A new standard lithostratigraphic framework for offshore Ireland; regional chronostratigraphic summary chart

Merlin Energy Resources Ltd

PALAEODATE LTD
Network STRATIGRAPHIC CONSULTING LIMITED
RILEY GEOSCIENCE LTD

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

PIP Petroleum Infrastructure Programme

Period	Epoch	Age/Stage	Sequence Stratigraphy	Seismic Horizons
QUATERNARY	Pleistocene	Tarantian	C5	Pleistocene
		Ionian		
		Calabrian	C10	
		Gelasian		
CENOZOIC	Pliocene	Piacenzian		
		Zanclean		Pliocene (C10)
	Miocene	Messinian	C20	
		Tortonian		
		Serravallian		
		Langhian		Lower Miocene (C20)
		Burdigalian	C25	
		Aquitanian		
	Oligocene	Chattian		Oligocene
		Rupelian	C30	
	Eocene	Priabonian		Priabonian (C30)
		Bartonian	C40	
		Lutetian		Lutetian (Intra Trawbreaga)
		Lutetian	C50	
		Ypresian		Ypresian (Top Gweedore)
		Ypresian	C60	Ypresian (Base Blacksod)
		Ypresian	C70	Ypresian (Base Oranmore)
		Ypresian	C80	Thanetian
	Paleocene	Thanetian	C90 C92	(Intra Gweedore)
		Thanetian	C94	Thanetian (Top Ballyheige)
		Selandian	C100	Top Gweebarra
		Danian	C110	Top Chalk/Shetland
CRETACEOUS	Late Cretaceous	Maastrichtian		
		Campanian		
		Santonian		Santonian (Intra Chalk)
		Coniacian		
		Turonian		
		Cenomanian		Cenomanian (Top Cadóg)
		Cenomanian		Base Chalk
	Early Cretaceous	Albian	K55	Top Agone
			K55d	
			K55c	Base Gault
			K55b	Middle Albian (Near Base Daba)
			K55a	
			K50	
		Aptian	K45	Aptian (Near Base Bradan)
			K40	
		Barremian	K30 K38	
			K36	
			K34	Hauterivian (Top Leathóg/Doingean)
		Hauterivian	K32	
			K20	
		Valanginian	K10 K14	
			K12	Intra Pike
		Berriasian	K11	Intra Perch
				Base Cretaceous
JURASSIC	Late Jurassic	Tithonian	UJ50	Top Knockadoon
			UJ40 UJ44	Near Top Bolus
			UJ42	Top Baginbun
		Kimmeridgian	UJ30	Kimm (Intra Bolus)
		Oxfordian	UJ20	Top Minard/Top Dunbrattin
			UJ10	Intra Minard
	Middle Jurassic	Callovian		Top Peregrine
		Bathonian	J30 J34	
			J33	
			J32	Top Kestrel
		Bajocian	J20 J26	
			J24	
		Aalenian		
			J22	
	Early Jurassic	Toarcian	J10 J18	
			J17	Top Pabay
		Pliensbachian	J16	
			J14	
			J13	
			J12	
		Sinemurian	J6	Top Meelagh
			J4	
			J3	Top Currane
		Hettangian	J2	Top Leane
			J1	Top Penarth
TRIASSIC	Late Triassic	Rhaetian	TR30	Top Mercia Mudstone
		Norian		
		Carnian	TR20	Top Feadóg Halite
	Middle Triassic	Ladinian		
		Anisian		Intra Mercia
	Early Triassic	Olenekian		Top Corrib/ Sherwood
		Induan	TR10	Top Rottington Sandstone
				Top Zechstein/ Cumbrian Coast
PERMIAN	Lopingian	Changhsingian		
		Wuchiapingian		
	Guadalupian	Capitanian		
		Wordian		
		Roadian		
	Cisuralian	Kungurian		Top Collyhurst Sandstone
		Artinskian		
		Sakmarian		
		Asselian		Top Carbonferous
CARBONIFEROUS	Pennsylvanian	Autunian	No sequences defined	
		Stephanian C		
		Stephanian B		
		Barruelian		
		Cantabrian		
		Asturian		
		Bolsovian		Intra Blackthorn Group/ Pennine Coal Measures
		Duckmantian		
		Langsettian		
		Yeadonian		
		Marsdenian		
		Kinderscoutian		
		Alportian		
		Chokerian		
	Mississipian	Arnsbergian		
		Pendleian		
		Brigantian		Top Bairneach
		Asbian		
		Holkerian		
		Arundian		
		Chadian		
		Ivorian		
		Hastarian		Top Devonian
DEVONIAN	Late	Famennian		
		Frasnian		
	Middle	Givetian		
		Eifelian		
	Early	Emsian		
		Pragian		
		Lochkovian		
SILURIAN	Pridoli			
	Ludlow	Ludfordian/Gorstian		
	Wenlock	Homerian/Sheinwoodian		
	Llandovery	Telychian		
		Aeronian/Ruddanian		
ORDOVICIAN	Late	Himantian		
		Katian		
		Sandbian		
	Middle	Darriwilian		
		Dapingian		Top 26/28 Basal Conglomerate
	Early	Floian		
		Tremadocian		Cambrian (Top ?Bray)
CAMBRIAN	Furongian	Age 10		
		Jiangshanian		
		Paibian		
	Epoch 3	Guzhangian		
		Drumian		
		Age 5		
	Epoch 2	Age 4		
		Age 3		
	Terreneuvian	Age 2		
		Fortunian		

Conall-Rónán* Basins

Eilean Siar Glacigenic Group

? Rockall-Hebrides Volcanic Group

Chalk/ Shetland Group

? Cromer Knoll Group

? Muckross or Beara Group

? Minard Fm

? Kite Group

? Lias Group

? Penarth Group

? Mercia Mudstone Group

? Sherwood Sandstone Group

Rockall Basin

Eilean Siar Glacigenic Group

Hebrides Margin Group

Ròn Formation

Fulmair Formation

Baltimore Formation

Ventry Formation

Killeany Formation

Sullom Formation

Jorsalfare Formation

Kyrre Formation

Macbeth Formation

Valhall Formation

Dawros Formation

Sybil Fm

Kestrel Formation

Kingfisher Lst Mbr

Harrier Formation

Wren & Skylark Mbrs

Sparrow, Robin & Dunnock Mbrs

Dun Caan Shale Formation

Whitby Mudstone Fm

Derg Mbr

Ree Mbr

Pabay Shale Fm

Allua Mbr

Barnahallia Mbr

Ardra Mbr

Poulnamuck Mbr

Albion, Nessken, Wiseman's Mbrs

Inagh Formation

Meelagh Formation

Hollywood & Glennaun Mbrs

Arrow & Lackagh Mbrs

Easky, Ernc, Mullagh & Mosmore Mbrs

Lilstock Fm

Langport Mbr

Cotham Mbr

Westbury Formation

Blue Anchor Fm

Currach Formation

Uilleann Halite Mbr

Corrib Sandstone Formation

Merrow Member

Cot Sandstone Formation

Zechstein Group

"12/2-2 Claystone"

Foxglove Fm

Harebell Formation

Bird's-Foot Formation

Donegal Basin

Eilean Siar Glacigenic Group

Hebrides Margin Group

Demetae Group

Dord Formation

Traona

Hebrides Margin

Demetae

Toirsgian

Stronsay

Killeany Formation

Sullom Formation

Shetland

Cromer Knoll

Sherwood Sst

Coulagh Fm

Mweenish Mbr

Rusheen Mbr

Sheephaven Chalk Mbr

Rockall-Hebrides Volcanic

Sorrel

Blackthorn Group

Blackthorn

Ruacan Formation

Muirín

Mussel Formation

Erris Basin

Eilean Siar Glaci-genic Group

Brython Glaci-genic Group

Hebrides Margin Group

Demetae Group

Hebrides Margin

Demetae

Traona

Toirsgian

Stronsay

Ventry Formation

? Druid Formation

Killeany Formation

Coulagh Fm

Mangagh Fm

Trosc Formation

Ronnach Formation

Leith Formation

Scadán Formation

Cadóg Formation

Rodby Fm

Carrack Formation

Fischschiefer

Valhall Formation

V7-V6

V4

V3

V2

Scatálá Sst Mbr

Siorc Sst Mbr

Cromer Knoll

Chalk

Lias

Penarth

Sherwood Sst

Zechstein

Zechstein Group

Slyne Basin

Eilean Siar Glaci-genic Group

Brython Glaci-genic Group

Hebrides Margin Group

Demetae Group

Hebrides Margin

Demetae

Traona

Dord Formation

Clogán Sandstone Member

Druid Formation

Rockall-Hebrides Volcanic

Mangagh Fm

Trosc Formation

Ronnach Formation

Leith Formation

Scadán Formation

Squillin Fm

Squid Sst Mbr

Cadóg Formation

Spurdog Formation

Megrim Sst Mbr

Cromer Knoll

Chalk

Lias

Penarth

Sherwood Sst

Corrib Sandstone Formation

Zechstein Group

Macdara/Brona Basins

Eilean Siar Glacigenic Group

Hebrides Margin Group

Hebrides Margin

Traona

Dord Fm

Amulet Fm

Trawbreaga Fm

Pulleen Sst Mbr

Clew Bay Formation

Gweedore Formation

Cashen Formation

Tralee

Rockall-Hebrides Volcanic

Stronsay

Trosc Formation

Squillin Fm

Squid Sst Mbr

Cadóg Formation

Chalk

Lias

Penarth

Sherwood Sst

Corrib Sandstone Formation

Zechstein Group

Dawros Formation

Sybil Fm

Minard Formation

Dursey Fm

Skellig Fm

Bolus Fm

Muckross

Beara

Kite

Lias

Penarth

Meelagh Fm

Conn Formation

Lilstock Fm

Langport Mbr

Cotham Mbr

Westbury Formation

Currach Formation

Mercia Mudstone

Sherwood Sst

Zechstein

Zechstein Group

Early Jurassic and Triassic sediments only known in northern part of basin (Wells 26/22-1A, 26/21-1). Triassic-Middle Jurassic unproven by drilling elsewhere in basin.

Porcupine Basin*

Eilean Siar Glacigenic Group

Hebrides Margin Group

Hebrides Margin

Traona

Dord Formation

? ?

Carnyx Sst Mbr

Amulet Formation

Quern Sst Mbr

Kinnagoe Formation

Tranarossan Formation

Fintrag Sst Mbr (Up)

Trawbreaga Formation

Fintrag Sst Mbr (Lr)

Blacksod Sst Mbr

Gweedore Formation

Peist Mbr

Cranmore Sst Mbr

Kilkieran Sst Mbr

Brandon Sst Mbr

Drumcliff Sst Mbr

Newport Sst Mbr

Ballyheige Mbr

Gweebarra Formation

Broadhaven Chalk Mbr

Kennyfeus Sst Mbr

Mangagh Formation

Changeling Mbr

Trosc Formation

Ronnach Formation

Leith Formation

Scadán Formation

Plenus Marl Mbr

Squid Sandstone Member

Cadóg Formation

Urchin Lst Mbr

Bradán Fm

Angler Mbr

Daba Sst Mbr

Sheerie Mbr

Roc Mbr

Boladh Sst Mbr

Tope Sst Mbr

Arrowtooth Sst Mbr

Rodby Formation

Carrack Fm

Langa Lst Mbr

Fischschiefer

Valhall Fm

Leathóg Lst Mbr

Troscín Lst Mbr

Doingean Lst Member

Sól Sst Mbr

Dursey Fm

Breedagh Sst Mbr

Leck Sst Mbr

Doorin Mbr

Rinroe Mbr

Rinnyle Sst Mbr

Bolus Formation

Minard Formation

Emlagh Sst Mbr

Renard Mbr

Doonreagh Mbr

Tonakeera Mbr

Garrish Mbr

Meelagh Formation

Conn Formation

Lilstock Fm

Langport Mbr

Currach Fm

Ruacan Formation

Mussel Formation

? ? ? ?

? ? ? ?

Mussel Formation

Hooker Sandstone Formation

Chalk

Lias

Penarth

Sherwood Sst

Mercia Mudstone

Muirín

Beara

Tralee

Rockall-Hebrides Volcanic

Stronsay

Hook

Eagle

Toirsgian

Goban Spur Area*

Eilean Siar Glacigenic Group

Hebrides Margin Group

Hebrides Margin

Traona

Ròn Fm

Dord Formation

Fulmair Formation

Amulet Formation

Carraveg Formation

Kinnagoe Formation

Transossan Formation

Clew Bay Formation

Trawbreaga Formation

Cashen Formation

Gweedore Fm

Cashla Fm

Gwee-barra Fm

Mangagh Fm

Trosc Formation

Ronnach Formation

Leith Formation

Scadán Formation

Plenus Marl Mbr

Cadóg Formation

Oakshee Mbr

Rodby Fm

Salán Formation

Ballach Fm

Valhall Fm

Gurnard Fm

Chalk

Lias

Penarth

Sherwood Sst

Mercia Mudstone

Cromer Knoll

Toirsgian

Tralee

Hook

Eagle

Fastnet Basin

Eilean Siar Glacigenic Group

Brython Glaci-genic Group

Hebrides Margin Group

Hebrides Margin

Traona

Dord Formation

Crotal Sandstone Member

Dord Formation

Triskele Fm

Claddagh Fm

Dunmanus Fm

Barley Fm

Clonea Formation

Rosscarbery Formation

Trosc Fm

Ronnach Formation

Leith Formation

Scadán Formation

Plenus Marl Mbr

Blennny Member

Cadóg Formation

Gault Fm

Shad Sst Mbr

Selborne

Eel Formation

Rudd Sst Mbr

Tench Fm

Roach Mbr

Rainbow Claystone Formation

Carp Formation

Pike Fm

Chalk

Lias

Penarth

Sherwood Sst

Mercia Mudstone

Wealden

Hook

Toirsgian

Tralee

Eagle

North Celtic Sea Basin

Brython Glacigenic Group

Demetae Group

Demetae

Claddagh Fm

Lunala Group

Lunala

Chalk

Lias

Penarth

Sherwood Sst

Mercia Mudstone

Wealden

Purbeck

Hook

Toirsgian

Tralee

Eagle

South Celtic Sea Basin

Brython Glacigenic Group

Demetae Group

Demetae

Lunala Group

Lunala

Chalk

Lias

Penarth

Sherwood Sst

Mercia Mudstone

Wealden

Purbeck

Hook

Central Irish Sea Basin

Brython Glacigenic Group

Demetae Group

Demetae

Lunala Group

Lunala

Chalk

Lias

Penarth

Sherwood Sst

Mercia Mudstone

Wealden

Kish Bank Basin

Brython Glacigenic Group

Demetae Group

Demetae

Lunala Group

Lunala

Chalk

Lias

Penarth

Sherwood Sst

Mercia Mudstone

Wealden

Hook

Eagle

Toirsgian

Tralee

Pollan Fm

Stickleback Sst Mbr

Knockadoon Formation

Cowdy Lst Mbr

Baginbun Formation

Galley Formation

Dunbrattin Formation

Dunworly Sandstone Member

Frower Member

Peregrine Formation

Curlew Mbr

Merlin Formation

Chilchaff Lst Mbr

Sparrowhawk Formation

Chough Sst Mbr

Tacumshin Formation

Whitby Mudstone Formation

Holaun Mbr

Whitewood Mbr

Pabay Shale Formation

Glenbeg Formation

Loughbaun Sandstone Member

Currane Formation

Leane Fm

Blue Lias Formation

Gill Fm

Caragh Formation

Lilstock Fm

Langport Member

Cotham Member

Westbury Formation

Blue Anchor Formation

Crannóg Formation

Bodhrán Sandstone Member

Feadóg Halite Mbr

Cairn Formation

Pike Fm

Perch Fm

Pollan Fm

Knockadoon Formation

Baginbun Fm

Galley Fm

Dunbrattin Fm

Tacumshin Formation

? Whitby Mudstone Formation

Pabay Shale Fm

Glenbeg Formation

Currane Fm

Leane Fm

Caragh Fm

Blue Anchor Formation

Crannóg Formation

Feadóg Halite Mbr

Cairn Formation

Dowbridge Mudstone Fm

Preesall Halite Fm

Leyland Fm

Ormskirk Sst Fm

Calder Sst Mbr

St Bees Sst Fm

Rottington Sst Mbr

Collyhurst Sandstone Formation

Collyhurst Sst Fm

Thistle Formation

Warwickshire Group

Pennine Coal Measures Group

Pennine Coal Measures

Sliogán Group

Sliogán

Bairneach Group

Bairneach

Kinsale Formation

Cork

Darrig Formation

? Bray Group

? Bray

Elswick Mudstone Formation

Warton Halite Formation

Dowbridge Mudstone Fm

Preesall Halite Fm

Lilstock Fm

Langport Mbr

Manchester Marls Formation

42/12-1 Carbonate

"42/8-1A Conglomerate"

Appleby

Warwickshire

Cumbrian Coast

Purbeck

Pollan Formation

Knockadoon Formation

? Baginbun Fm

Cowdy Lst Mbr

Stickleback Sst Mbr

Pollan Fm

Perch Fm

Pike Fm

Rottington Sst Mbr

Calder Sst Mbr

St Bees Sst Fm

Ormskirk Sst Fm

Leyland Fm

Preesall Halite Fm

Dowbridge Mudstone Fm

Warton Halite Formation

Elswick Mudstone Formation

Caragh Fm

Gill Fm

Currane Fm

Leane Fm

Blue Lias Fm/ Gill Fm

Blue Lias Fm

Langport Mbr

Lilstock Fm

Cotham Mem

Selborne

Gault Fm

Eel Formation

Rudd Sst Mbr

Tench Fm

Roach Mbr

Wealden Group

Rainbow Claystone Formation

Pike Fm

Perch Fm

Pollan Fm

Knockadoon Formation

Cowdy Lst Mbr

Baginbun Formation

Galley Formation

Dunbrattin Formation

Dunworly Sandstone Member

Frower Member

Peregrine Formation

Curlew Mbr

Merlin Formation

Chilchaff Lst Mbr

Sparrowhawk Formation

Chough Sst Mbr

Tacumshin Formation

Whitby Mudstone Formation

Holaun Mbr

Whitewood Mbr

Pabay Shale Formation

Glenbeg Formation

Loughbaun Sandstone Member

Currane Formation

Leane Fm

Blue Lias Formation

Gill Fm

Caragh Formation

Lilstock Fm

Langport Member

Cotham Member

Westbury Formation

Blue Anchor Formation

Crannóg Formation

Bodhrán Sandstone Member

Feadóg Halite Mbr

Cairn Formation

Dolmen Sandstone Formation

Dolmen Sst Formation

Sherwood Sst

Mercia Mudstone

Wealden

Purbeck

Hook

Eagle

Toirsgian

Tralee

Pollan Fm

Stickleback Sst Mbr

Knockadoon Formation

Cowdy Lst Mbr

Baginbun Formation

Galley Formation

Dunbrattin Formation

Dunworly Sandstone Member

Frower Member

Peregrine Formation

Curlew Mbr

Merlin Formation

Chilchaff Lst Mbr

Sparrowhawk Formation

Chough Sst Mbr

Tacumshin Formation

Whitby Mudstone Formation

Holaun Mbr

Whitewood Mbr

Pabay Shale Formation

Glenbeg Formation

Loughbaun Sandstone Member

Currane Formation

Leane Fm

Blue Lias Formation

Gill Fm

Caragh Formation

Lilstock Fm

Langport Member

Cotham Member

Westbury Formation

Blue Anchor Formation

Crannóg Formation

Bodhrán Sandstone Member

Feadóg Halite Mbr

Cairn Formation

Dolmen Sandstone Formation

Dolmen Sst Formation

Sherwood Sst

Mercia Mudstone

Wealden

Purbeck

Hook

Eagle

Toirsgian

Tralee

Early Jurassic and Triassic sediments only known in northern part of basin (Wells 26/22-1A, 26/21-1). Triassic-Middle Jurassic unproven by drilling elsewhere in basin.

18/25-2 Sandstone/ Claystone

26/28 Basal Conglomerate

"Dalradian Metasediments" at base of 26/26-1 well

* Includes data from 36/16-1A

* Includes: Goban Spur Basin, Eaban Spur, Pendragon Basin, Merlin High & Porcupine Abyssal Plain

* Undrilled basins. Stratigraphy speculative and inferred from seismic interpretation and tie to Rockall wells and Macdara Basin boreholes.

Date: 22nd November 2018 (Version 3)