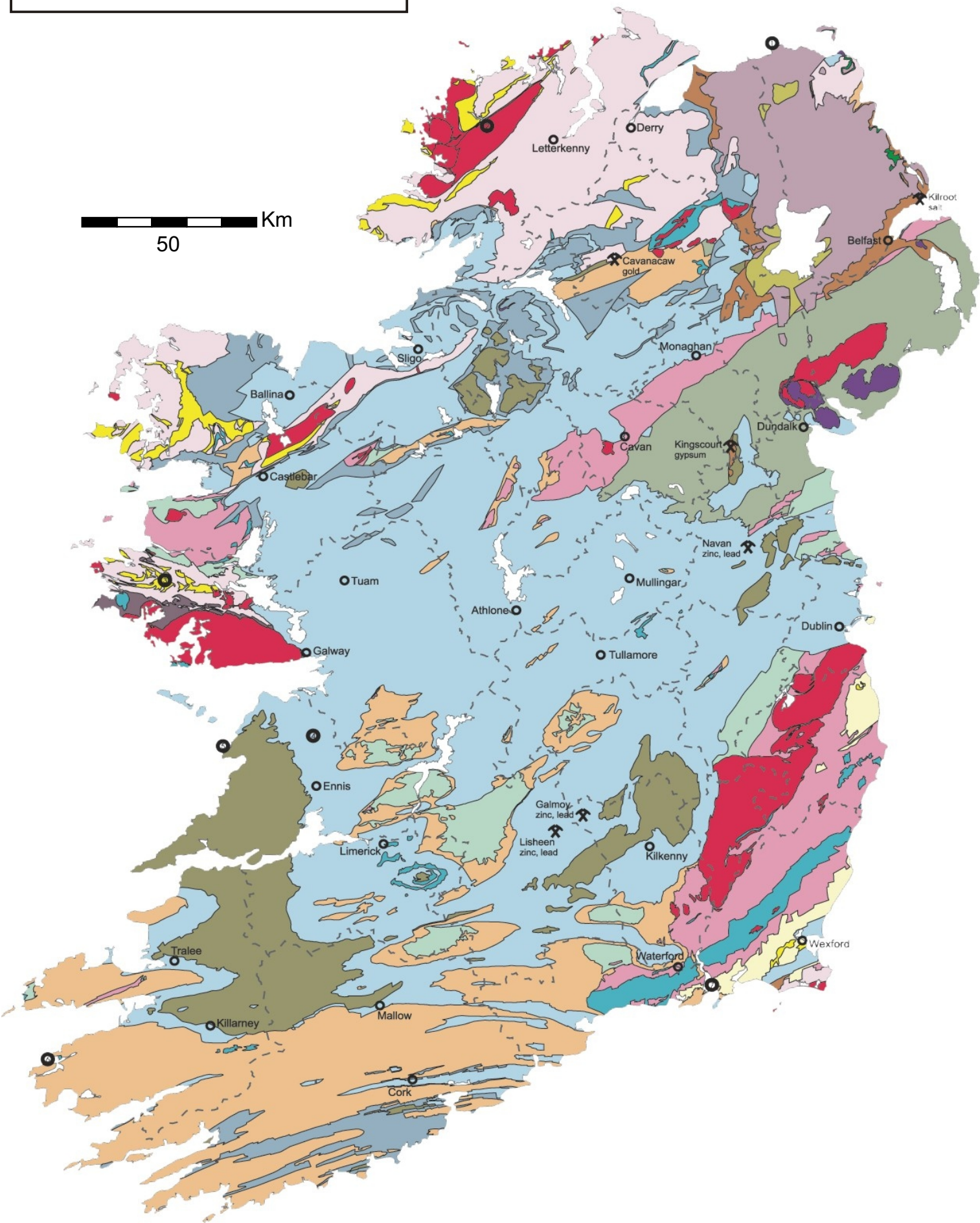
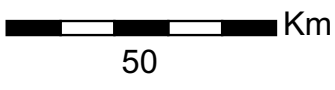






















Bedrock Geology of Ireland

Simplified from the Geological Survey of Ireland 1:100,000 scale Bedrock Map Series (1993 - 2003) and the Geological Survey of Northern Ireland 1:250,000 scale Geological Map of Northern Ireland (1997).

Geological Survey of Ireland 2004

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ERA	AGE	PERIOD	MAP COLOUR	MAIN ROCK TYPES	ENVIRONMENTS	TECTONIC EVENTS
CENOZOIC	1.8	Quaternary*			Ice Age: Ireland covered and shaped by ice.	North Atlantic rifting: Greenland separates from Europe as Atlantic rift extends northwards.
		Tertiary		Clay	Lake & swamp: Mid-Tertiary clays and lignite deposited in large lake (the precursor to L. Neagh).	
	65			Basalt	Volcanoes: Vast amounts of basalt lava flood NE Ireland during Early Tertiary.	
MEZOZOIC		Cretaceous		Chalk	Shallow 'Chalk sea': Ireland is land area for much of time. Pure limestone deposited in late Cretaceous shallow sea, probably over whole of Ireland.	Early Atlantic rifting: American & European Plates begin to separate, forming Atlantic ocean between.
	144					
		Jurassic			Sea basins: Mud and limestone deposited in early Jurassic shallow sea in NE, while rest of Ireland is land. Thick accumulations of sediment as today's offshore basins form.	
	203			Shale & limestone		
PALAEOZOIC		Triassic			Desert: Red sandstone formed in arid desert dunes and playa lakes. Evaporite (salt & gypsum) in hypersaline lakes.	Extension: Marine basins around Ireland formed by stretching of the continental crust.
	250			Sandstone 'New Red Sandstone'		
		Permian			River deltas & swamps: Sand and mud deposited in large river delta systems advancing into sea. Coal formed in hot swamps.	Variscan Orogeny: Minor effects in Ireland of mountain building in Central Europe.
	298			Sandstone & shale		
		Carboniferous		Limestone	Tropical sea: Limestones deposited in warm tropical sea.	Advancing sea: Sand and mud deposited in shallow sea advancing from south to north over eroded Devonian mountains.
	354			Sandstone & shale		
		Devonian		Sandstone 'Old Red Sandstone'	Mountains & rivers: Red sand and mud deposited among semi-arid mountains by large river systems. Subsiding basin in SW receives vast thickness of sediment.	Acadian Orogeny: Mountain building as Iapetus finally closes, joining NW and SE halves of Ireland.
	410			Sandstone & shale		
		Silurian		Sandstone & shale	Ocean basin: Sand and mud deposited in narrow ocean basin and continental margins as Iapetus closes.	Grampian Orogeny: Mountain building and metamorphism in NW as volcanic arc collides with continental margin when Iapetus begins to close.
	440			Sandstone & shale		
	Ordovician		Shale & sandstone	Ocean depths & Ring of Fire: Sand and mud deposited in deep ocean by turbidity currents. Ring of volcanoes around ocean formed above subduction zones	Iapetus ocean opens: Ancient continents rift apart to form Iapetus ocean crust between.	
495			Basalt & rhyolite in above			
	Cambrian		Sandstone, slate & quartzite	Shelf sea: Sedimentary rocks deposited on continental shelf in SE.	Cadomian Orogeny: Metamorphism of oldest rocks in the SE. Grenvillian Orogeny: Mountain building and metamorphism of oldest rocks in the NW.	
545			Sandstone, slate & quartzite			
PRECAMBRIAN*				Schist, gneiss & quartzite	Ancient continents: Ireland's oldest rocks formed 1800-1900 million years ago as igneous intrusions; metamorphosed to gneiss by Grenville mountain building. Sedimentary rocks (Dalradian), including deposits of global ice age, formed at rifting continental margin in NW.	

* Precambrian and Quaternary not to scale

IGNEOUS ROCKS

 Basalt, minor rhyolite - Tertiary

 Granite & gabbro - Tertiary

 Granite - Ordovician to Devonian

 Gabbro & related rocks - Ordovician

Intrusions

 Gap in geological record (no rocks preserved)

 Working mine or pit