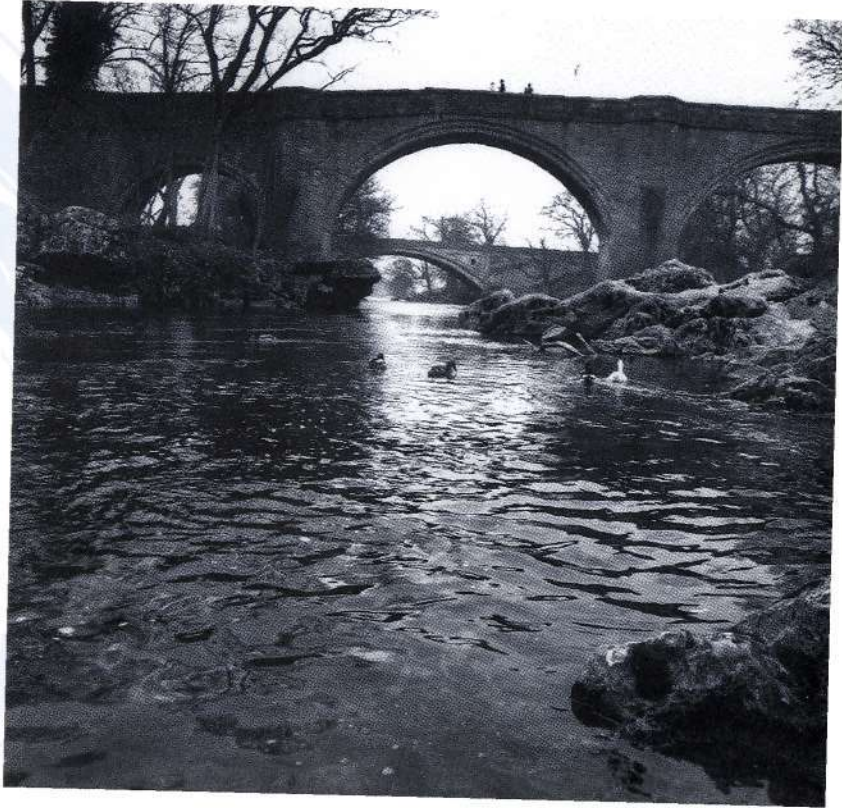


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# THE RIVER LUNE



*fact file*



**NRA**

*National Rivers Authority  
North West Region*

## THE RIVER LUNE

The River Lune rises high on Ravenstonedale Common in Cumbria at an altitude of 540 metres and flows westward from Newbiggin-on-Lune before turning south at Tebay. It finally enters the Irish Sea, south of Lancaster, some 105 kilometres from its source.

It is one of the largest rivers in the north west of England draining a catchment area of 1,223 square kilometres.



*"Ruskins View", Kirby Lonsdale.*

## PURE WATERS

The Lune is one of the best salmon rivers in the country and is a class 1 river (good/excellent water quality) for the whole of its length. There are, however, some polluted tributaries in the urban areas.

The catchment provides a diverse supply of water, for agricultural use to the north and industrial use in the lower reaches at Caton and Lancaster, due to its consistently high quality.

The Lune's main use is as an important source of drinking water supplying parts of Lancaster. It also supports supplies to the Fylde Coast and the Greater Manchester conurbation via the transfer of water from the river at Halton to the River Wyre, where abstraction takes place. Water from the Estuary of Heysham Lake is abstracted for cooling purposes at Heysham Power Station.

Nearly all abstractions need to be licensed. The licence says how much water can be taken and how often. It may not be granted at all if the taking of water would harm the environment or adversely affect other water users. The NRA ensures that the holders of water abstraction licences comply with the conditions of their licences.

## A TOURIST ATTRACTION

The area caters for a large number of tourists attracted by the small, picturesque villages and bustling market towns. Walking, camping and potholing are popular pastimes in the limestone areas of Ingleborough and the Yorkshire Dales National Park. Waterskiing, camping, canoeing, birdwatching and angling also attract enthusiasts to the area.

The lower reaches of the Lune have important recreational interests with adjacent footpaths, a cycleway and numerous picnic areas and viewpoints.

## PROTECTING WATER QUALITY

Although the Lune's water is of the highest quality, it is still under constant threat from pollution. NRA Pollution Control Officers work to prevent pollution from farms, industry, and Waste Water Treatment Works.

Agricultural effluents pose a particular threat to the Lune. For example, silage liquor (the liquid produced when farmers compress cut grass for winter feed) is around 300 times more polluting than raw sewage. Cattle slurry and milk are also highly polluting and pesticides from sheep dipping cause pollution at low concentrations.

Some farms in the Lune catchment stand on a permeable limestone bed. If silage liquor escapes into the rock, it can flow through the limestone polluting underground streams and springs several kilometres downstream from the source.

NRA staff work closely with farmers in the area to identify practical solutions to environmental problems. The NRA's aim is to prevent pollution. To this end, Pollution Control Officers working in rural areas have been trained in the many aspects of farm management and are aware of the demands placed on the farmer's time and resources.

The prosecution of farmers by the NRA following a pollution incident is a last resort.

The same is true for industry and Pollution Control staff aim to prevent, rather than cure, pollution.

One major role of the NRA is issuing "consents" - permission to discharge effluent within certain limits imposed by the NRA. Such limits are imposed on industrial discharges and sewage works alike. NRA staff constantly monitor discharges and can review the conditions of each consent every two years. If the consent limits are exceeded, the NRA can prosecute the offender. There are nearly 40 consented outfalls from Waste Water Treatment Works (WWTW). These include major discharges such as Lancaster WWTW and small rural systems serving individual villages. Most industrial wastes in the area drain to sewers for treatment, at WWTWs but 19 premises currently hold consents to discharge directly to the river. These include five separate fish farms/hatcheries. The NRA can also prosecute for one-off spillages or any discharges without consent.

*(Front page photograph: the Lune at Devil's Bridge, Kirkby Lonsdale).*

## RAINFALL & RIVER FLOWS

The Lune catchment is in a generally wet area of the country with high rainfall leading to a wide range of river flows. Annual rainfall varies from 2,160 mm at Borrowdale in the upper part of the river's catchment, to 960 mm in the estuary.

The NRA's river flow measuring station at Caton shows an average annual flow of 30 cubic metres per second. The lowest flow on record occurred during the drought of 1976 when a reading of just 1.2 cubic metres per second was recorded. The highest flow was recorded during March 1968, of 900 cubic metres per second!



*Skerton Weir.*

## FLOODING

The Lune is tidal to above the weir at Skerton. Only the coincidence of very high tides and fresh water flows can cause flooding by tidal waters. Incidentally, this can cause the intrusion of saline water into otherwise freshwater reaches.

The lower and middle reaches of the valley bottom are prone to flooding during winter months. However, these floods rise and fall quickly and the land affected is agricultural pastureland. The town of Lancaster can also be at risk from some flooding, when high tides coincide with strong onshore winds.

The worst flood in living memory was in August 1967. The rainfall on that occasion was of such intensity that it was classified as "extremely rare" by the Meteorological Office and was centred over the Forest of Bowland.

The worst affected tributaries of the Lune were the River Roeburn, Hindburn, Claughton Beck and Farleton Beck. The flood waters, charged with vast quantities of tree wreckage, debris, boulders and gravel, caused extensive damage to property, roads, weirs, public services, vehicles, livestock and farmland.

*The fish pass at Forge Weir.*

## BEATING THE FLOODS

The NRA maintains 3.3 kilometres of tidal defence embankment along the Lune estuary, to protect low-lying inland areas.

Sea defence embankments built from Sunderland Point to Overton on the North side and Pilling to Cockerham south of the estuary also protect inland areas from flooding by the sea. (Total length 23.2 Kms).

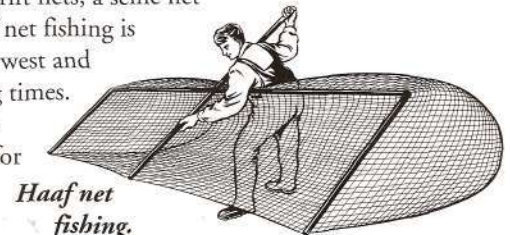
Maintenance works are constantly carried out by the NRA's Flood Defence staff in the never ending battle against floods. Control of riverbank vegetation and the removal of debris and silt deposits from the river bed and banks help to prevent localised flooding during high river flows.

The NRA also operates a sophisticated round-the-clock Flood Warning Service which monitors weather systems and gives warnings of tidal and river flooding to the Police. The Police, in turn, warn Local Authorities and the public of imminent flooding so that preparations, such as sandbagging and safe storage of valuables, can be carried out well in advance.

## PLENTIFUL FISHERIES

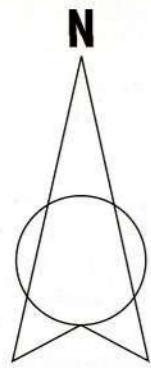
The Lune is noted for its salmon and sea trout runs although it also supports fisheries for brown trout throughout its length and for a variety of coarse fish in its lower reaches.

The river is almost unique in the north west of England in that it supports significant rod and line **and** commercial fisheries. The commercial fishery for salmon and sea trout involves the use of drift nets, a seine net and haaf nets. Haaf net fishing is unique to the north west and dates back to Viking times. There is also a small commercial fishery for eels in tidal and freshwaters.



Skerton Weir, whilst overtopped by the larger spring tides, is the effective tidal limit of the Lune. The Weir contains one of the largest fish passes in Europe.





WINDERMERE

C U M B

KENDAL

M6

Killington

Middleton

Mansergh

Barbon

Kearstwick

Kirkby Lonsdale

Whittington Newton

Arkholme

Carnforth

M6

Hornby

Halton

Caton

LANCASTER

Wray

High Bentham

Galgate

M6

L A N C A S H I R E

Tebay

RAVENSTONEDALE

Spring Source of The River Lune

Sedbergh

Cautley

River Lune

River Rawthey

River Clough

River Dee

Lea Yeat

Stone House

Deepdale

River Lune

Fish Hatchery

Casterton

Devil's Bridge

NORTH YORKSHIRE

River Greta

Burton-in-Lonsdale

Ingleton

Crook O Lune

River Lune

Forge Weir

River Wenning

River Hindburn

Arls Beck

Lawkland

MORECAMBE BAY

MORECAMBE

HEYSHAM

Power Station

Upper Limit For Seine Net Fishing

Upper Limit For Drift Net Fishing

Cockerham

Pilling

KEY

RIVER LUNE

SEA

LAKE

MOTORWAY

WEIR

FISHING LIMIT

COUNTY BOUNDARIES

URBAN AREAS

DAIRY FARMS

SHEEP FARMS

FISH FARMS OR HATCHERY

SPORT FISHING

CANOEING with landowners permission

BIRD LIFE

BEACH

FERRY

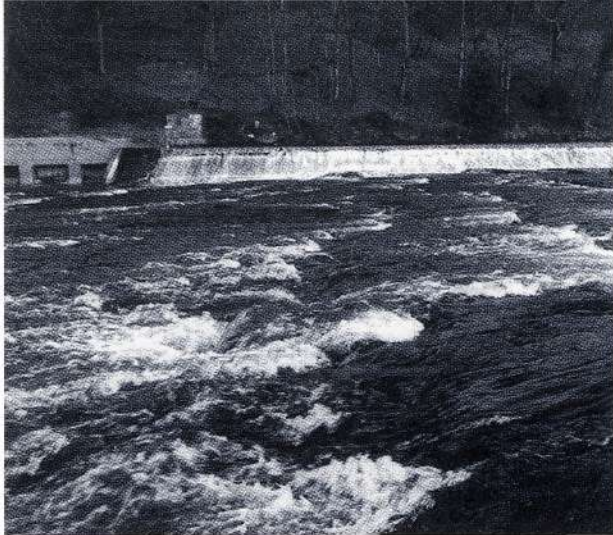
CAVES AND POTHoles

WATERFALLS

THE RIVER LUNE IS A CLASS 1 RIVER FOR THE WHOLE OF ITS LENGTH

- Class 1 rivers are of good quality. The water can be used for drinking and they are clean enough for fish like salmon and trout to live in. (Highly oxygenated).





*Forge Weir.*

The NRA operates two electronic fish counters on the river which provide information on the populations of migratory fish (salmon and sea trout) and data on the effects of river flow on fish movement. This information is particularly useful to the NRA in assessing the impact of abstractions of water on fish populations.

The NRA's fish counter at Forge Weir on the lower river has been built with development in mind.

A viewing chamber, camera equipment, on-site computer and a fish trap together give a unique opportunity to develop fish counting equipment beyond its capability today.

The NRA owns and operates a fish hatchery on the upper reaches at Middleton.

This produces more than one million juvenile salmon and sea trout each year. Most of these fish are produced from wild parents from the river and are released back into the Lune catchment.

In recent years the NRA has carried out extensive fish survey work on the Lune. This work has centred on juvenile fish populations and will enable the NRA to build an accurate picture the status of the rivers' fish populations. Such information is essential if the Lune's fisheries are to be protected in the long term.

## **NATURE CONSERVATION**

The Lune is of high conservation value as illustrated by the fact that the Lune Valley is identified as a "Site of Biological Interest" by the Lancashire Trust for Nature Conservation, mainly for its excellent bird populations and adjacent woodland.

The Lune Estuary has been designated as a "Site of Special Scientific Interest" (SSSI) under the Wildlife and Countryside Act. As part of Morecambe Bay, the estuary forms a major link in the chain of estuaries along the west coast of Britain used by birds on migration between the breeding grounds in the far north and the wintering grounds further south.

## **A HAVEN FOR BIRDS . . .**

A large part of the estuary between Knott End and Cocksands Point is covered by the Wyre-Lune Sanctuary which provides a protected roost for wintering pink-footed geese. Some of the saltmarshes are of interest for their breeding bird populations and collectively support a variety of plant communities and a number of uncommon plant species.

The mud-flats are exposed for considerable periods between tides and are rich in invertebrates. They provide extensive feeding grounds for waders and for many of the



*The Lune Estuary; Haven for birds.*

wildfowl, especially shelduck which depend on the intertidal zone almost entirely for their diet of invertebrates. The sandbanks also provide important low tide roosting sites for pink-footed geese and other waterfowl. The estuary is fringed by a series of saltmarshes which provide roosting sites for waders at high tide and support large numbers of wildfowl, such as mallard, wigeon, shelduck and pink-footed geese.

As a whole, the estuary regularly supports internationally important numbers of wintering oystercatcher, grey plover, turnstone, knot and pink-footed geese and nationally important numbers of curlew, redshank and dunlin. In spring and autumn the estuary provides an important staging post for sanderling. Spring numbers of ringed plover and dunlin are also high. The breeding bird communities of the saltmarsh are significant and of particular note is a nationally important common tern colony on Colloway Marsh.

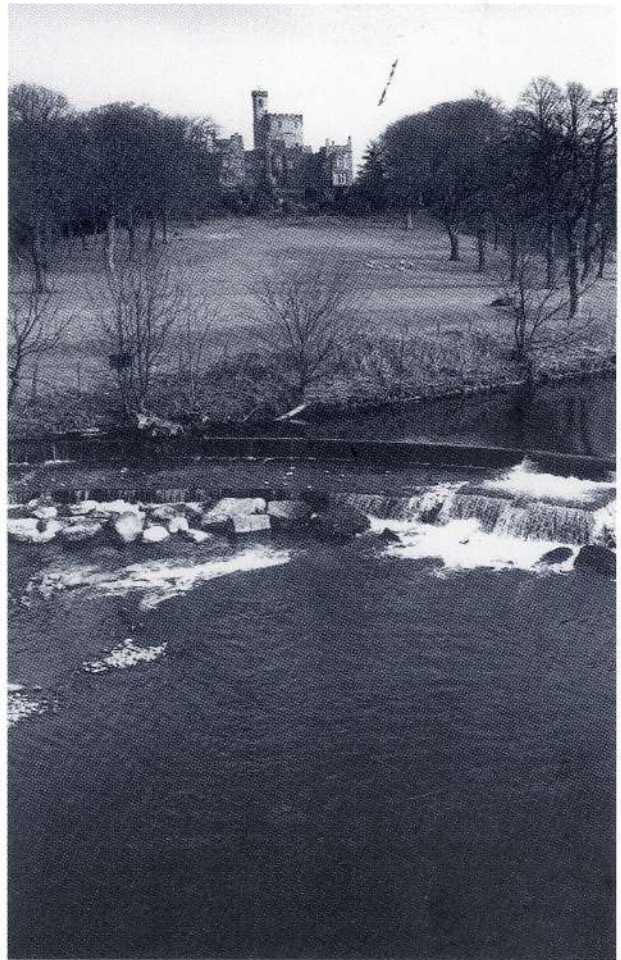
Along the freshwater sections of the river, tall earth cliffs provide excellent habitat for nesting sandmartins. They also provide nesting sites for kingfishers and are a special habitat for many species of solitary wasps.

The dipper is dependent on strong, fast-moving water with a rich invertebrate fauna and features such as exposed boulders. The River Lune is an ideal habitat.

### ... AND PLANT LIFE

The saltmarshes themselves are mostly grazed by sheep or cattle producing perennial grasses such as common saltmarsh grass, red fescue and creeping bent, accompanied by other salt-tolerant plants (halophytes) such as sea arrow-grass, thrift, sea milkwort and sea plantain. The marshes are dissected by irregular creeks or channels along the edges of which such typical plants as sea aster, sea purslane and annual sea-blite are found. Cordgrass occurs in patches on the seaward edge of most of the saltmarshes. The transition from saline to freshwater conditions is best shown on Middleton Marsh. Here, the outer edge of the marsh is typified by the pioneer species glasswort and occasional clumps of cordgrass. The mid-marsh zone is dominated by creeping bent, thrift and sea plantain which grades into a distinct zone of sea rush. Above this a brackish marsh supports such non-halophytic species as hemlock water-dropwort, parsley water-dropwort and toad rush. The sands at the northern extremity of this marsh are notable for the occurrence of two nationally scarce plants, the sand leek and the sea radish.

Plants which are particularly sensitive to grazing, such as the common sea-lavender, the rarer lax-flowered sea lavender and sea wormwood, have survived on a small area of ungrazed saltmarsh at Condor Green which supports the widest variety of plants of all the saltmarshes within the estuary and is one of only three locations in Lancashire where these two sea-lavenders occur together, the others being Burrows Marsh SSSI and Barnaby Sands Marsh SSSI.



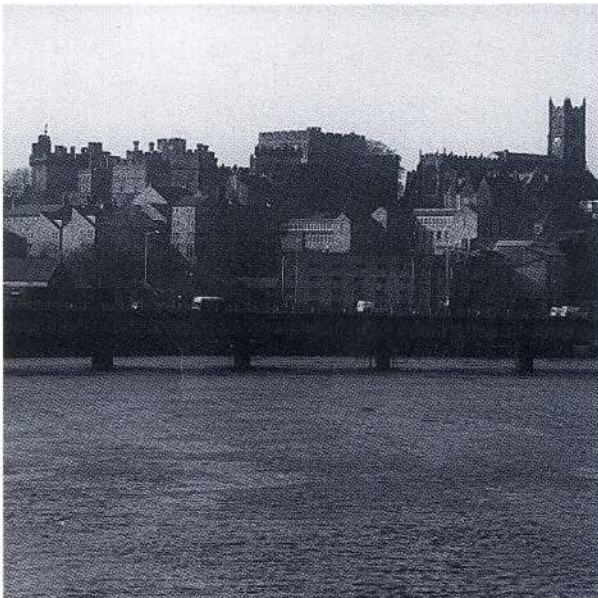
*The River Wenning at Hornby, a tributary of the Lune.*

### GEOLOGICAL FEATURES

Three distinct geological features are evident. The upper reaches of the Lune, Birk Beck, the Clough and upper reaches of the Dee flow over a carboniferous limestone series (alternating limestones, sandstones and mudstones). The middle Lune and minor tributaries between Killington and Tebay, together with Borrowdale Beck, the Rawthey and lower sections of the Dee, flow over silurian slates, grits and flags (hard, inert and impermeable). The underlying geology of the lower Lune and minor tributaries, together with the Greta, tributaries of the upper Wenning, the Hindburn and the Roeburn, is of a carboniferous millstone grit series (alternating shales, mudstones and sandstones). There is some base flow from the sandstones.



## HOW YOU CAN HELP PROTECT THE RIVER LUNE



*The Lune in Lancaster.*



# NRA

- **Don't** put oil, petrol or garden chemicals down drains or into gutters.
- **Don't** throw rubbish into rivers or streams.
- **Don't** allow any potentially polluting matter to escape into rivers or streams or the drainage system.
- **Don't** put rubbish into brooks or on the banks. **Remember** that rubbish blocks river channels and culverts causing flooding.
- **Do** ask for advice if you are not sure how to dispose of a potential pollutant.
- **Do** report any suspected pollution to the NRA.
- **Do** tell the NRA if you have a spillage of a potential pollutant.
- **Do** consult the NRA before undertaking any work on, under or over a watercourse or on the banks of a river or stream.
- **Do** use water sparingly.
- **Do** consult the NRA before abstracting water from a river, stream or borehole.

For more information contact:

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