GREENPEACE

Media Briefing

Leaked Equinor oil spill modelling shows oil could wash up on Bondi Beach

- **New modelling leaked to Greenpeace Australia Pacific shows oil from a spill in the Great Australian Bight could wash up on Bondi beach and as far north as Port Macquarie, with Victoria's Great Ocean Road and Tasmania's World Heritage coast also in the spill zone.**
- **The documents include the oil company's own full-scale oil spill maps, the first company-generated maps seen for Great Australian Bight drilling.**
- **Documents reveal that Equinor have not even planned for a genuine worst case oil spill scenario choosing a more optimistic oil spill rate than BP modelled.**

Summary

A document, the Oil Pollution Emergency Plan (OPEP), produced for Equinor's consultation with state and federal government agencies, and leaked to Greenpeace Australia Pacific, has revealed the horrific extent of the damage an oil spill in the Great Australian Bight could cause. These are the first full-scale maps produced by an oil company for the Great Australian Bight to have been seen by the public. The potential impact of a spill is staggering, covering a far larger area than previously predicted by BP's modelling, including the potential for oil to reach Bondi beach.

The potential for oil on beaches and coastlines is significant and could cause lasting damage. Bondi and Manly could be subject to up to 1 kilogram of oil per square metre of sand — or dozens of tar balls, if the oil has weathered into solid lumps. Bateman's Bay and Newcastle could suffer even greater damage, with greater than 1 kilogram of oil per square metre, according to the modelling.

The Victorian coastline is also not spared, where "shoreline loadings are highest east of Port Fairy to Wilsons Promontory" an area which includes all of the Great Ocean Road, the Twelve Apostles, Bells Beach, and Melbourne's Port Phillip Bay. The majority of Tasmania's coastline, including its entire World Heritage protected west coast and most of the east coast, is also at risk.

And the scale of the damage could be much worse. Equinor has chosen not to plan for a worst case scenario, basing its models on a more optimistic possible outcome than BP did in 2016. Equinor's so-called worst credible model assumes significantly less oil flowing into the ocean per

day than BP experienced in the Gulf of Mexico in 2010, for instance, and only half the total amount of oil that BP predicted could erupt into the Bight in its own plans.

Staggeringly, Equinor's optimistic scenarios also involve response plans that are unproven or known to be ineffective, and in some cases increase the environmental damage.

Key points

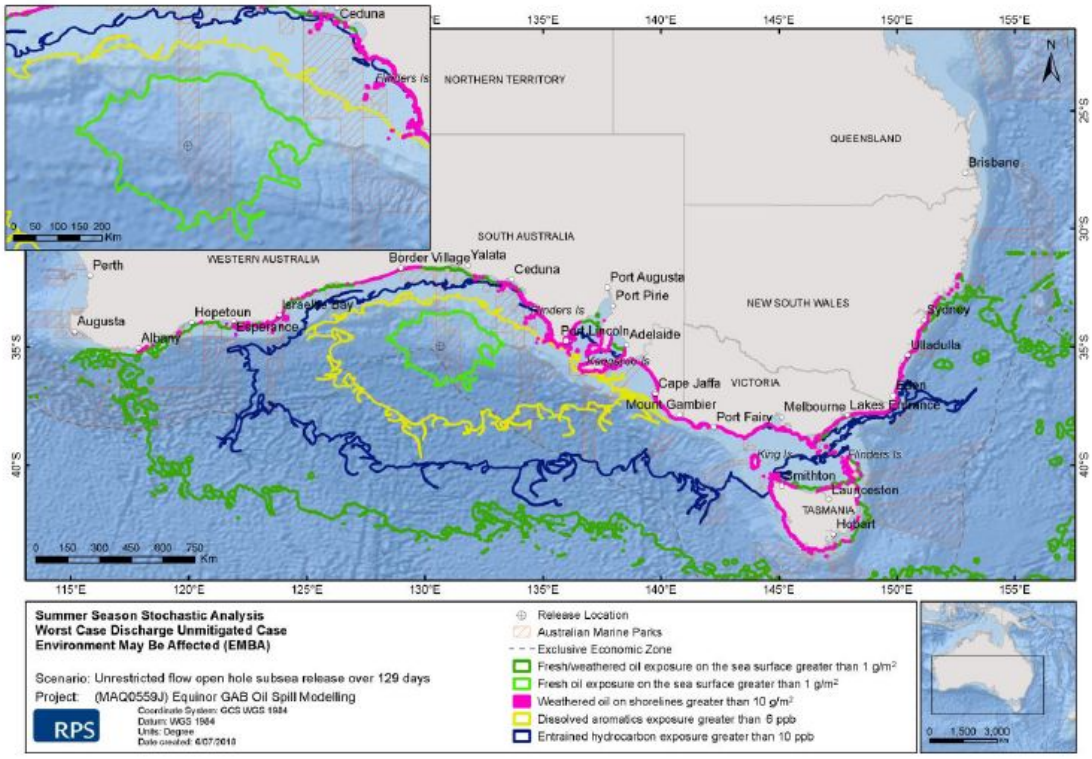

Figure 6-2 Risk EMBA

Figure 6-2 represents an outline of the possible extent of an oil spill under what Equinor has called a worst case scenario, however Equinor have chosen not to plan for a response to such a scenario choosing a more optimistic alternative for their plans. In pink is the potential shoreline contact.

- The modelling shows an environment may be affected (EMBA) area that stretches as far north as Port Macquarie in New South Wales and Lord Howe Island. Oil could also spread well beyond Australia's exclusive economic zone (EEZ) to the south and east towards the South Pacific and halfway to New Zealand.
- A worst case scenario oil spill would make shoreline contact a risk for the majority of Tasmania's coastline, including its entire World Heritage protected west coast and most of the east coast.
- However, Equinor have opted not to base their response plan on an equivalent worst case discharge scenario to BP, stating that, "an ongoing flow from an open well bore is not considered a credible response because it has never happened in the industry." The

absence of a precedent is not grounds for dismissing the possibility of an accident occurring. Failure to pay proper heed to so-called 'black swan' events - low probability, catastrophic accidents - is one of the contributors to BP's deadly failure in the Gulf of Mexico in 2010. Equinor should justify why it is taking worst case risk scenarios less seriously than BP - if a catastrophic accident is conceivable it should be planned for, however unlikely.

- In contrast, BP in its 2016 Well Operations Management Plan (WOMP), as submitted to and accepted by the national oil regulator NOPSEMA, and written for the same well location now proposed by Equinor, Stromlo-1, listed the open well bore scenario as its worst credible discharge (WCD): "BP model WCD as a worst case wellbore outcome (i.e. full wellbore open to seabed, no pipe in hole)" (BP WOMP, 12.1, page 110)
- Equinor instead models its own Worst ***Credible*** Case Discharge with a lower flow rate based on equipment blocking the well hole - this is 6,739 m3 or 42,387 barrels per day until the well is killed on day 102, for a total of 687,378 m3 or **4,323,478 barrels of oil**.
- This still amounts to a spill approximately the same size as that of the Deepwater Horizon, the worst offshore accident in history; however, this should be questioned as it's around half the volume that BP predicted for a worst credible discharge for the same well.

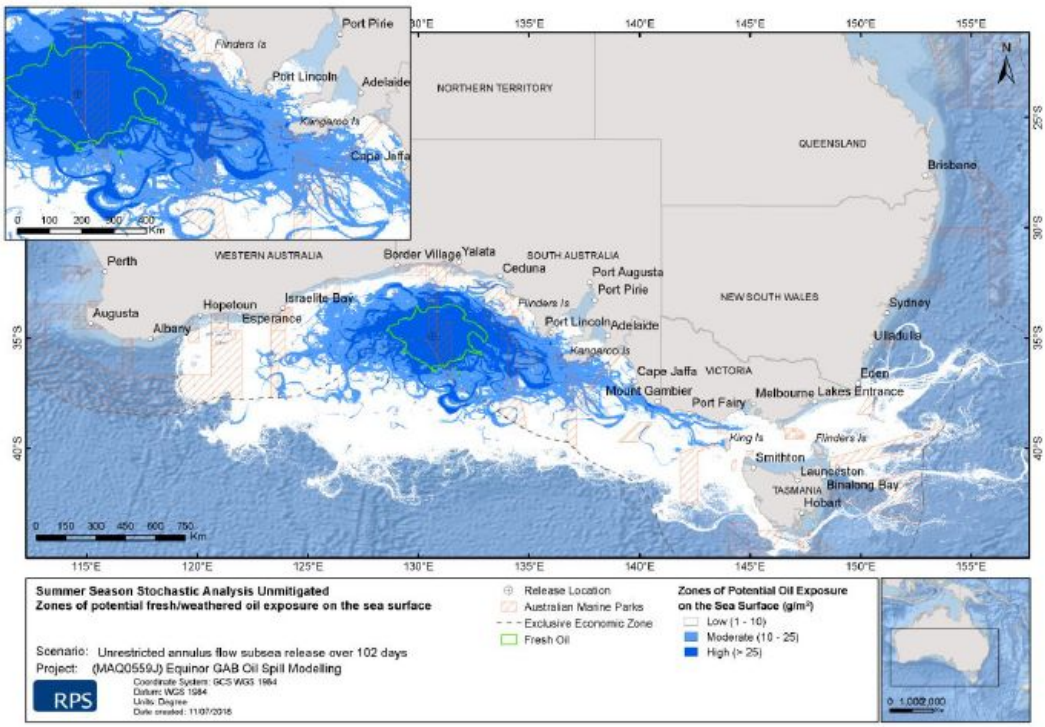

Figure 8-1 Unmitigated stochastic analysis of oil exposure on the sea surface in WCCD$_{102d}$

Figure 8-1 represents Equinor's probabilistic stochastic analysis of potential surface oil spread under a less-than-worst-case scenario with significantly lower flow of oil into the environment than BP predicted.

- For the same well, BP predicted a flow rate of 54,000 barrels per day under its worst credible discharge for a total of 7.9 million barrels (BP WOMP, 2016, table 32, p111). Equinor should further explain why it has not planned for a worst case scenario as BP did.
- Shoreline contact potential predicted under Equinor's more optimistic model still amounts to an unprecedented disaster.

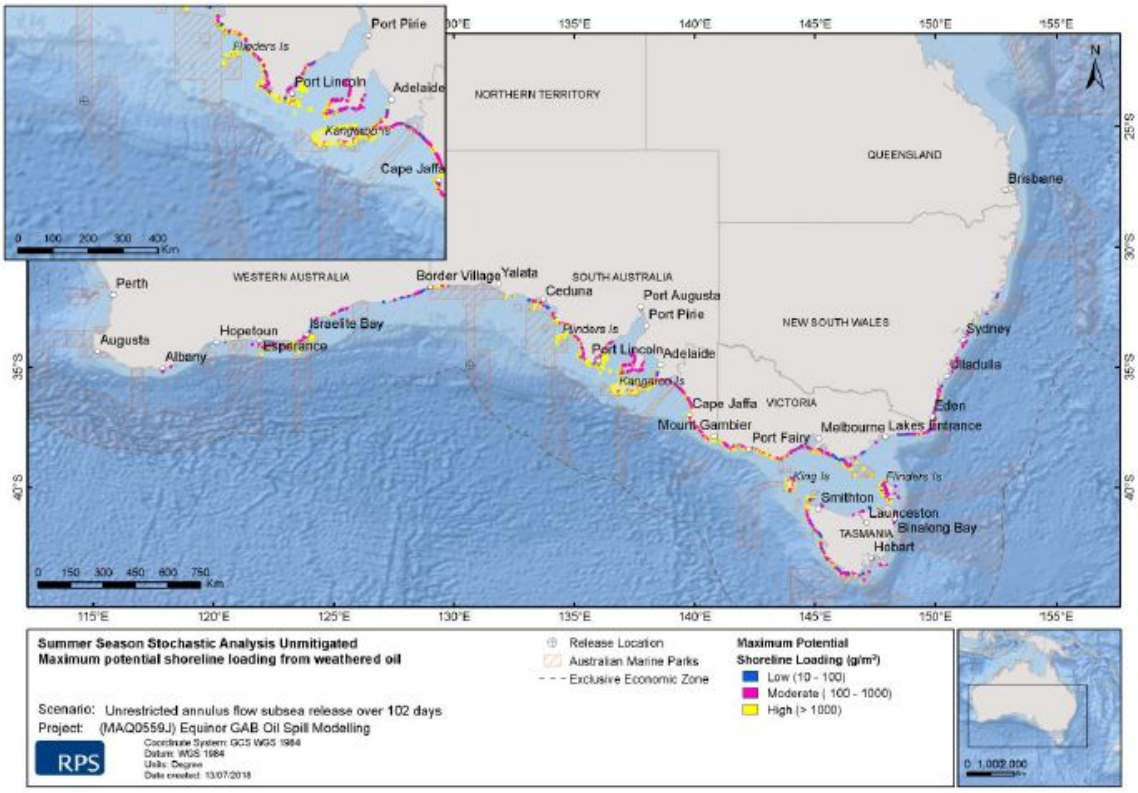

Figure 8-2 Unmitigated stochastic analysis of shoreline loading from weathered oil in $WCCD_{102d}$

Figure 8-2 represents predicted quantities of oil on shorelines rated high, moderate, and low. Moderate (pink) equates to oil coverage up to a volume of 1 litre per square metre, high (yellow) indicates volumes greater than 1 litre per square metre.

- Areas of Moderate exposure or worse, stretch from almost the whole coastline from Albany in Western Australia to Port Macquarie in northern New South Wales and most of the Tasmanian coast.
- This includes Sydney and its beaches like Bondi and Manly, which could be covered in oil at a rate of up to one litre per sq metre or with dozens of tar balls if the oil had weathered to a semi-solid state.
- Areas of high exposure - greater than one litre of oil per square metre - would obviously be much worse off. Equinor states that, "in NSW potentially high shoreline loadings are near Eden, Bateman and Newcastle north of Sydney." (8.2.2.2; p.56)

- Meanwhile “In Victoria shoreline loadings are highest east of Port Fairy to Wilsons Promontory” an area which includes all of the Great Ocean Road, the twelve apostles, bells beach, and Melbourne’s Port Phillip Bay.
- Further undermining whether the scale of the modelling represents genuinely credible worst case, Equinor conveniently predicts that the hydrocarbons they can expect to find in the reservoir would be analogous to “Statfjord-C blend crude oil [found in the North Sea]” which “evaporates and emulsifies relatively quickly.”
- It is not clear which data Equinor have used to reach this conclusion, given BP’s Well Operations Management Plan (WOMP) of 2016, which concerns the same well, made clear that there is ‘significant uncertainty in all fluid predictions’ due to the fact the well is a ‘frontier, play-test well’ and there is ‘no relevant top-down fluid data on which to base predictions.” (BP WOMP, 2016, p 24).
- This indicates Equinor has made guesses at the type of oil that would leak from its Bight well apparently without data to justify them, an approach which raises questions about Equinor’s predictions across the entire plan. They admit they don't know what kind of oil is under the Bight, but assume it's probably a form of marine oil which is less harmful if spilled. Without evidence, Equinor's claim should not be taken at face value.
- Equinor models several scenarios that might have a reduced impact in terms of shoreline contact if certain spill response tactics prove effective.However most of its response plans are either unproven and based on wishful thinking, known to be ineffective, and in some cases could even be likely increase the environmental damage.
- One of those tactics is subsea dispersant injection (SSDI) - a response strategy where toxic dispersants such as Corexit are injected directly into the oil plume gushing from the wellhead. The theory goes that SSDI means less oil and dangerous compounds reach the water surface - it was widely used in response to the 2010 Gulf spill.
- A new study looking at the efficacy of SSDI after *Deepwater Horizon* pours cold water on that theory by showing the tactic was ineffective. It follows an earlier study that shows dispersants may have done more harm than good.
- Equinor’s plan says that “*the subsea dispersant causes most of the oil to stay entrenched in the water column and biodegrade faster than the surface oil. This significantly reduces the oil that reaches the shore*.” (page 60)
- However, Gulf of Mexico scientists have reached a very different conclusion, finding that during *Deepwater Horizon*, when BP released massive amounts of Corexit 9500, ***"substantial amounts of oil continued to surface near the response site, with no significant effect of SSDI volume on PAH vertical distribution and concentration****...Given the potential for toxic chemical dispersants to cause environmental damage by increasing oil bioavailability and toxicity while suppressing its biodegradation, unrestricted* ***SSDI application in response to deep-sea blowout is highly questionable."***
- It also follows studies that showed the use of dispersants inhibits the growth of naturally-occurring oil-eating microbes and that the mixture of oil and Corexit is worse for marine corals than oil alone.

- Equinor admits that subsea dispersant could have serious negative impact on species including:
    - Hard corals; subtidal reefs, benthic filter feeding communities.
    - Various fish types, including threatened species
    - Rock lobster and giant crabs
    - Sharks, baleen whales, Sperm whales, and other cetaceans

- This means that **the dispersants are likely to cause**:
    ‘additional chronic/acute impacts of value/assets’
    ‘additional spill impacts are regional scales’
    ‘an additional increase of spill impacts for 1-5 years’

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