**Table S1.** Description of all threats (sources of risk) used in the risk analysis (n = 37). All threats are either current threats, long-term ongoing threats# (climate change) or near-future threats\* (2015 to 2030). Information concerning climate change threats (i.e. past and near-future 2030 predictions) were sourced from the Australian Bureau of Meteorology. HM = Habitat modification

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| **Threat** | **Description** |
| Acid sulphate soil disturbance | * Also includes acid water drainage from acid sulphate soil disturbance |
| Aquaculture: mussels | * Growout, sub-tidal sub-surface longlines |
| Aquaculture: Pacific oyster | * Growout, intertidal rack-and-rail and longlines * Sub-threats include trampling, sedimentation, shading with rack-and-rail * Does not include impacts from invasive feral populations or hatcheries |
| Aquaculture: predatory fish (plus diffuse nutrients) | * Growout, sea cages, southern bluefin tuna and yellowtail kingfish * Main threat includes high diffuse nutrient input * Does not include impacts from hatcheries or introduced pathogens |
| Boating | * From recreational activities, commercial fishing, aquaculture operations and ecotourism * Sub-threats include grounding, sediment re-suspension, anchor damage, waste discharge and antifoulants * Does not include threats related to invasive species or fishing |
| Brine discharge\* | * From a desalination plant * While no desalination plants currently exist in spencer gulf, it is expected that they will be developed in the near-future |
| Climate change: ocean acidification# | * Decrease in ocean pH by 0.07 * Consider that ocean pH has already decreased over the past 200 years by about 0.1 |
| Climate change: global warming# | **For inter-tidal and sub-tidal habitats:**   * Increase in mean sea surface temperature by 0.8°C * Consider that SST increase, over the past 100 years, has been relatively minimal for the South Australian region (< 0.1°C)   **For inter-tidal and extra-tidal habitats:**   * Increase in mean air temperature by 0.4 to 1.1°C * Consider that air temperature, over the past 100 years, has already increased by around 0.7°C in the South Australian region |
| Climate change: sea level rise# | * Rise in mean sea level by 120 mm (12 cm) * Consider that sea level has been rising along the Australian coastline about 2.1 mm/year over the past 50 years * Sub-threat includes increases in extreme sea level events (e.g. Astronomical tides, storm surges and wind waves) |
| Climate change: increase in hot weather events# | * Increase in number of hot days (air temperature > 35°C) to 60 days/year * Consider that most of the Spencer Gulf region has experienced about 30 hot days/year over the past 30 years |
| Climate change: increase in extreme rainfall events# | * Increase in the intensity, rather than frequency, of rainfall events. Magnitude of increase unknown. |
| Climate change: decrease in rainfall# | * 15% decrease in winter rainfall * Consider that there has been a prolonged period of drying in the South Australian region since the 1990s |
| Coastal activities | * Such as walking, sunbathing, off-road vehicles and grazing |
| Coastal habitat modification | * Such as land reclamation, native vegetation removal and shoreline hardening * Does not include threats associated with increased coastal activities, sediment runoff and acid sulphate soil disturbance |
| Disease & pathogen outbreaks | * Outbreaks from naturally occurring and introduced species * Does not include harmful algal blooms |
| Fishing: hand collection | * Abalone, commercial and recreational |
| Fishing: handline, longline | * Scalefish, commercial and recreational * Sub-threats include low level bycatch |
| Fishing: haul nets, gillnets | * Scalefish, commercial and recreational * Sub-threats include medium level bycatch |
| Fishing: pots | * Blue crab and rock lobster, commercial and recreational * Sub-threats include low level bycatch |
| Fishing: demersal trawl | * Western king prawns, commercial * Sub-threats include high level bycatch and sediment re-suspension |
| Fishing: purse seine | * Sardines, commercial * Sub-threats include low level bycatch |
| Fishing: illegal | * All types |
| Harmful algal blooms | * Outbreaks from naturally occurring and introduced species |
| Heavy metals | * Point source and diffuse pollution from historical mining operations, stormwater, metal manufacture and power stations |
| Invasive species: benthic filter-feeders | * Key species include European fanworm, Pacific oyster and pearl oyster |
| Invasive species: encrusting, fouling | * Key species include ascidians, hydroids and macroalgae |
| Invasive species: predators, parasites | * Key species include crabs, goby fish and shell-boring worms |
| Marine debris | * Includes general litter, fishing gear, aquaculture gear and illegal dumping |
| Marine HM: commercial harbors, ports | * Sub-threats include alteration of currents/tides, sedimentation and coastal erosion |
| Marine HM: jetties, seawalls | * Sub-threats include alteration of currents/tides, sedimentation and coastal erosion |
| Marine HM: marinas, boat ramps | * Sub-threats include alteration of currents/tides, sedimentation and coastal erosion |
| Marine HM: dredging\* | * Sub-threats include alteration of currents/tides and sediment re-suspension |
| Nutrient discharge (point source) | * Mainly nitrogen and phosphorous * Point-source pollution from wastewater treatment plants, stormwater drains, steel manufacture, fish processors, power plants, land-based abalone farms, aquaculture (finfish) hatcheries, agricultural runoff via riverine/creek discharge and shark-cage berley * Does not include impacts from sea cage aquaculture |
| Oil spill | * The most-likely, worst-case oil spill for Spencer Gulf. For example, the 1992 *‘ERA’* spill: fuel source = ship’s fuel from ruptured fuel tank; fuel type = highly-persistent heavy fuel oil not easily broken down by chemical dispersants; spill size = 100s of tonnes. |
| Sediment runoff & dust | * From land clearance and coastal habitat modification |
| Shipping | * > 100 ships crossing a habitat per year * Sub-threats include sediment re-suspension, anchor damage, waste discharge, noise and antifoulants * Does not include threats related to invasive species or oil spills |
| Shipping (high level)\* | * As above, but based on near-future predictions for shipping intensity in Spencer Gulf (300 to 600 ships crossings per year) |
| Thermal pollution | * Point-source from power plants and steel manufacture |