



DANGER IN OUR SEAS: THE UNACCEPTABLE RISKS OF OIL EXPLORATION AND PRODUCTION IN THE GREAT AUSTRALIAN BIGHT

Submission into the Inquiry by the Australian Senate
Standing Committee on Environment and Communications
into Oil and Gas Production in the Great Australian Bight

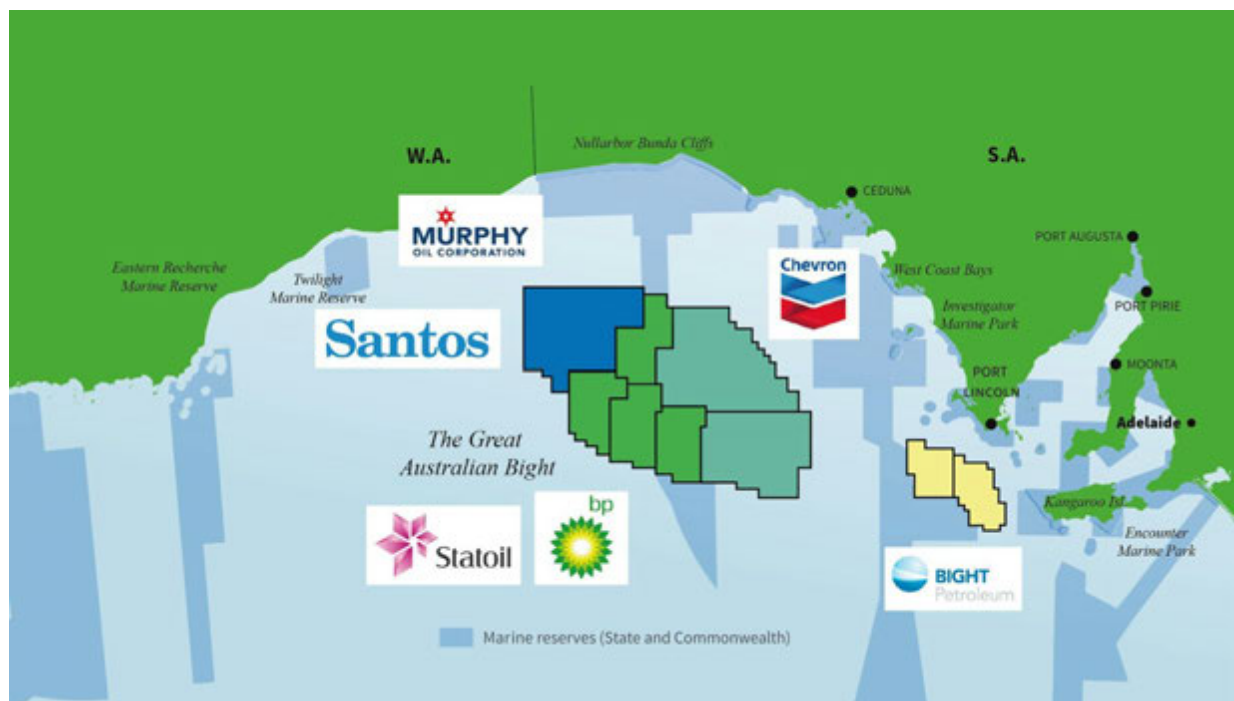
APRIL 2016

Terms of Reference to the Senate Inquiry

The Senate Standing Committee on Environment and Communications established an Inquiry into Oil and Gas Production in the Great Australian Bight on 22 February 2016. The Committee will consider and report on the following:

The potential environmental, social and economic impacts of BP's planned exploratory oil drilling project, and any future oil or gas production in the Great Australian Bight, with particular reference to:

- a. *the effect of a potential drilling accident on marine and coastal ecosystems, including:*
 - i. *impacts on existing marine reserves within the Bight*
 - ii. *impacts on whale and other cetacean populations*
 - iii. *impacts on the marine environment*
- b. *social and economic impacts, including effects on tourism, commercial fishing activities and other regional industries*
- c. *current research and scientific knowledge*
- d. *the capacity, or lack thereof, of government or private interests to mitigate the effect of an oil spill*
- e. *any other related matters.*



Map of the Great Australian Bight and granted oil and gas exploration permits, with companies holding ownership of the various permits shown.

The Wilderness Society recognises that the Great Australian Bight is an Indigenous cultural domain, and of enormous value to its Traditional Owners who retain living cultural, spiritual, social and economic connections to their homelands within the region on land and sea.

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Executive Summary

There is a significant new risk in Australia's southern seas. In the iconic Great Australian Bight, oil companies – lead by BP and followed by Statoil, Chevron, Santos, Murphy Oil and Bight Petroleum – are moving rapidly to develop one of the world's last vast undeveloped offshore oil fields thought to be located in this region.

The Great Australian Bight is an extraordinary ocean and coastal environment of global conservation significance. It is remote, wild and pristine, with more local marine life diversity than the Great Barrier Reef. While scientists are still trying to understand the diverse ecological values of the Bight, we know already that it is a major haven for whales, including the threatened southern right whale, and home to other significant marine wildlife such as the Australian sea lion, giant cuttlefish, dolphins, great white sharks and a vast array of seabirds.

Fringed by the massive and imposing Bunda cliffs along the Nullarbor plains, the critical marine reserve networks throughout the pristine waters of the Bight connect with the protected areas of the Nullarbor – creating a land and sea conservation estate of global stature.

All of this life and immense natural beauty supports thriving fishing and tourism industries and a uniquely Australian way of life for the many coastal communities of the Bight. It is also at the centre of an Indigenous cultural domain, of high value to its Traditional Owners who retain living cultural, spiritual, social and economic connections to their homelands within the region on land and sea.

BP is the first and most advanced of the proponents lining up to drill for oil, claiming that the geology of the region is similar to that of the Niger and Mississippi deltas. They are aiming to commence exploratory drilling in October 2016, with the construction of a \$755 million harsh environment, semi-submersible oil drilling rig nearly completed in South Korea and ready to ship down to the Bight.

But the threats posed by BP and the oil industry's activities cannot be understated. The most obvious threat is a catastrophic oil spill. BP's Deepwater Horizon spill – which occurred during the same exploratory drilling phase as many offshore oil industry disasters do – killed 11 workers, spewed out 4.9 million barrels of oil into the ocean and onto beaches, killed countless wildlife, ruined fisheries, and decimated jobs and local communities. The estimated damage bill is \$90 billion USD and the irreversible impacts are still unfolding.

The Great Australian Bight is more remote, the conditions are far rougher, and the drilling depths may be deeper. It is a riskier scenario than Deepwater Horizon. Yet BP, with its poor track record stretching even beyond the Gulf of Mexico, refuses to acknowledge this significant risk and has not transparently released its full risk management assessment and plans. They, the oil industry as a whole, and the relevant Australian government agencies, are badly underprepared for such an accident on our shores.

Independent modelling by Laurent Lebreton and commissioned by the Wilderness Society – in the absence of BP releasing any credible modelling – demonstrates that even a spill with low oil flow rates threatens much of southern Australia's oceans, the marine life, industries and communities that depend on them.

Although brushed aside by BP as of "minor significance", evidence shows that non-oil spill threats such as noise pollution, smothering from seabed disturbance and drill cuttings disposal, chemical pollution, discharge of drilling fluids, and increased cetacean strikes also pose serious potential threats to the marine life and local

communities that depend on them in the region.

Of great concern also are the climate pollution consequences of opening up a new fossil fuel basin. Research by the University College London has identified that, of already known reserves in the OECD Pacific Region – which includes Australia – only 49% of existing oil reserves can be burnt if we are to maintain a reasonable chance of keeping global temperatures below 2°C on pre-industrial levels. A new report by Climate Analytics into this issue concludes that opening up this basin in the Great Australian Bight would clearly bust this budget and run squarely against the newly formed Paris Climate Change Agreement.

With so many risks lined up in a row in such a special region, at the very minimum the Commonwealth Government should be ensuring the most transparent and robust process possible to fully apprise the Australian public of all of the issues. Instead, we have an Environment Minister who has handed off his responsibility to protect the environment to a poorly known regulator; one running a highly flawed and opaque process that fails to ensure the protection of our environment or properly assess the cumulative impacts of all potential oil development in the Great Australian Bight.

Given the extraordinary values of the region and the imperative to dramatically reduce climate pollution, the Commonwealth Government should reject outright all oil and gas development in the Great Australian Bight. This is in line with recent moves by the Obama administration to restrict oil development in parts of the Arctic and Atlantic. At a bare minimum, in order to help make this outcome possible, we strongly recommend the creation of an Independent Expert Panel to fully assess the cumulative threats from oil and gas to the region and alternative futures for the region including protection from this industry.

Our full recommendations are below and repeated again in relevant sections throughout this submission.

Recommendations

Our recommendations for the Committee are as follows:

- 1 – Acknowledge Ecological Values:** That the Committee acknowledge the extraordinary and globally significant conservation values of the Great Australian Bight and the importance of the extensive terrestrial and marine protected areas throughout the region.
- 2 – Recommend Marine Reserves Clarified First:** That the Committee recommends to the Australian Parliament that the management plans for the suspended Commonwealth Marine Reserves be completed and zone management arrangements commence before any further assessment and approval processes for oil and gas development are undertaken in the Great Australian Bight.
- 3 – Recommend Research Done First:** That the Committee recommends to the Australian Parliament that all approvals processes for oil and gas development in the Great Australian Bight pause until the \$20 million Great Australian Bight Research Program has concluded. This is consistent with the key tenants of Ecologically Sustainable Development, particularly the precautionary principle.
- 4 – Acknowledge Social, Economic and Cultural Values:** That the Committee acknowledge the important social, economic and cultural values associated with the Great Australian Bight.
- 5 – Clarify Target Resource:** That the Committee clarify through this Inquiry that the primary target resource

of oil and gas companies in the Great Australian Bight is oil and that impact assessments should therefore be focussed on the activities associated with exploring for and extracting oil.

6 – Acknowledge Non-Oil Spill Ecological Risks: That the Committee acknowledge that the non-oil spill risks of the oil development cycle are also high despite BP's claims to the contrary and should therefore be fully and independently assessed in any approvals process.

7 – Acknowledge Oil Spill Ecological Risks: That the Committee acknowledge that catastrophic oil spills do occur, and that the consequences of these spills are severely ecologically damaging.

8 – Acknowledge High Oil Spill Risk in the Bight: That the Committee acknowledge that the physical conditions of the Great Australian Bight are significantly harsher than those involved with the Deepwater Horizon and Exxon Valdez spills.

9 – Acknowledge Legitimate Interest of Public: That the Committee acknowledge that current plans by BP and others to drill for oil in the Great Australian Bight are highly controversial and that given the potential scale of spill impacts seen elsewhere, the public has a legitimate interest in the regulatory approval processes used to assess these plans.

10 – Recommend BP Disclose Key Information: That the Committee recommend to the Australian Parliament that BP and other oil companies be required to publicly disclose all relevant risk assessment and impact mitigation materials as part of the approvals process.

11 – Recognise Independent Oil Spill Modelling: That the Committee recommend to the Australian Parliament the independent oil spill modelling conducted by Dr Laurent Lebreton on the basis that it is the most credible and comprehensive modelling released to date.

12 – Recommend Cumulative Impact Assessment: That the Committee recommend to the Australian Parliament that an independent and full cumulative impact assessment is undertaken of all potential oil and gas activities in the Great Australian Bight.

13 – Acknowledge Serious Climate Consequences: That the Committee acknowledge that opening up a new fossil fuel basin is directly inconsistent with Australia's bipartisan commitment to the Paris Climate Change Agreement, both in terms of global emissions from the potential burning of the oil and via domestic emissions from potential gas flaring.

14 – Acknowledge Post-Paris Economics: That the Committee acknowledge that opening up a new fossil fuel basin is economically incongruent with the Post-Paris Climate Change Agreement world. According to the agreed 2°C global carbon budget, only 49% of known oil reserves in the OECD Pacific Region can be burnt and that Great Australian Bight oil would therefore fall far too high on the cost curve to justify extraction.

15 – Acknowledge Oil Spill Social and Economic Risks: That the Committee acknowledge that catastrophic oil spills do occur, and that the consequences of these spills are severely damaging on local economies and communities.

16 – Acknowledge High Oil Spill Risk in the Bight: That the Committee acknowledge that social and economic impacts of an oil spill in the Great Australian Bight are potentially extreme.

17 – Recommend End to Tax Breaks: That the Committee seeks advice from Treasury on how much Petroleum Resources Rent Tax revenue is being lost as a result of frontier oil exploration tax breaks and recommends to the Australian Parliament that all tax breaks be removed.

18 – Acknowledge History of Mitigation Failure: That the Committee acknowledge that Deepwater Horizon clearly demonstrates that industry and government, even in the most developed of oil provinces, have been massively underprepared for an oil spill disaster.

19 – Acknowledge BP’s and Government’s Poor Capabilities: That the Committee acknowledge that based on all evidence provided, BP is poorly prepared to prevent, respond to and mitigate a well blowout and subsequent oil spill, and that Australian governments also have extremely limited labour, expertise and technology to respond to an oil spill disaster.

20 – Acknowledge BP’s Appalling Track Record: That the Committee acknowledge BP’s appalling environmental and risk management record and that it is therefore highly inappropriate to be relying on any approvals process other than the most high level, transparent, robust, independent and well-resourced.

21 – Acknowledge NOPSEMA Process Severely Lacking: That the Committee acknowledge that the devolution of environmental decision-making powers to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is highly inappropriate, that the consultation to date has been poor and badly lacking in key information, that there is not the appropriate *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)* expertise within NOPSEMA, and that approval processes have wrongly proceeded without key studies being completed.

22 – Recommend Independent Expert Panel Process: That in light of all above recommendations, the Committee recommends to the Australian Parliament to:

- Immediately halt all existing approvals processes under NOPSEMA, in relation to oil and gas exploration and development activities in the Great Australian Bight
- Establish a high level, transparent, well-resourced Independent Expert Panel to undertake a full cumulative impact assessment of all oil development activities in the Great Australian Bight
- Ensure the Panel applies the precautionary principle and gathers all possible knowledge and evidence on ecological, climate, social, economic and cultural impacts
- Ensure the Panel allows for extensive and transparent public consultation, including full public hearings on all aspects of drilling activities
- Ensure the Panel also explores alternative futures for the Great Australian Bight including full protection from all oil and gas activities
- Ensure the Panel provides a comprehensive recommendation to the Australian Parliament on a way forward for the Great Australian Bight based on these assessments.

1. The Extraordinary Values of the Great Australian Bight

(Addressing Terms of Reference points c and e)

1.1. Global Conservation Significance

The Great Australian Bight is an extraordinary ocean and coastal environment of global conservation significance. Extending from the central and western portions of southern Australian, the giant Bunda cliffs of the iconic Nullarbor Plain create the world's longest uninterrupted sea cliffs. With no land mass or established oil and gas industry between these cliffs and Antarctica, the Bight is one of the last remaining intact ocean wilderness areas on Earth.

This unique part of the world maintains complex oceanographic processes that support a vast diversity of marine life. Major upwelling events along the continental shelf drive cool water containing an elevated nutrient concentration that supports high densities of zooplankton, the base of the marine food chain.¹ This, in turn, supports high numbers of pelagic fish and provides critical habitat and migration pathways for many iconic, threatened and protected marine mammals. The region is estimated to contain around 85% endemic species – more than the Great Barrier Reef. These species are found nowhere else in the world and many of them are listed as threatened species.²



Figure 1.1: The Bunda cliffs of the Great Australian Bight | Steve W. Pope

¹Edyvane 1998, *Great Australian Bight Marine Park Management Plan, Part B, Resource Information*, Department for Environment, Heritage and Aboriginal Affairs, South Australia.

²<http://www.environment.sa.gov.au/marineparks/About/FAQs>.

The major biological and physical values of the Great Australian Bight include:

- Breeding and calving areas for the southern right whale (particularly at the Head of the Bight), which represent the most significant breeding and calving areas for this species in Australia. It is one of two major calving sites in the world. Although all whales, dolphins, porpoises and seals are completely protected in Australian waters under the *Whale Protection Act 1980*, there is a world-wide recognition of the need to protect key calving and breeding areas of these marine mammals.
- Important populations and breeding colonies of the Australian sea lion – Australia's only endemic pinniped.³ Due to their isolation and probably negligible rates of sealing, these populations represent a highly significant source of genetic diversity for the species.
- A seasonal habitat for other species of rare and endangered marine mammals including sperm whales, killer whales and orcas (blue, minke and humpbacks whales).
- The highest levels of benthic biodiversity and endemism found anywhere in Australia – particularly among red algae (sea weed), ascidians (sea squirts), bryozoans (lace corals), molluscs (shellfish) and echinoderms (sea urchins and sea stars).
- Limestone-dominated coastal areas of high geomorphological interest, including the spectacular Nullarbor Bunda Cliffs and the extensive transgressive dunes of the Merdayerrah Sandpatch.
- Uninterrupted coastal vistas and areas of very high scenic value in a remote and pristine wilderness.
- Marine species with high medical research value, including chemicals from sponges with antimicrobial, antiviral and anti-tumor properties.⁴
- Other species of conservation significance, including the protected great white shark, albatrosses, petrels and other protected seabirds, marine turtles at the limit of their range (e.g., leatherback turtles), and various seahorses, seadragons and pipefish.

Recommendation 1 – Acknowledge Ecological Values: That the Committee acknowledge the extraordinary and globally significant conservation values of the Great Australian Bight and the importance of the extensive terrestrial and marine protected areas throughout the region.

³McLeay, LJ, Sorokin, SJ, Rogers, PJ & Ward, TM 2003, 'Benthic Protection Zone of the Great Australian Bight Marine Park: 1. Literature Review', South Australian Research and Development Institute (SARDI), <<http://www.environment.gov.au/system/files/resources/625c5416-70a4-4997-ad06-4737f3762c0b/files/gab-benthic-protection-review.pdf>>.

⁴Ibid.



Figure 1.2: Australian sea lions | A.Steffee

1.1.1. Critical Protected Area Network

Throughout the past 20 years, the South Australian and Commonwealth Governments have recognised the global conservation significance of the region through the proclamation of extensive terrestrial and marine protected areas.

The “original” Great Australian Bight Marine Park (GABMP) evolved and expanded over a number of years, through a series of proclamations under State and Commonwealth legislation in recognition of the region’s global conservation significance.⁵ The GABMP Whale Sanctuary was first established in 1995 under the *South Australian Fisheries Act 1982*. In 1996, the Great Australian Bight Marine National Park (State Waters) was proclaimed under the *South Australian National Parks and Wildlife Act 1972*, followed in 1998 by the proclamation of the GABMP (Commonwealth Waters) under the *Commonwealth National Parks and Wildlife Conservation Act 1975* (Repealed).

The primary purpose of the proclamations was to protect the endangered southern right whale population, with a particular emphasis on protecting mothers and calves and the endangered Australian sea lion.

The GABMP (Commonwealth waters) also contained a designated Benthic Protection Zone, a 20 nautical mile wide strip of ocean, orientated north-south, which extended three nautical miles from the coast to the edge of the Australian Exclusive Economic Zone, approximately 200 nautical miles offshore. The objectives of the

⁵Ibid.

Benthic Protection Zone were twofold: firstly to protect the ecological integrity of a large, representative sample of the Great Australian Bight's unique and diverse benthic flora and fauna and secondly to provide an undisturbed "sample" of the Great Australian Bight's benthic habitat that can be used as a reference area.⁶

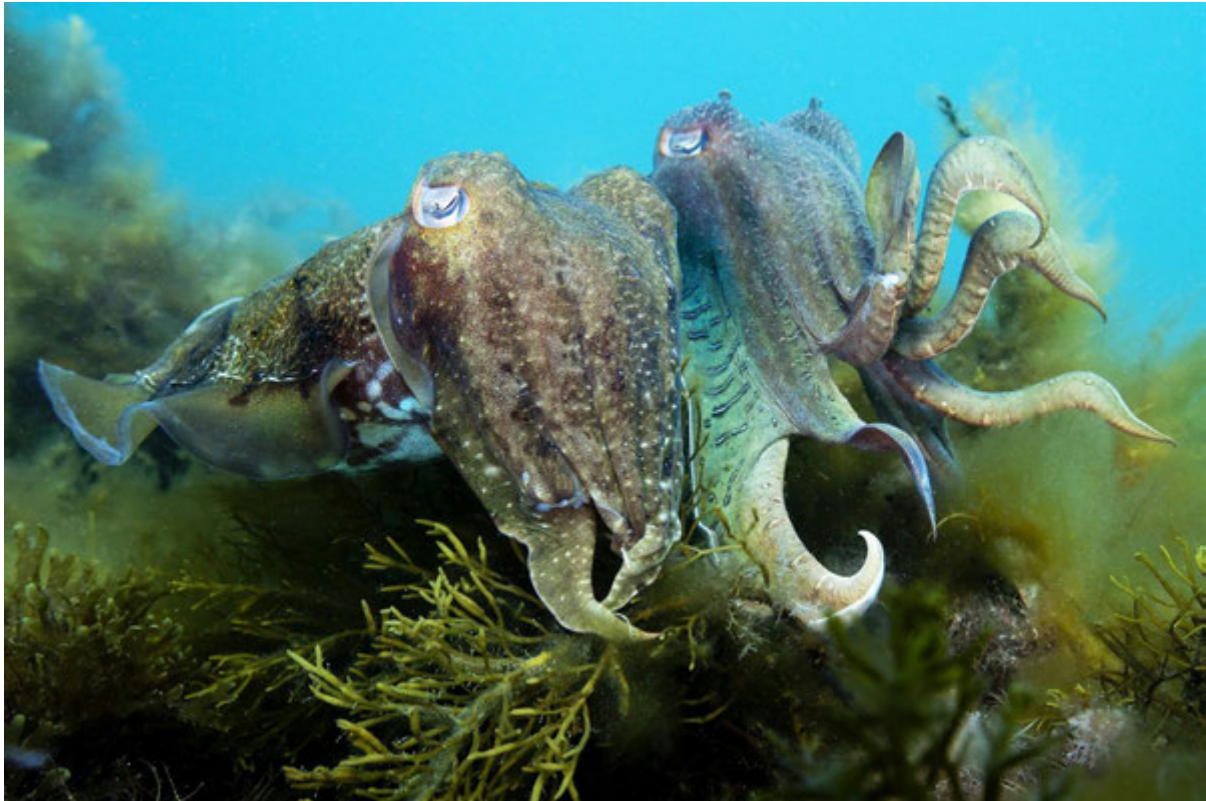


Figure 1.3: Giant cuttlefish | Vanessa Mignon

In November 2012, consistent with international commitments made at the *Conference of the Parties to the Convention on Biological Diversity* in 1993, the Australian Government proclaimed new Commonwealth Marine Reserves. The south-west Commonwealth Marine Reserves Network, includes the Great Australian Bight Commonwealth Marine Reserve, which further expands and renames the original GABMP (Commonwealth waters). In December 2013, the Commonwealth Marine Reserves were re-proclaimed and their management plans set aside pending the completion of an independent review.⁷

The 14 Reserves within the south-west Commonwealth Marine Reserves Network, including the Great Australian Bight Commonwealth Marine Reserve continue to be managed to protect the habitat of species endemic to the south-west marine region and also threatened species that visit the region on a seasonal basis.⁸ Accordingly, pending the review, any decision in regard to approval of activities which have the potential to impact the biodiversity of the south-west Commonwealth Marine Reserves Network, such as offshore oil exploration, must ensure that the conservation objectives of the area are protected, adopting a precautionary

⁶Ibid.

⁷Department of the Environment 2015, *Commonwealth Marine Reserves Review*, <<http://www.environment.gov.au/marinereservesreview/home>>.

⁸Department of the Environment 2015, *South-west Commonwealth Marine Reserves Network*, <<http://www.environment.gov.au/topics/marine/marine-reserves/south-west>>.

approach.

In 2009, the South Australian Government proclaimed the outer boundaries of 19 marine parks covering 44% of state waters under the South Australian *Marine Parks Act 2007*. Then, in 2011 many of South Australia's offshore islands⁹ received the highest level of protection available by law and were proclaimed Wilderness Protection Areas under the South Australian *Wilderness Protection Act 1992*.



Figure 1.4: Kangaroo Island | Dreamstime

Finally, in 2014, zoning plans for the 19 marine parks passed both Houses of the South Australian Parliament,¹⁰ creating Australia's first representative marine parks network on the water outside the Great Barrier Reef. Some of the state's most important marine areas – including the Nuyts Reef, the Isles of St Francis, Pearson Island, areas around Kangaroo Island and the Coorong Coast – are now highly protected marine sanctuaries. Many of the sanctuaries connect with offshore island Wilderness Protection Areas, creating unique land and sea conservation estates.

Abutting the waters of the Great Australian Bight, the iconic Nullarbor Plain is of equal international cultural and conservation significance. In 2013, over 900,000ha of the Nullarbor Plain was proclaimed a Wilderness Protection Area under the *Wilderness Protection Act 1992*. The spectacular Bunda Cliffs and intricate cave systems are protected within the area, and when connected to the Great Australian Bight Marine Reserve, it creates a land and sea conservation estate of global significance.¹¹

⁹Robinson, T et.al. 1996, 'South Australia's Offshore Islands', Department of Environment and Natural Resources South Australia, Australian Heritage Commission.

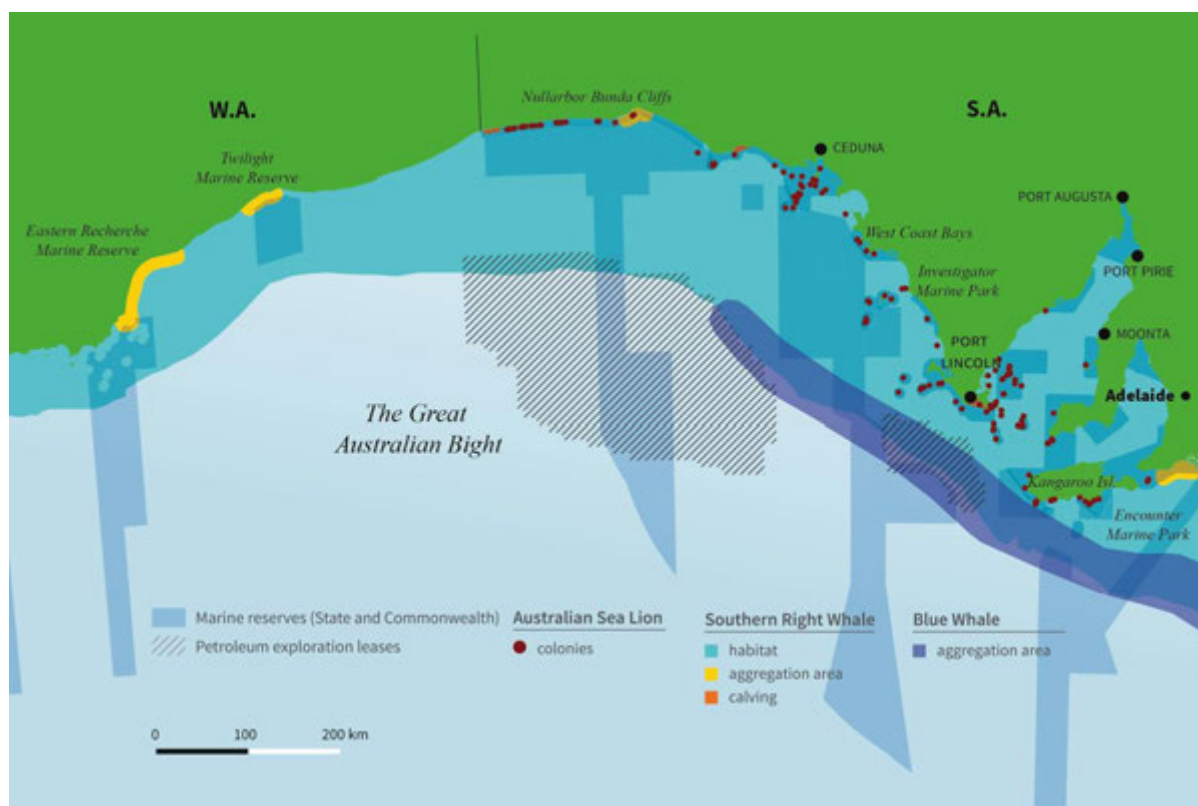
¹⁰Government of South Australia, Department of Environment, Water and Natural Resources, viewed March 2016 <http://www.environment.sa.gov.au/marineparks/home>.

¹¹South Australian Department of Environment, Water and Natural Resources 2013, *Highest protection for Nullarbor*, media release, 22 June 2013, <http://www.environment.sa.gov.au/Home/Full_newsevents_listing/News_Events_Listing/130622-nullarbor-wilderness-area>.



Figure 1.5: The Bunda cliffs of the Great Australian Bight | Brad Leue Photography

Recommendation 2 – Recommend Marine Reserves Clarified First: That the Committee recommends to the Australian Parliament that the management plans for the suspended Commonwealth Marine Reserves be completed and zone management arrangements commence before any further assessment and approval processes for oil and gas development are undertaken in the Great Australian Bight.



1.1.2. Current Ecological Research and Scientific Knowledge

Despite a general understanding of the Great Australian Bight and universal agreement amongst the scientific and conservation community as to its significance, the area is still a largely unexplored frontier for scientific inquiry. There is much we do not know about the ecology of the region.

In recognition of the significant gaps in scientific knowledge, the Great Australian Bight Research Program, which includes CSIRO, the South Australian Research and Development Institute (SARDI) and others are undertaking a major four year \$20 million research program to improve our understanding of how the unique Great Australian Bight ecosystem functions to inform future management of the Bight.¹²

A number of senior scientists and researchers have authored a review of science knowledge of the Bight and have identified a range of *key knowledge gaps* in our current understanding of the region's physical processes, biodiversity and ecology. This major science review has made it clear that we cannot confidently assess the implications of potential oil spills for the region's ecosystems and reliant industries.

Our current knowledge of the [Great Australian Bight] is not sufficiently developed to confidently assess the implications of potential oil and gas production, including potential oil spills, for the region's diverse marine ecosystems or for its economically important existing marine industries.¹³

¹²Marine Innovations SA 2015, viewed April 2016, <www.misa.net.au/GAB>.

¹³Rogers, P, et. al 2013, 'Physical processes, biodiversity and ecology of the Great Australian Bight region: A Literature Review', GAB

The CSIRO and SARDI research program is intended to produce an Integrated Ecosystem Model of the Bight – a powerful state-of-the art modelling tool of the structure and dynamics of the region’s ecosystems. However, these key outputs are not due to be available until mid-2017 – well after the scheduled first exploratory drilling from BP.



Figure 1.6: Kangaroo Island | Dreamstime

Recommendation 3 – Recommend Research Done First: That the Committee recommends to the Australian Parliament that all approvals processes for oil and gas development in the Great Australian Bight pause until the \$20 million Great Australian Bight Research Program has concluded. This is consistent with the key tenants of Ecologically Sustainable Development, particularly the precautionary principle.

1.1.3. Case Study Species — The Southern Right Whale

One of the most iconic and threatened species in the Great Australian Bight is the southern right whale. Research is still underway to better understand this majestic creature, and the knowledge gathered to date suggests particularly strong risks from oil development.

Southern right whales were depleted to near extinction from commercial whaling in the 18th and 19th centuries. Whilst now protected and recovering, the population is not yet secure. The Head of the Bight is Australia’s

Ecosystem Study, CSIRO, SARDI, Marine Innovations SA, and the Government of South Australia, June 2013.

largest aggregation ground for these incredible animals and lies within the Great Australian Bight Marine Reserve where up to 40% of the Australian population of whales are known to visit.¹⁴

There are two subpopulations, the “eastern” which consists of fewer than 600 individuals and can be found along the south-eastern coast, including Tasmania and rarely further north than Sydney. The “western” subpopulation is showing signs of recovery, at the suggested species maximum biological rate of recovery of approximately 7% per year,¹⁵ whilst the “eastern” subpopulation is not showing signs of recovery.

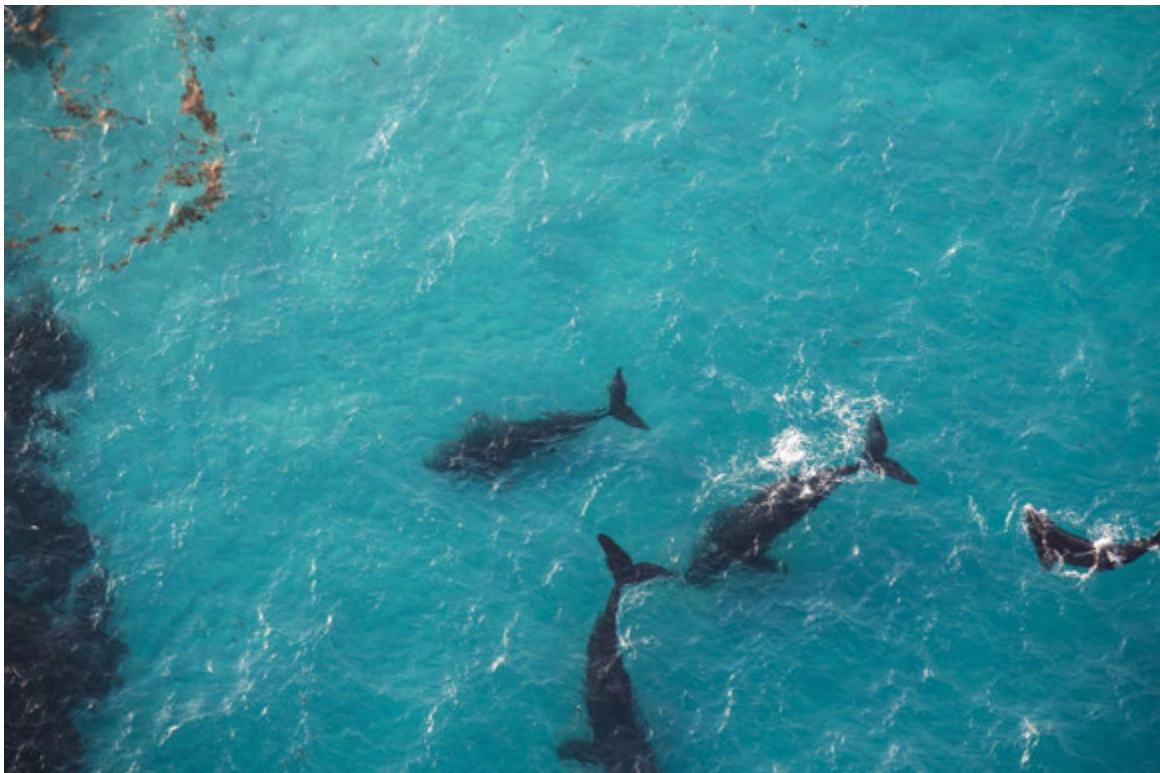


Figure 1.7: Southern right whales at the Head of the Bight | Peta North

This could possibly be attributed to the lack of anthropogenic disturbances in the Great Australian Bight, with less marine based industry in the area, and a sparsely populated coastline.

Relative abundance trends reveal triennial peaks in abundance, representing a cohort structured breeding cycle, driven by the whale’s three to four year calving intervals. Based on historical trajectories of southern right whales at the Head of the Bight, 2014 was expected to represent the largest breeding cohort, followed by the second largest breeding cohort in 2015. However, the peak relative abundance counts were lower than anticipated in both years.

Of particular concern is the size of the decline in 2015 calf production. Calving female numbers were 51% lower than the prior year and 47% lower than in 2012, the previous cohort year. The low numbers of calving females

¹⁴Burnell, SR 2001, ‘Aspects of the reproductive biology, movements and site fidelity of right whales off Australia’, *Journal of Cetacean Research and Management*.

¹⁵Bannister, JL 2014, ‘Monitoring Population Dynamics of right whales off Southern Australia, 2012 and 2013’, *Final Report to the Australian Marine Mammal Centre*.

present in 2015 flatten the long-term trends and the low calf numbers represent some cause for concern.¹⁶

A significant increase in oil and gas industry activity has occurred in the Great Australian Bight in recent years.



Figure 1.8: Southern right whales at the Head of the Bight | Ron & Valerie Taylor

In September 2014, nine individual adult southern right whales were satellite tagged at the Head of the Bight in South Australia. There was high variability in tag performance, but sufficient data was received to describe the migratory movements of three adult females accompanied by calves.

All three whales moved through areas of potential future exposure to human impacts from offshore oil and gas exploration and shipping. The two females who followed a southerly migration from the Head of the Bight aggregation transited through the current exploration permit lease areas. Individual movement tracks were related to oceanographic features associated with areas of upwelling or high productivity.

This study highlights the need for further information on offshore movements of southern right whales from Australia, to inform the conservation of this species and management of anthropogenic activities, particularly as populations continue to recover.¹⁷

¹⁶Charlton, et. al. 2015, *Great Australian Bight Right Whale Study Field Report 2014/2015*, Curtin University, Centre for Marine Science and Technology.

¹⁷Mackay, Al, et. al. 2015, 'Offshore migratory movement of southern right whales: informing critical conservation and management needs', *SARDI Publication*, Number F2015/000526-1, <http://www.pir.sa.gov.au/_data/assets/pdf_file/0004/260941/Southern_Right_Whale_Movement_Report.pdf>

1.2. Social, Economic and Cultural Values

Southern Australia is predominantly inhabited along the coastline. This connection with the coast and pristine beaches is central to the lifestyle, the culture and the region's identity. Activities such as surfing, boating, fishing, and whale and bird watching are highly popular. Some of the big wave surf beaches, such as Cactus Beach, are world renowned.

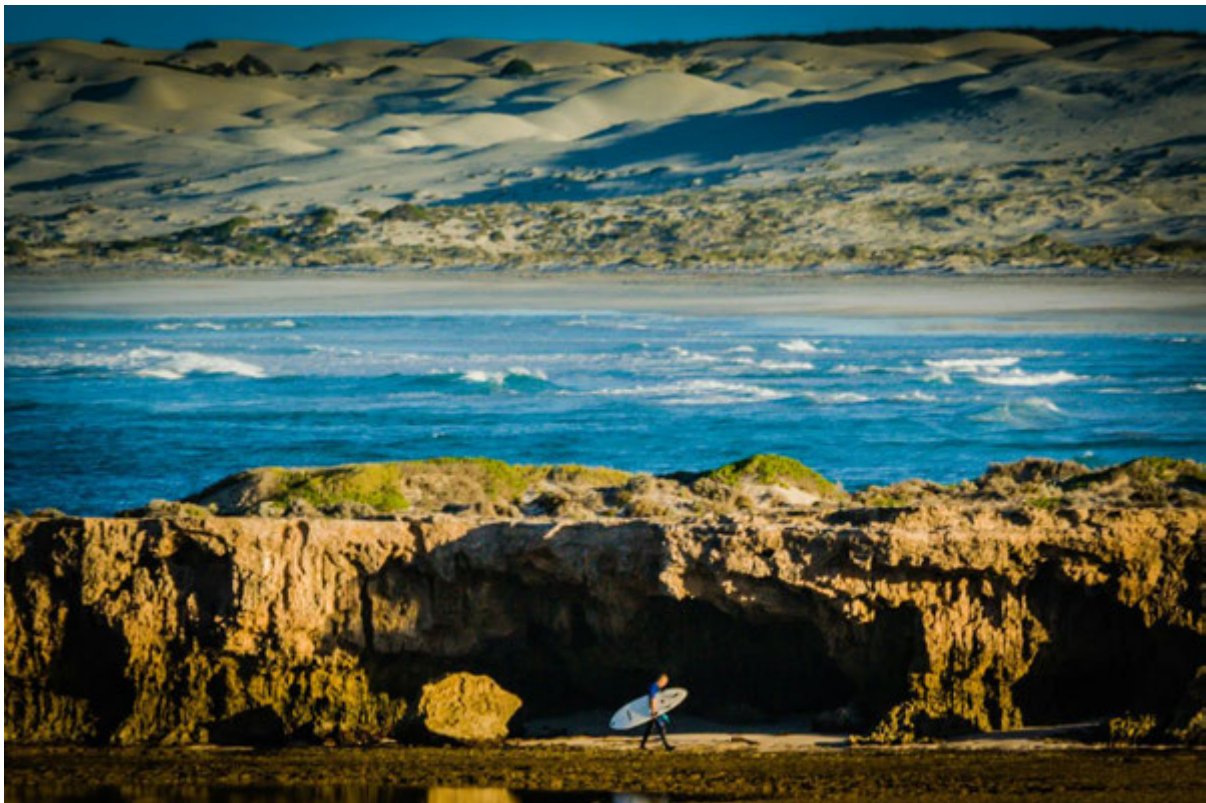


Figure 1.9: Surfer at Cactus Beach | Matthew Turner

The tourism industry has expanded rapidly over the past decade, with many of the region's coastal icons now successful tourism destinations. Much of it is based on the natural values of the marine environment – from shark and sea lion diving to whale and dolphin watching.

Kangaroo Island is one of Australia's best known and loved tourist destinations and is a stop on the southern right whale's journey. All along South Australia's coast, from the Coorong to Victor Harbor, the Eyre Peninsula and across to the whale nursery at the Head of the Bight, the majestic southern right whale travels.

The region also supports a number of commercial fisheries, including Abalone, Blue Crab, Marine Scalefish, Pipi, Prawn, Rock Lobster and Sardine, and a number of aquaculture industries.

The Great Australian Bight is an Indigenous cultural domain, and of enormous value to its Traditional Owners who retain living cultural, spiritual, social and economic connections to their homelands within the region on

land and sea. There are several Indigenous nation groups that form the coastline of the Great Australian Bight, and more still across southern Australia that depend on the healthy functioning of the Bight's marine ecosystems to maintain their cultural values.

One such Indigenous nation that has submitted a video submission to this Inquiry are the Mirning people, whose homelands encompass the coastal and inland regions of the Nullarbor Plain and include the major Australian breeding grounds for the southern right whale. The Mirning have what they call a dreamtime connection with the whale, that connects past, present and future in one dream, in the ever evolving cycles of life, birth and death.¹⁸ This is but one story and one example of the deep and rich Indigenous cultural connections to this region.

Recommendation 4 – Acknowledge Social, Economic and Cultural Values: That the Committee acknowledge the important social, economic and cultural values associated with the Great Australian Bight.

¹⁸ Bunna Lawrie, pers com 2016.

2. Threat of BP's Drilling Plans on Marine Ecosystems

(Addressing Terms of Reference points a and c)

2.1. Oil or Gas in the Great Australian Bight?

This Inquiry references both oil and gas production in the Great Australian Bight, as both of these fossil fuels are commonly found together. However, oil is clearly the primary target for BP and other companies with permits in the region.

Firstly, BP has consistently and repeatedly discussed publicly the oil potential, rather than the gas potential of the Bight. Former BP Australia head Andy Holmes told *The Australian* that the Great Australian Bight could become a world-class oil province with the potential to rival the big producing regions of Nigeria and the US' Gulf of Mexico.¹⁹ BP's summary and rudimentary oil spill modelling also indicates that it is targeting light crude oil.²⁰

Likewise, Bight Petroleum refers overwhelmingly to oil on its website ("*Exploring Multi-Billion Barrel Oil Fields*" ... "*Oil Rush*" ... "*Asia's next giant oil province*"²¹). The South Australian Chamber of Mines and Energy chief executive Jason Kuchel has also clearly stated the target resource for the Bight is oil, claiming the region has the potential to be one of the largest offshore oil basins in the world.²²

In addition, when Woodside Petroleum attempted to drill in the region for oil in 2003, then Director of New Ventures, Agu Kantsler, argued that given the remote and challenging nature of the region and lack of a ready gas market, any production would have to be oil to be commercially viable. He commented that: "*We are targeting oil because that is the only thing that could possibly make money here. Gas is totally worthless.*"²³

As with all oil fields, there will be gas associated with any oil deposits. However, the commerciality of the gas would likely be severely restricted by the large distance to Adelaide and lack of domestic demand. The gas would most likely be flared onsite (a practice that is discouraged in other operating environments and results in substantial additional greenhouse gas emissions).

It is in the interest of the companies exploring for oil – and their supporters – to refer to the potential of gas in the basin as a tactic to divert attention away from the less publicly palatable oil resource. Such claims should be seen with extreme scepticism given the evidence above.

Recommendation 5 – Clarify Target Resource: That the Committee clarify through this Inquiry that the primary target resource of oil and gas companies in the Great Australian Bight is oil and that impact assessments should therefore be focussed on the activities associated with exploring for and extracting oil.

¹⁹ *The Australian* 2014, 'BP hopeful of tapping new world-class oilfield', 22 August 2014, <<http://www.theaustralian.com.au/business/bp-hopeful-of-tapping-new-worldclass-oilfield/news-story/ef63667bb9456219ebdc2c fb1c960fff>>.

²⁰ BP 2015, *Fate and Effects Oil Spill Modelling Assumptions, Parameters and Results*, 19 November 2015.

²¹ Bight Petroleum 2015, viewed April 2016, <<http://www.bightpetroleum.com/>>.

²² *The Advertiser* 2015, 'Promise of oil, thousands of jobs as companies hunt in Great Australian Bight', 18 January 2015, <<http://www.adelaidenow.com.au/news/south-australia/promise-of-oil-thousands-of-jobs-as-companies-hunt-in-great-australian-bight/news-story/b89278ca30126bf6e7c19ce8a9cf3647>>.

²³ *Alexander's Gas and Oil Connections* 2003, 'Woodside to risk drilling in Great Australian Bight', 25 March 2003, <<http://www.gasandoil.com/news/2003/04/cns31674>>.

2.2. Non-Oil Spill Risks and Impacts of Oil Development Cycle

All stages of the oil development cycle – exploration, development, production, abandonment – pose unavoidable risks and impacts on marine and coastal ecosystems. Even without taking into account the risk of a catastrophic oil spill, a new deepwater drilling operation in the Great Australian Bight will put severe pressure on the marine values of the region. The most serious of these risks and impacts include noise pollution, smothering from seabed disturbance and drill cuttings disposal, chemical pollution and discharge of drilling fluids, accidental discharge and leakage of oil, and increased cetacean strikes.

Following BP's catastrophic oil spill in the Gulf of Mexico, President Obama established a bipartisan and high level *National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling*, "... tasked with providing recommendations on how the United States can prevent and mitigate the impact of any future spills that result from offshore drilling."²⁴ The Commission provided a final report in January 2011 which made the following observations about the cumulative environmental impacts of long-term oil drilling in the Gulf of Mexico:

*The bayous and wetlands of Louisiana have for decades suffered from destructive alteration to accommodate oil exploration. The Gulf ecosystem, a unique American asset, is likely to continue silently washing away unless decisive action is taken to start the work of creating a sustainably healthy and productive landscape.*²⁵

The environmental impacts of oil development are cumulative and not just site specific, particularly in a previously pristine environment. These impacts need to be assessed at a regional level, not site by site or project by project.

²⁴Ibid.

²⁵Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011.



Figure 2.1: The future for the Great Australian Bight? — oil field in Vungtau, Vietnam | Wikimedia Commons

2.2.1. Noise Pollution

Noise pollution negatively affects at least 55 marine species, including both cetaceans and commercially valuable species of fish.²⁶ Noise pollution occurs both during the exploration phase (particularly seismic surveying and support vehicles) and production phase (particularly drilling activities and support vehicles).²⁷ The Australian Government recognises seismic surveys and industrial noise impacts as key threats to many Australian cetacean species, including the endangered southern right whale.²⁸

BP outlines plans to use Vertical Seismic Profiling (VSP) for well evaluation and considers the potential impact on the marine environment to be of “minor significance”.²⁹ However, this is inconsistent with research indicating that VSP activities pose serious risks. Seismic airguns which are used during VSP activities are directed vertically, however they still significantly raise noise levels thousands of miles away,³⁰ and “a

²⁶Natural Resources Defence Council 2010, *Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys*, May 2010, <<https://www.nrdc.org/oceans/files/seismic.pdf>>.

²⁷US Marine Mammals Commission 2015, *Stages of Offshore Oil and Gas Development and Potential Effects on Marine Mammals*, viewed April 2016, <<http://www.mmc.gov/priority-topics/offshore-energy-development-and-marine-mammals/offshore-oil-and-gas-development-and-marine-mammals/effects-on-marine-mammals-of-different-stages-of-oil-and-gas-development/>>.

²⁸Australian Government 2015, *SPRAT database*, viewed April 2016, <http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=40>.

²⁹BP 2015, *Great Australian Bight Exploration Drilling Program Environment Plan Summary*, 1 October 2015.

³⁰Nieukirk, SL, et al. 2004, ‘Low-frequency whale and seismic airgun sounds recorded in the mid-Atlantic Ocean’, *Journal of the Acoustical Society of America* 115, cited in Natural Resources Defence Council 2010, *Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys*, May 2010.

*considerable amount of energy is also radiated in all directions away from the vertical.*³¹ The director of Cornell's Bioacoustics Research Program once described seismic airguns as possibly "*the most severe acoustic insult to the marine environment.*"³² As International Fund for Animal Welfare (IFAW) note in their submission into this Inquiry, this activity involves the firing of "*intense blasts of air into the ocean, every 10 seconds, up to 24 hours a day over periods of weeks and months.*"³³

Cetaceans use sound to communicate, navigate and feed. New oil facilities may cause habitat loss for cetaceans, disturb feeding or social behaviours and mask the sounds of predators.³⁴ A single seismic survey can cause endangered fin and humpback whales (both species rely on habitat in the Great Australian Bight) to stop vocalising – a behavior essential to breeding and foraging – over an area at least 100,000 square nautical miles in size.³⁵ Research from the US National Oceanic and Atmospheric Administration (NOAA) and Cornell has found that one of the species most vulnerable to these noise impacts is the critically endangered North Atlantic right whale³⁶ whose calving grounds occur off Florida and Georgia in a disturbingly similar scenario to the critical southern right whale calving areas in the Great Australian Bight.

³¹Department of the Environment, Water, Heritage and the Arts 2008, *Background Paper to EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales*, September 2008.

³²Natural Resources Defence Council 2010, *Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys*, May 2010, <<https://www.nrdc.org/oceans/files/seismic.pdf>>.

³³Refer to International Fund for Animal Welfare 2016, submission to this inquiry.

³⁴House of Commons Environmental Audit Committee 2012, *Protecting the Arctic: Second Report of Session 2012-13*, Volume I: Report, together with formal minutes, oral and written evidence, published on 20 September 2012 by authority of the House of Commons.

³⁵Clark, CW & Gagnon, GC 2006, 'Considering the temporal and spatial scales of noise exposures from seismic surveys on baleen whales', IWC/SC/58/E9, submitted to Scientific Committee, International Whaling Commission, cited in Natural Resources Defence Council 2010, *Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys*, May 2010, <<https://www.nrdc.org/oceans/files/seismic.pdf>>.

³⁶Clark, CW, et. al. 2009a, 'Acoustic masking in marine ecosystems as a function of anthropogenic sound sources', IWC/SC/61/E10, submitted to Scientific Committee, International Whaling Commission, cited in Natural Resources Defence Council 2010, *Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys*, May 2010, <<https://www.nrdc.org/oceans/files/seismic.pdf>>.



Figure 2.2: Humpback whales are threatened by seismic activities | David Jenkins

Noise pollution from oil exploration can also impact fish. Impacts include damage to hearing organs, stunning effect, severe tissue damage, increased levels of stress, altered swimming behavior, abandonment of breeding grounds during spawning season and death of fish larvae.^{37,38} Seismic surveys have been shown to dramatically depress catch rates of various commercial species (by 40-80%) over thousands of square kilometers around a single array.³⁹

2.2.2. Smothering from Seabed Disturbance and Drill Cuttings Disposal

Oil development causes seabed disturbance and smothering due to the placement of drilling rigs and the disposal of drill cuttings back into the marine environment.

In BP's Summary Environment Plan, it claims the risk of seabed disturbance and smothering to be of "minor significance."⁴⁰ However, this clearly trivialises the fact that the permits overlay the new Great Australian Bight

³⁷Beale, B 2003, 'Seismic testing can severely damage fish hearing', *ABC Science Online*, 14 February 20013, <<http://www.abc.net.au/science/articles/2003/02/14/784754.htm>>.

³⁸Popper, A & Hastings, MC 2009, 'The effects of human-generated sound on fish', *Integrative Zoology* 2009; 4: 43-52.

³⁹Engås, A, et al. 1996, 'Effects of seismic shooting on local abundance and catch rates of cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*)', *Canadian Journal of Fisheries and Aquatic Sciences* 53: 2238-2249; Skalski, JR, et. al. 1992, 'Effects of sounds from a geophysical survey device on catch-per-unit-effort in a hook-and-line fishery for rockfish (*Sebastes* spp.)', *Canadian Journal of Fisheries and Aquatic Sciences* 49: 1357-1365, cited in Natural Resources Defence Council 2010, *Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys*, May 2010, <<https://www.nrdc.org/oceans/files/seismic.pdf>>.

⁴⁰BP 2015, *Great Australian Bight Exploration Drilling Program Environment Plan Summary*, 1 October 2015.

Marine Reserve, and in particular those parts of the Reserve that were formerly part of the designated Benthic Protection Zone of the GABMP.

The first systematic identification of macroinfauna (organisms living in the sediment and visible to the eye) in the region took place in 2015. A diverse range of benthic invertebrates were discovered, of which roughly half are new to science and suggest new and endemic fauna in the region.⁴¹ The benthic invertebrate communities of the eastern Great Australian Bight are one of the key conservation values intended to be protected by the International Union for the Conservation of Nature (IUCN) Category VI area of the new Great Australian Bight Marine Reserve in the central Bight.⁴²

BP has not publicly released the planned locations for the four wells proposed in the drilling program and it is entirely possible that some or all of the wells could be located within the Great Australian Bight Marine Reserve. Furthermore, although not specifically stated in BP's Summary Environment Plan, previous *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)* referral documentation prepared by BP estimates that around 300ha of seafloor (and benthic communities) will be smothered as a result of rig footprints and cuttings disposal from its proposed four well drilling program.⁴³

Very little is known about the likely significance of this scale of disturbance on these highly diverse, endemic and little-studied benthic ecological communities either within or outside the Great Australian Bight Marine Reserve.⁴⁴ The cumulative impact of increasing numbers of exploration wells and/or production wells in the Great Australian Bight (as envisaged by the current set of Bight Basin Exploration Permit for Petroleum (EPP) work programs) would likely present a cumulative impact of still greater significance.

2.2.3. Chemical Pollution and Discharge of Drilling Fluids

The use of chemicals is “critical for the production of oil and gas” and part of many routine exploration activities.⁴⁵ Impacts in the marine environment include “acute or long term toxic effect to marine organisms” and “can result in hormonal, mutagenic and reprotoxic effects that can impact whole populations of species and result in high exposure for top predators like seabirds and marine mammals.”⁴⁶

One of the main sources of chemical pollution in oil development is the discharge of drilling fluids into the marine environment along with drill cuttings. BP's plan includes use of both Synthetic Based Mud (SBM) and Water Based Mud (WBM) drilling fluids. The plans ensure that SBM represents no more than 6.9% by weight on cuttings discharged overboard, and only discharge WBM overboard in bulk.⁴⁷ With these measures in place, its Environment Plan Summary lists the risk from drilling fluid discharge as being of “minor significance.”⁴⁸

However once again, this fails to take into account the conservation values of the Great Australian Bight

⁴¹Ibid.

⁴²Department of the Environment 2015, *Great Australian Bight Commonwealth Marine Reserve*, <<http://www.environment.gov.au/topics/marine/marine-reserves/south-west/gab>>

⁴³BP Developments Australia 2013, *EPBC Referral 2013/6863*.

⁴⁴Rogers, P, et al 2013, ‘Physical processes, biodiversity and ecology of the Great Australian Bight region: A Literature Review’, *GAB Ecosystem Study*, CSIRO, SARDI, Marine Innovations SA, and the Government of South Australia, June 2013.

⁴⁵OSPAR Commission 2009, ‘Assessment of impacts of offshore oil and gas activities in the North-East Atlantic’, *Offshore Industry Series*, <<http://www.ospar.org/documents?v=7154>>.

⁴⁶Ibid.

⁴⁷BP 2015, *Great Australian Bight Exploration Drilling Program Environment Plan Summary*, 1 October 2015.

⁴⁸Ibid.

marine environment, and does not comply with global standards. In the Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) Commission region, for example, *“cuttings contaminated with synthetic fluids can only be discharged in exceptional and very rare circumstances”*.⁴⁹ Similarly, while it is true that water based drilling fluids have less impact than oil based fluids, they still contain chemicals and according to the OSPAR Commission *“the discharge of water based fluids and associated drill cuttings are still a concern in areas with sensitive benthic fauna.”*⁵⁰ As outlined above, the benthic ecological communities in the Bight are sensitive and have high levels of endemism.

Without further study, and identification of exact drilling locations, any discharge from SBM and bulk discharge of WBM should therefore be considered a high-risk activity.

2.2.4. Minor Oil and Chemical Spills

Although much public attention is rightly focused on the threat of a catastrophic oil spill, it is important to note that minor spills of oil, chemicals, and other hazardous materials pose a cumulative risk to the marine environment. These incidents occur frequently and are caused by a range of factors, from human error to equipment failure.⁵¹ In the OSPAR Commission region, for example, there was an annual average of 637 oil spills of one tonne or less between the year 2000 and 2007.⁵²

2.2.5. Increased Risk of Cetacean Strikes

Oil exploration and production in the Great Australian Bight will increase the risk of vessel strikes for cetaceans, including the southern right whale. According to the 2011 Conservation Management Plan for the southern right whale, although reported vehicle strikes are currently low:

*“... it is likely that this risk will increase as shipping traffic grows and the impact on an individual, especially in south-east Australia, is likely to have a significant, potentially population-scale effect, if further evidence confirms this as a small demographically discrete population.”*⁵³

Under the *EPBC Act*, all cetaceans (whales, dolphins and porpoises) are protected in Australian waters. As such, activities that clearly increase the risks of cetacean death and injury that can arise from vessel strike should not be taken lightly, particularly in a region important for whale calving. This threat also points to the need to thoroughly and independently understand which cetacean species transit and utilise specific parts of the the region, including all oil exploration permit areas and shipping routes between those permit areas and ports.

⁴⁹OSPAR Commission 2009, ‘Assessment of impacts of offshore oil and gas activities in the North-East Atlantic’, *Offshore Industry Series*, <<http://www.ospar.org/documents?v=7154>>.

⁵⁰Ibid.

⁵¹Ibid.

⁵²Ibid.

⁵³Department of Sustainability, Environment, Water, Population and Communities 2012, *Conservation Management Plan for the Southern Right Whale 2011-2021*, <<http://www.environment.gov.au/system/files/resources/4b8c7f35-e132-401c-85be-6a34c61471dc/files/e-australis-2011-2021.pdf>>.



Figure 2.3: Dolphins and other cetaceans such as whales are at risk from vessel strikes | Vanessa Mignon

Recommendation 6 – Acknowledge Non-Oil Spill Ecological Risks: That the Committee acknowledge that the non-oil spill risks of the oil development cycle are also high despite BP’s claims to the contrary and should therefore be fully and independently assessed in any approvals process.

2.3. Risks and Impacts of Catastrophic Oil Spills

Oil spills in the marine environment can have widespread and devastating impacts, with long-term consequences on wildlife, fisheries, coastal and marine habitats, human health and livelihood and recreational resources of coastal communities.⁵⁴

Oil comprises of thousands of chemical compounds, with varying levels of toxicity to wildlife and habitat. Generally speaking, the water-soluble fractions (WSFs) and volatile organic compounds (VOCs) of oil are the most acutely toxic components, because they are the components of oil that evaporate into the air or mix into marine waters and often cause direct harm to organisms. These components – which include benzene, naphthalene, xylene and toluene – are toxic to wildlife and to humans.⁵⁵ As oil remains in the environment and

⁵⁴Gilbert, T et al. 2010, *Oil Spills in the Australian Marine Environment: Environmental Consequences and Response Technologies*, Australian Maritime Safety Authority, <<https://www.amsa.gov.au/forms-and-publications/environment/publications/NP-Reports/documents/Oil-Spills-in-ME.pdf>>.

⁵⁵Arctic Monitoring and Assessment Programme, 2008b, *Assessment 2007—Oil and Gas in the Arctic: Effects and Potential Effects*, Arctic Council Report, cited in PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined*

weathers, the WSFs and VOCs are typically lost, and the remaining oil tends to have proportionately higher levels of polycyclic aromatic hydrocarbons (PAHs). These are also toxic to humans and wildlife and have the potential to linger in the environment for years.⁵⁶

Impacts on wildlife from oil toxicity occur at the individual and the group level. Individual impacts include death, disease, impaired reproduction, genetic alterations, changes to endocrine or immune functions, hypothermia and a range of other biological disorders. Group-level impacts include changes to local population sizes, community structures and overall biomass. The most obvious toxic impact of spilled oil is direct contact with wildlife and habitat.⁵⁷



Figure 2.4: Pelican smothered and killed by BP's Deepwater Horizon oil spill | Louisiana GOHSEP

Although oiled wildlife provides the most vivid images of a spill's impact, the level of ecosystem harm is even greater than the acute mortality would suggest. Long-term ecosystem impacts come from chronic exposure to oil in sediments and beaches, reduced fitness of animals exposed to sublethal doses of oil, and impacts through the food web.⁵⁸

Impacts on cetaceans and other marine mammals can include the ingestion of oil and the inhalation of vapor from crude oil, loss of insulation by oiling, and deleterious effects from contaminated prey. The inhalation of

Risks, Unacceptable Consequences, November 2010,

<<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

⁵⁶Ibid.

⁵⁷Ibid.

⁵⁸Ibid.

volatile compounds from fresh crude oil is known to damage the respiratory system, nervous system and liver of marine animals surfacing to breathe.⁵⁹

Oil on marine mammals and birds destroys their thermal insulation and buoyancy. A large spill can cause a massive acute die-off of oiled birds.⁶⁰ These mass seabird deaths can also create trophic cascade effects that impact their prey species and fisheries.⁶¹

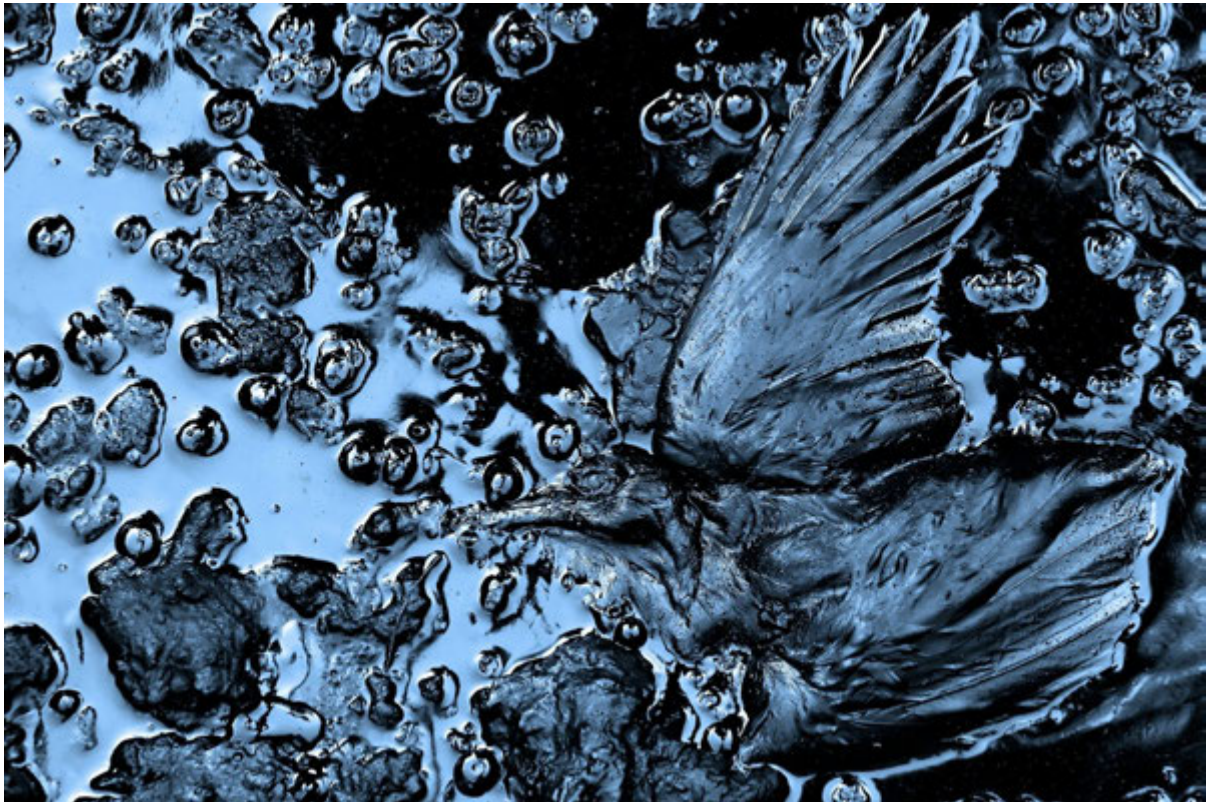


Figure 2.5: Bird smothered and killed by BP's Deepwater Horizon oil spill | Dreamstime

Apex predators, particularly those that are long lived, can also be especially impacted by toxic oil spill pollution. Some animals that are high on the food chain already experience the effects of bioaccumulation of persistent organic pollutants through bio-magnification. This continues in each predator-prey interaction, and animals at the top of the food chain, such as southern bluefin tuna, great white sharks and toothed whales, as well as humans, can accumulate high levels of these toxins.⁶²

⁵⁹National Research Council 2003b, *Cumulative environmental effects of oil and gas activities on Alaska's North Slope*, Washington: National Academies Press, cited in PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined Risks, Unacceptable Consequences*, November 2010,

<<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

⁶⁰Peterson, CH, et al. 2003, 'Long-term ecosystem response to the Exxon Valdez oil spill', *Science* 302(5653):2082-2086, 19 December 2003, cited in PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined Risks, Unacceptable Consequences*, November 2010,

<<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

⁶¹Jeffrey Short 2015, pers. comms. cited in PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined Risks, Unacceptable Consequences*, November 2010,

<<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

⁶²Arctic Monitoring and Assessment Programme 2002, 'Assessment 2002: Persistent organic pollutants in the Arctic', *Arctic Council Report*, cited in PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined Risks*,

Further, it is not only the spills themselves that threaten ecosystems, but oil spill cleanup can be damaging as well. Physical cleanup destroys habitat and can cause erosion. Habitat damage reduces the abundance and productivity of native species and fosters invasive species. Using chemicals to disperse spilled oil often means surface oil is transferred to subsurface water at concentrations that can be toxic to aquatic life (especially to fish embryos).⁶³

2.3.1. Case Studies of Catastrophic Oil Spills and Marine Impacts

The catastrophic ecological damage wrought from the Exxon Valdez spill in Alaska and BP's Deepwater Horizon spill in the Gulf of Mexico provide sobering examples of the enormous potential impact on marine environments and clear evidence that "worst case scenario" does indeed happen.

2.3.1.1. Deepwater Horizon

On 20 April 2010, BP's Deepwater Horizon oil rig in the Gulf of Mexico exploded. The oil rig sank to the bottom of the Gulf of Mexico two days later, and oil gushed out of control from the seabed for 87 days. As the crippled rig burned and listed into the ocean, 11 workers went missing. They were never found, and are presumed dead.

The rig was undertaking exploratory oil drilling as part of BP's Macondo prospect. By the time the oil spill finally was stopped, the US government estimated that about 4.9 million barrels of oil (or 650 million litres) had contaminated the Gulf of Mexico. It is estimated that up to 1,770km of the Gulf of Mexico shoreline was affected by the spill.⁶⁴

President Obama was clear about the scale of the disaster:

*"Already, this oil spill is the worst environmental disaster America has ever faced. And unlike an earthquake or hurricane, it's not a single event that does its damage in a matter of minutes or days. The millions of gallons of oil that have spilled into the Gulf of Mexico are more like an epidemic, one that we will be fighting for months and even years."*⁶⁵

The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling found that "*the Deepwater Horizon oil spill immediately threatened a rich, productive marine ecosystem*"⁶⁶ and that "*more than 650 miles of Gulf coastal habitats – salt marsh, mudflat, mangroves, and sand beaches – were oiled; more than 130 miles have been designated as moderately to heavily oiled.*"⁶⁷

Unacceptable Consequences, November 2010,

<<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

⁶³Kenneth, L (Chair), Boufadel, M, Chen, B, Foght, J, Hodson, P, Swanson, S & Venosa, A 2015, *Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments*, Royal Society of Canada, Ottawa, <https://rsc-src.ca/sites/default/files/pdf/OIW%20Report_1.pdf>.

⁶⁴Ibid.

⁶⁵Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011.

⁶⁶Ibid.

⁶⁷Ibid.



Figure 2.6: BP's Deepwater Horizon rig on fire after well blowout | Dreamstime

In the six months following the disaster, wildlife responders had collected “8,183 birds, 1,444 sea turtles, and 109 marine mammals affected by the spill – alive or dead, visibly oiled or not.”⁶⁸ The US Department of the Interior for Fish, Wildlife and Parks stated that the three most affected bird species appeared to be brown pelicans, northern gannets, and laughing gulls.⁶⁹ It has been estimated that approximately one million seabirds and between 600,000 and 800,000 coastal birds were killed as a result of the oil spill.⁷⁰ More than 1,000 sea turtles were found dead following the spill⁷¹ and between January and March 2011, 200 dead dolphins were found in the Gulf of Mexico.⁷²

The oil spill also saw the unprecedented use of the toxic chemical oil dispersal product, Corexit. From 27 April through to 10 May 2010 alone, 310,346 gallons of the dispersal were released into the marine environment. This represented an unprecedented use of a toxic chemical agent. By comparison, during the Exxon Valdez spill, about 5,500 gallons of dispersal was used and this was considered to be controversial due to concerns about its impacts on the marine environment.⁷³ In total, 1.8 million gallons of toxic chemical dispersals were

⁶⁸Ibid.

⁶⁹Ibid.

⁷⁰Haney, JC, Geiger, HJ & Short, JW 2014, ‘Bird mortality from the Deepwater Horizon oil spill’, Marine Ecology Progress Series, v513.

⁷¹National Oceanic and Atmospheric Administration 2014, Programmatic Phase III Early Restoration Program EIS, Chapter 4, June 2014.

⁷²Reuters 2011, ‘Government tightens lid on dolphin death probe’, 25 March 2011, <<http://www.reuters.com/article/us-dolphins-gulf-idUSTRE72O3JO20110325>>.

⁷³Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011.

used.⁷⁴



Figure 2.7: BP's Deepwater Horizon rig on fire and oil slick on water after well blowout | Wikimedia Commons

The spill had a highly visible and vast impact on some 1700 kilometers of the Gulf's shorelines.⁷⁵ Two years after the spill, oil still remained on 687km of the shoreline.⁷⁶ The bulk of the oil was stranded during a three-month period, when many of the beaches were in an erosional state, which led to the burial of the oil. In addition, oil was stranded high in the supratidal zone due to high water levels and wave activity. The oil was buried, exposed and remobilised multiple times in some areas. Removal of deeply buried oil required extensive mechanical and manual excavation and sieving. In the lowest intertidal/nearshore subtidal zones, some of the oil/sand mixture accumulated in the near-shore subtidal zone forming extensive submerged oil residue mats. Along some heavily oiled shorelines, there was nearly complete flora mortality.

Nearly six years later, recovery actions are still underway in the Gulf of Mexico. Cynthia Sarthou, executive director of Gulf Restoration Network, has stated that after five years, there are more questions than answers about what the lingering impact of the spill means. She has noted that dolphin deaths continue, oil is still on the bottom of the ocean and tar balls keep coming up, concluding that impacts of the spill may plague the Gulf

⁷⁴The Federal Interagency Solutions Group 2010, *Oil Budget Calculator: Deepwater Horizon, Technical Documentation*, National Oceanic and Atmospheric Administration, Oil Budget Calculation Science and Engineering Team, November 2010.

⁷⁵*The Guardian* 2011, 'Deepwater Horizon and the Gulf oil spill – the key questions answered', 20 April 2011, <<http://www.theguardian.com/environment/2011/apr/20/deepwater-horizon-key-questions-answered>>.

⁷⁶Kenneth, L (Chair), Boufadel, M, Chen, B, Foght, J, Hodson, P, Swanson, S & Venosa, A 2015, *Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments*, Royal Society of Canada, Ottawa, <https://rsc-src.ca/sites/default/files/pdf/OIW%20Report_1.pdf>.

of Mexico for decades.⁷⁷



Figure 2.8: Beach clean up after severe oiling from BP's Deepwater Horizon disaster | Dreamstime

2.3.1.2. Exxon Valdez

On 24 March 1989, the Exxon Valdez struck Bligh Reef in Alaska's Prince William Sound. About 42,000 tonnes of Prudhoe Bay medium crude oil was released into the ocean affecting an area of about 28,000km². The remote location, accessible only by helicopter, plane or boat, made government and industry response efforts difficult – as did severe weather with high winds, which came about two and half days later. The dispersant Corexit was applied on the day of the spill, but there was insufficient wave action to mix the dispersant with the oil in the water. Some of the surface oil was burned, reducing 113m³ of surface oil to a removable residue; however, unfavourable weather prevented further burning. Booms and skimmers were deployed for mechanical recovery, but skimmers were not readily available during the first 24 hours, and thick oil and kelp tended to clog the equipment.⁷⁸

About half of the oil was distributed along the shoreline and inter and subtidal areas as far as 970km from the spill site. About 782km of Prince William Sound (about 16% of shoreline) and 1,315km of the Gulf of Alaska were oiled.⁷⁹

⁷⁷NPR 2016, '5 Years After BP Oil Spill, Effects Linger And Recovery Is Slow', 20 April 2016, <<http://www.npr.org/2015/04/20/400374744/5-years-after-bp-oil-spill-effects-linger-and-recovery-is-slow>>.

⁷⁸Kenneth, L (Chair), Boufadel, M, Chen, B, Foght, J, Hodson, P, Swanson, S & Venosa, A 2015, *Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments*, Royal Society of Canada, Ottawa, <https://rsc-src.ca/sites/default/files/pdf/OIW%20Report_1.pdf>.

⁷⁹Ibid.



Figure 2.9: Cleanup of Exxon Valdez spill | Wikimedia Commons

Mass fauna deaths occurred as an immediate effect of the spill. It is estimated that the spill caused the deaths of around 250,000 seabirds (comprising over 90 species),⁸⁰ and up to 5,500 sea otters.⁸¹ Although some whale species, such as bowhead whales, have been observed to avoid oil contaminated areas, other species have shown no avoidance behavior and during the Exxon Valdez spill, killer whales were observed swimming through slicks with no obvious attempts to avoid them.⁸² Twenty-two killer whales died; a single pod lost seven members within a week of the spill, including three adult females, and an additional seven or eight members over the next two years.⁸³ Other species affected directly by mortality included river otters, harbour seals and bald eagles, plus unknown numbers of herring, salmon and other fish species.⁸⁴ An estimated 302 harbor seals were killed in the Exxon Valdez spill, probably from inhalation of toxic fumes.⁸⁵

Herring have been the focus of extensive studies because they were commercially harvested in Prince William Sound prior to the spill and their numbers showed large declines within a few years of the disaster. The herring population was still very low in 2014 and there was no longer a commercial fishery present.⁸⁶

⁸⁰Ibid.

⁸¹Ibid.

⁸²Ibid.

⁸³Ibid.

⁸⁴Ibid.

⁸⁵Ibid.

⁸⁶Ibid.

After a spill there can also be delayed population reductions and cascades of indirect effects that postpone recovery.⁸⁷ For example, harlequin ducks appeared to be affected via the energetic costs of metabolising oil toxins (such as PAHs), leading to lower body mass and elevated overwintering mortality. In 2010, researchers estimated that the recovery of the harlequin duck population would take 16-32 years.⁸⁸ PAHs from weathered oil are also toxic to developing fetuses in at least some mammals, however, the long-term health impact of sublethal oil exposure on marine mammals is generally not known.⁸⁹



Figure 2.10: Dead and oiled birds from Exxon Valdez spill | Wikimedia Commons

In 1999, a decade after the spill, the executive director of the Exxon Valdez Oil Spill Trustee Council said that: *"Ten years after the spill, there has clearly been a lot of progress toward recovery ... but it is equally clear that for several species and the ecosystem in general, there is a long way yet to go."*⁹⁰

Recommendation 7 – Acknowledge Oil Spill Ecological Risks: That the Committee acknowledge that catastrophic oil spills do occur, and that the consequences of these spills are severely ecologically damaging.

⁸⁷Peterson, CH, et al. 2003, 'Long-term ecosystem response to the Exxon Valdez oil spill', Science 302(5653): 2082-2086.

⁸⁸Kenneth, L (Chair), Boufadel, M, Chen, B, Foght, J, Hodson, P, Swanson, S & Venosa, A 2015, *Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments*, Royal Society of Canada, Ottawa, <https://rsc-src.ca/sites/default/files/pdf/OIW%20Report_1.pdf>.

⁸⁹Peterson, CH, et al. 2003, 'Long-term ecosystem response to the Exxon Valdez oil spill', Science 302(5653): 2082-2086.

⁹⁰Doggett, T 1999, *Decade After Valdez Oil Spill, Only Two Species Have Recovered*, Pub. Reuters Limited, 9 February 1999.

2.3.2. Specific Risks of a Catastrophic Oil Spill in the Great Australian Bight

The Deepwater Horizon and Exxon Valdez disasters clearly demonstrate that the drilling and transportation of oil is a high risk activity. The threat of a major oil spill from deepwater drilling in the Great Australian Bight is not theoretical. Minor, major and catastrophic oil spills occur frequently. Between 2000 and 2007 alone, in the OSPAR region (including the Arctic and North Seas) there was an average of 21 spills over one tonne of oil per year, with an average of 854 tonnes of oil discharged reported, as well as over 600 smaller oil spills.⁹¹ A full list of oil spills to 2010 are included in Appendix 1.

The potential oil spill volume from a blowout is equal to the volume of the reservoir that can flow to the surface until the well is controlled. Oil reservoirs may contain billions of barrels of oil, and may continue to spill into the environment until the well naturally bridges on its own (plugs with sand or debris); until the well is controlled by human or mechanical intervention (e.g., capping the well, igniting the well, drilling a relief well); or until the subsurface reservoir pressure eventually drops to such a level that the oil stops flowing out.⁹²

Well blowouts can last for days, weeks or months. The Royal Society of Canada's Expert Panel report *The Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments* identifies the significant consequences of oil spills for marine and coastal ecosystems. It demonstrates that despite the importance of oil type, the overall impact of an oil spill, including the effectiveness of an oil spill response, depends mainly on the environmental characteristics, the conditions where the spill takes place and the speed of response.⁹³

⁹¹OSPAR Commission 2009, 'Assessment of impacts of offshore oil and gas activities in the North-East Atlantic', *Offshore Industry Series*, <<http://www.ospar.org/documents?v=7154>>.

⁹²PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined Risks, Unacceptable Consequences*, November 2010, <<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

⁹³Kenneth, L (Chair), Boufadel, M, Chen, B, Foght, J, Hodson, P, Swanson, S & Venosa, A 2015, *Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments*, Royal Society of Canada, Ottawa, <https://rsc-src.ca/sites/default/files/pdf/OIW%20Report_1.pdf>.

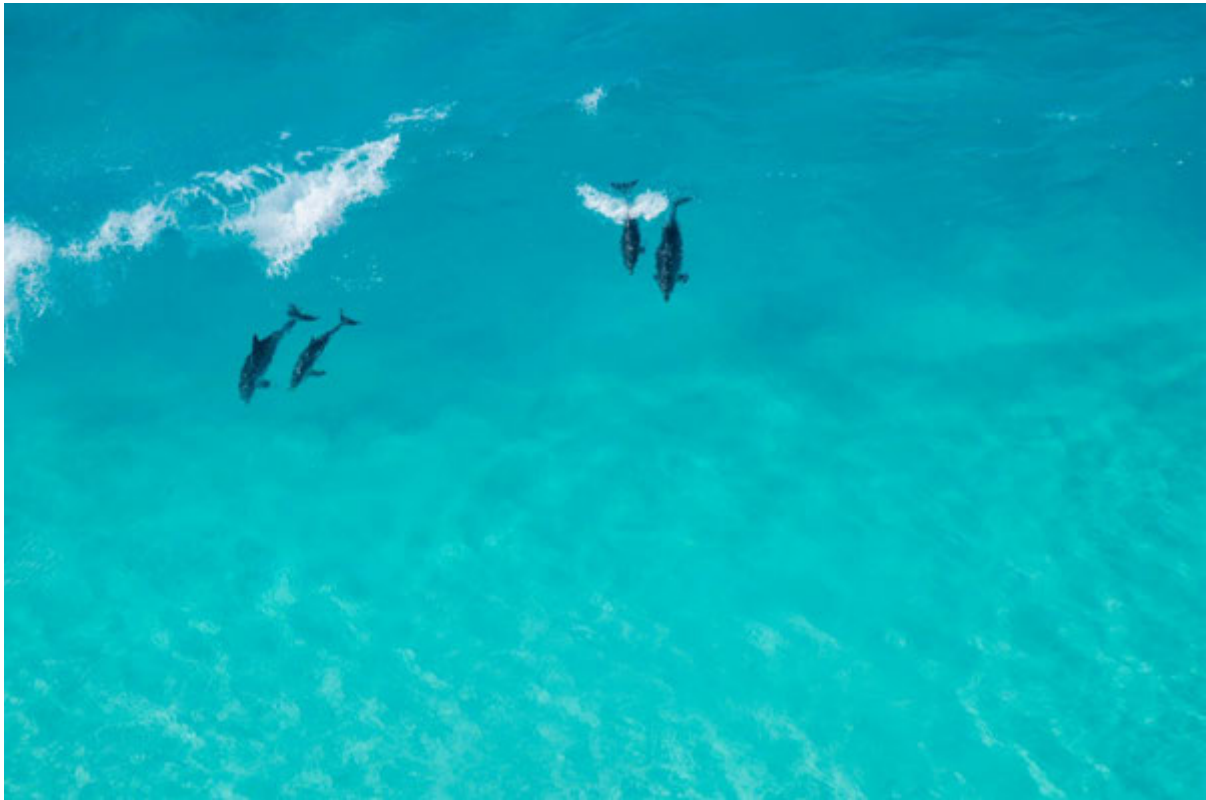


Figure 2.11: Can you imagine an oil spill in these pristine waters? | Dan Woods

2.3.2.1. A High Risk Environment

The waters of the Great Australian Bight are among the most turbulent and rough on the planet, with highly variable and hostile wind and wave conditions.⁹⁴ Targeted oil drilling sites and coastal areas potentially impacted by a spill are also in extremely remote areas.⁹⁵

The Royal Society of Canada's Expert Panel found that light oils contain more compounds that are acutely toxic to aquatic organisms than medium or heavy oils. It appears that light oils may be the target resource for oil exploration in the Great Australian Bight.⁹⁶ This is compounded by the fact that the marine values are diverse, little understood and internationally significant.⁹⁷

Oil development in the Great Australian Bight is therefore riskier, rougher and potentially deeper than BP's Deepwater Horizon well.

⁹⁴Lebreton, L 2015, *Stochastic analysis of deep sea oil spill trajectories in the Great Australian Bight*, October 2015.

⁹⁵Ibid.

⁹⁶BP 2015, *Fate and Effects Oil Spill Modelling Assumptions, Parameters and Results*, 19 November 2015.

⁹⁷Edyvane 1998, *Great Australian Bight Marine Park Management Plan, Part B, Resource Information*, Department for Environment, Heritage and Aboriginal Affairs, South Australia; Rogers, P, et al. 2013, 'Physical processes, biodiversity and ecology of the Great Australian Bight region: A Literature Review', *GAB Ecosystem Study*, CSIRO, SARDI, Marine Innovations SA, and the Government of South Australia, June 2013.

Recommendation 8 – Acknowledge High Oil Spill Risk in the Bight: That the Committee acknowledge that the physical conditions of the Great Australian Bight are significantly harsher than those involved with the Deepwater Horizon and Exxon Valdez spills.

2.3.2.2. BP Fails the Transparency Test

There is little relevant public information available regarding the potential worst case oil spill risk arising from BP's current four well exploration drilling program. A number of factors may have an effect on the risk or potential impact to the environment from a spill disaster and have not been disclosed to the public. These include the proposed location of the four wells, the total well depths (both the water depth and further well depth into the seabed), the potential well pressures, and potential well flow rates or times when each well is expected to be drilled.

Technical hazards and consequent environmental risks are also posed by both the depth of the water column and, cumulatively, by the further depth of the well itself.⁹⁸ Well depths are important because they have a significant bearing on, among other things, well pressures (and temperatures). Note that this is not an exact science and that during exploratory drilling in particular unexpected reservoir pressures may be encountered.

⁹⁹

Although BP has not provided total well depths for each of its proposed exploration wells¹⁰⁰ media statements¹⁰¹ from BP Developments Australia Managing Director and the total well depth attempted by Woodside at Gnarlyknots¹⁰² (before drilling was abandoned due to bad weather and wave swells) in the region, suggest potential water and total well depths comparable to BP's Macondo well in the Gulf of Mexico.¹⁰³ The first well proposed by BP in the Great Australian Bight would be at such depth as to be considered an ultra-deepwater well.¹⁰⁴

The siting of wells and the timing of proposed drilling are also relevant because the siting will affect the environmental impact of the wells¹⁰⁵ as well as the local environment likely to be immediately impacted in the event of a large or small spill.¹⁰⁶ How spilled oil affects marine life depends on when and where the oil spills, the creatures that might or might not be in the area at the location and time of a spill, and the sensitivity of the

⁹⁸Dr Tina Hunter, University of Queensland 2013, Submission to SEWPac on BP's EPBC Referral 2013/6863.

⁹⁹PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined Risks, Unacceptable Consequences*, November 2010,

<<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

¹⁰⁰BP 2015, *Great Australian Bight Drilling Program Summary Environment Plan*, 1 October 2015, advises a water depth range between 1,000 and 2,500m but is silent on estimated total drilling depths, i.e. water depth plus seabed depth.

¹⁰¹In a media report in the *Adelaide Advertiser* 2015, BP stated a total drilling depth of 5,200m for its first well, but remained silent on potential total depths for all other proposed wells,

<<http://www.adelaidenow.com.au/business/bp-director-claire-fitzpatrick-says-company-has-learned-its-lessons-ahead-of-drilling-in-the-bight/news-story/99c353ac96b79dec1817008328d8c810>>.

¹⁰²In a media report in the *Sydney Morning Herald* (2003), we are advised of an attempted total drilling depth of around 5,600m, <<http://www.smh.com.au/articles/2003/05/27/1053801395766.html>>.

¹⁰³Around a total drilling depth of 5,486m; Deepwater Horizon Study Group 2011, *Final Report on the Investigation of the Macondo Well Blowout*.

¹⁰⁴House of Commons Environmental Audit Committee 2012, *Protecting the Arctic: Second Report of Session 2012-13*, Volume I: Report, together with formal minutes, oral and written evidence, published on 20 September 2012 by authority of the House of Commons.

¹⁰⁵Dr Tina Hunter, University of Queensland 2013, Submission to SEWPac on BP's EPBC Referral 2013/6863.

¹⁰⁶*Ibid.*

stage of life of those creatures at the time (e.g., whether particular species are in a reproduction stage).¹⁰⁷ To date, BP has provided no public risk analysis at this level of important detail.

Meanwhile, the timing for drilling each well will also impact the likely spill trajectory of any oil spill (noting that currents change seasonally in the Great Australian Bight) and the likely presence of key migratory species within that trajectory, including for example the southern right whales which usually migrate to the area during May-November¹⁰⁸ and the blue and pygmy blue whales which usually forage in the region during Summer.¹⁰⁹



Figure 2.12: Marine life in the Bight would be severely impacted by an oil spill | Jo Banks

Since January 2014, the Wilderness Society has repeatedly asked BP to release detailed worst case oil spill modelling for its exploration well program. This modelling is necessary for a full assessment of the potential impacts a catastrophic oil spill in the Great Australian Bight could have on the threatened and migratory species, the values of the marine environment and the social and economic values of the region. Due to the likely intense pressures, extreme water depths, and demonstrated difficulty in responding to loss of well control in deepwater, if something goes wrong this drilling program will have an impact of high consequence

¹⁰⁷National Oceanic and Atmospheric Administration, Office of Response and Restoration website, viewed April 2016, <<http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/oil-spills-water-surface.html>>.

¹⁰⁸Australian Government 2015, *SPRAT Database*, viewed April 2016, <http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=40>

¹⁰⁹Blue Whale Study 2016, viewed April 2016, <<http://bluewhalestudy.org/blue-whale-habitat/>>.

even in a normal operating environment (as demonstrated by the blowout in the Gulf Of Mexico).¹¹⁰

Given that the area in which drilling is to occur is an area of environmental sensitivity, recognised by the declaration of a Commonwealth Marine Reserve there is a high potential for significant environmental impact.

Recommendation 9 – Acknowledge Legitimate Interest of Public: That the Committee acknowledge that current plans by BP and others to drill for oil in the Great Australian Bight are highly controversial and that given the potential scale of spill impacts seen elsewhere, the public has a legitimate interest in the regulatory approval processes used to assess these plans.

Recommendation 10 – Recommend BP Disclose Key Information: That the Committee recommend to the Australian Parliament that BP and other oil companies be required to publicly disclose all relevant risk assessment and impact mitigation materials as part of the approvals process.

2.3.2.3. Independent Oil Spill Modelling

As of 1 October 2015, when BP submitted its Environment Plan to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for approval, BP has still not released any spill modelling to stakeholders or the public. Given this, the Wilderness Society commissioned independent, expert oil spill modelling to enable an understanding of the likely impacts of a significant oil spill from BP's Great Australian Bight drilling area. That report is attached in full and describes the extraordinary scale of the impact of a worst case scenario oil spill from BP's permit areas.¹¹¹

It considers a range of flow rates from an "optimistic" scenario of 5,000 barrels of oil per day, to a "pessimistic" scenario of 50,000 barrels of oil per day (less than the estimated flow rate during BP's the Deepwater Horizon oil spill). It considers a "conservative worst case" spill duration of 87 days, based on the time it took BP to cap the Macondo well during the Deepwater Horizon spill disaster.¹¹² As well as an "optimistic" spill duration of 35 days to successfully and permanently cap the well, based on BP's unsubstantiated statements that it can cap any well within 35 days; although, like the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC),¹¹³ we categorically consider that a 35 day duration fails to properly consider worst case scenarios.

If a blowout and spill were to occur in summer, aside from the direct and severe impact in near water, the model shows the oil would very likely impact the shores of Western Australia. Simulations show oil contamination could reach as far as Albany and Denmark. Under these conditions, the model predicts that within four months, an area of roughly 213,000km² would have an 80% chance of having surface oil thickness above levels likely to trigger the closure of fisheries.

If a blowout and spill were to occur in winter, the model shows the oil would very likely impact the Eyre Peninsula, Kangaroo Island, and Spencer Gulf in South Australia, with simulations showing oil could impact

¹¹⁰Dr Tina Hunter, University of Queensland 2013, Submission to SEWPaC on BP's EPBC Referral 2013/6863

¹¹¹Lebreton, L 2015, *Stochastic analysis of deep sea oil spill trajectories in the Great Australian Bight*, October 2015.

¹¹²Note that this was intended to provide a conservative scenario, not the actual 'worst case' spill scenario of 149-158 days as estimated to stop oil flow by drilling a relief well – Lebreton, L 2015, *Stochastic analysis of deep sea oil spill trajectories in the Great Australian Bight*, October 2015, for further detail on scenarios modelled.

¹¹³BP Developments Australia 2013, *GAB 2013 Exploration Drilling referral – response to SEWPAC Questions*, p. 12-14.

much of the Victorian and Tasmanian coastline, right through the Bass Strait towards New Zealand. Under these conditions, the model predicts that within four months an area of roughly 265,000km² would have an 80% chance of having surface oil thickness above levels likely to trigger the closure of fisheries.

It is important to consider the potential risk of an oil spill in the deepwater environments of the Great Australian Bight in the broader context of stated oil exploration and production plans of oil companies targeting the Bight Basin. Existing exploration permit work programs already envisage the drilling of at least 16 exploration wells in the region over the next five years.¹¹⁴

No regulatory assessment or approval of the likely cumulative impacts and risks posed to the marine values of the region from large scale development of a new oil drilling precinct here has been undertaken. It appears that the cumulative impacts of oil development and the multiplying risks it presents will not be properly or transparently considered at any stage of the current assessment and approval processes.

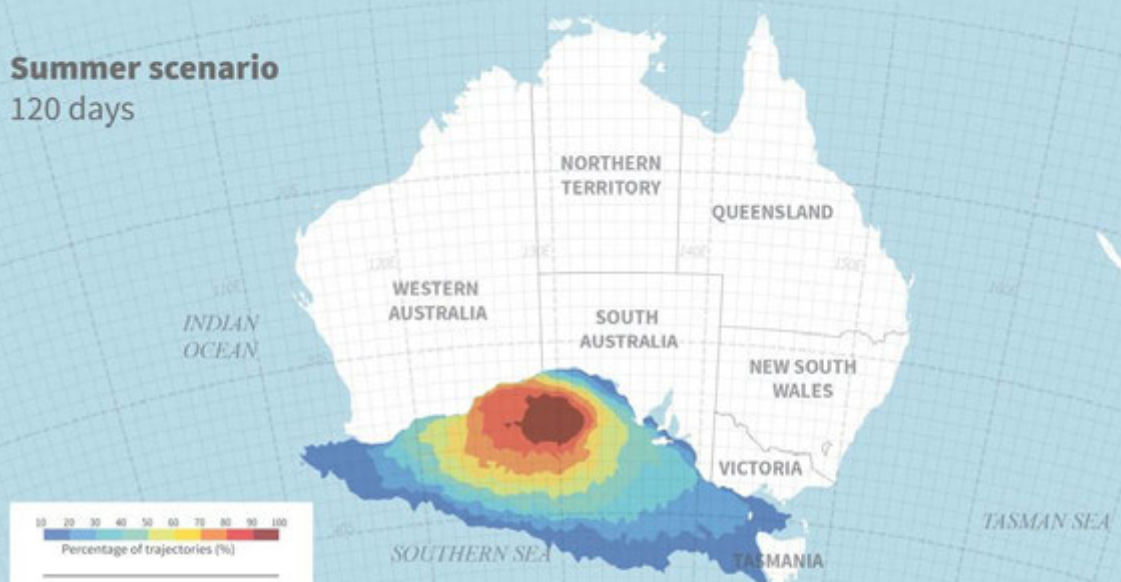
¹¹⁴Based on content of work program commitments for individual EPPs in the Bight Basin, <www.neats.nopta.gov.au>.

A GULF OF MEXICO DISASTER IN THE GREAT AUSTRALIAN BIGHT?

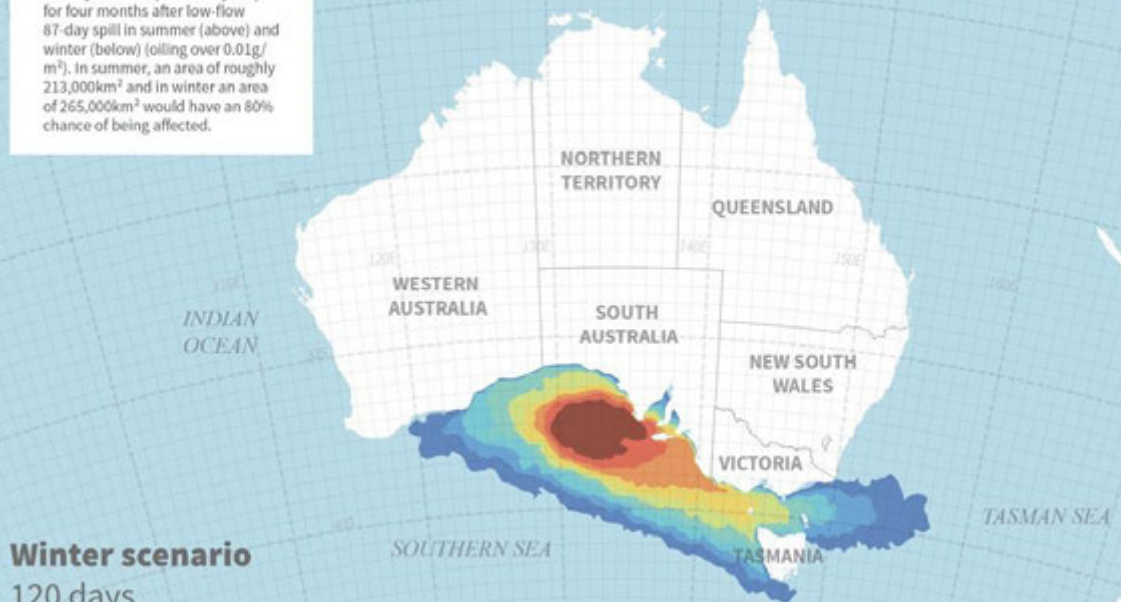
BP's Gulf of Mexico oil spill in 2010 took 87 days to plug, covering an area twice the size of Tasmania and pumping 4.9 million barrels (779,100,000 litres) of oil into the ocean. Eleven workers were killed. The impact on wildlife was enormous: 900 bottlenose dolphins dead or stranded; one million birds harmed or killed; 6,165 sea turtles harmed or killed; and 25,900 marine mammals harmed or killed. The cost of the oil spill is estimated to be more than USD \$90 billion.

Independent modelling by Dr Laurent Lebreton (commissioned by the Wilderness Society) shows an oil spill in the Great Australian Bight could have similarly catastrophic consequences. The maps below show the scenarios of winter and summer spills and likelihood of fisheries closure as a result (there is a difference by season due to the change in currents).

Summer scenario 120 days



Winter scenario 120 days



Recommendation 11 – Recognise Independent Oil Spill Modelling: That the Committee recommend to the Australian Parliament the independent oil spill modelling conducted by Dr Laurent Lebreton on the basis that it is the most credible and comprehensive modelling released to date.

2.3.2.4. Potential Oil Spill Impact on Matters of National Environmental Significance

An analysis of the Matters of National Environmental Significance (MNES) potentially relevant under the *EPBC Act* to BP's proposed exploratory drilling has been submitted into this Inquiry.¹¹⁵ The report is based on the Stochastic analysis of deep sea oil spill trajectories in the Great Australian Bight prepared for the Wilderness Society by Dr Laurent Lebreton in October 2015, also submitted into this Inquiry.¹¹⁶

Both reports highlight the need for a detailed independent assessment into MNES, as information currently in the public realm appears to be severely lacking.

Recommendation 12 – Recommend Cumulative Impact Assessment: That the Committee recommend to the Australian Parliament that an independent and full cumulative impact assessment is undertaken of all potential oil and gas activities in the Great Australian Bight.

¹¹⁵Refer to Dr David Ellis 2016, submission to this inquiry.

¹¹⁶Refer to Laurent C.M. Lebreton 2016, submission to this inquiry.

3. Climate Implications of BP's Drilling Plans

(Addressing Terms of Reference points e)

At the climate conference (COP21) in December 2015, 195 countries, including Australia, adopted the Paris Climate Change Agreement, agreeing to hold global warming well below 2°C and to pursue efforts to keep to warming to 1.5°C above pre-industrial levels..

The amount of carbon that can be emitted to the atmosphere is very limited if these temperature limits are to be met. The most recent assessments indicate that from 2015 to 2100 only 470-1,020 billion tonnes (gigatonnes) of CO₂ pollution can be emitted to the atmosphere globally, if we are to have a likely chance (greater than 66%) to stay under 2°C warming. Clearly this limit would need to be much lower to provide a reasonable chance to meet 1.5°C warming limits.¹¹⁷

To achieve this, the science, as assessed for example in International Panel on Climate Change's (IPCC) Fifth Assessment Report, tells us that globally greenhouse emissions need to be zero in the second half of the century. Carbon dioxide emissions from fossil fuel combustion (coal, oil and gas) and cement need to be removed from the equation entirely much earlier, by around 2050 for a 1.5°C limit and perhaps a decade later for the 2°C limit.¹¹⁸

Burning fossil fuels for our energy needs is the single most significant driver of global warming. Recent research conducted by University College London¹¹⁹ clearly demonstrates that, to prevent more than 2°C global warming, we cannot extract and burn most of the world's known fossil fuel (coal, oil and gas) reserves.

That research identifies that, of (already) known reserves in the OECD Pacific Region – which includes Australia – 49% of existing oil reserves, 51% of existing gas reserves and 95% of existing coal reserves must not be extracted and burnt. These figures make it clear that, in order to act consistently with the current science, we are already at the stage where existing reserves cannot be burnt. Globally, there are already more known oil reserves than can be burnt without risking dangerous climate change impacts.

The significance of this finding cannot be overstated in terms of what this new climate reality means for new fossil fuel exploration activities. Namely, the world already has more known coal, oil and gas reserves than we can safely burn and any new reserves found and added to global reserves can only make the problem of stranded resource assets worse.

In light of these figures, new reserves cannot be exploited if we are to limit dangerous global warming to the internationally agreed maximum of 2°C. In this context, opening up the Bight as a new major oil basin cannot deliver net new global oil supply without posing a major new threat to the climate.

A recent report by Climate Analytics has considered current plans to pursue frontier oil exploration and production in the Bight in the context of these global climate policy realities. That report is attached for the Committee's consideration in detail.

¹¹⁷Rogelj, J, et al. 2016, 'Differences between carbon budget estimates unravelled', *Nature Climate Change*, 6(3), 245–252.

¹¹⁸Rogelj, J, Schaeffer, M & Hare, B 2015, 'Timetables for Zero emissions and 2050 emissions reductions : State of the Science for the ADP Agreement'.

¹¹⁹McGlade, C & Etkins, P 2015, 'The geographical distribution of fossil fuels unused when limiting global warming to 2°C', *Nature*: 517, 187-190, 8 January 2015.

It finds that even assuming only partial resource volume estimates for Bight Petroleum's EPPs (nine billion barrels of oil from two out of nine permit areas), if exploited and burnt these fossil fuels would amount to about three billion tonnes (gigatonnes) of CO₂ pollution. It notes this is the equivalent of nearly eight times Australia's 2013 annual greenhouse gas emissions and concludes that adding additional oil reserves to the world energy system, as proposed by BP and others in the Great Australian Bight, is inconsistent with the global temperature and emission limits from the Paris Climate Change Agreement.

It should also be noted that oil production in the remote Bight Basin may also have direct implications for Australia's national greenhouse gas accounts and emission reduction target. All hydrocarbon reservoirs include a combination of oil, natural gas and water. There is a very limited market for such gas in southern Australia as the main portion of the Great Australian Bight is more than 600km from Adelaide, the nearest demand center.

This distance and the price of domestic gas would severely restrict the commerciality of any gas discovery. As a result, any natural gas would likely be flared, a practice that is discouraged and curtailed in other operating environments. Natural gas flaring activities result in significant greenhouse gas emissions and if undertaken in the Great Australian Bight would need to be accounted for in Australia. According to the World Bank, natural gas flaring is responsible for about 400 million tons of CO₂ emissions annually and in some oil-producing nations (e.g., Nigeria) the practice is responsible for about one third of their total national emissions.¹²⁰

The embedded carbon pollution associated with the development of new frontier fossil fuel mining projects such as the current proposals for exploration (and production) oil drilling in the Great Australian Bight, can no longer be ignored if Australian and the world is to meet its Paris Climate Change Agreement commitments. It is clear that there are diabolical policy inconsistencies between Australia's international climate change commitments and continued support for the development of new fossil fuel basins.

Given that BP and other oil majors also publicly backed an effective agreement being made at the United Nations (UN) Conference of Parties to the UN Framework on Climate Change (COP21),¹²¹ it is grossly hypocritical of these companies to now be pursuing opening a new fossil fuel basin.

Recommendation 13 – Acknowledge Serious Climate Consequences: That the Committee acknowledge that opening up a new fossil fuel basin is directly inconsistent with Australia's bipartisan commitment to the Paris Climate Change Agreement, both in terms of global emissions from the potential burning of the oil and via domestic emissions from potential gas flaring.

Recommendation 14 – Acknowledge Post-Paris Economics: That the Committee acknowledge that opening up a new fossil fuel basin is economically incongruent with the Post-Paris Climate Change Agreement world. According to the agreed 2°C global carbon budget, only 49% of known oil reserves in the OECD Pacific Region can be burnt and that Great Australian Bight oil would therefore fall far too high on the cost curve to justify extraction.

¹²⁰The World Bank 2011, *Global Gas Flaring Reduction Partnership (GGFR): Improving Energy Efficiency & Mitigating Impact on Climate Change*, <[http://siteresources.worldbank.org/INTGGFR/Resources/GGFR_NewBrochure\(Oct2011\).pdf](http://siteresources.worldbank.org/INTGGFR/Resources/GGFR_NewBrochure(Oct2011).pdf)>.

¹²¹Oil and Gas Climate Initiative 2015, 'Oil and gas CEOs jointly declare action on climate change', 16 October 2015, <<http://www.oilandgasclimateinitiative.com/news/oil-and-gas-ceos-jointly-declare-action-on-climate-change/>>.

4. Social and Economic Risks of BP's Drilling Plans

(Addressing Terms of Reference points b)

The health of the Great Australian Bight's marine and coastal ecosystems is directly linked to the maintenance of important existing coastal industries and associated jobs (particularly fishing and tourism), the amenity of Australia's southern beaches, Indigenous cultural values, and the very social fabric of southern coastal communities. These are all seriously threatened by the activities of the offshore oil industry, particularly from an oil spill.

4.1. BP's Deepwater Horizon Disaster Social and Economic Costs

The social and economic impacts of BP's Deepwater Horizon oil spill on Gulf of Mexico communities, governments and BP (including shareholders) are immense and unprecedented.

Whilst estimates vary, BP has confirmed that to date it has spent at least \$43 billion USD on the grants, claims paid, fines and penalties and legal settlements.¹²² *The Economist* claims the adjusted figure is \$53.8 billion USD.¹²³ These extraordinary figures highlight the massive financial cost in compensation and cleanup, as well as the profound ecological and social damage done to the people, communities and environment of the Gulf of Mexico. The region's coastal tourism and commercial fisheries generated more than \$40 billion USD of economic activity annually in the five gulf states.¹²⁴

The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling contained a blunt assessment of the social and economic impact of the spill:

*The Deepwater Horizon oil spill put at risk two enormous economic engines that rely on it. Tourism and fishing, the industries affected as collateral damage, were highly sensitive to both direct ecosystem harm and, indirectly, public perceptions and fears of tainted seafood and soiled beaches. For this reason, whatever uncertainty may exist about the immediate and long term adverse environmental impacts of the oil spill, no such uncertainty exists in terms of significant adverse economic effects – especially from loss of confidence in commercial fishing.*¹²⁵

¹²² *The Wall Street Journal* 2014, 'BP is Found Grossly Negligent in Deepwater Horizon Disaster', 4 September 2014, <<http://www.wsj.com/articles/u-s-judge-finds-bp-grossly-negligent-in-2010-deepwater-horizon-disaster-1409842182>>.

¹²³ *The Economist* 2015, 'A costly mistake', 2 July 2015.

¹²⁴ Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011.

¹²⁵ *Ibid.* p. 185.



Figure 4.1: BP's Deepwater Horizon oil spill affected about 1,700km of coastline | Dreamstime

The sheer size and scale of the oil spill, led to unprecedented actions by all layers of US Government that had profound and long-term impacts on the people and the economy of the region. As the Commission noted:

*On April 29, a week after the rig sank ... the Coast Guard designated the disaster a 'Spill of National Significance' – the first time the Government has used that designation. A Spill of National Significance is one 'that due to its severity, size, locations, accrual or potential impact on the public health and welfare or the environment, or the necessary response effort, is so complex that it requires extraordinary coordination of federal, state, local and responsible party resources to contain and clean up the discharge.'*¹²⁶

This designation was a precursor to the total closure of 37% of the entire Gulf of Mexico fishing zone by 2 June 2010 due to fears about the human health impacts resulting from consumption of fish from the affected region. It is estimated that the immediate cost of the closure of the fishing zone for several months following the spill was \$247 million USD.¹²⁷ As one commercial fisherman told the Commission: "I've lost \$15 million in sales in the last 50 days."¹²⁸

¹²⁶Ibid. p. 136.

¹²⁷McCrea-Strub, A, et al. 2011, 'Potential impacts of the Deepwater Horizon oil spill on commercial fisheries in the Gulf of Mexico', *Fisheries*, v36(7) p. 332-336.

¹²⁸Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011.

Recent studies have also estimated that the overall financial impact caused by lost or degraded fisheries as a result of the oil spill on commercial, recreational and mariculture fisheries in the Gulf to be \$8.7 billion USD and 22,000 lost jobs.¹²⁹



Figure 4.2: BP's Deepwater Horizon oil spill had a profound impact on tourism and fishing industries | Dreamstime

The social impacts of the oil spill on the local communities in the Gulf of Mexico were also huge. As the Commission reported:

*Nearly 60% of respondents reported feeling worried almost constantly during the week prior to being surveyed because of the spill. Residents are worried about the economy, their way of life, and the stability of their communities. All of these factors play a role in affecting their health.*¹³⁰

As Louisiana Commercial Fishermen, Clarence Duplessis, told the Commission:

*This is the worst of our problems because we have no answers, no solutions, only questions. As we watch our livelihood and even entire culture being washed away by crude oil and chemicals that no one knows the long term effects of.*¹³¹

¹²⁹Sumaila, UR 2012, 'Impacts of the Deepwater Horizon well blowout on the economics of US Gulf fisheries', *Canadian Journal of Fisheries and Aquatic Sciences*, V 69(3).

¹³⁰Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011, p.192.

¹³¹*Ibid.*, p. 209.

The Commission also observed the immediate financial costs of the disaster to BP in the context of the initial outlay of \$34 million USD to purchase exclusive drilling rights to Mississippi Canyon Block 252 and that within two years of that purchase:

BP found itself paying out tens of billions of dollars to contain a blowout at the Macondo well, and mitigate the damage resulting from the millions of gallons of oil flowing from that well into the Gulf of Mexico, and compensate the hundreds of thousands of individuals harmed by the spill.¹³²

BP's Deepwater Horizon oil spill dramatically affected the communities of the Gulf of Mexico. As the Commission notes:

Whatever the final tally of shorelines oiled, fishing days lost, and waterfowl killed, the Deepwater Horizon oil spill touched virtually every aspect of life on the Gulf Of Mexico coast – and far beyond.¹³³

In this context, the critical question for the Parliament of Australia, and for this Senate Inquiry is: is it really worth the risk to the communities and environment of the Great Australian Bight to permit inherently risky deepwater drilling based on the Gulf of Mexico experience?

Recommendation 15 – Acknowledge Oil Spill Social and Economic Risks: That the Committee acknowledge that catastrophic oil spills do occur, and that the consequences of these spills are severely damaging on local economies and communities.

4.2. Social and Economic Risks in the Great Australian Bight

Given the experience of BP's Deepwater Horizon disaster, there is serious cause for concern for the potential impact of a similar oil spill disaster and also the cumulative oil industry activities in the Great Australian Bight.

Laurent Lebreton notes a number of important economic values of the region that would be directly threatened by an oil spill (this mainly refers to South Australia, while values in Western Australia, Victoria and Tasmania are also threatened):

- During 2012-2013, the total volume of production of South Australia's commercial wild fisheries was worth an estimated \$199 million per year – the main commercial fisheries are abalone, blue crab, marine scalefish, piri, prawn, rock lobster, sardine and charter boat.
- The aquaculture industry was estimated to contribute nearly 55% of the state's total value of seafood production in 2012-2013 with \$243 million per year, of which Tuna accounted for 63%.
- Tourism is a major contributor to the economy in the region, with a combined \$1.2 billion per year for 2013-2014.
- Employment from the tourism industry in the region containing marine parks is estimated to directly

¹³²Ibid., p. 89-90.

¹³³Ibid., p. 197.

and indirectly account for nearly 10,000 full-time equivalent jobs.

- The creation of highly protected marine ecosystems is expected to further provide a strong base for developing ecotourism in South Australia in the longer term by supporting the growth of activities such as whale and dolphin watching, shark watching, scuba diving and boating.
- In a recent study, the “Great Southern Reef” covering an area of nearly 71,000km² along more than 8,000km of temperate coastline across South Australia was estimated to generate \$10 billion per year in fishing and tourism related activity.¹³⁴

Recommendation 16 – Acknowledge High Oil Spill Risk in the Bight: That the Committee acknowledge that social and economic impacts of an oil spill in the Great Australian Bight are potentially extreme.

4.3. Extraordinary Tax Breaks Provided in the Great Australian Bight

In considering the potential social and economic impacts of oil and gas exploration proposals for the Great Australian Bight, it is important to understand the public subsidies supporting these risky frontier exploration activities. It is our understanding that three of the four exploration permit areas held by BP in the Bight Basin were “Designated Frontier Areas” when they were released in 2009.¹³⁵ Under s36B and 36C of the *Petroleum Resource Rent Tax Assessment Act 1987 (PRRT Act)*, exploration expenditure incurred in these designated frontier areas is eligible to be deducted from the explorer’s PRRT Act taxation liabilities at a rate of 150%. We understand this to mean that for every \$1 BP spends on eligible exploration activities¹³⁶ in these areas, \$1.50 can be deducted for PRRT purposes.

The Treasury’s annual tax expenditures statement does not appear to include an estimate for this deduction.¹³⁷ It should therefore be a priority of the Australian Senate to investigate the total public subsidy this provides to BP (and other explorers in the Great Australian Bight whom we understand can also access *PRRT Act* tax deductions for exploration expenses) in tax breaks. The public simply should not subsidise such highly risky oil development activities.

Recommendation 17 – Recommend End to Tax Breaks: That the Committee seeks advice from Treasury on how much Petroleum Resources Rent Tax tax revenue is being lost as a result of frontier oil exploration tax breaks and recommends to the Australian Parliament that all tax breaks be removed.

¹³⁴ From sources cited in Lebreton, L 2015, *Stochastic analysis of deep sea oil spill trajectories in the Great Australian Bight*, October 2015, p.17

¹³⁵ See Figure 1, Department of Resources, Energy and Tourism, *Release Areas S09-1, S09-2, S09-3, S09-4, S09-5 and S09-6, Ceduna Sub-basin, Bight Basin, South Australia*, <<http://www.petroleum-acreage.gov.au/sites/prod.petroleum-acreage.gov.au/files/files/2009/geology/ceduna/CedunaSubBasin-ReleaseAreas.pdf>>.

¹³⁶ s 37 *Petroleum Resources Rent Tax Act* indicates that eligible exploration expenditures includes most exploration costs.

¹³⁷ The Australian Government, the Treasury 2016, *Tax Expenditures Statement 2015*, p. 104-105, <http://www.treasury.gov.au/~media/Treasury/Publications%20and%20Media/Publications/2016/Tax%20Expenditures%20Statement%202015/Downloads/PDF/2015_TES.ashx>.

5. Assessment of Capacity to Mitigate an Oil Spill

(Addressing Terms of Reference points d)

As noted by the US House of Commons Energy and Climate Change Committee in 2011, oil company assumptions plan for worst case scenarios which do not, in fact, reflect the worst case.¹³⁸ In testimony to that committee, Dr Tony Hayward – BP’s former group chief executive, observed that “*the occurrence of black swans [high-impact, low-probability events] seems to be more often than not these days.*”¹³⁹ BP has clearly not learnt this lesson in the Great Australian Bight and is dangerously underprepared for such an occurrence here in Australia.

In an extraordinary admission, when asked if BP would collapse if there was another catastrophe, BP Developments Australia managing director Claire Fitzpatrick said: “*My personal view, yes, game over.*”¹⁴⁰ This begs the very serious question as to who would pay for oil spill mitigation in such an event and have primary responsibility for the cleanup.

5.1. Lessons From Deepwater Horizon

The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling report contains many relevant findings and commentary to Australia’s regulatory setting and BP’s capacity to mitigate another catastrophic oil spill in the Great Australian Bight. Key excerpts follow and are a blunt illustration of the lack of preparedness of the industry and government for such a disaster and the unacceptable risks we now face in Australian waters. It must be emphasised that the Deepwater Horizon spill occurred during the explorations phase.

On risks of drilling in a deepwater environment:

*Drilling in deepwater brings new risks, not yet completely addressed by the reviews of where it is safe to drill, what could go wrong, and how to respond if something does go awry. The drilling rigs themselves bristle with potentially dangerous machinery. The deepwater environment is cold, dark, distant, and under high pressures — and the oil and gas reservoirs, when found exist at even higher pressures (thousands of pounds per square inch), compounding the risks if a well gets out of control. The Deepwater Horizon and Macondo well vividly illustrated all of those very real risks. When a failure happens at such depths, regaining control is a formidable engineering challenge — and the costs of failure, as we know, can be catastrophically high.*¹⁴¹

¹³⁸ House of Commons Energy and Climate Change Committee 2011, *UK Deepwater Drilling—Implications of the Gulf of Mexico Oil Spill: Second Report of Session 2010–11*, Volume 1, Published on 6 January 2011 by authority of the House of Commons.

¹³⁹ Ibid.

¹⁴⁰ The Advertiser, 28 August 2015, *BP director Claire Fitzpatrick says company has learned its lessons ahead of drilling in the Bight* <<http://www.adelaidenow.com.au/business/bp-director-claire-fitzpatrick-says-company-has-learned-its-lessons-ahead-of-drilling-in-the-bight/news-story/99c353ac96b79dec1817008328d8c810>>.

¹⁴¹ Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011, p. ix.

On the preparedness of the industry and government for such a disaster:

It is impossible to argue that the industry or the country was prepared for a disaster of the magnitude of the Deepwater Horizon oil spill. Twenty years after the Exxon Valdez spill in Alaska, the same blunt response technologies – booms, dispersants, and skimmers – were used, to limited effect ... technology, laws and regulations, and practices for containing, responding to, and cleaning up spills lag behind the real risks associated with deepwater drilling into large, high-pressure reservoirs of oil and gas located far offshore and thousands of feet below the ocean's surface.¹⁴²



Figure 5.1: BP's Deepwater Horizon disaster | Wikimedia Commons

On oil industry investment in mitigation response preparedness:

Nor, despite their assurances to the contrary, did the oil and gas industry take the initiative to match its massive investments in oil and gas development and production with comparable investments in drilling safety and oil spill containment technology and contingency response planning in case of an accident.¹⁴³

¹⁴²Ibid.

¹⁴³Ibid., p. 56.

During the spill, it is estimated that approximately 4.9 million barrels of oil leaked into the Gulf of Mexico.¹⁴⁴ Of that 4.9 million barrels of oil, the US Government released analysis on 4 August 2010 that estimated that only 17% of the oil had been recovered from the broken wellhead, 5% had been burned, 3% had been skimmed and 8% had been chemically dispersed.¹⁴⁵ The remainder, in excess of three million barrels, either was naturally dispersed, or remains in the marine ecosystem.

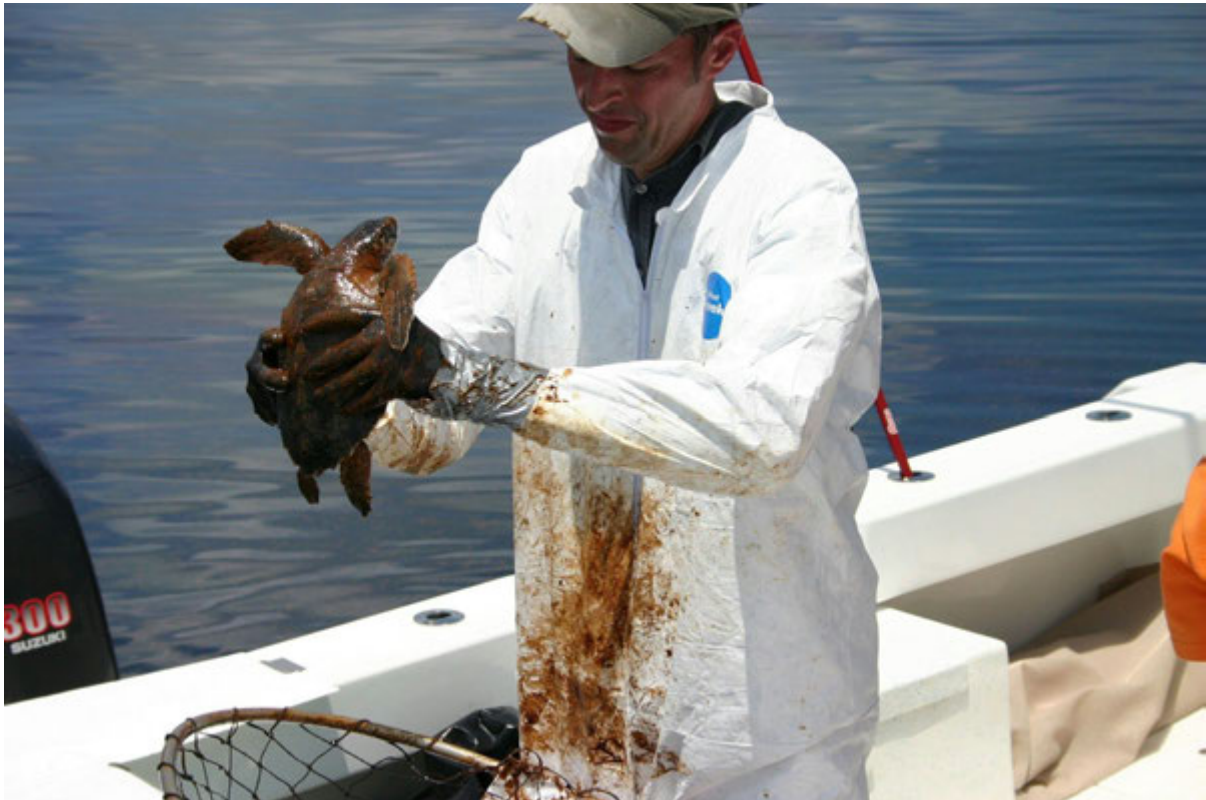


Figure 5.2: Heavily oiled turtle from BP's Deepwater Horizon oil spill | Wikimedia Commons

Jonathan Wills, from the Commission, Councillor and environmental consultant, had a particularly salient comment in 2011 when he advised the House of Commons Energy and Climate Change Committee in 2011 that:

*... there isn't any cure. The only option in town is prevention. We can see where the oil is going. We still can't do anything about it ... there is no way you could contain or clean up a significant amount of oil and I don't think the Committee should be under any illusion about this.*¹⁴⁶

It must be remembered that BP's Deepwater Horizon spill occurred despite the clear lessons from the Exxon Valdez spill. The Exxon Valdez spill demonstrated that limited regional response capability and the remoteness of the spill location, including limited ground access, and potentially severe weather can and will delay oil spill

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

¹⁴⁶ House of Commons Energy and Climate Change Committee 2011, *UK Deepwater Drilling—Implications of the Gulf of Mexico Oil Spill: Second Report of Session 2010–11*, Volume 1, Published on 6 January 2011 by authority of the House of Commons.

responses.¹⁴⁷

Australia has not been immune from oil spills, the most prominent being the Montara oil spill in the Timor Sea in August 2009. The leak lasted for 74 days, with serious difficulties encountered trying plug the well and clean up the spill. The *Montara Commission of Inquiry Report* concluded:

- There was no response option which would avoid all environmental impacts.
- It is relatively unusual for a containment response involving vessels with containment booms and a skimmer to recover oil in open water where even a low swell and moderate winds can make booms ineffective.
- Over a period of 35 days, it was estimated that only 10% of the oil spilled was recovered and this is in line with international experience with such operations.
- Contingency planning, including the availability of adequate resources and equipment and how that should be deployed, needs to be based on a much worse incident than this one.¹⁴⁸

Recommendation 18 – Acknowledge History of Mitigation Failure: That the Committee acknowledge that Deepwater Horizon clearly demonstrates that industry and government, even in the most developed of oil provinces, have been massively underprepared for an oil spill disaster.

5.2. BP's Inadequate Capacity to Prevent or Respond to a Well Blowout

BP's target drilling area in the Great Australian Bight is rougher, deeper and more remote than Deepwater Horizon. Yet, BP is once again grossly underestimating and failing to plan for (or indeed acknowledge) the potential environmental, social and economic consequences of what are now entirely foreseeable catastrophic impacts of deepwater oil well blow outs.

What little information BP has actually published (or consulted with relevant stakeholders on) regarding oil spill modelling, oil spill impact assessment and oil spill response does not support any confidence in its ability to mitigate the impacts of a well blowout from its proposed drilling. BP itself has acknowledged its exploration area is "*right on the edge of*" the reach of helicopters and that it is only recently that rig technology has advanced enough to handle the deepwater and extreme weather of the Southern Ocean.¹⁴⁹

This conclusion has been recently supported by Dr Robert Bea, who reviewed BP's public documents on its proposed drilling program. Dr Bea is a Professor Emeritus at the Center for Catastrophic Risk Management, University of California-Berkeley. He has worked for over 55 years on offshore oil and gas industry operations in 72 different countries. He helped Shell pioneer design, construction, and operation of the first "permanent" offshore drilling and production platform placed in US Arctic waters: Middle Ground Shoal Platform "A" (Upper Cook Inlet, Alaska, 1961-64). He has published three books on the topic of System Risk Assessment and Management and in 2010 led the independent *Deepwater Horizon Study Group's investigation of BP's Macondo Well Blowout*.

¹⁴⁷Kenneth, L (Chair), Boufadel, M, Chen, B, Foght, J, Hodson, P, Swanson, S & Venosa, A 2015, *Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments*, Royal Society of Canada, Ottawa, <https://rsc-src.ca/sites/default/files/pdf/OIW%20Report_1.pdf>.

¹⁴⁸Borthwick, D 2010, *Report of the Montara Commission of Inquiry*, June 2010.

¹⁴⁹*The Australian* 2014, 'BP hopeful of tapping new world-class oilfield', 22 August 2014, <<http://www.bightpetroleum.com/19294/BP-hopeful.htm>>.

In recent correspondence with the Wilderness Society, he concluded that:

The available documents do not provide sufficient information to determine if BP has properly assessed the risks with particular attention to the loss of well control hazard and provided safeguards that assure that the risks have and will be managed to be As Low As Reasonably Practicable (ALARP).

The information that has been presented indicates that BP has apparently integrated the key aspects of what has been learned about drilling in high risk environments. However, the information is not available to determine if BP has properly assessed and managed the risks associated primarily with an uncontrolled loss of well control.¹⁵⁰

Dr Bea's conclusions that BP has not demonstrated to the community that it has properly assessed the risks or demonstrated that it can manage them to ALARP standards rings serious alarm bells.

In BP's rudimentary summary "oil spill modelling" (published in November 2015, after it had already submitted its first Environment Plan to NOPSEMA for approval),¹⁵¹ the company continues to cite purported 35 day "worst credible case" durations to successfully cap any well in the drilling area. This is despite specific concerns regarding this "optimistic" assertion being raised by both SEWPaC,¹⁵² the Wilderness Society and the real-life experiences of both the Deepwater Horizon capping and relief well debacle and Australian experiences during the Montara well blowout.

Dr Bea has confirmed these concerns, stating that:

I was particularly interested in reading about BP's Worst Credible Spill characteristics and modeling for the four proposed wells. These characteristics are not, however, defined in any of the available documents.¹⁵³

The actual minimum "worst case" loss of well control scenario acknowledged by BP is an oil spill of 149 days – this is the time BP has estimated to drill a relief well.¹⁵⁴ However, none of BP's modelling of the impacts of this worst case scenario has been published and it is unclear whether it has even been undertaken.

¹⁵⁰Dr Bob Bea, Emeritus Professor at the Center for Catastrophic Risk Management, University of California-Berkeley, pers. comm., March 2016.

¹⁵¹BP 2015, *Great Australian Bight Drilling Program Summary Environment Plan*, 1 October 2015; BP 2015, *Fate and Effects Oil Spill Modelling Assumptions, Parameters and Results*, 19 November 2015.

¹⁵²BP Developments Australia 2013, *GAB 2013 Exploration Drilling referral – response to SEWPAC Questions* p. 12-14.

¹⁵³Dr Bob Bea, Emeritus Professor at the Center for Catastrophic Risk Management, University of California-Berkeley, pers. comm., March 2016.

¹⁵⁴BP 2015, *Great Australian Bight Drilling Program Summary Environment Plan*, 1 October 2015.



Figure 5.3: Cleanup of BP's Deepwater Horizon oil spill | Dreamstime

In Australia's own Montara oil spill case, it is worth noting that the capping option was not even pursued due to the safety risk to personnel who would be required to reboard the rig and the logistical difficulties. The specialised equipment had to be sourced from Singapore and a crane barge or other heavy lifting vessel that is not generally available had to be sourced and located very close to the rig.¹⁵⁵ As it transpired, a suitable rig to drill the relief well had to be secured and transported from Indonesia and did not arrive on site until 11 September 2009. Drilling the relief well began on 14 September 2009, and it took five attempts to successfully intercept the well – it was completed on 1 November 2009.¹⁵⁶

BP's current plans in the event of a deepwater well blowout in the Great Australian Bight similarly rely on critical response equipment, including capping equipment, being sourced from Singapore, Texas and/or Norway (more than 4,800km, 14,000km and 15,000km respectively).¹⁵⁷

In some jurisdictions, prior to commencing drilling, a relief well rig must be identified as available for immediate intervention in the event of a blowout. The *Montara Commission of Inquiry* concluded that this would be challenging in light of the location, frequency of changes to drilling programs and general rig availability. Accordingly, the Commission recommended that it be a regulatory requirement that prior to drilling the operator make meaningful enquiries as to the availability of potential rigs.¹⁵⁸ This does not address

¹⁵⁵Borthwick, D 2010, *Report of the Montara Commission of Inquiry*, June 2010.

¹⁵⁶*Ibid.*

¹⁵⁷BP 2015, *Great Australian Bight Drilling Program Summary Environment Plan*, 1 October 2015.

¹⁵⁸Borthwick, D 2010, *Report of the Montara Commission of Inquiry*, June 2010.

the challenges identified in securing a suitable rig, nor the inability to abate an uncontrolled oil spill in the weeks required to secure and deploy a relief well rig – an even greater challenge in the remote and hostile environment of the Great Australian Bight.

5.3. BP's Inadequate Capacity to Respond to an Oil Spill

As with the capability to prevent and respond to a well blowout, BP, the oil industry and the relevant government authorities have little capacity to effectively contain, respond to and cleanup any minor or major oil spill in this remote and pristine region.

BP openly acknowledges that the harsh conditions of the Great Australian Bight will limit any effective containment response.¹⁵⁹ Its primary response in the event of a spill appears to be to simply allow for natural dispersion unless it will impact on environmental sensitivity or is of such a size that dispersion needs to be assisted by the use of vessels or chemical dispersants.¹⁶⁰

BP also acknowledges that the harsh sea and weather conditions of the Great Australian Bight will greatly affect the opportunity to deploy mechanical offshore containment and recovery systems in a safe and effective manner. It appears that deployment of recovery skimmers will only be part of the response at times when it is deemed safe and achievable.¹⁶¹ Noting the findings from the *Montara Commission of Inquiry*,¹⁶² it appears wrong to assume that the use of offshore containment booms and skimmers will be possible in the open waters of the Great Australian Bight. BP appears to acknowledge this reality that the prevailing weather conditions will also greatly affect the opportunity to safely deploy oil containment and recovery systems,¹⁶³ but does not fully acknowledge that this presents serious risks for the marine and coastal ecosystems of the Great Australian Bight.

In terms of shoreline impacts, BP has proposed that solid buoyancy near shore booms will primarily be used where possible to deflect oil away from some specified sensitive coastal areas.¹⁶⁴ However, conditions may arise where such shore booms will be ineffective (e.g., wave heights) and where realistically they could not be quickly deployed in some of the most remote, but environmentally important, parts of the Bight.

¹⁵⁹BP 2015, *Oil Spill Response Tactics Summary*, undated.

¹⁶⁰*Ibid.*

¹⁶¹*Ibid.*

¹⁶²Borthwick, D 2010, *Report of the Montara Commission of Inquiry*, June 2010.

¹⁶³BP 2015, *Oil Spill Response Tactics Summary*, undated.

¹⁶⁴*Ibid.*



Figure 5.4: Burning off oil from BP's Deepwater Horizon oil spill | Deepwater Horizon Response

Accordingly, the containment response of BP appears to be the use of dispersants, including subsurface application of dispersants. BP acknowledges that the environmental conditions, namely the wave energy, will determine the effectiveness of the dispersants and a period of only 12-48 hours may be available for surface oil to be dispersed. BP therefore proposes the large-scale application of dispersants by aerial spraying.¹⁶⁵ These tactics were used by BP during the Deepwater Horizon spill and were highly controversial^{166,167} and of unclear effectiveness.¹⁶⁸

As part of the Deepwater Horizon spill response, approximately 6.9 million litres of Corexit was applied both at the surface and via subsurface injection.¹⁶⁹ The trade-offs regarding the use of dispersants are the subject of debate since the dispersants may also enhance the bioavailability of the spilled oil or be toxic on their own.¹⁷⁰ Surface application of dispersants were found to have limited effect in reducing oil reaching shorelines. The novel application of dispersants in the deep subsurface (as potentially proposed by BP in the event of a blow

¹⁶⁵Ibid.

¹⁶⁶House of Commons Energy and Climate Change Committee 2011, *UK Deepwater Drilling—Implications of the Gulf of Mexico Oil Spill: Second Report of Session 2010–11*, Volume 1, Published on 6 January 2011 by authority of the House of Commons.

¹⁶⁷Kenneth, L (Chair), Boufadel, M, Chen, B, Foght, J, Hodson, P, Swanson, S & Venosa, A 2015, *Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments*, Royal Society of Canada, Ottawa, <https://rsc-src.ca/sites/default/files/pdf/OIW%20Report_1.pdf>.

¹⁶⁸Ibid.

¹⁶⁹Ibid.

¹⁷⁰Ibid.

out in the Great Australian Bight) was actually associated with formation of a deepwater oil plume.¹⁷¹ Research has found that the concentration of dioctyl-sodium sulfosuccinate (a key ingredient of these dispersants) was sequestered in deepwater hydrocarbon plumes at 1,000-1,200m water depth and did not intermingle with surface dispersant applications. They also found that the concentration distribution was consistent with conservative transport and dilution at depth, and it persisted up to 300km from the well – 64 days after deepwater dispersant applications ceased.¹⁷²

It is difficult to avoid the conclusion that in the harsh conditions of the Great Australian Bight, no containment response option will be effective in mitigating the environmental impact of a worst case scenario oil spill. It certainly appears that BP has not undertaken any meaningful response gap analysis to attempt to fully assess the impacts to the values of the region in such a situation.

In any significant oil spill event, it is unlikely that any response would be capable of preventing unacceptable impacts on the lives and habitat of internationally important threatened species, cetaceans, migratory species, fisheries and other unique and endemic marine life in the Great Australian Bight.

Recommendation 19 – Acknowledge BP’s and Government’s Poor Capabilities: That the Committee acknowledge that based on all evidence provided, BP is poorly prepared to prevent, respond to and mitigate a well blowout and subsequent oil spill, and that Australian governments also have extremely limited labour, expertise and technology to respond to an oil spill disaster.

5.4. BP’s Track Record is Relevant

BP’s poor track record must be considered when examining its capacity to mitigate a well blowout and oil spill. A snapshot of this record is as follows as noted by the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling report (direct quotations):

- *On March 23, 2005, a blast at BP’s Texas City refinery—the third largest refinery in the United States—killed 15 people and injured more than 170.11 A U.S. Chemical Safety Board report on the Texas City refinery explosion found a recurring pattern.*
- *In March 2006—one year after the Texas City refinery explosion and one year before the Chemical Safety Board report on it—BP had yet another significant industrial accident. Its network of pipelines in Prudhoe Bay, Alaska, leaked 212,252 gallons of oil into the delicate tundra environment—the worst spill ever recorded on the North Slope. The leak went undetected for as long as five days. Upon analysis, the pipes were found to have been poorly maintained and inspected.*
- *On May 2003, the top of the drilling riser on the Discoverer Enterprise broke loose from the vessel, ripped apart again 3,000 feet under the surface, and left the lower marine riser package to collapse on and around the top of the blowout preventer, where the riser and drill pipe snapped off. The blowout preventer’s blind shear rams were activated and worked as designed, averting any spill.*
- *Between May 29 and June 10, 2000, BP’s Grangemouth Complex on Scotland’s Firth of Forth suffered three potentially life-threatening accidents: a power distribution failure leading to the emergency shutdown of the oil refinery; the rupture of a main steam pipe; and a fire in the refinery’s fluidized*

¹⁷¹Ibid.

¹⁷²Ibid.

catalytic cracker unit (which turns petroleum into gasoline).

- *In November 2003, a gas line ruptured on BP Forties Alpha platform in the North Sea, flooding the platform with methane.¹⁷³*

The Commission summarised BP's track records as follows:

Yet despite the improvement in injury and spill rates during [the 2000's], BP has caused a number of disastrous or potentially disastrous workplace incidents that suggest its approach to managing safety has been on individual worker occupational safety but not on process safety. These incidents and subsequent analyses indicate that the company does not have consistent and reliable risk-management processes—and thus has been unable to meet its professed commitment to safety. BP's safety lapses have been chronic.¹⁷⁴

This is on top of the long list of regular spills that occur globally across the industry (see Appendix 1).

BP appears to consider unsupported statements in the vein of “that it has learned its lesson” as a credible argument against the relevance of this atrocious track record. However, such generic statements are largely meaningless in the absence of fully disclosed and independently reviewed risk analysis and spill prevention and response plans that clearly demonstrate to the community that BP will go above and beyond, even if it may increase its project costs and timelines, to reduce all worst case scenario risks and that remaining risks do not present unacceptable impacts to the environmental, social and economic values of the Bight. So far, there is little actual evidence to demonstrate that BP has learned its lesson.

Recommendation 20 – Acknowledge BP's Appalling Track Record: That the Committee acknowledge BP's appalling environmental and risk management record and that it is therefore highly inappropriate to be relying on any approvals process other than the most high level, transparent, robust, independent and well-resourced.

¹⁷³Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling*, January 2011.

¹⁷⁴*Ibid.*

6. Highly Flawed Process to Date

(Addressing Terms of Reference points e)

An issue directly relevant to this Inquiry is the highly flawed process of granting exploration permits and approvals for exploratory drilling, with many problems associated with the regulatory body NOPSEMA.

It must be noted up front that the current exploration cycle in the Great Australian Bight began with the release of acreage in June 2009, less than three months prior to the Montara spill disaster. Bids for the first acreages closed on 29 April 2010, just nine days after BP's Deepwater Horizon rig exploded. Yet, less than six months later, and less than a week after the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling concluded that the Gulf of Mexico oil spill disaster was the result of "*systematic management failure at BP, Transocean and Halliburton*"¹⁷⁵, the Australian Government awarded the first new frontier exploration permits in this deepwater offshore basin to BP (EPPs 37-40).

6.1. Inappropriate Devolution of Powers to NOPSEMA

National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) was established on 1 January 2012 (superseding the National Offshore Petroleum Safety Authority or NOPSA) in response to the *Montara Commission of Inquiry*. Prior to this time, offshore petroleum activities in Commonwealth waters were regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGs Act)* and related regulations, but administered jointly by NOPSA and the relevant State/Territory Designated Authority.

NOPSEMA established a single regulatory and compliance/enforcement agency (administering the *OPGGs Act* and related regulations) for all offshore petroleum activities in Commonwealth waters (instead of regulatory and compliance powers being split between NOPSA and the relevant State/Territory Designated Authority).

This increased NOPSEMA's role to that of a single unified regulator for all health and safety, structural integrity (a key regulatory issue arising from the Montara spill), environmental plans and day-to-day operations associated with petroleum activities in Commonwealth waters.

Importantly, however, it was not established to be the sole assessment and approval body for major new projects in Commonwealth waters, nor was it set up to take over the powers held by the Environment Minister under the *EPBC Act* to protect MNES. In fact, as of 2012, the key objectives of the *OPGGs (Environment) Regulations 2009 (OPGGs Regulations)* were operationally focused, and included encouraging industry to: continuously improve its environmental performance; adopt best practice to achieve agreed environmental protection standards in industry operations; and ensure operations are carried out in a way that is consistent with the principles of ecologically sustainable development.

The *EPBC Act*'s separate objectives to protect MNES such as nationally and internationally threatened species were the responsibility of the Australian Government's Environment Department and Environment Minister.

In December 2014, Federal Ministers Hunt and then-Minister MacFarlane transferred the environmental assessment and approval powers of the *EPBC Act* to NOPSEMA. As a result, NOPSEMA effectively became the sole environmental regulator for offshore petroleum activities in Australia and environmental impacts are now

¹⁷⁵Ibid. p. ix.

only assessed and approved under the *OPGGS Act* and *OPGGS Regulations*. This was achieved using the Strategic Assessment provisions of the *EPBC Act*, whereby Minister Hunt approved all offshore petroleum developments provided they were undertaken in accordance with the NOPSEMA regulatory “Program”.

This new regulatory process for environmental assessment and approval is highly inadequate. It is unable to fully assess the project, cumulative risks and impacts associated with the development of a new frontier oil basin and protecting the MNES in the Great Australian Bight.

Concerns regarding Minister Hunt’s Strategic Assessment and Approval of the NOPSEMA program in 2014 were explicitly raised by the Australian Network of Environmental Defender’s Offices (ANEDO) at the time (ANEDO’s 20 December 2013 submission is attached). It is our understanding that none of the recommendations made by ANEDO were implemented.

6.2. Lack of Transparency in NOPSEMA Decision-Making

There is a serious issue of transparency that further underscores the highly inadequate processes now in place under NOPSEMA. Environment Plans submitted to NOPSEMA for assessment and acceptance are not made publicly available at any stage of the process. Only “summaries” are published, and these are only required to be published after acceptance.

For example, BP did voluntarily publish its own summary Environment Plan for its proposed drilling program on 1 October 2015,¹⁷⁶ after it had submitted its first full Environment Plan to NOPSEMA. BP has now re-submitted a revised Environment Plan to NOPSEMA¹⁷⁷ but no revised Environment Plan summary has been published to advise the community of any new information contained in the re-submitted Plan.

Full oil spill modelling and supporting scientific assessments used to underpin risk assessments summarised by the proponent are not published. Obtaining key information from NOPSEMA has also proven difficult for community groups such as IFAW (see IFAW’s submission into this Inquiry).¹⁷⁸

6.3. Inadequate Consultation Process

Consultation processes under the NOPSEMA regime are also deeply flawed. No clear minimum requirements are outlined or properly enforced under the NOPSEMA regulation. Under the *OPGGS Regulations*, the proponent is responsible for public consultation and must satisfy NOPSEMA’s requirements that relevant stakeholders have been consulted.

BP’s consultation process to date has been unclear and perfunctory at best. BP has not provided key information required to make informed comment on its proposals, or enabled a proper assessment how the proposed actions may impact the Wilderness Society’s members’ interests – despite multiple requests. It is unclear how broadly BP is actually consulting and whether all relevant stakeholders have been consulted. This is a particular problem where projects, like that proposed by BP, present new impacts and risks to a very broad geographic location, numerous communities and thousands of businesses.

¹⁷⁶BP 2015, *Great Australian Bight Drilling Program Summary Environment Plan*, 1 October 2015.

¹⁷⁷BP resubmitted a revised Environment Plan to NOPSEMA on 15 March 2016.

¹⁷⁸ IFAW 2016, *Submission into the Inquiry by the Australian Senate Standing Committee on Environment and Communications into Oil and Gas Production in the Great Australian Bight*.

NOPSEMA is clearly inexperienced in managing the diverse and large number of stakeholders affected by the significant environmental impacts of its decisions.

6.4. Lack of Assessment Expertise Within NOPSEMA

At a meeting in December 2015, Wilderness Society staff were advised by NOPSEMA CEO, Stuart Smith, that no experienced Environment Department *EPBC Act* assessment staff were transferred to NOPSEMA following Minister Hunt's transferral of *EPBC Act* assessment and approval responsibility for offshore petroleum developments to the Authority.

The transferral of these environmental assessment responsibilities to NOPSEMA fail to ensure appropriate integration between regulatory assessment and approval functions and relevant policy areas of the Environment Department – notably those responsible for the protection and management of marine protected areas and the recovery of threatened species.

The recent Government admission that for half a decade offshore oil and gas exploration and production permits have been extended and renewed within Commonwealth marine parks and reserves without the required approval of the Australian Environment Minister¹⁷⁹ underscores the lack of process integrity for the offshore oil and gas industry. It appears that exploration permits held by BP in the Great Australian Bight were affected by this error, and it is possible that these unlawful permit extensions and renewals were in fact brought to light by inquiries made on behalf of the Wilderness Society to the Australian Government Director of National Parks.¹⁸⁰

6.5. Lack of Proper Consideration of MNES

While the “objective-based” *OPGGS Act* regulatory approach may be suitable for the assessment of safety issues where continuous improvement objectives are important and appropriate, it is an entirely inappropriate framework for the protection of environmental values. Even if risks and impacts can be managed to ALARP (“as low as reasonably practical”) levels, this will not necessarily represent an appropriate protection of MNES as defined under the *EPBC Act*. This is especially true in the Great Australian Bight where an oil spill disaster could impact globally significant populations of endangered, migratory and endemic species.

In addition, the *OPGGS Regulations* do not provide an appropriate range of assessment process options for complex and controversial frontier offshore oil exploration and development proposals.

Proposals to undertake new oil exploration and production activities in the Great Australian Bight present new catastrophic risks to MNES and the communities and industries that rely upon clean and healthy oceans along the southern coast of Australia. BP's current exploration drilling plans in the region are controversial at the local, national and, increasingly, international level.

¹⁷⁹The Hon. Josh Frydenberg MP 2016, *Correcting offshore petroleum title processing*, media release, 10 February 2016, <<http://minister.industry.gov.au/node/958>>.

¹⁸⁰Emails dated 11 November 2015 and 7 December 2015 from Jody Williams on behalf of the Wilderness Society to the Director of National Parks (responses received 2 December 2015 from Barbara Musso, A/g Assistant Secretary Marine Protected Areas Branch and 12 December 2015 from Dr Andrew Read, A/g Assistant Secretary Marine Protected Areas Branch).

Previously, in an instance such as this, the Australian Environment Minister had the option to require a high level, highly transparent assessment for risky and controversial projects. For example, the Minister could decide to assess projects under a Public Environment Report or Public Inquiry assessment process. Under the *OPGGS Regulations*, a non-transparent process of one-size-fits-all appears to be the only assessment option.

Further, the *OPGGS Regulations* are inadequate to enable an assessment of cumulative impacts and risks arising from the exploration drilling and production plans of the numerous oil companies holding exploration permits (and committed exploration works programs) in the Great Australian Bight. There is therefore virtually no capacity for NOPSEMA to fully consider the impacts and risks presented by the opening up of a new frontier oil basin in this pristine marine environment.

6.6. Lack of Proper Consideration of International Legal Obligations

Australia is a party to the Convention on the Conservation of Migratory Species of Wild Animals, under which it has made commitments to protect endangered and threatened migratory species and their habitats. However, oil development activities pose many serious risks to these species and their habitats. Authorising or allowing such activities without requiring all available measures to prevent such harm, or allowing activities for which there are no means of avoiding harm, would arguably place Australia in violation of its commitments under the Convention.

However, Australia has made oil companies responsible for all environmental assessments in relation to offshore drilling activities¹⁸¹ without establishing adequate requirements for assessing impacts on migratory species and their habitats. More concerning, oil companies have been given the responsibility to determine what constitutes an acceptable level of harm to migratory species, and are not required to make their assessment publicly available, despite public engagement being a well-established requirement for effective environmental assessment.

BP's current proposal to drill four exploration wells demonstrates these shortcomings. There can be no public scrutiny of its environmental assessment, and the summary it chose to make available does not contain sufficient information to support its conclusions that, other than in the case of a well blowout, its proposed activities would not have any significant impact.

In order to fulfill its commitments under the Convention, Australia cannot not allow any offshore drilling activities in the Bight to proceed before requiring a comprehensive and transparent environmental assessment that is specific to the particular characteristics of migratory species and their habitat. Any approvals must require all available measures to prevent harm to endangered migratory species, and must prohibit any activities for which there is no means of avoiding such harm.

A detailed analysis, undertaken by EarthJustice, of the degree to which offshore oil and gas drilling and associated activities in the Great Australian Bight may be inconsistent with Australia's international legal obligations under the Convention is attached.

6.7. Proceeding Before Major Research Project is Complete

¹⁸¹Under the *OPGGS (Environment) Regulations 2009*

The four year \$20 million Great Australian Bight Research Program, which includes CSIRO and SARDI, is a program designed to improve our understanding of how the unique Great Australian Bight ecosystem functions and to inform future management of the Bight.¹⁸² Yet, despite this major research project being underway, BP is pushing for exploration drilling approvals before the research is complete and NOPSEMA is proceeding without this key information.

Recommendation 21 – Acknowledge NOPSEMA Process Severely Lacking: That the Committee acknowledge that the devolution of environmental decision-making powers to NOPSEMA is highly inappropriate, that the consultation to date has been poor and badly lacking in key information, that there is not the appropriate *EPBC Act* expertise within NOPSEMA, and that approval processes have wrongly proceeded without key studies being completed.

¹⁸² Marine Innovations SA 2016, viewed April 2016, <www.misa.net.au/GAB>.

7. Conclusion

The Great Australian Bight is an iconic part of the Australian identity. The vast expanse of ocean is a sanctuary for whales and other marine mammals. The coast is fringed by the massive and imposing cliffs of the Nullarbor plains and the Bight is also home to one of Australia's most important fisheries. The critical marine reserve networks throughout the pristine waters of the Bight protect a vast array of endemic marine life.

In an era of profound international concern about the impacts of climate change, and with memories still fresh of the horrendous toll on the people, the economy and the environment of the Gulf of Mexico following BP's Deepwater Horizon oil spill disaster, it is incredible that there is a proposal for the Bight to be a major new oil field.

It is our firm view that the proposal to allow oil drilling in the deepwaters of the pristine Great Australian Bight is a national and international disaster in the making, given the enormous and irreversible potential environmental, social, economic and climate consequences of this development. The overriding risk of a catastrophic oil spill in the ultra-deep and very rough waters of Great Australian Bight is too great. BP's Deepwater Horizon tragedy has confirmed that disasters do happen, particularly in the realm of ultra-deepwater drilling.

BP, the wider oil industry and the relevant Australian governments are not currently taking the risks of a catastrophic oil spill seriously and as such there is a dangerous lack of preparedness to deal with a major disaster, particularly given drilling could commence before the end of this year.

Opening a new fossil fuel field is also entirely inconsistent with the Paris Climate Change Agreement, where all parties agreed to limit global warming to a maximum of 2°C above pre-industrial levels, with an ambition to work towards minimising warming to 1.5°C.

Given these serious risks, the Commonwealth Government should reject outright all oil and gas development in the Great Australian Bight and instead protect the region from all future oil and gas development. At a bare minimum, in order to help make this outcome possible, we strongly recommend the creation of an Independent Expert Panel to fully assess the cumulative threats from oil and gas to the region and alternative futures for the region including protection from this industry.

Recommendation 22 – Recommend Independent Expert Panel Process: That in light of all above recommendations, the Committee recommends to the Australian Parliament to:

- Immediately halt all existing approvals processes under NOPSEMA, in relation to oil and gas exploration and development activities in the Great Australian Bight
- Establish a high level, transparent, well-resourced Independent Expert Panel to undertake a full cumulative impact assessment of all oil development activities in the Great Australian Bight
- Ensure the Panel applies the precautionary principle and gathers all possible knowledge and evidence on ecological, climate, social, economic and cultural impacts
- Ensure the Panel allows for extensive and transparent public consultation, including full public hearings on all aspects of drilling activities
- Ensure the Panel also explores alternative futures for the Great Australian Bight including full protection from all oil and gas activities
- Ensure the Panel provides a comprehensive recommendation to the Australian Parliament on a way forward for the Great Australian Bight based on these assessments.



Appendix 1 — Well Blowouts to 2010

Well blowouts through to 2010 - those resulting in reported oil spills are shaded in gray.¹⁸³

Table 3-2. Alphabetical List of Major Well Blowouts Through 2010 (Source: *Oil Rig Disasters 2010*, ADN 2008)—Though infrequent, well blowouts do occur. A review of major well blowouts worldwide shows that at least one blowout has occurred in most years since the mid-1970s. In the past decade alone, 16 well blowouts have been documented worldwide, two of which resulted in a major oil spill. Well blowouts resulting in reported oil spills are shaded in gray; blowouts that occurred in the United States are shown in bold text. *Key: DS—Drill Ship, JU—Jack-Up Rig, LR—Land Rig, P—Platform, SS—Semisubmersible, S—Ship

Rig Name / Well Name	Year	Location	Spill Size	Rig Type*	Comments
Actinia	1993	Vietnam		SS	Major release
Adriatic IV	2004	Mediterranean Sea, Egypt		JU	Fire destroyed rig and platform; gas blowout
Al Baz	1989	Nigeria		JU	Burned and sank, five fatalities
Arabdrill 19	2002	Saudi Arabia		JU	Fire destroyed rig and platform
Atlantic No. 3	1948	Alberta, Canada		LR	Major release, fire; blowout lasted six months
Banjar Panji-1	2006	Java, Indonesia		LR	Mud volcano, major release
Beaver Creek 1A	1967	Cook Inlet		n/a	Gas to surface
Beluga River 212-35	1962	Cook Inlet		n/a	Gas to surface
Blake IV/Greenhill	1992	Gulf of Mexico	72,000 to 112,000 gal.	JU	Major release, fire
Bohai 3	1980	—		JU	Fire, 70 fatalities
Cerveza	1983	—		P	Abandon
Cirque No. 1	1992	North Slope		n/a	Gas to surface during exploratory drilling
Cook Inlet State No. 1	1962	Cook Inlet		n/a	Gas to surface, exploration well
C.P. Baker	1964	Gulf of Mexico		DS	Catamaran type, explosion and fire, 22 fatalities
CPF1-23	1979	Kuparuk Field		n/a	Gas to surface
Deepwater Horizon	2010	Gulf of Mexico	4.9 million barrels (bbl)		Three months required to control blowout; five months to complete relief well
Drake Point L-67	1969	Canadian Arctic		LR	Ice volcano
Ekofisk B	1977	Norwegian CS	202,000 bbl	P	Major release
Enchova Central	1984	Enchova Field, Brazil		P	Fire, lifeboat fell to sea, 37 fatalities
Enchova Central	1988	Enchova Field, Brazil		P	Destroyed by fire
Ensco 51	2001	Gulf of Mexico		JU	Setting casing string, fire
F-20	1986	Prudhoe Bay		n/a	Gas to surface
Funiwa Platform	1980	Nigeria	200,000 bbl	P	Major release; 14 days to control blowout
Glomar Baltic I	2001	Gulf of Mexico		JU	—
Glomar Grand Isle	1983	Indonesia		DS	Fire
Grayling Platform (Trading Bay Unit)	1985	Cook Inlet, Alaska		P	Gas to surface
Gubik #2	1951	Umita, Alaska		n/a	Gas to surface during exploration drilling
Hasbah Platform	1980	Persian Gulf	100,000 bbl	P	Major release, 19 fatalities

¹⁸³ PEW Environment Group 2010, *Oil Spill Prevention and Response in the US Arctic Ocean: Unexamined Risks, Unacceptable Consequences*, November 2010, <<http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>>.

Rig Name / Well Name	Year	Location	Spill Size	Rig Type*	Comments
I-23/Q-20	1994	Endicott, North Slope		n/a	Gas to surface
Ixtoc-I	1979	Mexico	3.5 million bbl	JU	Nine months to cap well
Jim Cunningham	2004	Egypt		SS	Fire
J-23	1987	Prudhoe Bay		n/a	Gas to surface
Kavik #1	1969	North Slope		n/a	Gas to surface during exploration drilling
Keyes Marine 303	1990	Gulf of Mexico		JU	—
King Christian D18	1970	Canadian Arctic		LR	Ice volcano
Little Bob	1968	—		JU	Fire off La. Coral Drilling, seven fatalities
Lodgepole	1982	Alberta, Canada		LR	Amoco, major H ₂ S release, two fatalities
Lusi Mud Volcano	2006	Java, Indonesia		LR	Mud volcano, major release
Maersk Endurer	1980	Gulf of Suez		JU	Derrick collapse, renamed EDC Setty, esti-mated three fatalities
Maersk Giant	2006	Norwegian CS		JU	Shallow gas
Marine IV	2001	Gulf of Mexico		JU	—
MGS State 17595 No. 1	1962	Cook Inlet		n/a	Gas to surface, exploration well
Mississippi Canyon 311A	1987	Gulf of Mexico		P	Platform tilted
Mobil Moquawkie No. 1	1965	Cook Inlet		n/a	Gas to surface, exploration well
Moquawkie No. 4	2008	Cook Inlet		n/a	Gas to surface
Mr. Louie	1963	German CS		JU	Crater
Montara/West Atlas	2009	Timor Sea, Australia	30,000-220,000 bbl	JU	Major spill; size estimates vary greatly; 74 days to drill relief well
NFX Platform A	1999	Gulf of Mexico		P	Fire
NGI-7	1976	Prudhoe Bay		n/a	Gas to surface
Ocean King	2002	Gulf of Mexico		JU	Fire
Ocean Odyssey	1988	UK CS		SS	Fire, one fatality
Penrod 52	1983	Gulf of Mexico		JU	Collapsed during blowout
Petrobras P7	2001	Bicudo Field, Brazil		P	Fire
Petromar V	1981	South China Sea		DS	Sank after blowout
Placid L10a	1983	SNS, NL		P	Corrosion
Pride 1001E	1997	Gulf of Mexico		P	Fire
Ron Tappmeyer	1980	Saudi Arabia		JU	Hasbah platform blowout, 19 fatalities
Saipem Paguro	1965	Off Ravenna, Italy		JU	Destroyed by fire
Sea Quest	1980	Nigeria		SS	Sedco 135C, fire, scuttled off Nigeria
Sedco 135F	1979	Mexico		JU	Ixtoc-I—Capped 1980 Mar 23
Sedco 252	1989	Indian Coast		JU	Fire, three fatalities
Ship Shoal 246b	1980	Gulf of Mexico		P	Killed after one day
Simpson Core Test #16	1948	North Slope		n/a	Gas to surface while drilling exploration well
Simpson Core Test #26	1950	North Slope	n/a	n/a	Oil release to surface while drilling exploration well

Rig Name / Well Name	Year	Location	Spill Size	Rig Type*	Comments
Snorre A	2004	Norwegian CS		P	Seabed gas blowout
South Timbalier 26	1970	Gulf of Mexico		P	Platform lost, four fatalities
Steelhead Platform	1987	Cook Inlet, Alaska		P	Fire. Unocal, Penrod rig also lost, nine months to complete relief well
Sundowner 15	1996	Gulf of Mexico		P	Fire
Teledyne Movable 16	1989	Gulf of Mexico		JU	Total loss
Treasure Seeker	1984	Norwegian CS		SS	Shallow gas
Trinimar Marine W327	1973	Venezuela		P	Major release
Union Oil Platform A	1969	Dos Cuadras F, U.S. OCS	80,000 to 100,000 bbl	P	Major release, 11 days to control blowout; spill estimated at 80,000 to 100,000 bbl
Usumacinta	2007	Gulf of Mexico		JU	Storm, major release, 22 fatalities
Viking Explorer	1988	SE Borneo		DS	Explosion and sinking. Total Oil, four fatalities
Vinland	1984	Sable Island, N. Atlantic		SS	Shell, Uniacke G-72
West Vanguard	1985	Haltenbanken, Norway		SS	One fatality
Zacateca	1986	Mexico		JU	Sank. Perforadora Co
Yum II / Zapoteca	1987	Gulf of Mexico		JU	PEMEX
Zapata Enterprize	1985	Javan coast		JU	Fire
Zapata Lexington	1984	Gulf of Mexico		JU	Fire, four fatalities
Zapata Topper III	1975	Gulf of Mexico		JU	Sank off La.



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