

FACT SHEET 2

Statewide threat & risk assessment for the NSW marine estate

THREATS AND STRESSORS TO ENVIRONMENTAL ASSETS AND SOCIAL, CULTURAL AND ECONOMIC BENEFITS

The [NSW Marine Estate Threat and Risk Assessment Final Report](#) and [interactive TARA tool](#) presents the findings of the statewide TARA by activity, threat, asset or benefit. Engagement on the draft statewide TARA has highlighted that people approach the TARA in different ways including by stressor (the impact of an activity), e.g. marine debris or water pollution, rather than the threat or activity itself, e.g. shipping or urban stormwater discharge. This fact sheet outlines the key stressors for the activities and threats assessed in the statewide TARA with low, moderate, or high risks attributed.

If you are interested in a particular stressor, look up the activity or threat related to that stressor (see Table 1 or 2) using the [TARA interactive tool](#). Approaching the statewide TARA in this way, you may need to investigate multiple activities or threats across the different threat and risk assessments (coastal and marine, estuarine and/or social, cultural and economic).

A variety of [reports and supporting material](#) are available on the [marine estate website](#) which may help you to further understand the statewide TARA and how to use the [TARA interactive tool](#).

WHAT IS AN ACTIVITY, THREAT OR STRESSOR?

An **activity** is something occurring in the NSW marine estate. The activity may result in a community benefit and/or a threat that poses a level of risk to an environmental asset or social, cultural or economic benefits (e.g. boating, fishing, dredging, or shipping).

A **threat** is a broad activity, event or process that poses a potential level of risk to an environmental asset or social or economic benefit. Threats often affect multiple assets/benefits and similarly, an asset/benefit may be affected by multiple threats.

A **stressor** is an element of an activity (e.g. water pollution) that potentially causes an effect on an environmental asset (e.g. clean waters) or social and economic benefit (e.g. recreation and tourism activities at a local beach or waterway). Different activities may lead to the same stressors (e.g. foreshore development and dredging activities can produce different forms of water pollution (the stressor) if not managed effectively).

A [glossary of terms](#) has been developed to help explain some of the terminology used in the statewide TARA.

KEY STRESSORS FOR THREATS/ACTIVITIES WITH LOW, MODERATE, OR HIGH RISKS TO ENVIRONMENTAL ASSETS

Table 1. Key stressors from specific activities with low, moderate, or high risks to environmental assets (coastal and marine TARA and estuaries TARA)

Activities	Activity category	Specific Activity	Key Stressors
Resource use	Aboriginal cultural fishing	Line fishing, spearfishing, hand gathering, traditional fishing methods, related cultural traditions	<ul style="list-style-type: none"> Physical disturbance Reduction in abundances of species and trophic levels
	Estuary based aquaculture	Oyster aquaculture	<ul style="list-style-type: none"> Water pollution Physical disturbance Wildlife disturbance
		Mussel aquaculture	<ul style="list-style-type: none"> Wildlife disturbance
		Prawn aquaculture	<ul style="list-style-type: none"> Water pollution (sediment resuspension)
	Bait and aquarium trade	Imported baits, imported fish and other aquatic sp.	<ul style="list-style-type: none"> Pests / disease
	Charter activities	Whale and dolphin watching	<ul style="list-style-type: none"> Wildlife disturbance Water pollution Marine debris
	Charter fishing	Line fishing	<ul style="list-style-type: none"> Physical disturbance Incidental catch of species of conservation concern Reduction in abundances of species and trophic levels
	Commercial fishing	Ocean trap and line fishery	<ul style="list-style-type: none"> Reduction in abundances of species and trophic levels Marine debris Physical disturbance
		Ocean trawl fishery	<ul style="list-style-type: none"> Reduction in abundances of species and trophic levels Incidental bycatch Incidental catch of species of conservation concern Physical disturbance
		Ocean haul fishery	<ul style="list-style-type: none"> Reduction in abundances of species and trophic levels

Activities	Activity category	Specific Activity	Key Stressors
			<ul style="list-style-type: none"> Incidental catch of species of conservation concern Wildlife disturbance
		Sea urchin and turban shell fishery	<ul style="list-style-type: none"> Reduction in abundances of species and trophic level
		Lobster fishery	<ul style="list-style-type: none"> Reduction in abundances of species and trophic level Physical disturbance
		Abalone fishery	<ul style="list-style-type: none"> Reduction in abundances of species and trophic level
		Estuary general fishery	<ul style="list-style-type: none"> Reduction in abundances of species and trophic levels Incidental bycatch Incidental catch of species of conservation concern Physical disturbance Wildlife disturbance
		Estuary prawn trawl fishery	<ul style="list-style-type: none"> Water pollution (sediment resuspension) Reduction in abundances of species and trophic levels Incidental catch of species of conservation concern Incidental bycatch Wildlife disturbance
	Dredging (includes placement)	Navigation and entrance management and modification, harbour maintenance, etc.	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance Water pollution (sediment resuspension)
	Mining and extractive industries	Oil, gas, minerals, sand, aggregate, mining coal	<ul style="list-style-type: none"> Water pollution Physical disturbance
	Modified freshwater flows	Extraction, artificial barriers to estuarine flow	<ul style="list-style-type: none"> Changes to tidal flow velocity and patterns Water pollution
	Recreation and tourism	Boating and boating infrastructure	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance Water pollution Bank erosion
		Snorkelling and diving, and other recreational use	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance
		Swimming and surfing and passive use including dog walking	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance Marine debris
		Four wheel driving	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance

Activities	Activity category	Specific Activity	Key Stressors
		Shark meshing of swimming beaches	<ul style="list-style-type: none"> • Incidental bycatch • Incidental catch of species of conservation concern
	Recreational fishing	Shore based line and trap fishing	<ul style="list-style-type: none"> • Reduction in abundances of species and trophic levels • Physical disturbance • Marine debris • Incidental bycatch • Wildlife disturbance • Incidental catch of species of conservation concern
		Boat based line and trap fishing	<ul style="list-style-type: none"> • Physical disturbance • Reduction in abundances of species and trophic levels • Incidental bycatch • Incidental catch of species of conservation concern • Marine debris • Wildlife disturbance
		Spearfishing	<ul style="list-style-type: none"> • Reduction in abundances of species and trophic levels • Incidental catch of species of conservation concern
		Hand gathering	<ul style="list-style-type: none"> • Physical disturbance, • Reduction in abundances of species and trophic levels
		Estuary fish stocking	<ul style="list-style-type: none"> • Physical disturbance
		Service infrastructure	Pipelines, cables, trenching and boring
	Shipping	Large commercial vessels and associated port activities and industries (trade ships, cruise ships, etc.)	<ul style="list-style-type: none"> • Water pollution (toxic contaminants) • Marine debris • Physical disturbance • Wildlife disturbance
		Small commercial vessels (ferries, charter boats, commercial fishing, whale watching etc.)	<ul style="list-style-type: none"> • Water pollution (toxic contaminants, sediment resuspension) • Marine debris • Physical disturbance • Wildlife disturbance
Land-based impacts	Hydrologic modifications	Estuary entrance modifications + Breakwaters	<ul style="list-style-type: none"> • Changes in tidal flow and patterns • Changes in tidal prism • Water pollution
	Land use intensification	Urban stormwater discharge	<ul style="list-style-type: none"> • Water pollution • Physical disturbance • Marine debris

Activities	Activity category	Specific Activity	Key Stressors	
		Foreshore development (seawalls, reclamation, public access infrastructure, transport infrastructure)	<ul style="list-style-type: none"> Physical disturbance Changes to tidal flows 	
		Stock grazing of riparian and marine vegetation	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance Water pollution 	
		Beach nourishment and grooming	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance Water pollution 	
		Clearing riparian and adjacent habitat including wetland drainage	<ul style="list-style-type: none"> Physical disturbance Water pollution (acid sulphate soils) Changes to tidal flows 	
		Agricultural diffuse source runoff	<ul style="list-style-type: none"> Water pollution (nutrients and organic matter, toxic contaminants) 	
		Deliberate introduction of animals and plants	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance 	
	Point discharges	Industrial discharges	Industrial discharges	<ul style="list-style-type: none"> Water pollution (nutrients and organic matter, toxic contaminants) Sediment contamination
			Thermal discharges	<ul style="list-style-type: none"> Thermal pollution
			Sewage effluent and septic runoff	<ul style="list-style-type: none"> Water pollution (toxic contaminants, nutrients and organic matter) Marine debris
	Climate change within 20 and 50 years	Climate change	Altered ocean currents and nutrient inputs	<ul style="list-style-type: none"> Altered ocean currents & nutrient inputs
			Climate and sea temperature rise	<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance
Ocean acidification			<ul style="list-style-type: none"> Acidification 	
Altered storm and cyclone activity, flooding, storm surge, inundation			<ul style="list-style-type: none"> Physical disturbance Wildlife disturbance Water pollution 	
Sea level rise			<ul style="list-style-type: none"> Physical disturbance 	

KEY STRESSORS FOR THREATS WITH LOW, MODERATE OR HIGH RISKS TO SOCIAL, CULTURAL AND ECONOMIC BENEFITS

Table 2 Key stressors from threats with low, moderate, or high risks to social, cultural and economic benefits

Threats	Key Stressors
Critical knowledge gaps	<ul style="list-style-type: none"> Inadequate social and economic information
Environmental	<ul style="list-style-type: none"> Water pollution – septic runoff, point source pollution and sewage overflows Water pollution - urban stormwater discharge Water pollution - Agricultural diffuse source runoff Water pollution - litter, solid waste, marine debris and microplastics Wildlife disturbance Habitat (physical) disturbance Reductions in abundances of species and trophic levels Pests/diseases Modified hydrology/hydraulics and flow regime Sediment contamination Climate change (20 years and 50 years)
Governance of the marine estate	<ul style="list-style-type: none"> Inadequate, inefficient regulation, over regulation (agencies) Lack of or ineffective community engagement or participation in governance Lack of community awareness of the marine estate Lack of compliance with regulations (by users) or lack of compliance effort (by agencies)
Lack of access availability	<ul style="list-style-type: none"> Limited or lack of access of land-water interface infrastructure to the marine estate Loss of public access (either by private development or Government area closures/regulation)
Public safety	<ul style="list-style-type: none"> Wildlife interactions Seafood contamination Other water pollution/contamination affecting human health and safety
Resource use conflict	<ul style="list-style-type: none"> Conflict over resource access and use Anti-social behaviour and unsafe practices Overcrowding/congestion Loss or decline of marine industries Excessive or illegal extraction

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (October 2017). However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Department of Industry, Skills and Regional Development or the user's independent advisor.

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