

# The central and southeast offshore Otway Basin well folio



**Chris Nicholson**  
Geoscience Australia



**Australian Government**  
Geoscience Australia

## The Central and Southeast Offshore Otway Basin Well Folio

Duy Nguyen, Chris Cubitt, Dianne S. Edwards, Steve Abbott and George Bernardel | Contributors

### 1. Introduction

Geoscience Australia (GA) has created a folio of 32 wells from the central and southeastern parts of the offshore Otway Basin. The selected wells (Fig.1) contribute to GA's regional seismic interpretation (Nicholson et al. 2024) and gross depositional environment (GDE) studies (Abbott et al. 2024). The well folio provides well composites (an example is shown in Fig. 2) and digital data, including; logs, updated sequence stratigraphic markers, interpreted lithology, depositional environment (DE) and GDE intervals, petrophysical interpretation logs, and the integration of historic organic geochemistry and organic petrology results from cuttings, core, and sidewall core samples. The information provided in the well folio is important for the assessment of hydrocarbon prospectivity in the offshore Otway Basin.

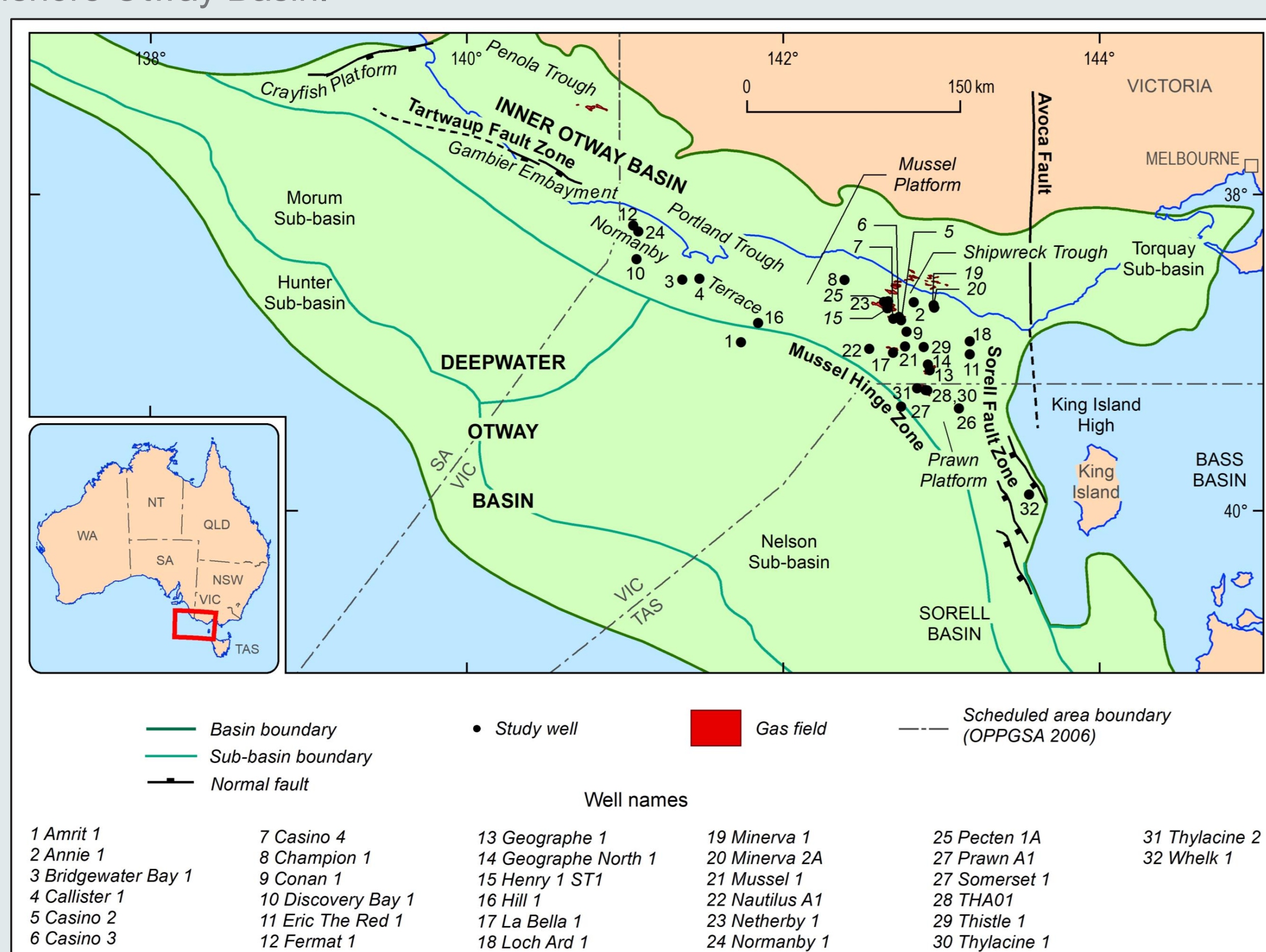


Figure 1: Map location of the 32 wells included in the well folio.

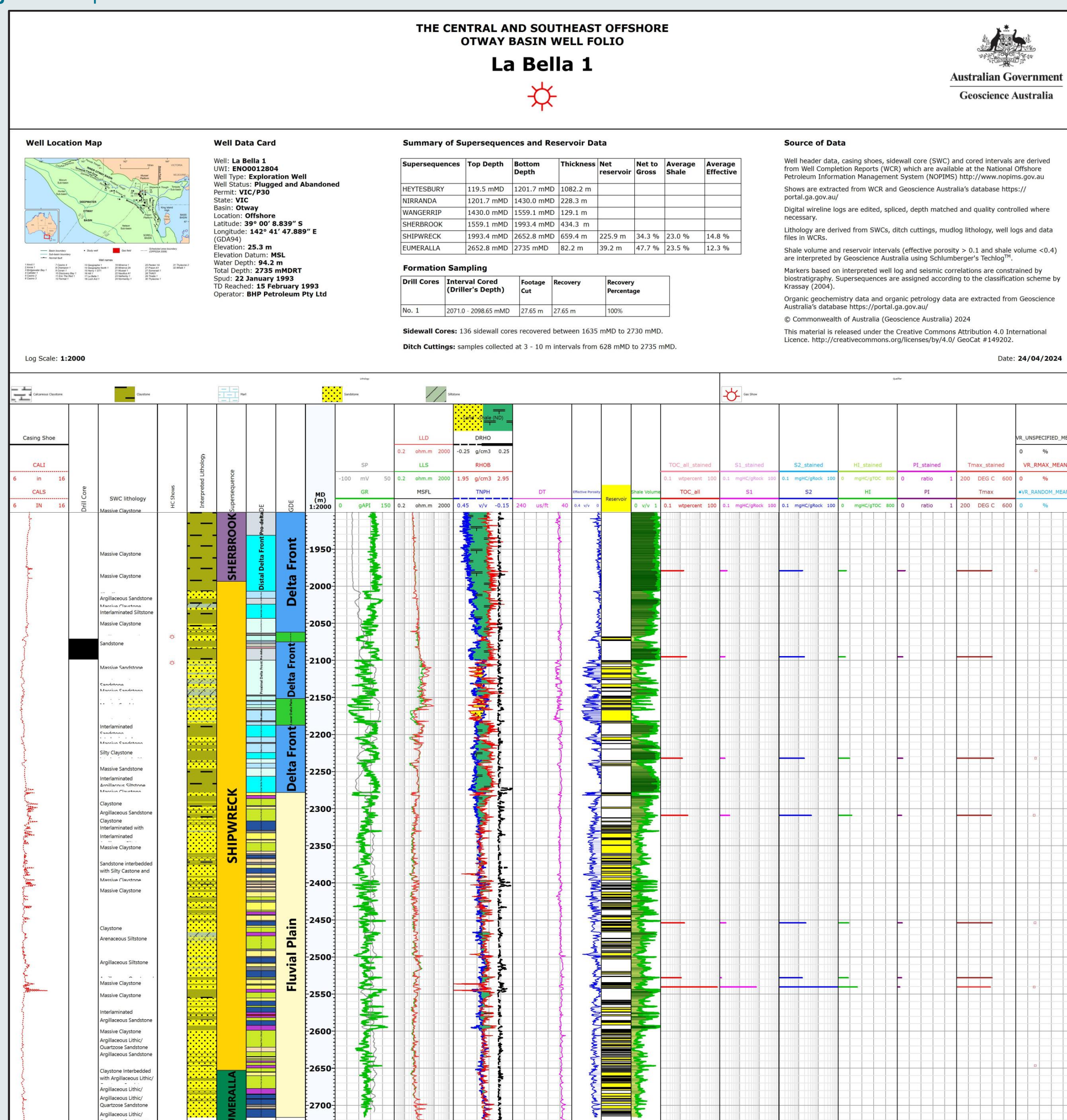


Figure 2: Well composite of La Bella 1.

### 4. Conclusions

The Central and Southeast Offshore Otway Basin Well Folio together with the previously released Northern Offshore Otway Basin Well Folio are resources intended for the assessment of hydrocarbon prospectivity across the offshore Otway Basin. The new sequence picks and understanding of the lithologies, reservoir properties and core-controlled DE/GDE intervals constrain regional mapping of the Cretaceous interval across the offshore Otway Basin. The well folio provides well composite logs of organic geochemical data, sequence stratigraphy and petrophysical evaluations that form the basis for further studies into source rock potential and reservoir and seal quality in the offshore Otway Basin. This well folio data package is downloadable at <https://dx.doi.org/10.26186/149358>

### 2. Well data and interpretation

- Well log, sidewall core and cutting data were sourced from the National Offshore Petroleum Information Management System (NOPIMS): <https://www.nopims.gov.au/>.
- Organic geochemical data including total organic carbon content, programmed pyrolysis and organic petrological data were sourced from NOPIMS and publicly available reports.
- DE and GDE interval interpretations are based on 917m of conventional core in 19 wells and extrapolated to non-cored wells and intervals using lithology and well logs (Cubitt et al. 2024). An example of La Bella 1 core logging is shown in Fig. 3.
- Supersequences were updated using biostratigraphy data, well logs and seismic interpretation.
- Effective porosity and shale volume were estimated to show reservoir and non-reservoir intervals over the deeper supersequences in each well.
- Net effective porosity and net reservoir were estimated for each supersequence.

#### Core Description La Bella 1

Geoscience Australia - Offshore Otway

Country (State): Australia (VIC)  
Basin: Otway  
Permit: (2022): VICP90  
Well Operator: BHP Petroleum  
Author: C. Cubitt  
Logging Date: January 2023

Spud Date: 22/01/1993  
KB RT: RT: 25.3m  
TD: 2735m (gilliers)  
Depth SHRT: Down 1.5m  
Scale: 1:40

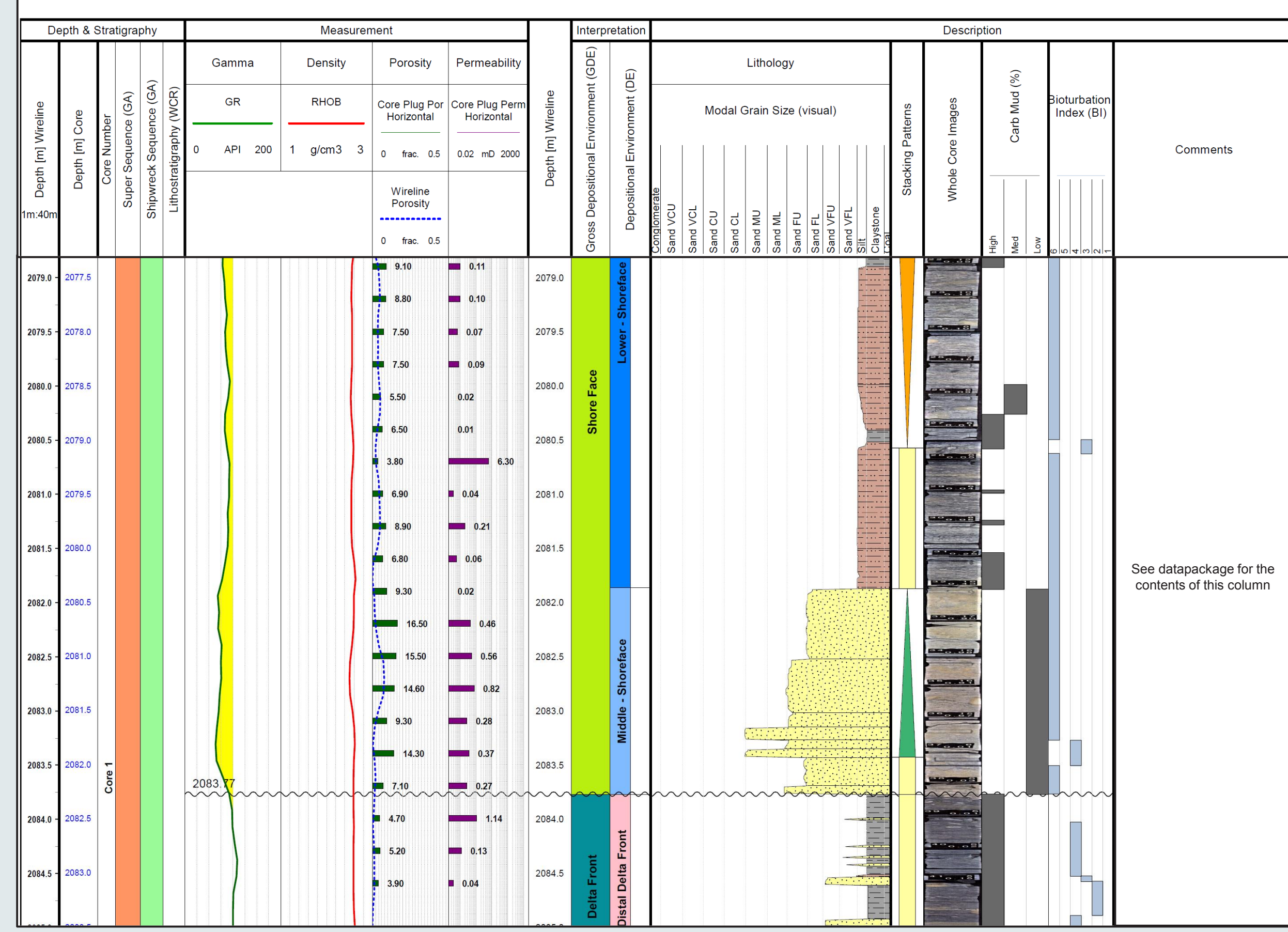


Figure 3: Depositional environment and gross depositional environment interpretation on La Bella 1 conventional core. A well core-based DE/GDE study, including detailed core logging data, is downloadable at <https://dx.doi.org/10.26186/149190>.

### 3. Reservoir summary

Sandstone reservoirs within the Shipwreck Supersequence have been the main exploration targets with average porosity of 17%. Permeability from Shipwreck Supersequence core samples in 14 wells (of which 11 wells are gas discoveries) can range from hundreds of millidarcies to many darcies. Table 1 below is an example of a reservoir summary from well log analysis.

Well	Supersequence	Top – Bottom Depth (mMDRT)	Net Reservoir (m)	Net to Gross (%)	Average Shale Volume (%)	Average Effective Porosity (%)
La Bella 1	Shipwreck	1993.4 – 2652.8	255.9	34.3	23.0	14.8
La Bella 1	Eumeralla	2652.8 – 2735.0	39.2	47.7	23.5	12.3

Table 1. Reservoir summary for La Bella 1.

### Further reading

- Abbott S, Cubitt C, Bernardel G, Nicholson C, Nguyen D (2024) Shipwreck and Sherbrook Supersequence Regional Gross Depositional Environments, offshore Otway Basin. AEP Journal 2024.
- Cubitt C, Nguyen D, Nicholson C, Stoate A (2024) Offshore Otway Basin Core logs [metadata statement and digital data package]. Geoscience Australia eCAT#149190, Commonwealth of Australia, Canberra. <https://dx.doi.org/10.26186/149190>.
- Nguyen D, Edwards DS, Gunning M-E, Bernardel G (2022) The Northwest Offshore Otway Basin Well Folio [metadata statement and updated digital data package]. Geoscience Australia eCAT#146429, Commonwealth of Australia, Canberra. <https://dx.doi.org/10.26186/146429>.
- Nicholson C, Abbott S, Bernardel G, Poudjom Djomani Y (2024). A new perspective on regional structural architecture across the offshore Otway Basin. AEP Journal 2024.

