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Stretch Activity

For this activity, the learners can go into pairs or groups of 3.



Set-Up

- Print one of each of 'Stretch Activity Worksheets' and place one sheet (or more for visibility) on a separate wall of your learning space.
- Print one 'River Research Log' per pair/group.

The Activity

The learners must visit each of the stations and gather facts about each, filling in their 'river research log'.

Give the learners 15 minutes to collect their relevant information.

Once they have collected their information, assign each group one of the following headings:

- Overfishing
- Algal Overgrowth
- Beaver Culling
- Oil Spill

Instruct each group to create a mini-poster or A3 sheet showing:

- The human activity
- A simple river food chain (e.g. algae → insect → fish → bird)
- Arrows showing what changes happen following the human activity (↓ fish numbers, ↑ algae, etc.).

Then take it in turns to present their findings to everyone.

**End of workshop - Thank you for
incorporating rivers in your education.**



Overfishing

What is overfishing?

Overfishing happens when people catch too many fish from rivers, lakes, or seas, so fish populations don't have time to recover.

How does overfishing affect the ecosystem?

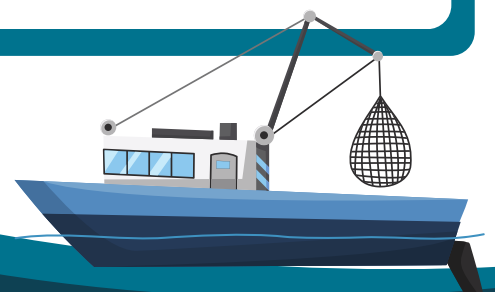
- Fish populations become much smaller or can disappear completely.
- Predators that rely on fish (such as otters, herons, and kingfishers) struggle to find food.
- The balance of the ecosystem is disrupted because fish often control numbers of smaller organisms.

How does this affect food chains?

- Fewer fish = less food for predators.
- Animals lower down the food chain (like insects or algae-eating organisms) may increase too much because fewer fish are eating them.
- This can lead to an unstable food chain, where some species increase rapidly while others decline.

UK example

- Atlantic salmon populations in UK rivers such as the River Severn and River Wye have declined.
- Overfishing in the past, combined with pollution and barriers like dams, reduced salmon numbers.
- Fishing limits and conservation rules are now used to help populations recover.



Beaver Culling

Why are beavers important?

Beavers are ecosystem engineers – they build dams that slow water flow and create wetlands.

What is beaver culling?

Beaver culling means removing or killing beavers to reduce flooding or damage to farmland.

How does culling affect the ecosystem?

- Fewer beavers = fewer dams.
- Wetlands may dry out or disappear.
- Loss of habitats for frogs, insects, fish, and birds.
- Fewer dams = faster river flow and more flooding downstream.

How does this affect food chains?

- Wetlands support many food chains; losing them reduces biodiversity.
- Species that rely on slow-moving water lose feeding and breeding areas.
- Predators have fewer prey species available.
- Beavers are herbivores, feeding on soft wood and plants.

UK example

- Beavers were reintroduced to parts of Scotland and Devon.
- In some areas, landowners have culled beavers due to flooding concerns.
- Studies on the River Otter (Devon) showed beavers increased fish numbers and wildlife diversity.



Oil Spills

What is an oil spill?

An oil spill happens when oil leaks into rivers or coastal waters from boats, pipelines, or industrial accidents.

How do oil spills affect the ecosystem?

- Oil coats animals and plants, making it hard for them to survive.
- It can poison fish and invertebrates.
- Birds lose the waterproofing of their feathers and may freeze or drown.

How does this affect food chains?

- Small organisms die first, removing food for fish.
- Fish deaths affect birds and mammals higher up the food chain.
- Toxins from oil can move up the food chain, affecting many species.

UK example

- In 2013, an oil spill on the River Mersey affected fish and birds.
- Clean-up operations were needed to reduce long-term damage.
- Even small spills can have long-lasting effects on river ecosystems.



Algal Overgrowth

What is Algae Overgrowth?

Algae can grow too quickly when fertilisers and sewage enter rivers. These contain nutrients like nitrogen and phosphorus.

How does algae growth affect the ecosystem?

- Thick algae can cover the water surface, **blocking sunlight**.
- Underwater plants struggle to photosynthesise and may die.
- When algae die and decompose, they use up oxygen in the water.

How does this affect food chains?

- **Low oxygen levels** can kill fish and invertebrates.
- Animals that eat fish lose an important food source.
- The ecosystem may shift to species that can survive in low-oxygen conditions, reducing biodiversity.

UK example:

- Algal blooms have occurred in parts of the River Thames and Norfolk Broads.
- Run-off from farming and sewage overflow has increased nutrient levels.
- Fish deaths have been recorded during severe blooms.



River Research Log



Overfishing

- Which part of the ecosystem is affected first? (e.g. producers, consumers, habitat, water quality)
- Describe one direct effect and one indirect effect. (Direct = happens immediately, Indirect = happens later as a result)
- How does energy flow through the food chain change? (Who gains less energy? Who might gain more?)

Beaver Culling

- Which part of the ecosystem is affected first? (e.g. producers, consumers, habitat, water quality)
- Describe one direct effect and one indirect effect. (Direct = happens immediately, Indirect = happens later as a result)
- How does energy flow through the food chain change? (Who gains less energy? Who might gain more?)



River Research Log



Algal Growth

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- Describe one direct effect and one indirect effect. (Direct = happens immediately, Indirect = happens later as a result)

- How does energy flow through the food chain change? (Who gains less energy? Who might gain more?)

Oil Spill

- Which part of the ecosystem is affected first? (e.g. producers, consumers, habitat, water quality)

- Describe one direct effect and one indirect effect. (Direct = happens immediately, Indirect = happens later as a result)

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