Lack of knowledge about hearing impairments	Hearing loss
Lack of knowledge about causes and prevention of strandings and effects of local ecosystem changes	Changes in movements of their food sources, changes in water temperature, variations in main ocean currents, and/or other factors; The marine ecosystem is indeed extremely complex, but a better knowledge of this ecosystem could help to predict the pattern of future strandings; How to effectively predict and prevent mass strandings in different areas; Much to be understood about the cause of and impacts of strandings that we do not understand still
Ability to diagnose diseases and infections on the beach	Ability to diagnose common findings such as diseases like morbilli, brucella; Diagnostic on the beach of several diseases; Concomitant infections in a single animal, make the prognosis worse, therefore, availability of rapid tests that can be performed in the field are necessary to have a good idea of the medical status of the animal and have a better support for a medical decision
Lack of knowledge of treatments and their effectiveness	Treatment options and effectiveness of treatments
Lack of standardised protocols to follow	There is no international standard protocol for this (is that a 'knowledge gap'? Feels like it is - and whilst it would probably need to be species-specific with some regional aspects - this would be useful
Lack of data on the effects of conspecifics presence on survival	Think there's good literature on age-related issues (nutritionally dependent calves won't survive without a mother - adoption not being common and certainly not without a ready adopter waiting offshore!), but perhaps not on the need to have a pod of conspecifics nearby; It's common wisdom that this will help, but how much empirical data are available on that?
Lack of knowledge on the links between survival and welfare	General guidance on how survival and sustainability of animal welfare related release and possible prior rearing are; Survivability may be easier to consider than welfare as the physical condition of the individual is paramount in making this decision; Being able to assess the best animal welfare decisions and determining survival, pretty much need the same information and data; How negative impacts in the 5 domains influence survival; Links between observed indicators/behaviours and survival likelihood
Lack of data on species distribution	There may be reasonably good information available on some of the species at risk, particularly those of baleen whales. However, there is a lack of current knowledge on the spatial and temporal distribution of several species of toothed whales, particularly offshore species, recognizing the difficulty of gathering this kind of information

Lack of knowledge on the links between external assessments and pathology	Links between external assessment of cases and internal findings (linking pathology)
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Table S3. Themes of survival likelihood concerns based on reflexive thematic analysis of expert opinion from questionnaire 1, transcribed as intelligent verbatim

Final theme	Original terms
Ability to forage once re-floated	Ability post release to feed, forage; Inability to find food; Hunger; Availability of food when re-floated
Stress, anxiety and associated conditions caused by stranding	Stress; Suffering and distress; How distressed the animal is made to feel; Minimal stress; Stress endured during the stranding event; Stress-related conditions, e.g., Cardiomyopathy; Stress and capture myopathy
Effects of gravity, body weight, pressure on animal's organ function and physiology and causing internal injuries and pain as a result of not being supported by water	Severe physiological problems; Compression of internal organs in large animals, with impaired blood circulation; Physiological damage that cannot be remediated; Stranded on one side; Physical internal injury by own body weight; Risk of pressure on organs for large species; How large is the animal - how 'crushed' might its organs be; Unseen physiological changes that impact upon on long-term survival; Impaired organ function (e.g., kidney damage from dehydration, shock, myoglobin, circulatory compromise from stress cardiomyopathy); Organ damage from gas emboli; Pressure of gravity on organs, damage to internal organs; Cardio- failure; Extent of stranding related trauma physiological; Development of cardiomyopathy, Development of skeletal myopathy; Cumulative physiological damage accrued by the process of stranding (e.g. capture myopathy); Stress and capture myopathy; Myopathy; Muscle damage leading to impaired swimming +/- scoliosis; Stress levels) at re-floating; Effects of capture myopathy
Compromised hearing	Hearing impairment that may have led to stranding; Damage to the hearing system
Abnormal movements and reduced limb function	Abnormal movements; Diminished limb or fluke function; Behaviour response
Bleeding/fluids/mucus from orifices	Any mucus around blow hole or coming out of mouth
Cause of stranding still present	The cause of the stranding; Whether the precipitating or inciting cause of the stranding persists or has been removed from the local environment; Reason for stranding; Why the cetacean stranded in the first place; Distance from causative agents (e.g., Seismic or acoustic military surveys); Cause of the stranding; Not attended to main reason of the stranding (hit by a boat, different pathogen infection)
Dehydration	Dehydration

Disorientation and swimming ability	Disorientation; Ability to swim
Distance/position of animal from sea	How far is the animal from water; The degree of the stranding i.e., how far up the beach
Weather and environmental conditions, including tides	Weather; Weather and tidal conditions; Air temperature; Magnitude of tidal changes and timeline between high and low tide; Low vs high tidal changes, water accessibility; Weather conditions, sea state; Favourable environmental conditions- for example, not hot and dry; External environmental conditions; Sun; Weather conditions; Water temperature and quality; Time of year; Weather/water conditions at the time of stranding; The weather conditions e.g. temperature and humidity; Release conditions; Air temperature, sun exposure, tides; State of tide; Weather/wind/surf/tide conditions; Weather conditions [temperature, storms, waves, tides etc]; Time of release [related to tides, current, visibility (water clarity and day vs night)]; Weather and sea conditions at refloat site(s); Environmental conditions and parameters; Tides, wind, currents, topography
Animal exhaustion	Exhaustion; Weakness
Eye condition	Eye damage leading to impaired vision
Genital condition	A prolapsed uterus
Geographical location of stranding and being out of habitat or range	Geographic and oceanographic features of stranding site; Conformation of coastline and water depth; Species range (vagrants less likely to survive); Circumstance of stranding (e.g. Native vs lost animal); Animal has appeared in a very unusual location (well outside normal habitat); Location of the stranding and factors that may have caused it to strand initially - beach configuration, high seas, etc; Habitat/geographic region; Location of stranding (remote area, complex topography etc); The species i.e. coastal versus a pelagic, deep sea, offshore species; Geography and area of release; Out of habitat range; Location of stranding - whether the animal is in its key habitat; Landscape; Geographic location; Location; Distance from normal habitat; Depth of stranding; We make sure the species is in its range - if a Beluga is found in the River Thames there is little chance it will survive in the English Channel so we need to assess how far the animal is out of its natural range to see if we can release it or not; Habitat that animal is returned to, or placed in, is appropriate to the animal's natural home range
Human activity in surrounding environment	Anthropogenic factors in the immediate environment
Availability of appropriate and timely human intervention and handling, responder training and experience	The knowledge and experience of the stranding team, presence of a veterinarian in the stranding team; Management of stranding response; The sooner animal welfare-people know when stranding is at hand, the sooner they can try to prevent the stranding; Appropriate assessment, treatment; Professional conduct; Responses by the public (inappropriate assistance/ appropriate assistance/ hindrance/ exploitation e.g.; For food, traditional medicine, distance and availability of experienced

	<p>people, distance and availability of appropriate volunteers; A fast response from a team of experienced cetacean rescuers, with an experienced vet leading them through an assessment and decision making while they are supported in the correct way to look out for physical/mental/social welfare; AVAILABLE PERSONNEL WITH EXPERIENCE AND EXPERTISE; Handling during stranding (appropriate); Persons which are trained and specialized to deal with animals in these type of situations; If already in human hand, it should be helped; Where/how they were introduced; Intervention of humans to release individuals back into the sea; Kind or degree of human intervention (including handling) received while stranded; Access to experienced stranding response team; The response from humans (good vs poor, timely vs untimely); Availability of expert rescue team; Release protocols [inter alia, were the animals given appropriate time to recover whilst in the water and not just shoved out to sea and herded offshore]; Risks posed by early intervention by inexperienced people</p>
Distress and disturbance caused by human presence and interactions	Disturbance or distress from interaction with people and/or transportation
Animal suffering from illness, disease and underlying health conditions	<p>Disease status; Predisposing illness; Pre-existing disease not necessarily predisposing to stranding likelihood; Evidence of disease; Pre-existing health at point of stranding; Infectious diseases; Health status of individual(s); Infection; Underlying health condition; Disease, Chronic disease; Severity of any illness; Illness; Weakened or present some type of disease; Diseases affecting the brain, systemic severe diseases (morbillivirus, herpesvirus, brucella); Condition when stranded; Health status of the animal as assessed by well-informed professionals; Health; Health status of animal at the time of stranding i.e. was ill-health the initial cause of the stranding; The baseline health status of the cetacean; The underlying health of the individual that stranded; Pre-existing conditions and overall health prior to the stranding event; Health status of the individual before stranding; It's overall health condition upon stranding; Health status in general; Immune response compromise; Chronic diseases or not approved medication for successful treatment</p>
Physical injury or trauma caused by stranding	<p>Severity of injuries suffered due to efforts to refloat; Traumatic injury; Evidence of trauma; Trauma; Fractures in the skull bones; Inflicted physical injuries (external or internal) by stranding event; Physical trauma (not recoverable); Existing injuries; Severity of any injury; Presence of injury; Injury; Physical external injury by external factors, Physical external injury by own body (i.e. Weight, thrashing); Injuries and overall condition and strength; Injuries sustained (both in stranding and returning to the sea); Wounds; What are the nature of its injuries; Presence of injuries; Obvious damage to animal e.g. Wounds; Injuries sustained during the stranding; Physical injury; Injuries; Soft tissue injury; Direct injuries; Condition (i.e. injuries); Evidence of significant trauma; Extent of</p>

	injuries; Severity of injuries suffered due to stranding; Severity of injuries from stranding event; Health status as the result of being ashore; Severity of any injuries/blood loss; Badly injured; We look for any signs of damage to the animal - wounds; Injury type; Wounding; Physical ability where no injuries or impairments hamper the animal's ability to survive and the animal can feed, breed, shelter and protect itself; Extent of stranding related trauma physical
Helplessness due to being unable to move	Helplessness through inability to move
Animal age based on length/weight and reproductive status	Age; Age e.g. Maternal dependency; Size - larger = less likely to survive; Size of the animal/s involved; Whether the cetacean is maternally dependent; Age (very young and very old individuals less likely to survive stranding); Age/maternal dependency; Old age (some stranded animals that I have seen are old and diseased - possibly stranding as the last thing they do in their normal arc of life); Age class, size; Animal is fully maternally independent; Size/weight; Age/size of individuals; Age i.e. Mature versus immature (dependent); Age of animal/s; If the individual is maternally dependant and the mother is dead; Size; Life stage; The age of the individual; Weight; Age (neonate VS adult); Body mass; Size; Reproductive; Time from parturition
Animal awareness and neurological status	Neurological lesions; Neurologic disease; Full sensory awareness of its environment; Cognition and mental capacity of the animal to carry out those behaviours needed to thrive
Body condition and nutritional status	Prey availability; Body condition; Nutritional condition; Excessive thinness; Nutritional status, body condition (if emaciated, the reduced blubber may impede buoyancy); Severe emaciation (some stranded animals that I have seen are very thin); Condition (healthy, thin, emaciated); Poor body condition; Emaciation; Fat levels; Evidence of poor nutritional state - for example emaciated; Condition; Body condition - we need to be happy the animal is in moderate to good body condition; We use the lumbar muscle at the base of the dorsal fin to assess this: Concave is bad body condition - Convex is good; Nutritional state
Presence of parasites	Presence of parasites
Documenting animals on the beach for re-identification	If the animal was documented correctly on the beach so that it can be confirmed as resighted later - i.e., undocumented animals can't be confirmed as resighted and subsequent strandings cannot be confirmed as the same animal
Presence of predators and scavengers	Presence of reef, presence of sharks; Fear of predation; Predation; Presence of predators; Some injuries may be due to predators; Avoid predators in post-stranding environment; Predators/scavengers
Feasibility and speed of rescue/re-floatation based on human and equipment resources, location of	Speed of intervention (e.g. Stranding time, response time, etc.); How soon first responders arrived and gave emergency care to the animal from the time it stranded; Location; Location of stranding - access to stranding site; Availability of resources, location of stranding; An alert alarm system (peoples

stranding, time of day, responder expertise and experience and human safety	network) for stranding of cetaceans; Refloatation and rehabilitation; Availability of stranding network/responders and response equipment; Availability of boats, equipment; Availability of permitting authorities; Available resources; Ability to safely - or otherwise - mount a rescue effort; Ability to be moved to appropriate release site - if required, ability to stabilise animals, ability to manage other people, media coverage which may influence the ongoing level of resourcing, assessment of options; What medical assistance can be given; Assistance/treatment used on the animals; How much help do you have to get the animal back in the water; Access to well-managed human resources to attend to the stranded animal in a timely manner, access to at least temporary holding facilities for holding the animal under observation for a few days if necessary; If they were under human care for how long; The facilities and desire to assist; Stranding location (do animals need to be transported or can they be refloated on scene); Treatments, supportive care, and techniques to minimize stress and negative impacts of the stranding can help; Urban versus rural setting; Access to equipment such as stretchers/pontoons; Rehabilitation [none vs in a concrete tank vs in a sea pen as well as duration and social networking during rehabilitation - e.g., youngster removed from mother, siblings removed from pod]; Availability of equipment, accessibility of rescue site; Ability of responders to return the animal and any group members fully to the deep (or just into the waves); Time of the day the animal stranded; Ability to move animals into deeper water if needed; Speed of human response; Speed of intervention (e.g. Stranding time, response time, etc.)
Difficulty breathing, inhalation of water	Water aspiration; Breathing compromised due to compression of the lungs or ingestion of sea water; Drowning by returning tide; Abnormal respiration; Respiratory failure; We look for any signs of breathing difficulties
Skin damage and associated pain due to sunburn, dehydration/desiccation occurring when out of water in sun	Sunburn; Loss of large portions of the skin; Whether it remained in water or was beached on sand i.e., Sunburn; Extensive skin damage (blistering, crabs, gulls) leading to body fluid loss; Too hot skin lesions; Damage to skin
Separation from conspecifics/social group	In the case of social species: presence of unstranded pod members in the vicinity; Ability to re-join social groups; Social structure of species; Proximity of conspecifics when released; If social animals, whether conspecifics are within the region; Irreversible separation from their pod/group; Socially independent; Presence of conspecifics, particularly for social species; Mental Stress, due to separation from pod; Whether other group members are present for a gregarious species; Having lost the pod/relatives; Whether the animal has been separated from its pod or whether it is able to return to its group; In a mass stranding, the survival of conspecifics might be important too; Dependent calf or juvenile that does not successfully re-join dam or conspecifics; Loss of social group/social cohesion; Loss of social contacts with conspecifics; Likelihood that a single stranded animal will be able to re-

	join its pod; Social behaviour; Personality; Presence/absence of other individuals and relatedness to them - especially if they are stranded too or remain stranded; Social group/species (those animals known to live individually will have higher chances of survival when retrieved alone, than those known to normally live in family or social groups); The survival of conspecifics, particularly senior pod members perhaps; Social factors; Strength of social bonds with pod mates or dependence on pod mates; Social dependency; Number of animals stranded; The number of animal/s involved; Single or multi species stranding; With group or alone; Numbers of simultaneously stranded animals; Proximity/survival of pod members; Proximity/condition of likely mother if unweaned calf
Effect of species biology on survivorship	Species; Species - especially social pelagic vs more solitary species (the latter having higher survival likelihood); The species of the animal; Species involved; Species-specific protocols applied or not
Length of time stranded and number of re-strandings	Duration of stranding; Length of time ashore, particularly important in large cetaceans; Length of stranding event; Stranding duration (the longer stranded the worse the chances of survival); Period of time out of the water; How long it has been out of the water; Minimal length of time stranded; Length of time stranded; Time since stranding; How long an individual has been stranded for (and size of species; How long has the animal been out of water; How long they were stranded and how long it took to refloat them; Number of tides ashore; Time ashore; Time spent on the beach; Amount of time on beach; Time between stranding and release; Length of event; How long they were stranded for; Length of time stranded; The time that the cetacean was found after stranding; Stranding length; The time between stranding and release; Time on the beach; Time on land; Time spent ashore; Time from stranding to assessment, treatment, refloatation; Duration that the animal(s) were on the beach [extended periods may contributing factors, but extended periods have occurred and animals have survived, so this is one of a matrix of factors]; The time it has been on the beach; Time between stranded and return into the water; Number of previous refloat attempts
Substrate/terrain at the stranding location	Geography of stranding location (beach versus rocks); The nature of the terrain the animal strands on; Location substrate; Substrate type (rocky/sandy shore?); Substrate
Too hot/hyperthermia	Hyperthermia; Heat Stroke; Too hot hypethermia
Fear of novel environment	Fear of alien environment
Duration and severity of impacts	Severity and duration of negative impacts in all 4 physical domains; Severity and duration of negative impacts in any of the physical domains during refloatation; Severity of event