

# The Magical Mourne Mountains

Climate and Water





# Climate

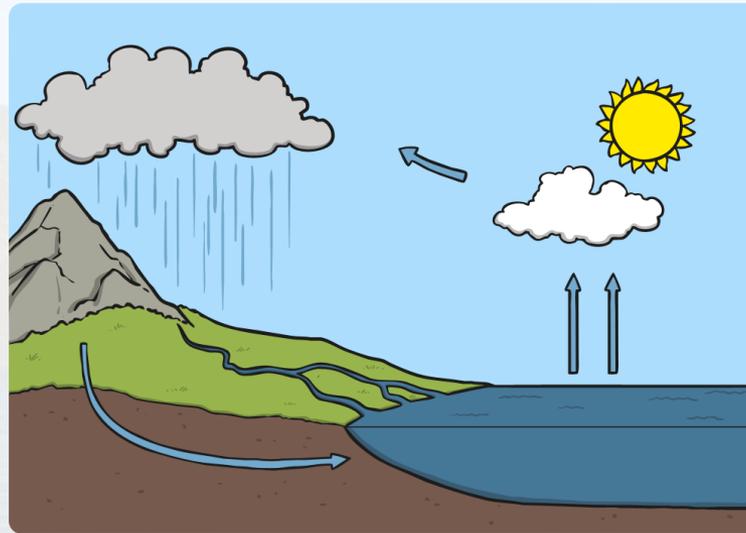
The type of weather that a place usually has is called its climate. The climate of the Mourne is described as temperate, which can mean warm, damp summers and mild, wet winters.

The climate of the Mourne area is important because it affects plants, animals and people. In the higher parts of the Mourne the most common weather is cold and windy. High areas are more exposed to wind and rain, whereas further down the mountains and around the coast, the temperature is usually a little warmer.



# Climate

Mountains play a part in the formation of clouds and rain. Often, when you see an illustration of the water cycle, it will include mountains. When tiny drops of water that are in the air are carried up to the colder peaks of the mountains, the moisture in the air turns to water droplets and forms clouds. These droplets can then fall as rain, or if it is cold enough, as snow. This is why snow often appears on the tops of the Mourne and other mountains before it snows on lower ground.



# The Water Cycle in Action

If the water droplets have become heavy enough to fall as rain, they are channelled into the small streams on the mountain. These streams lead to bigger streams, which join rivers until they finally reach the coast and the sea.

We can see the water cycle in action in the Mourne area. The Mourne Mountains are a really important link in the chain that brings the water to the taps of many households in Northern Ireland. The Silent and Annalong Valleys provide about 400,000 people with up to 30 million gallons (130 million litres) of water each day.



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# Rainfall and Reservoirs



The average rainfall on summits over 650m, is 2000 millimetres (mm) each year.

At sea level, rainfall is about 1300mm.

At Murlough National Nature Reserve, on the coast, the average rainfall is only 750mm.

The Mourne Area of Outstanding Natural Beauty contains five reservoirs. They are Silent Valley, Ben Crom, Spelga Dam, Fofannybane and Lough Island Reavey.

# Where to Find Water

Over 120 years ago, The Belfast Water Commissioners were looking for a solution to a local problem. As the city of Belfast continued to grow, they needed a new source of water to meet future demand.



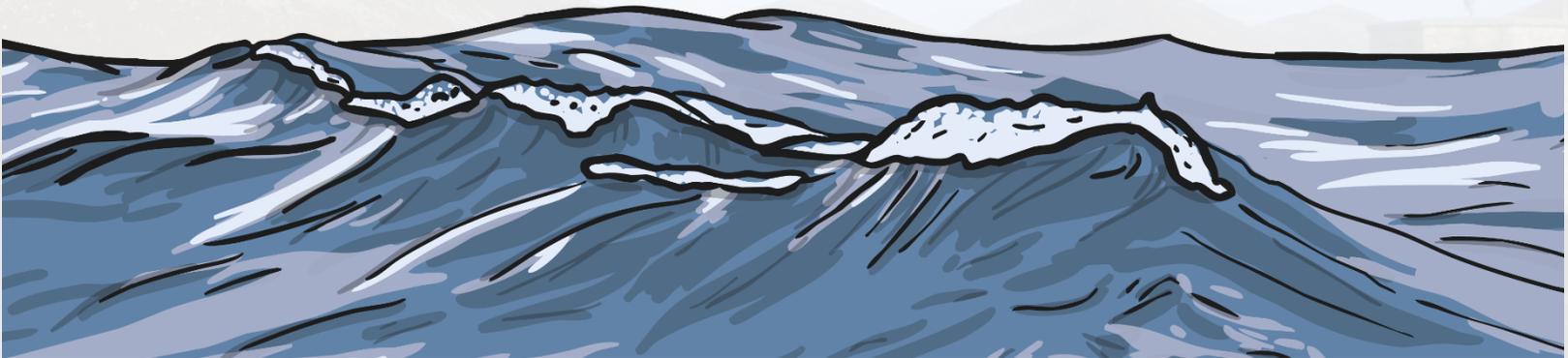
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# Where to Find Water

A Consultant Civil Engineer, Mr Luke Livingston Macassey, was asked to come up with a plan. He thought that the solution to the water problem lay within the Mourne and recommended that a storage reservoir be built in the Silent Valley.

This reservoir would be fed by the Kilkeel and Annalong Rivers. He felt that the High Mourne were a great choice because the area wasn't densely populated and it was free from pollution so the water was pure.

The area around the Silent Valley had about 70 inches of rain per year.

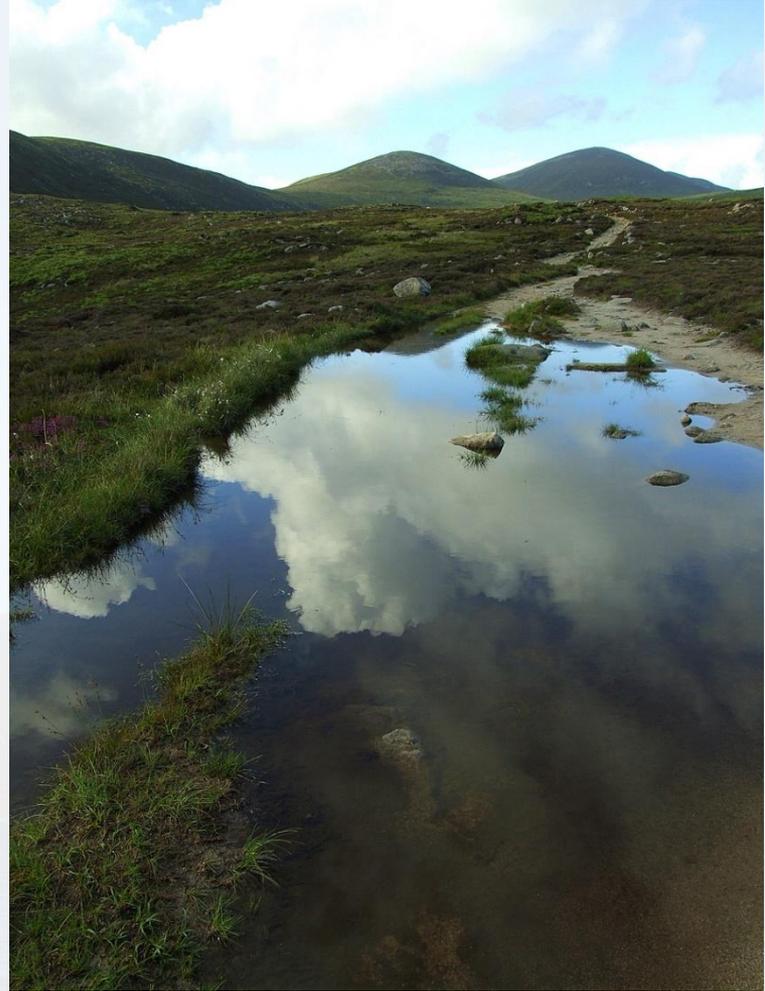


# The Project Begins

In order to create a reservoir, rivers had to be dammed or diverted so that water could be channelled into it.

Water would be gathered from all around the High Mourne and fed to the Silent Valley.

If pipes were laid, then the water could run from high in the Mourne down towards Belfast.



# The Project Begins

A huge project began. The first step was to divert water from the Kilkeel and Annalong Rivers, then transport it through the pipes to a new reservoir at Knockbracken (near Carryduff). This reservoir could store 100 million gallons of water from the Mournes.

To make a 'water catchment area' within the mountains, 9000 acres of land were purchased, and in 1904 work started on a big wall to mark the boundaries of this land. This would become the famous Mourne Wall.



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# Water Wall

The Mourne Wall is a listed monument. It is a stone wall that runs over 15 mountains in the Mournes and is 22 miles long. It marks the boundary of the 9000 acres of land. It took 18 years to build. Many skilled men were employed to make it. It is about three metres high and one metre across. It began and ended at Silent Valley.



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# Water Wall

During the years when it was being constructed, men were only employed to work on it between April and October. Why do you think that was?

If the wall took 18 years to complete and construction began in 1904, in what year was it finished?

On top of three of the mountains, Slieve Donard, Slieve Commedagh and Slieve Meelmore, there are stone towers built within the wall. The tower on Slieve Donard was built in 1910, Slieve Commedagh in 1913 and Slieve Meelmore in 1921.



# Building the Dam

The next stage of the plan was to build an earth-filled dam at Silent Valley, across the Kilkeel River.

This project began in 1923. The usually quiet and peaceful area became very busy for the next decade, as many workers came to help construct the dam.

A town even sprung up where hundreds of the workers could stay. The town was known as Watertown. It even had its own small hospital, shops and a police station. Watertown also had the first street lights anywhere in Ireland.

There was a railway to bring workers and materials from Annalong to the dam.



# Under Pressure!

The work was not easy at the dam. Sadly, eight workers were killed during the ten years it took to construct.

Labourers had to dig very far down to create a 'cut-off trench' at the dam. This was to stop water in the ground from seeping in under the dam and to stop water pressure from moving it.

When the workers dug into the ground, there was lots of wet, unstable silt, gravel and boulders, so they had to keep digging to reach the bedrock (base or foundation rock).

Compressed air had to be used to allow the men to dig the trench (air under pressure). Work had to be done under this pressure to try and stop water flooding the excavations.

# Under Pressure!

To work on the trench, men had to go into a special airlock, named 'The Gazoon' so they would not suffer from 'the bends' when they came back from the depths to the surface.

'The bends' is a sickness caused when people move too quickly from a place where a lot of pressure is pushing on them (for example divers far under the sea) to a place with normal pressure.

To make sure you don't get sick, you have to go through the change in pressure slowly and carefully. People had to be very fit and strong to be able to cope with this work.



# A Tremendous Tunnel

Imagine a tunnel going right through a mountain. Well, there is one through Binnian in the Mourne!

The Binnian Tunnel had to be built to divert water from the Annalong river to Silent Valley.

It took four years to complete and went through Binnian Mountain. It was made using drills and chisels.

There was no modern technology like there would be today.

# A Tremendous Tunnel

One group worked from the Silent Valley side of the mountain, another from the Annalong side. When they eventually met in the middle of the mountain, 800m under its summit, they were only 5cm apart! How many millimetres is that?

The tunnel is nearly 4km long. How many metres is that?

It is about 2m high. How many centimetres is that?

It is 2.4m wide. How many millimetres is that?

The tunnel can carry up to 90 million gallons (409 million litres) of water into the Silent Valley every day.



# Ben Crom Reservoir

In 1954, work began under the summit of Ben Crom on another reservoir. It was felt this would also be needed as the populations of Belfast and other towns in County Down grew. This reservoir took three years to complete. It was founded on solid rock. The dam was made up of concrete so was different to the earth and rock dam at Silent Valley.



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# Silent Valley Memorial Plaque

Eight men lost their lives during the construction of Silent Valley and one man died during the creation of the Ben Crom reservoir. Their names were:

Jimmy Baines

Hugh Quinn

Jim Moore (Ben Crom)

Sam Cooke

William Forsythe

John Cousins

Michael (Mick) Synnott

George Phillips

John Murphy

Mick Synnott saved another man's life in 1925 by pushing him out of the way when the steam crane Mick was driving, overturned. Mick died in the accident. John Murphy was only 18 when he was killed in 1929, when a tunnel collapsed.

On 22 May, 2006, the Water Service of Northern Ireland unveiled a plaque set into a piece of Mourne granite to commemorate all those who died. They also planted nine trees for them in the Silent Valley.



# Silent Valley Today

There is now a Silent Valley Mountain Park that people can visit and enjoy. It is administered by Northern Ireland Water. Visitors can see the reservoir and can even climb the 260 steps up to view Ben Crom reservoir too. In the summer months, a shuttle bus runs between the two reservoirs. Many schools go to the park to learn more about the history of water in the Mourne and the engineering it required to solve the water problem. There is also beautiful scenery, a play park, woodland and hill walks for families and visitors to enjoy.

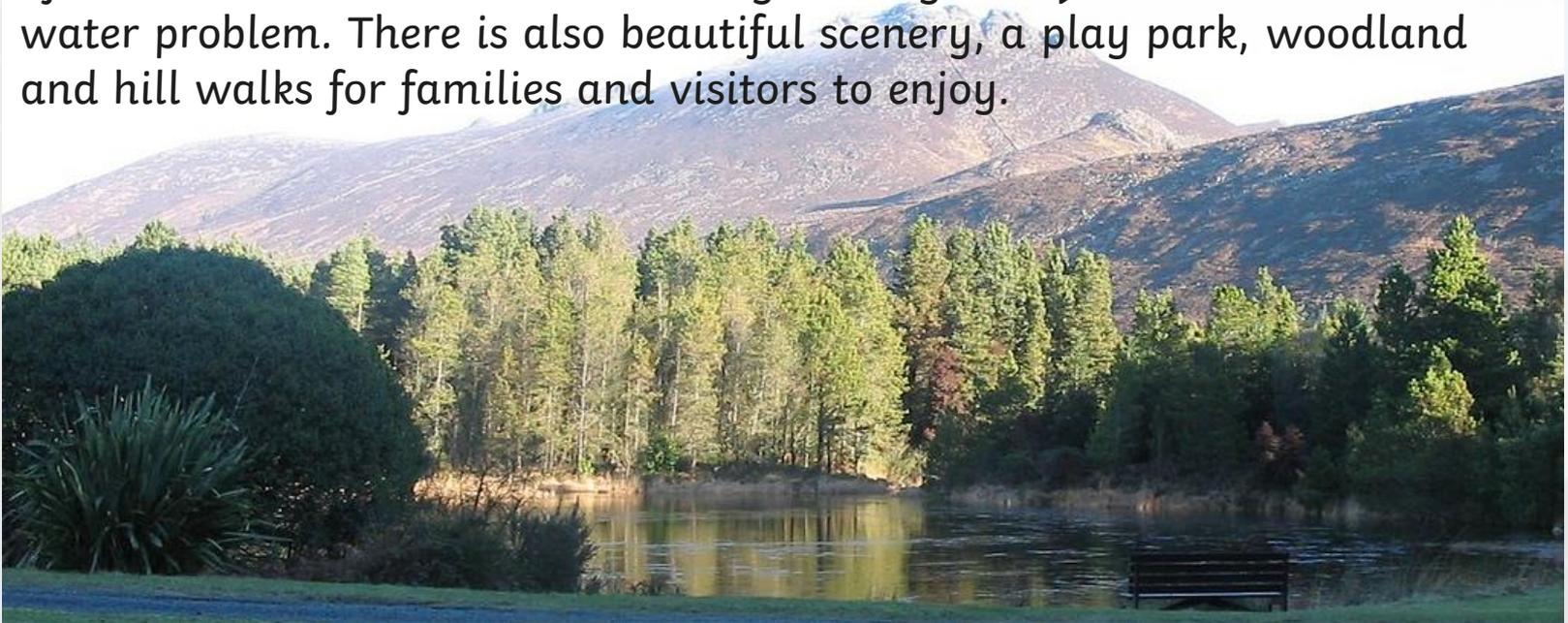


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