

The new Irish offshore stratigraphic nomenclature: What's in a name?

Pat Shannon¹, Kara English², Michael Hanrahan²

¹UCD School of Earth Sciences, University College Dublin, Belfield, Dublin 4.

²Petroleum Affairs Division, Department of Communications, Climate Action and Environment, 29-31 Adelaide Road, Dublin 2.

Background to Nomenclature Strategy

The nomenclature should be:

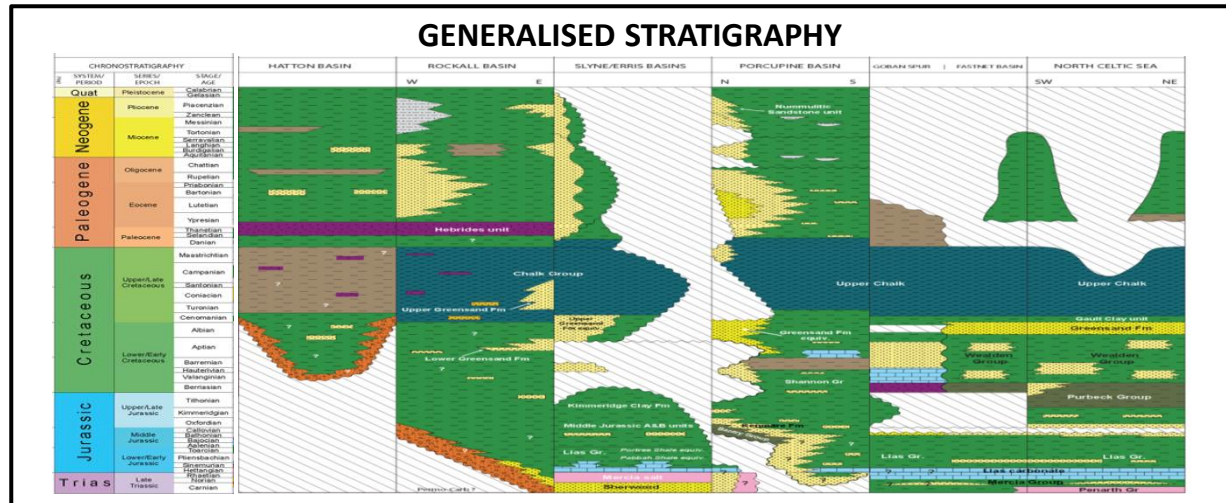
- **Robust** and **workable**.
- **Used** by industry, government and academia.
- **Coherent** and **future-proofed** to allow for additional expansion.
- Have an **Irish flavour**, with **pronounceable names**.

The nomenclature should avoid:

- **Confusion** with existing nomenclature onshore in Ireland and in neighbouring offshore regions, and also with existing structural nomenclature.
 - **Names** such as *Caoimhe, Sادhbh, Síle, Caoimhín, Saorise, Tadgh*
 - **Names of famous people** such as *Joyce, Shaw, Wilde, ... Schrödinger*
 - **Names of Irish towns**
-
- **Existing names should be used** where it can be demonstrated that stratigraphy correlates clearly with named successions in other jurisdictions, or with the Irish onshore.
 - **Well-established names in the published literature should be used** unless there is a convincing argument not to do so.
 - **New names should conform to a thematic structure.**

Thematic Strategy

- The stratigraphy often varies between basins and different unit names were sometimes required for age-equivalent strata in different basins.
- Because of the large number of new names required (close to 200), it was not possible to find a single theme to cover all the stratigraphy.
- Names were constrained by existing onshore and other usage (1,219 names listed in GSI lexicon, 19,368 names in BGS lexicon).
- Themes were stratigraphically-focussed, e.g. specific theme for each Period.

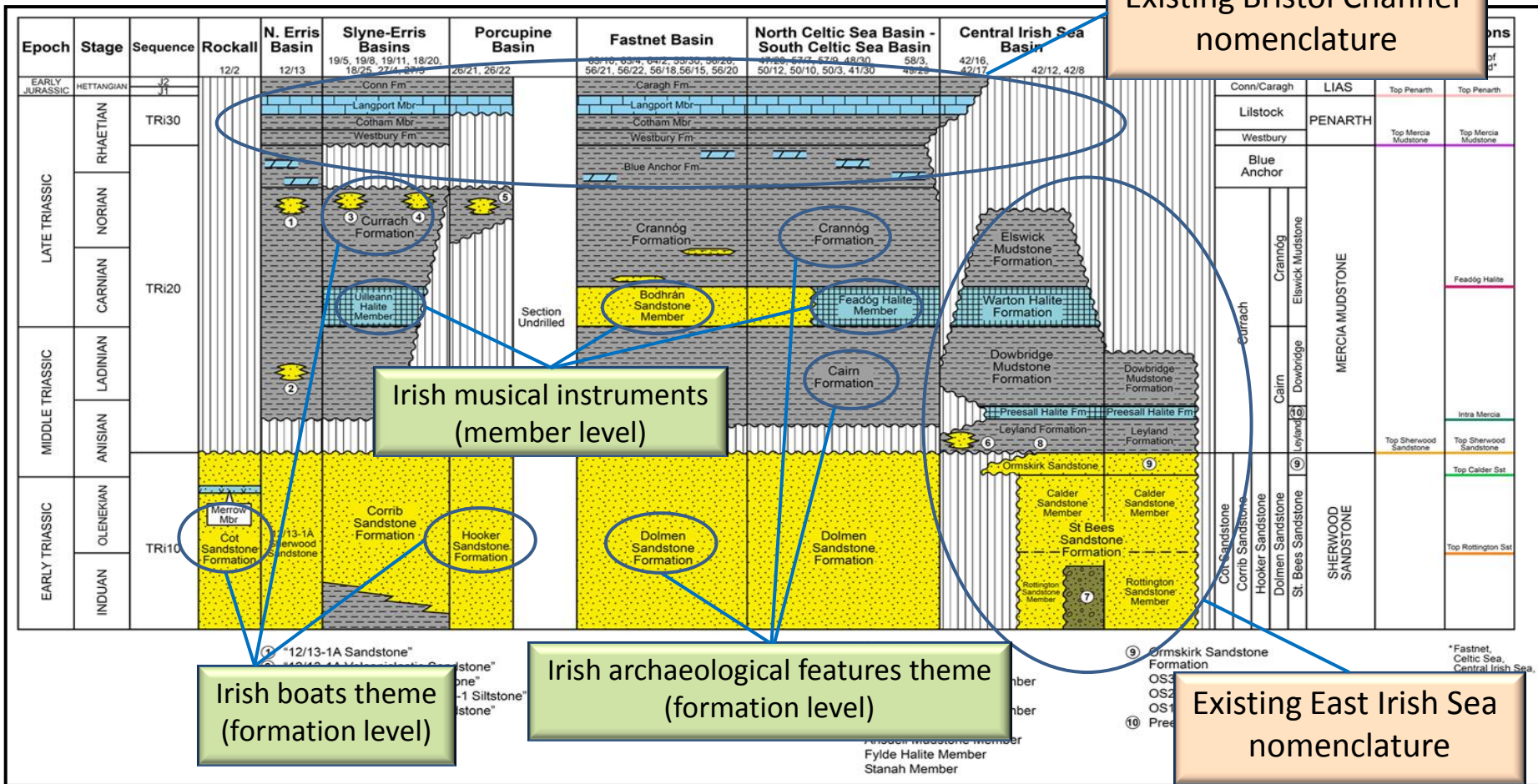


Irish Offshore Stratigraphic Nomenclature Themes

Neogene & Quaternary	Irish artefacts/jewellery
Paleogene	Irish Bays
Upper Cretaceous	Fish (Irish names)
Lower Cretaceous	Fish (fresh water for Celtic Sea; salt water for West of Ireland)
Upper Jurassic	Irish coastal features
Middle Jurassic	Native Irish birds
Lower Jurassic	Hebrides and south of England nomenclature where proven, otherwise Irish lakes
Triassic	Historical and archaeological features and musical instruments for west of Ireland and Celtic Sea basins; UK nomenclature for Irish Sea basins
Permian:	UK nomenclature
Upper Carboniferous	Native Irish plants
Lower Carboniferous	Sea shells
Devonian	Irish colours/translations of key features
Igneous strata	Irish underworld folklore



Triassic





Lias Group (Lower Jurassic)

Stage	Sequence	Erris Basin (12/13)	Slyne Basin				Porcupine Basin 26/21, 26/22	Goban Spur Basin 62/7	Fastnet Basin				South Celtic Sea Basin (49/29, 58/3)	North Celtic Sea Basin				Central Irish Sea Basin 42/17-1A	Formation		Group	Seismic Horizons	
			19/8	19/11	18/20, 18/25, 27/4	27/13	26/21, 26/22	62/7	Q63, 64, 56, & 55				Q47, Q48 (49/29, 58/3)	Q47, Q48	Q49	50/10	50/2, 50/3, 41/30, 42/21	42/17-1A	West of Ireland	S & E of Ireland		West of Ireland	South & East of Ireland
AALENIAN	Early	J22	Dun Caan Shale Formation					Tacumshin Formation	Tacumshin Formation					Tacumshin Formation				Tacumshin Formation	Harrier	Tacumshin	LIAS		Adrian (Top Lias)
	Late																						
TOARCIAN	Late	J18	Derg Mbr.					Whitby Mudst Fm	Whitby Mudstone Formation					Whitby Mudstone Formation				Whitby Mudstone Formation		Tacumshin			Toarcian (Whitby Mudstone)
	Early	J17	Ree Mbr.						Holau Member										Whitby Mudstone	Whitby Mudstone			
PLIENSBAICHIAN	Late	J16	Allua Mbr.						Whitewood Mbr.									Whitewood Mbr.				Top Plensbachian (Top Pabay)	Top Plensbachian (Top Pabay)
		J14	Barnahallia Mbr.																				
	Early	J13	Ardra Mbr.					Pabay Shale Fm	Pabay Shale Formation					Pabay Shale Fm				Pabay Shale Formation	Pabay Shale	Pabay Shale			
		J12	Poulamuck Mbr.																				
SINEMURIAN	Late	J6	Neaskan Member					Glenbeg Fm	Gara Mbr.									Loughbaun Sst Mbr	Inagh			Top Sinemurian (Top Glenbeg)	Top Sinemurian (Top Glenbeg)
		J4	Hollywood Member						64/2					Glenbeg Fm				Glenbeg Fm		Glenbeg		Upper Sinemurian (Top Meelagh)	Upper Sinemurian (Top Meelagh)
	Early	J3	Glennaua Member						Glenbeg Fm					Glenbeg Fm									
			Arroo Member																				
HETTANGIAN			Lackagh Member																				
			Easky Member																				
			Emo Member																				
			Mullagh Member																				
		J1	Conn Formation																Conn	Caragh			

Complex and detailed; existing UK and new (Irish lakes theme) at formation and member level
Lake names mostly chosen from 4502 entries on OSI listing.

Lias Group (Lower Jurassic) - Irish lakes theme

Previous Unit names

New Formation names

New Member names

Celtic Sea – Fastnet Basin

Toarcian-Aalenian

Portree Shale

Pabay Shale

Liassic Sandstone

Liassic Marl

Liassic Limestone

Basal Liassic Claystone

Tacumshin Formation

Whitby Mudstone Formation

Pabay Shale Formation

Glenbeg Formation

Currane Formation

Leane Formation

Gill Formation

Blue Lias Formation

Caragh Formation

Holaun Member

Whitewood Member

Loughbaun Member

Gara Member

Roosky Member

Uragh Member

Corfad Member

Allua Member

Barnahallia Member

Ardra Member

Poulnamuck Member

Adoon Member

Neaskin Member

Inniscarra Member

Hollywood Member

Glennaun Member

Aroo Member

Lackagh Member

Easkey Member

Emo Member

Mullagh Member

Moanmore Member

Slyne, Erris, Porcupine

Dun Caan Shale

Portree Shale

Pabay Shale

Upper Broadford Beds

Broadford Beds

Basal Liassic Claystone

Dun Caan Shale Formation

Whitby Mudstone Formation

Pabay Shale Formation

Inagh Formation

Meelagh Formation

Conn Formation

Middle Jurassic

Irish birds theme

**Hierarchy of Groups, Formations, Members reflect
order of food chain**

Celtic Sea – Fastnet

Eagle Group (Bajocian-Callovian)

Previous Unit names

Late Bathonian Limestone
Fullers Earth
Bajocian Claystone



New Formation names

Peregrine Formation
Merlin Formation
Sparrowhawk Formation

Previous Unit names

Late Bathonian Claystone
Fullers Earth Lmst Bed
Bajocian Sandstone



New Member names

Curlew Member
Chiffchaff Limestone Member
Chough Sandstone Member

Kite Group (Bajocian)

Slyne, Erris, Porcupine

Previous Unit names

Bearreraig Formation
Udairn Formation

New Formation names

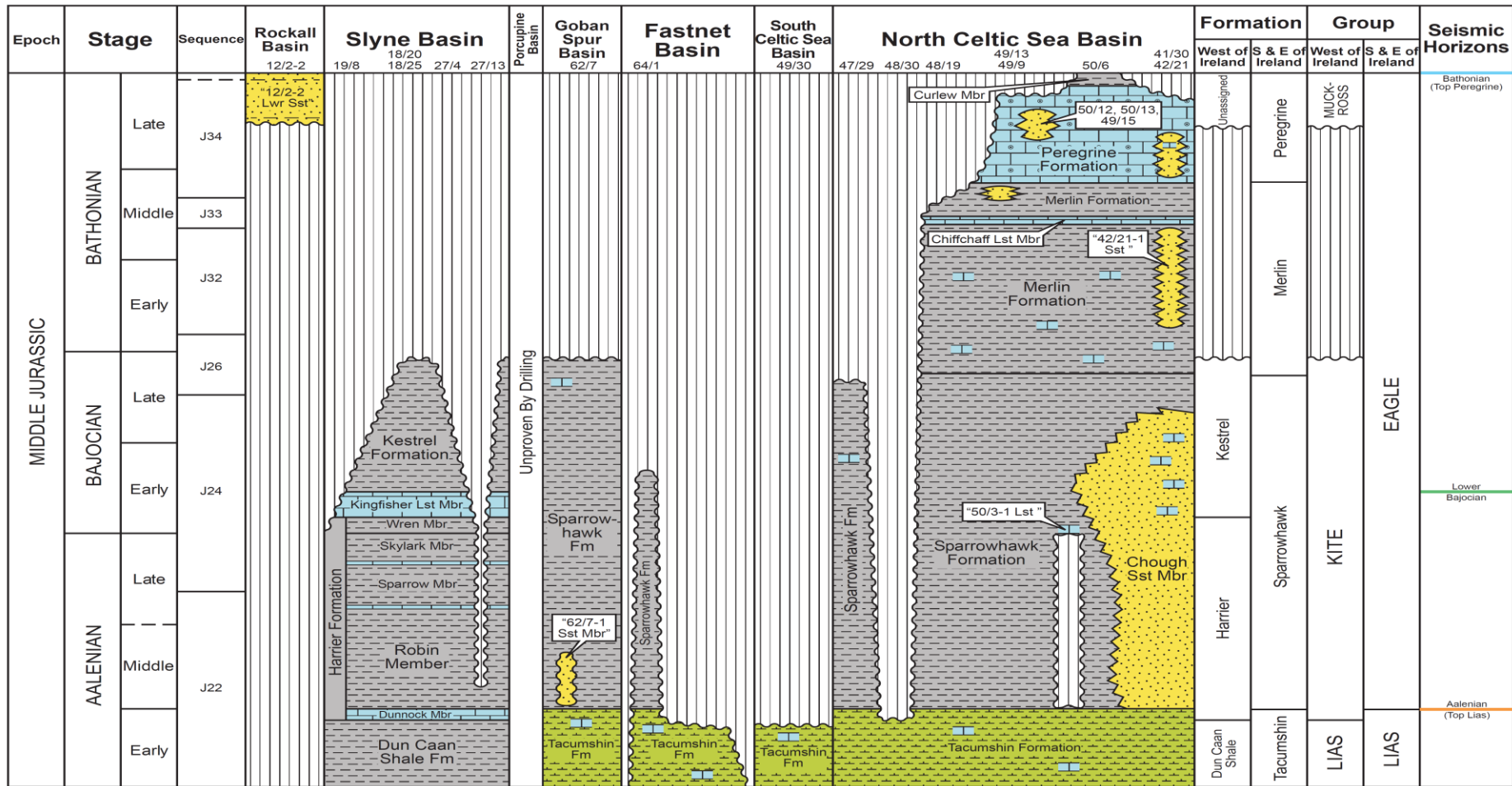
Kestrel Formation
Harrier Formation

New Member names

Kingfisher Limestone Member
Wren Member
Skylark Member
Sparrow Member
Robin Member
Dunnock Member

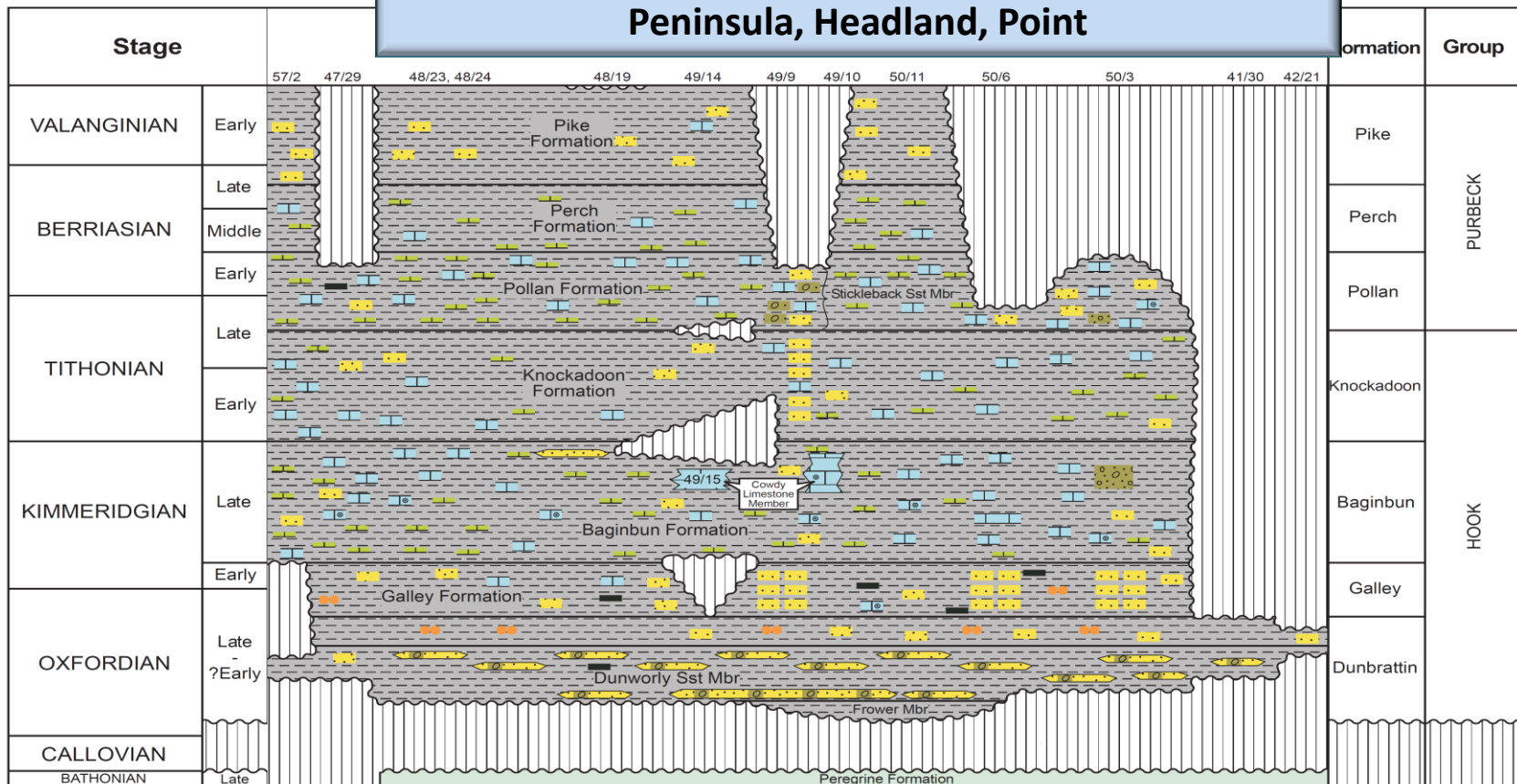


Middle Jurassic - Irish birds theme



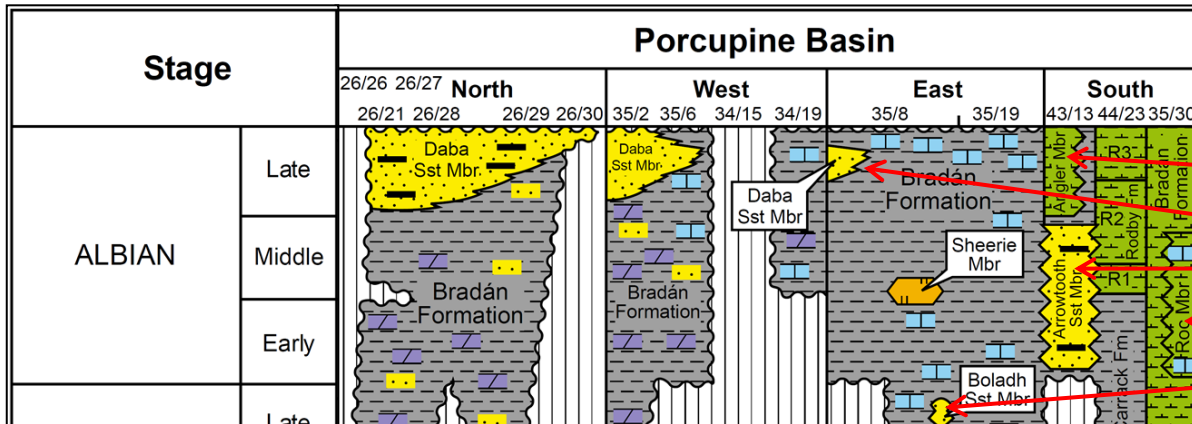
Upper Jurassic - Coastal features theme

Groups, Formations, Members follow hierarchy of Peninsula, Headland, Point





Lower Cretaceous - Fish theme



Bradán (*Salmon*) Formation

ANgler Member

Daba Sandstone Member (*Dab*)

Arrowtooth Sandstone Member

Roc Member (*Ray*)

Boladh Sandstone Member (*Smelt*)



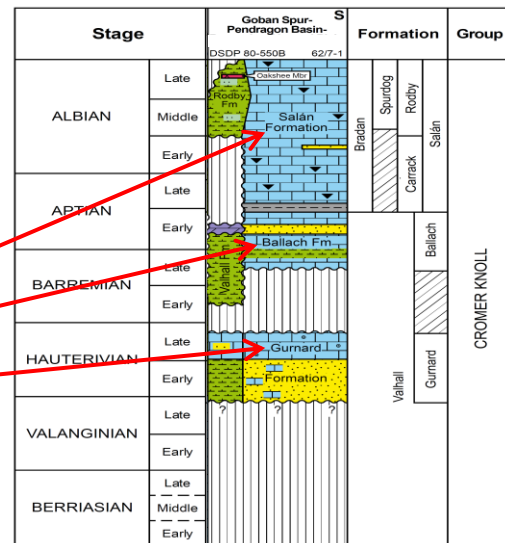
Salmon of Knowledge (An Bradán Feasa)
Irish Legend

Goban Spur (GBS)

Salán Formation (*Sprat*)

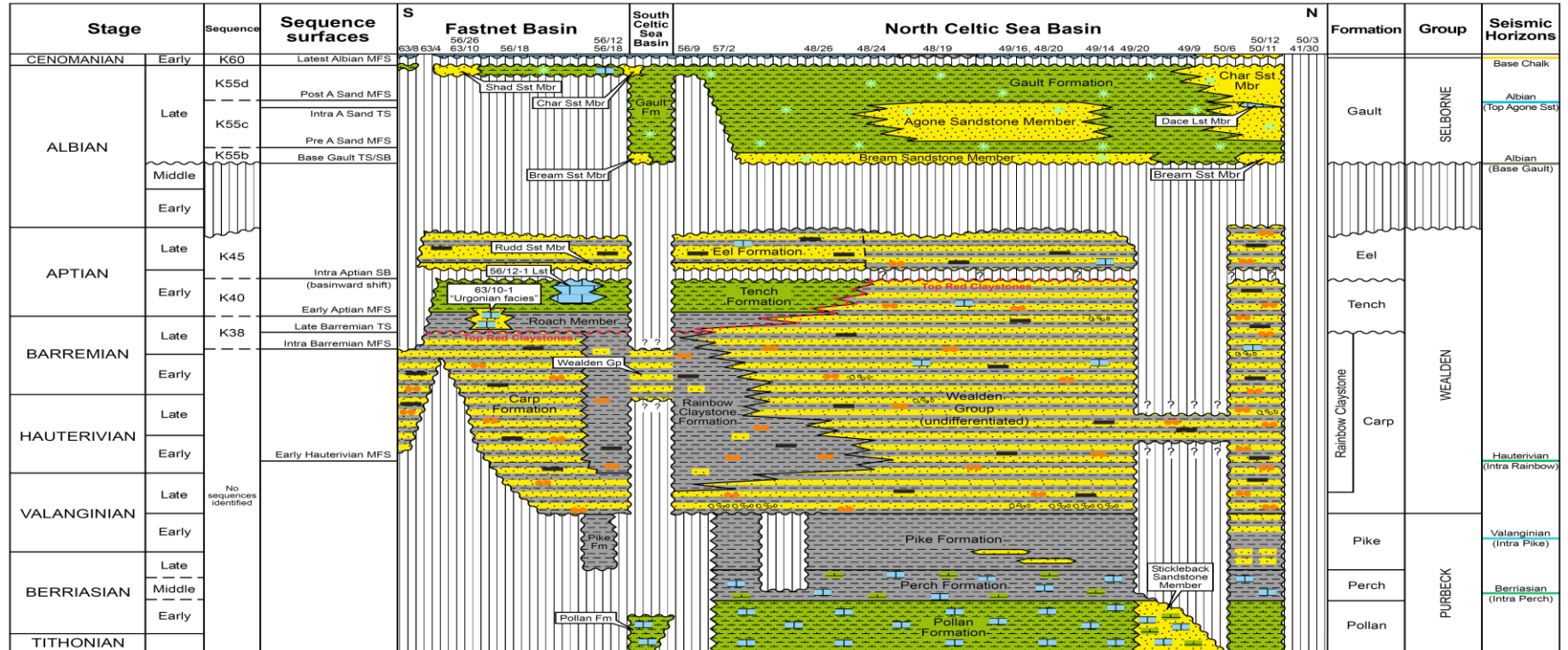
Ballach Formation (*Wrasse*)

Gurnard Formation



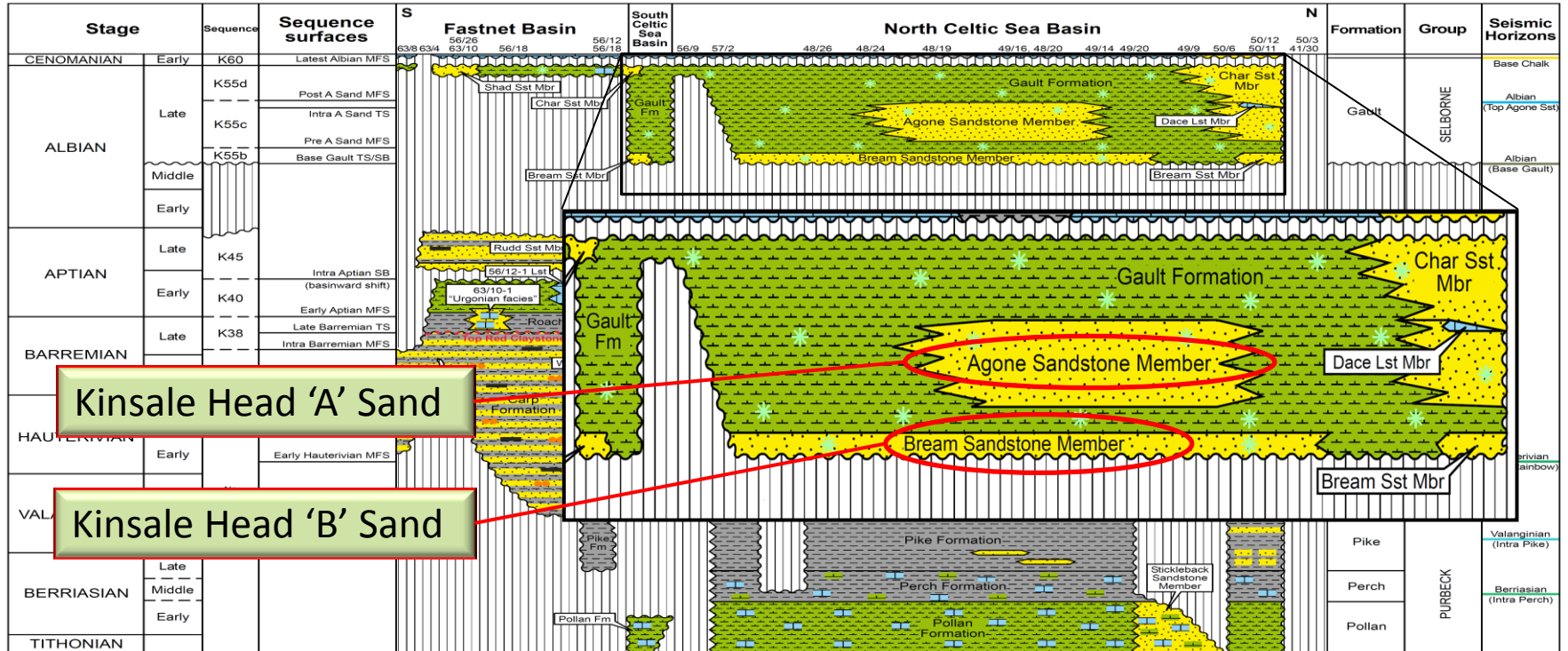
Lower Cretaceous Fish theme

Freshwater fish found in Ireland (English names) for Lower Cretaceous of Celtic Sea



Lower Cretaceous Fish theme

Freshwater fish found in Ireland (English names) for
Lower Cretaceous of Celtic Sea



Igneous strata - Irish Underworld Folklore

This theme is kept throughout, regardless of age

A fairy child left in place of a human child stolen by the fairies. Belief in changelings endured in parts of Ireland until as late as 1895, when Bridget Cleary was killed by her husband who believed her to be a changeling.

Direct descendants of Noah, they arrived to Ireland from over the ocean. A **warlike pirate race** - gigantic, deformed, extremely cruel people, they were associated with the powers of evil.



Half human, half-fairy they resemble a very small elderly man, covered in coarse, dense reddish hair or fur. They have the power of invisibility.



Changeling Member
Fomórach Member
Grogoch Member
Oakshee Member
Selkie Member
Sheerie Member

Tree fairies. If the unwary inflict harm on a fairy tree they are capable of severe retribution, e.g., poverty, illness.

Shape shifters who are seals in the water but become human on land. The husband or wife of a Selkie may hide away their seal skins, but once the hiding place is discovered, the Selkie cannot resist and slides back into their skin to depart back to the sea, leaving behind any children.



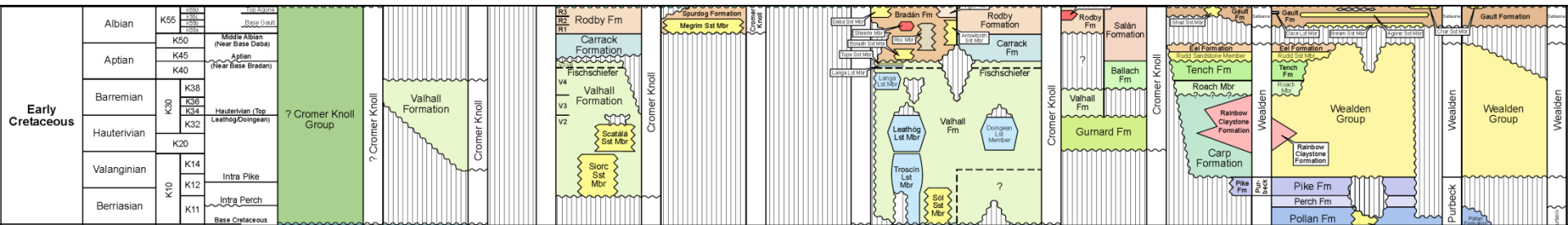
Sheerie are the souls of unbaptized children and combine elements of fairy and human nature. They tend to be very angry toward humans. They emit a mewing sort of sound.

Irish Offshore Stratigraphic Nomenclature Themes

Neogene & Quaternary	Irish artefacts/jewellery
Paleogene	Irish Bays
Upper Cretaceous	Fish (Irish names)
Lower Cretaceous	Fish (fresh water for Celtic Sea; salt water for West of Ireland)
Upper Jurassic	Irish coastal features
Middle Jurassic	Native Irish birds
Lower Jurassic	Hebrides and south of England nomenclature where proven, otherwise Irish lakes
Triassic	Historical and archaeological features and musical instruments for west of Ireland and Celtic Sea basins; UK nomenclature for Irish Sea basins
Permian:	UK nomenclature
Upper Carboniferous	Native Irish plants
Lower Carboniferous	Sea shells
Devonian	Irish colours/translations of key features
Igneous strata	Irish underworld folklore

Naming in the Future

- The new Stratigraphic Framework should be used **in all future work programmes and publications**.
- When a **new rock unit** is proposed for the Framework, supporting evidence, stratigraphic position & distribution will be sent to the PAD for assessment.
- If approved, the PAD will assign the appropriate classification and name.
- New rock unit names proposed in research** must also be approved by the PAD prior to publishing, for inclusion in updated versions of the Framework.
- The stratigraphic chart will be **updated as necessary**, guided by availability of new released data (e.g. well data are released after 4 years).



Acknowledgements



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

The Standard Stratigraphic Nomenclature of Offshore Ireland: *An Integrated Lithostratigraphic, Biostratigraphic and Sequence Stratigraphic Framework*

Prepared by **Merlin Energy Consortium** and funded by the **Irish Shelf Petroleum Studies Group**



PALAEODATE LTD
DUNFORD EXPLORATION LTD

RILEY GEOSCIENCE LTD



With contributions from members of **PIP**, **Stratigraphic Committee of Offshore Ireland**, and **Irish geological community**:

Steering Committee members

Kara English (PAD)
Michael Hanrahan (PAD)
Clare Morgan (PAD)
Paul Gannon (Cairn Energy)
Annemarie Smyth (Providence Resources)
Keith Byrne (Providence Resources)
David Hulks (Equinor)
Adam Sultan (Equinor)
Chris Leppard (Equinor)
Simon Haynes (Equinor)
Karla Kane (Equinor)
Catherine Allsop (Equinor)
Richard England (Woodside)
Andrew McCarthy (Woodside)

Stratigraphic Committee Members

Professor Patrick Shannon
Dr Phil Copestake
Dr Nigel Ainsworth
Dr Kara English
Michael Hanrahan
Clare Morgan
Professor Peter Haughton
Professor George Sevastopulo
Dr David Naylor
Dr Shane Tyrrell
Dr Anthony Doré

PIP Secretariat

Nick O'Neill, Project Manager
Martin Davies, Project Coordinator
Lloyd Vaz
Alice Mitchinson



Additional Thanks :

iCRAG energy security spoke
Dr Martyn Stoker
Professor Stephen Daly
Dr Stephen McCarron
Professor Peter Coxon
Katie Hernon
Oonagh O'Loughlin
Darren Wallace

Paleolab Ltd.
Rockwash Ltd.
Geological Survey of Ireland
British Geological Survey
Nick Boldy
John O'Brien
Mojibola Aramide
Niamh Walsh
Graham Pritchard