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## Public Comment on Stromlo-1 Exploration Drilling Program Draft Environmental Plan

### Submission from the Australian Marine Sciences Association Inc.

The Australian Marine Sciences Association (AMSA) welcomes the opportunity to comment on the Draft Environment Plan (February 2019) by Equinor for the Stromlo-1 Exploration Drill in the Great Australian Bight. AMSA is the largest professional association of marine scientists in Australia with over 800 professional and student members from all Australian states and territories, and working in a variety of sectors. AMSA actively promotes the advancement of marine sciences in Australia and provides evidence-based scientific advice and support to matters of national and global interest.

While the Environment Plan submitted by Equinor reflects some effort to mitigate impacts on marine fauna, including those mentioned in recent reviews (Carroll et al. 2017, Erbe et al. 2018, Przeslawski et al. 2018), AMSA has the following broad concerns:

- 1) Greenhouse gas emissions from oil and gas are a recognised cause of global warming (IPCC 2013). The latest special report by the IPCC (<https://www.ipcc.ch/sr15/>) highlights the urgency in efforts to keep global warming below 1.5 °C, which cannot be achieved with continued dependence on fossil fuels.

As a signatory party to the UNFCCC and Paris Climate Agreement, Australia has committed to reducing greenhouse gas emissions to below 2009 levels by 2020. In contrast to this commitment, approval of the proposed activity would be a tacit

endorsement of Australia's continued dependence on fossil fuels. Approval would also be in direct opposition to Renewable Energy Goals set out by the United Nations Development Group in their 2030 Agenda for Sustainable Development, and the Australian Government's own Renewable Energy targets of increasing Australia's use of renewable energy to 20% of power supply by 2020. We note that Equinor is also investing in renewable energies, and encourage a much faster transition away from oil and gas.

- 2) About 30% of the increased atmospheric concentrations of CO<sub>2</sub> from fossil fuel use are absorbed by the oceans, causing acidification (IPCC 2013; Doney et al. 2009). Ocean acidification is a recognised environmental, economic and security challenge for Australia (Allen and Bergin 2009). The Exploration Drill would support continued use of oil and gas and ultimately cause ocean acidification, having impacts beyond the immediate location of the drilling site. Ocean acidification can have wide-ranging effects on marine biodiversity, biogenic habitats, ecological processes and food webs, from the Great Barrier Reef to the Southern Ocean (Hurd et al. 2018; Trull et al. 2018; Sunday et al. 2017; Branch et al. 2013; Orr et al. 2005). Ocean acidification can impact the entire ecosystem on the shelf in the Great Australian Bight and adjacent coastal ecosystems, which is the largest temperate carbonate shelf on Earth (James & Bone 2011a, b; James et al. 2001; Gostin et al. 1988). Epibenthic bryozoans, sponges, molluscs, rhodoliths and other coralline algae are contributing to the still active production of biogenic carbonate sediments, but they are all threatened by acidification (James & Bone 2011a, b; Ward et al. 2006; James et al. 2001)

Furthermore, effects of global warming are manifold. A growing number of studies indicate cumulative impacts from acidification and higher temperatures on marine life (Hurd et al. 2018; Durrant et al. 2013). Sea-level has already risen along the coast of South Australia by 1.5 – 4 mm per year since 1965 (DEW 2018). Global warming is also shifting the distribution of marine species (Pecl et al. 2017), but for marine and coastal species in waters off southern Australia, no suitable habitat exists further south, risking extinction.

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- 3) The Great Australian Bight falls within the Great Southern Reef (GSR), which is a vast and unique area in Australia, spanning more than 7000 km and including a network of temperate rocky reefs, dominated primarily by seaweed forests that host very high levels of biodiversity and endemism (Bennett et al. 2015). The GSR also generates more than \$10bn annually for Australia, primarily through tourism, retail and fisheries. Key habitats (e.g. underwater seaweed forests) are declining rapidly around many parts of the GSR, including in southern Australia, due primarily to warming ocean temperatures (Martinez et al. 2018) and other extant, anthropogenic stressors. Creating additional stressors in this region further threatens the survival of these habitats that directly support commercial fishing, tourism and retail industries in Australia, which create tens of thousands of jobs in South Australia, Tasmania, Western Australia, Victoria and New South Wales (Bennett et al. 2015). The potential impacts from seismic airguns remain uncertain for many species, and the impacts from an oil spill, although unlikely, would be catastrophic.
- 4) The location of the Stromlo-1 Exploration Drill lies in the Great Australian Bight Marine Park, within the Benthic Protection Zone proclaimed in 1998, which is now part of the South West Commonwealth Marine Reserves Network. It is thus located within one of the oldest protected marine areas in Australian Commonwealth waters. The age of protected areas has emerged as one of five key features for effective marine reserves (Edgar et al. 2014), which makes this marine protected area a valuable scientific reference sites. Any activities associated with exploratory or commercial oil and gas exploration could reduce the value of this area for future science and humanity.

AMSA thus strongly recommends against the drilling in the Great Australian Bight.



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