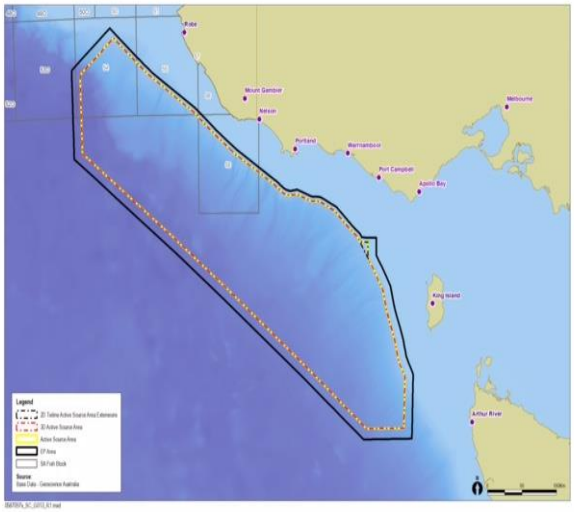
OCEAN
OTWAY CLIMATE EMERGENCY ACTION NETWORK

# Fact Sheet – Schlumberger /TGS Otway Basin 3D

## Overview

Multinational companies Schlumberger and TGS are seeking approval to conduct a 3D seismic survey in a massive area of the Otway Basin, offshore from Tasmania, South Australia and Victoria, in order to locate fossil gas deposits below the ocean floor. Seismic surveys are known to displace fisheries and to disrupt, injure and kill marine species. The proposed survey area is approximately 7.7 million hectares – larger than Tasmania – and is of critical importance to endangered marine life, commercial fisheries, and ecosystems associated with the Bonney Upwelling. Consultation has been limited to a number of peak bodies in the fishing industry: the wider community, including traditional owners of the sea country, has been excluded.




## What is Seismic Surveying?

Seismic surveying, more accurately termed seismic blasting, is the first step in offshore oil and gas exploration, and is used to locate fossil fuels under the seabed. Survey ships tow an array of airguns and receivers behind their stern, covering an area of ocean in a grid pattern. The airguns emit blasts that send a deafening soundwave through the water column and deep into the ocean floor; this bounces back up to the receivers and identifies potential fossil fuel reserves. The blasts generated are up to 250 decibels (that's louder than the Hiroshima bomb) and go off every 10 seconds, 24 hours a day, 7 days a week, often for months on end.

Importantly, sound travels significantly further and faster under water than through air, and seismic airguns can be heard in the ocean thousands of kilometres away. Moreover, the scale used to measure decibels is not linear, but logarithmic, and for every increase in sound of 3 decibels, there is a doubling of power. This means that 20 decibels are 10 times the intensity of 10 decibels; 30 decibels are 100 times more intense than 10 decibels, and so on. A 250-decibel seismic blast is one million times more intense than the loudest whale calls.[1]

There are two types of seismic survey, two-dimensional (2D) and three-dimensional (3D). 2D surveys are used to get a general picture of the landscape below the ocean floor, whereas 3D surveys are reserved for intensely surveying smaller areas in greater detail. 3D seismic surveys have a much greater impact on marine life, as a larger airgun blast is emitted. These blasts are designed to travel out on a broad angle, and the transect lines are spaced closer together to ensure that there is overlap and the coverage of the sea floor is thorough. Marine creatures that can't move out of the way, or which have the ability to navigate away impaired by the blasts, can therefore be impacted multiple times during 3D seismic surveys.

## The Schlumberger/TGS Proposal

The area proposed for seismic surveying runs approximately 700 kilometres from Tasmania to South Australia, spanning the southern coastline of South Australia and Victoria, and extending to a point 39 kilometres west of King Island, Tasmania. The water depth ranges from 510 metres to 5.6 kilometres. The companies are seeking a permit that would allow them to 3D seismic survey the area between December 2022 and 2027. If the

application is successful, this project has the potential to be the largest 3D seismic survey in the history of oil and gas use, worldwide.

The proposed project is designed to service multiple clients by providing geological information and interpretation for companies holding existing exploration titles. The project also proposes to collect data from areas not yet designated by the Australian government for gas exploration. This data would be the property of Schlumberger/TGS and would be sold to prospective offshore developers. Approximately 50% of the area in this site was previously 2D-seismic surveyed by Schlumberger in 2019, and the site also encompasses areas that have been surveyed in the last 5–10 years, meaning some areas will be repeatedly impacted by seismic blasting.

## Environmental Significance of the Area

The area proposed for seismic surveying extends through the eastern side of the Great Australian Bight (as defined by the International Hydrographic Organization). The Bight is a unique environment that is home to a variety of iconic marine species, 85% of which are found nowhere else in the world. The proposed survey area contains the environmentally significant Bonney Upwelling, which extends from Portland, Victoria to the ocean south-east of South Australia's Kangaroo Island. Upwellings are the powerhouse of ocean nutrient cycling and assist the dispersion of larvae and juvenile organisms. Although upwelling regions cover just one percent of the world's ocean surface, they are responsible for marine health and biodiversity worldwide. The Bonney Upwelling, part of the Great Southern Australian Coastal Upwelling System, is the largest upwelling system in Australia and a critical phenomenon for many species, including the endangered blue whale and the pygmy blue whale.[2]

The proposed survey area also intercepts with the Zeehan Australian Marine Park, located on the west coast of Tasmania, where canyons are responsible for upwellings that support fish nurseries, seabirds, white sharks, and blue and humpback whales.[3]

## What the Science Says About Seismic Blasting

There is an acute paucity of research pertaining to the impacts of seismic surveys. The very few studies of its impacts that have been done were primarily limited to commercial fisheries and ocean mammals. It is extremely logistically difficult and costly to conduct controlled studies in offshore seismic survey areas, and most studies have either been done in a laboratory environment, or funded directly by offshore gas and oil companies.

What we do know is that seismic surveys can damage and kill zooplankton for a radius of at least 1.2 kilometres with every blast. Zooplankton are the foundation of life in the ocean and include the juvenile stages and larvae of many marine species. Any impact to zooplankton communities can have huge impacts on whole ecosystems. A study of the effects of seismic surveying on zooplankton published in 2017 found a twofold-to-threefold increase in the mortality of those zooplankton exposed to seismic blasting, compared with those not exposed.[4]

It is also known that seismic surveying has wiped out entire scallop beds in the Bass Strait (which neighbours the Great Australian Bight), and that it damages the sensory organs of rock lobsters that enable them to escape predators.[5] According to research conducted in Lakes Entrance, Victoria immediately after seismic testing was conducted in the area in 2020, fisheries suffered a reduction in whiting catches of 99.5%, and a reduction in flathead catches of 71%.[6] Seismic blasts impact the breeding, feeding and migration of whales, making them vulnerable to errors in navigation and to predation. There is anecdotal evidence that it displaces fisheries, and impacts both commercial and recreational tuna fishing. These stocks may take many years to recover.

Following a seismic survey in Bass Straight in 2010, scallop fishermen in the area reported large losses in catches. At the end of the 2011 season, the scallop industry attributed a loss of 24,000 tonnes (worth $70 million) directly on the impact of the seismic survey. This prompted research by the Fisheries Research and Development Corporation on both scallops and southern rock lobsters. The research found that scallops were

severely impacted by seismic blasting, with the rate of scallop mortality directly related to seismic exposure. Over a four-month period the health of scallops in the region declined, with no recovery.[7]

A submission by CSIRO to a 2019 senate inquiry into the impacts of seismic testing expressed concern that a balance has not been achieved between conserving the health and natural capital of our oceans and the economic benefits of resource extraction. It was further noted that this has the potential to result in a lack of confidence in the management and regulation of the industry.[8]

## The Permit Approval Process

The process of registering and releasing offshore titles for prospecting and exploration is managed by the National Offshore Petroleum Titles Administrator (NOPTA). Every year, fossil fuel companies nominate areas of the ocean they would like to explore, and following a bidding and approval process, titles are then granted.

Under Australian law, prior to undertaking exploration, the title holder must submit an environmental plan and receive approval for it from the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Once NOPSEMA has assessed the plan, a 30-day public consultation period is opened. NOPSEMA's guidelines for public comment exclude any that contain petitions, or questions to NOPSEMA or to the companies. Also excluded are general objections to the oil and gas industry, and comments from social media.[9] Historically, any objections from those not directly or physically impacted by a project have been ignored.

Advertising of the consultation period is the responsibility of the title holder and at a minimum should include one regional newspaper, closest to the proposed location. The company is also responsible for summarising the public submissions, deciding their relevance, and responding to points made in them. If NOPSEMA considers that all concerns have been thoroughly assessed and responded to, it will publish a final evaluation report.

Schlumberger/TGS have already begun the process of preparing an environmental plan for the proposed area, despite not holding a current Special Prospectors Authority (granted by NOPTA) for it. For this environmental plan, the companies are required to consult with those stakeholders they consider to be 'relevant persons' affected by the project. It seems that Schlumberger/TGS have restricted consultation to a few peak fishery bodies, despite the fact that these seismic surveys would be conducted in Commonwealth waters, which are owned by all Australians. Only once the environmental plan is presented to NOPSEMA will the community have an opportunity to comment, and then only within very limited parameters.

## Sources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