

A contribution to  
**An analysis of medium to long-term impacts on the Australian Oceans**

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### 1.1 Seabed mining

Seabed mining is still considered an emerging industry in Australia (Evans and others 2017) and consequently, there are no projections for the sector although exploration to assess the resource have occurred and exploration licenses have been granted (Evans and others 2017). Also referred to as marine mining (Evans and others 2017) offshore mining (Geoscience Australia 2019) and seafloor mining (Boughen and others 2010), it refers to mining of mineral resources within Australia’s maritime jurisdiction (Evans and others 2017; Geoscience Australia 2019). Legally, mineral exploration and recovery in the first 3 nautical miles offshore, referred to as “coastal waters”, is governed by each State. Beyond the first 3 nautical miles and up to the continental shelf boundary is referred to as the “adjacent area” and is governed by Commonwealth legislation

Australia’s offshore mineral resources in coastal waters include sand and gravels, salt, coal, heavy minerals including mineral sands (e.g. titanium, zirconium, thorium, tungsten, gold, tin and diamond), manganese, copper, gold and uranium (Evans and others 2017; Geoscience Australia 2019). Many of these mineral resources are seaward extensions of terrestrial deposits (Evans and others 2017). Australia’s deep ocean mineral resources, beyond 3 nautical miles from the coast, include manganese nodules and crusts, base metals and precious metals (copper, zinc, lead, gold, silver deposits formed by active hydrothermal vents) and rare-earth metals (Figure 1).

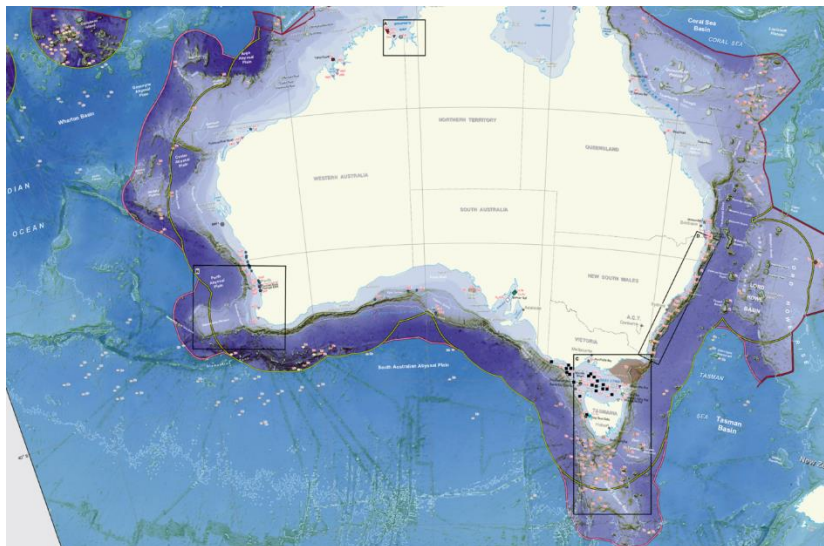


Figure 1 Map of Offshore Mineral Resources in Australia (Geoscience Australia and Young 2006).

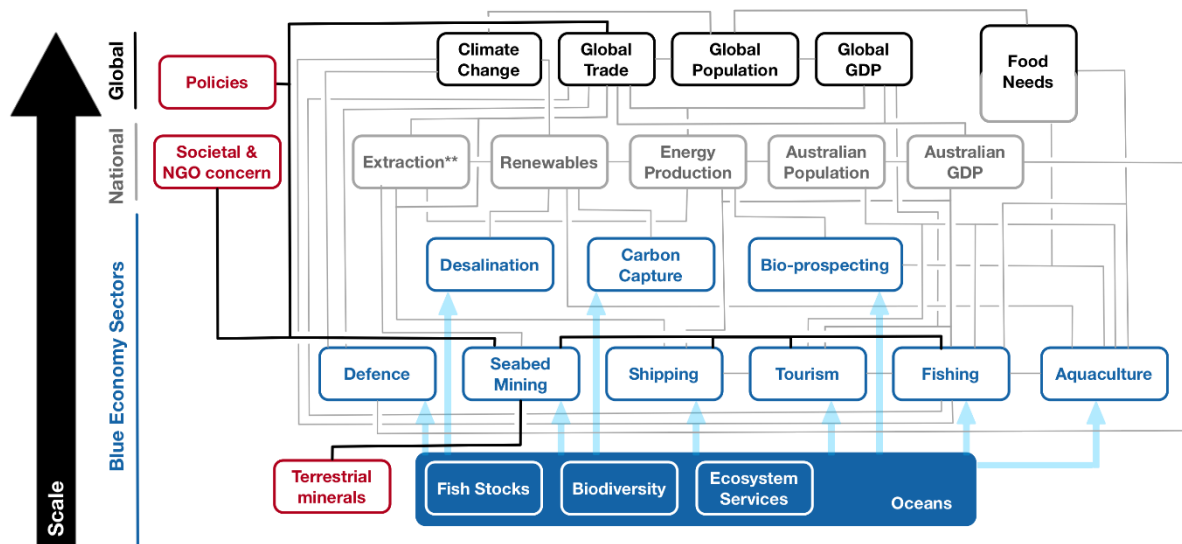
Sand has been dredged from South Australia, NSW and Queensland to replenish beaches or for building material and there are well-established shell sandmining operations in Cockburn Sound (WA) and Moreton Bay (Queensland) (Geoscience Australia, 2019).

Manganese nodule deposits have been found off the south-east, north-east and north-west of Australia’s maritime jurisdiction (Figure 1), but many of these deposits are of lower economic interest than richer deposits located elsewhere in the world (Miller and others

2018). While a license was granted to explore manganese nodules in the Northern Territory coastal waters, in 2012 a three-year moratorium was placed on offshore mining due to public concerns (Mason and others 2014). Similarly, several mining applications to explore seabed aggregates in Commonwealth waters off NSW were refused by the State government who declared a moratorium on seafloor mining due to “community concerns” regarding environmental impacts (Mason and others 2014).

Given the limited knowledge on the biodiversity and ecology of many seafloor habitats (in the deep sea in particular) and the uncertainty around how seafloor biota will respond to and potentially recover from mining activities, the environmental impact of seabed mining is a major concern among scientists and academics globally (Vanreusel and others 2016; Van Dover and others 2017; Miller and others 2018) as well as Australian stakeholders in relevant government departments, NGOs and other marine industries, such as fishing and tourism (Boughen and others 2010; Mason and others 2014) and the general Australian public (Mason and others 2010).

## 1.2 Sector-specific conceptual model



\*\* Extraction - land and sea

Figure 2. The initial conceptual model in Figure 1 in the main document, complemented with information about sector-specific drivers obtained from the analysis of sector projections. See main text for more information.

## 1.3 References

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