The Petroleum Geology of Ireland’s Offshore Basins
The Petroleum Geology of Ireland’s Offshore Basins

EDITED BY

P. F. CROKER
Department of Transport, Energy & Communications,
Dublin, Ireland

AND

P. M. SHANNON
University College,
Dublin, Ireland

1995
Published by
The Geological Society
London
THE GEOLOGICAL SOCIETY

The Society was founded in 1807 as The Geological Society of London and is the oldest geological society in the world. It received its Royal Charter in 1825 for the purpose of 'investigating the mineral structure of the Earth'. The Society is Britain’s national society for geology with a membership of around 7500 (1993). It has countrywide coverage and approximately 1000 members reside overseas. The Society is responsible for all aspects of the geological sciences including professional matters. The Society has its own publishing house, which produces the Society’s international journals, books and maps, and which acts as the European distributor for publications of the American Association of Petroleum Geologists, SEPM and the Geological Society of America.

Fellowship is open to those holding a recognized honours degree in geology or cognate subject and who have at least two years' relevant postgraduate experience, or who have not less than six years’ relevant experience in geology or a cognate subject. A Fellow who has not less than five years’ relevant postgraduate experience in the practice of geology may apply for validation and, subject to approval, may be able to use the designatory letters C. Geol. (Chartered Geologist).

Further information about the Society is available from the Membership Manager, the Geological Society, Burlington House, Piccadilly, London W1V 0JU, UK.
Contents

CROKER, P. F. & SHANNON, P. M. The petroleum geology of Ireland's offshore basins: introduction 1
READMAN, P. W., O'REILLY, B. M., EDWARDS, J. W. F. & SANKEY, M. J. A gravity map of Ireland and surrounding waters 9
SHELTON, R. Mesozoic basin evolution of the North Channel: preliminary results 17
FITZSIMONS, S. & PARNELL, J. Diagenetic history and reservoir potential of Permo-Triassic sandstones in the Rathlin Basin 21
TRUEBLOOD, S., BRYAN, C. & PICKERING, S. The Douglas oil field and its implications for exploration on the Irish Continental Shelf 39
CROKER, P. F. Shallow gas accumulation and migration in the western Irish Sea 41
MADDOX, S. J., BLOW, R. & HARDMAN, M. Hydrocarbon prospectivity of the Central Irish Sea Basin with reference to Block 42/12, offshore Ireland 59
GRIFFITHS, P. S. Predictive model for the development and distribution of Triassic reservoir sands offshore southeast Ireland based on seismic sequence geometries at the Variscan unconformity 79
MUSGROVE, F. W., MURDOCH, L. M. & LENEHAN, T. The Variscan fold-thrust belt southeast of Ireland and its control on early Mesozoic extension and deposition: a method to predict the Sherwood Sandstone 81
ROWELL, P. Tectono-stratigraphy of the North Celtic Sea Basin 101
EWINS, N. P. & SHANNON, P. M. Sedimentology and diagenesis of the Jurassic and Cretaceous of the North Celtic Sea and Fastnet Basins 139
KESLER, L. G. & SACHS, S. D. Depositional setting and sequence stratigraphic implications of the Upper Sinemurian (Lower Jurassic) sandstone interval, North Celtic Sea/St George's Channel Basins, offshore Ireland 171
CASTON, V. N. D. The Helvick oil accumulation, Block 49/9, North Celtic Sea Basin 209
HARTLEY, A. Sedimentology of the Cretaceous Greensand, Quadrants 48 and 49, North Celtic Sea Basin: a progradational shoreface deposit 245
MURRAY, M. V. Development of small gas fields in the Kinsale Head area 259
HOWELL, T. J. & GRIFFITHS, P. A study of the hydrocarbon distribution and Lower Cretaceous Greensand prospectivity in Blocks 48/15, 48/17, 48/18 and 48/19, North Celtic Sea Basin 261
CRAVEN, J. E. The tectonic evolution, stratigraphy and petroleum potential of the Mizen Basin, southwest Celtic Sea 277
SMITH, C. Evolution of the Cockburn Basin: implications for the structural development of the Celtic Sea basins 279
MURDOCH, L. M., MUSGROVE, F. W. & PERRY, J. S. Tertiary uplift and inversion history in the North Celtic Sea Basin and its influence on source rock maturity 297
MENPES, R. J. & HILLIS, R. R. Quantification of Tertiary exhumation from sonic velocity data, Celtic Sea/Southwestern Approaches 321

MCMAHON, N. A. & UNDERHILL, J. R. The regional stratigraphy of the southwest United Kingdom and adjacent offshore areas with particular reference to the major intra-Cretaceous unconformity 323

CROKER, P. F. The Clare Basin: a geological and geophysical outline 327

O'DRISCOLL, D., HOLCOMBE, B. B., ROSE, P. T. & JONES, D. J. Cretaceous and Tertiary unconformities in the Atlantic margin basins 341

EARLS, T. C. Potential for development of the Connemara Field, Block 26/28 343


MCCANN, T., SHANNON, P. M. & MOORE, J. G. Fault styles in the Porcupine Basin, offshore Ireland: tectonic and sedimentary controls 371

SCOTCHMAN, I. C. & THOMAS, J. R. W. Maturity and hydrocarbon generation in the Slyne Trough, northwest Ireland 385

O'REILLY, B. M., HAUSER, F., JACOB, A. W. B., SHANNON, P. M., MAKRIS, J. & VOGT, U. The Erris and eastern Rockall Troughs: structural and sedimentological development 413

ENGLAND, R. W. Westline: a deep near-normal incidence reflection profile across the Rockall Trough 423

JACOB, A. W. B., SHANNON, P. M., MAKRIS, J., HAUSER, F., VOGT, U. & O'REILLY, B. M. An overview of the results of the RAPIDS seismic project, North Atlantic 429

DALY, J. S., HEAMAN, L. M., FITZGERALD, R. C., MENUGE, J. F., BREWER, T. S. & MORTON, A. C. Age and crustal evolution of crystalline basement in western Ireland and Rockall 433

SHANNON, P. M., JACOB, A. W. B., MAKRIS, J., O'REILLY, B., HAUSER, F. & VOGT, U. Basin development and petroleum prospectivity of the Rockall and Hatton region 435

MAKRIS, J., LANGE, K., SAVOSTIN, L. & SEDOV, V. A wide-angle reflection profile across the Iceland–Faeroe Ridge 459

SHANNON, P. M., WILLIAMS, B. P. J. & SINCLAIR, I. K.: Tectonic controls on Upper Jurassic to Lower Cretaceous reservoir architecture in the Jeanne d'Arc Basin, with some comparisons from the Porcupine and Moray Firth Basins 467

Appendix. A list of common abbreviations 491

Index 493