

The river and how it works



Image: MDDEP

Presented by:

Conseil de bassin versant de la
rivière Bonaventure 
...belle, pour la *Vie!*

Section 1: Definitions



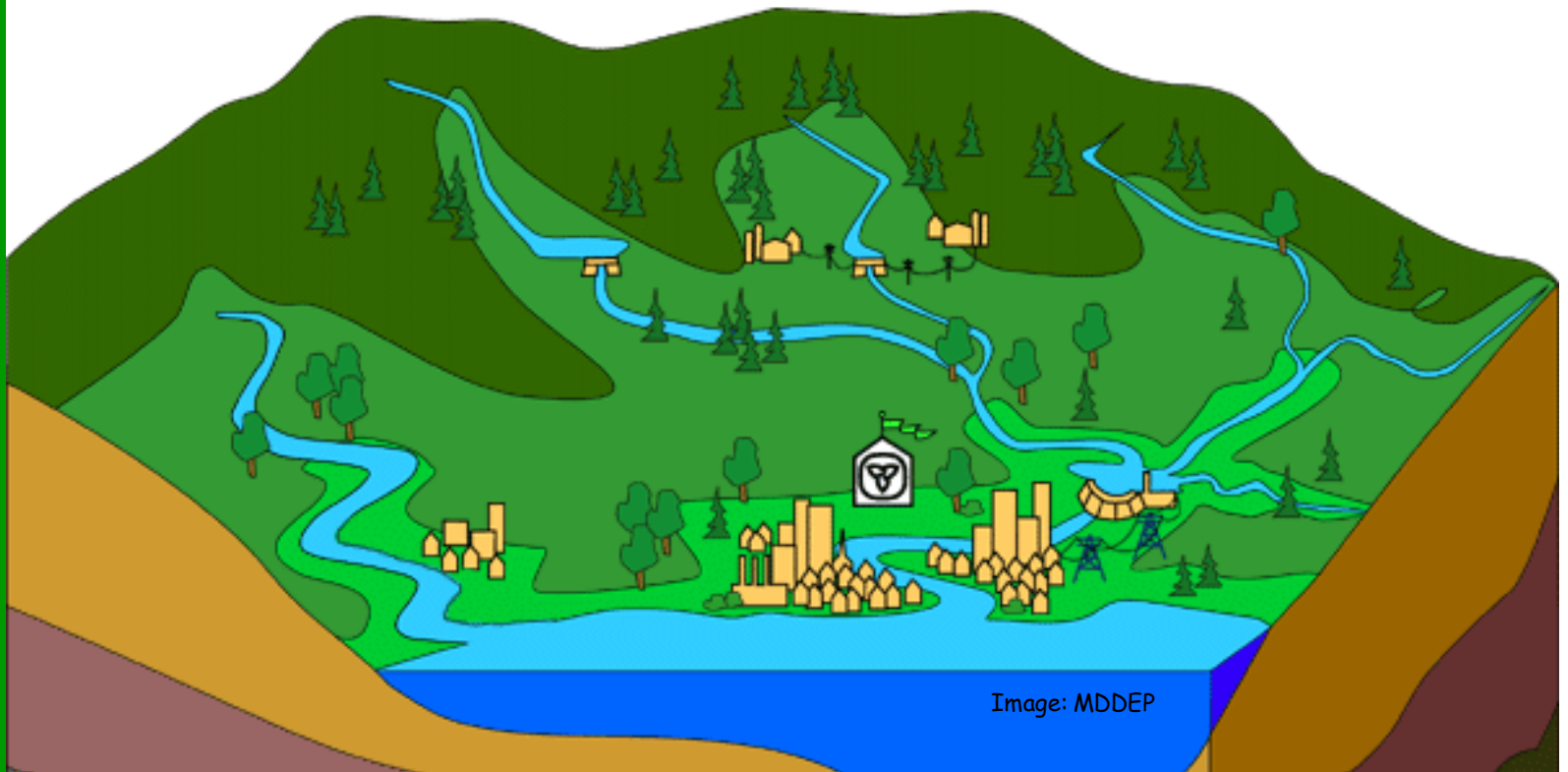
Section 1

Definitions

What is a watershed?



- It is a total land area drained by a main river and all its tributaries and which is delimited by a “drainage divide”.

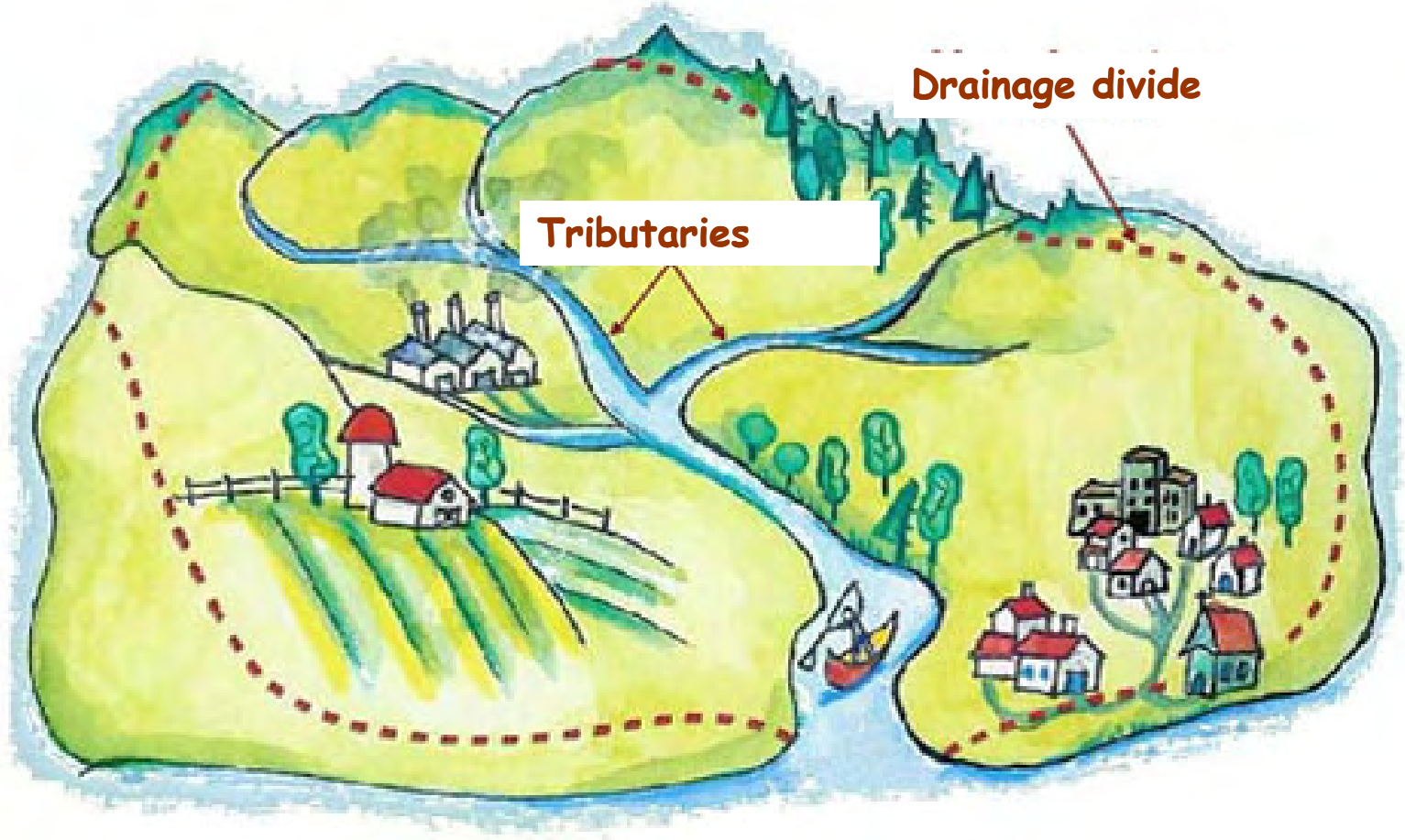


Section 1

Definitions

What is a watershed?

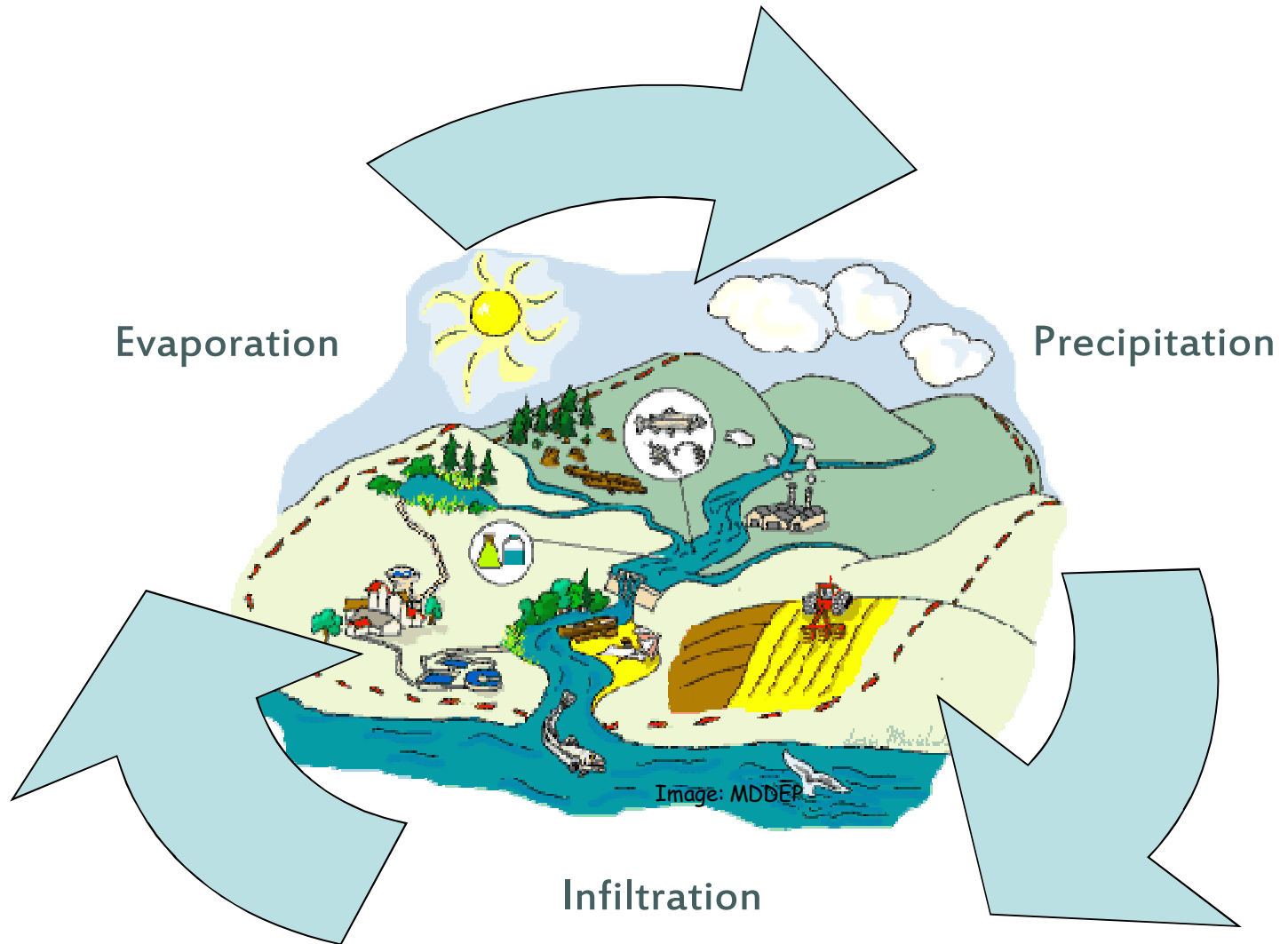
- It is a total land area drained by a main river and all its tributaries and which is delimited by a "drainage divide".



Section 1

Definitions

Water cycle



Section 2: Physical aspect of a river



Section 2

Physical
aspect of a
river

What is a river?

- A body of fresh water
- Which runs off throughout a territory to join another river, a lake or the sea.
- Therefore, a river is never alone, it is linked to multiple watercourses which are comprised in the watershed.
- Rivers are agents of erosion, because sediments torn off at a place are carried downstream to be deposited when the stream slows down.
- Rivers sculpt the landscape year after year.



Section 2

Physical
aspect of a
river

What is a river?



Section 2

Physical
aspect of a
river



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What is a **watercourse**?

- Surface or lost channel
- From where runs off a continuous or temporary flow of water

What is a **tributary**?

- A watercourse flowing into another watercourse

What is a **confluence**?

- This is the junction of two streams or more

Section 2

Physical
aspect of a
river

What does the word **Upstream** means?

➤ This is where the stream comes from...



What does the word **Downstream** means?

➤ This is where the stream is going...

Section 2

Physical
aspect of a
river

What is a riparian strip?

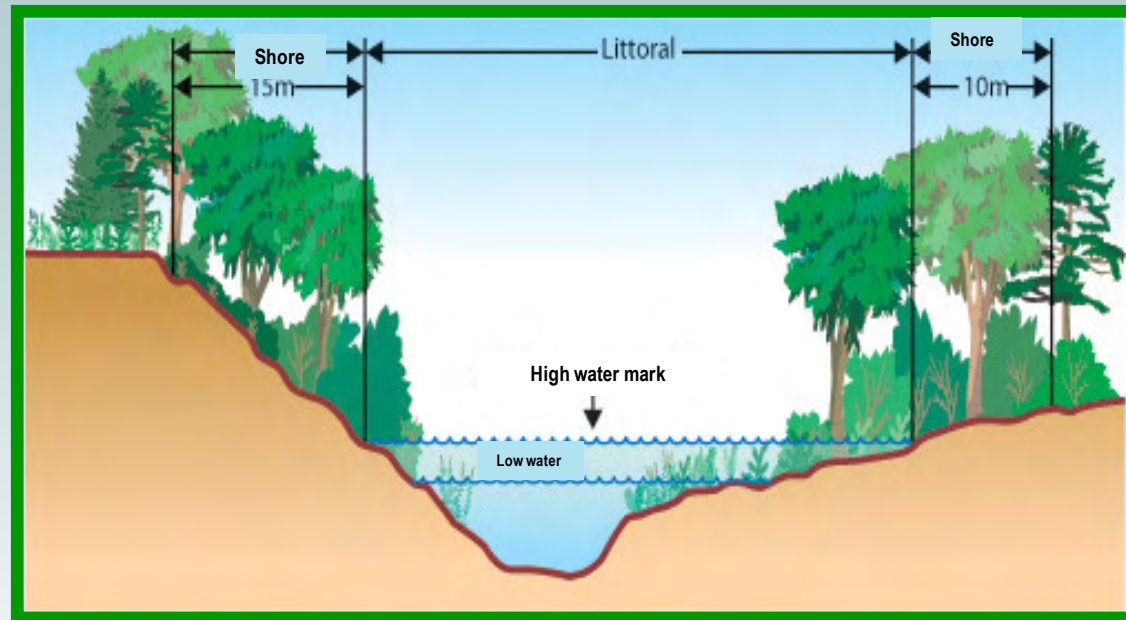


Image: MDDEP

A strip of 10 to 25 metres of natural vegetation along a watercourse indicating the transition between water and terrestrial environment

Section 2

Physical
aspect of a
river

What is a riparian strip for?

- 1 Natural windbreak
- 2 Beautiful landscape
- 3 Water level regulator
- 4 Sun screen
- 5 Pollution filter
- 6 Protection against erosion
- 7 Biodiversity



Image:MDDEP

Section 2

Physical
aspect of a
river

The **spring** is the site of water issuing from the ground, while the **mouth** is the place of discharge of the water in the sea.



Bonaventure River mouth

Photo: CBVRB

- As the river flows, it collects gradually water from the entire watershed.
- Which means that a river grows from the upstream (**higher part**) to downstream (**lower part**).

Section 2

Physical
aspect of a
river

What is a logjam?

- A piling-up of trees and branches in a watercourse
- Can cause a flooding (spring)



Image: La Fontaine School in Vals, near Le Puy

Section 2

Physical
aspect of a
river

Water in a river...

- It is always moving.
- It begins its journey at its highest elevation in altitude and flows down by gravity to its lower point.
- Water that flows stir up downwards (from the surface to the bottom) and from the left side to the right side of the river.

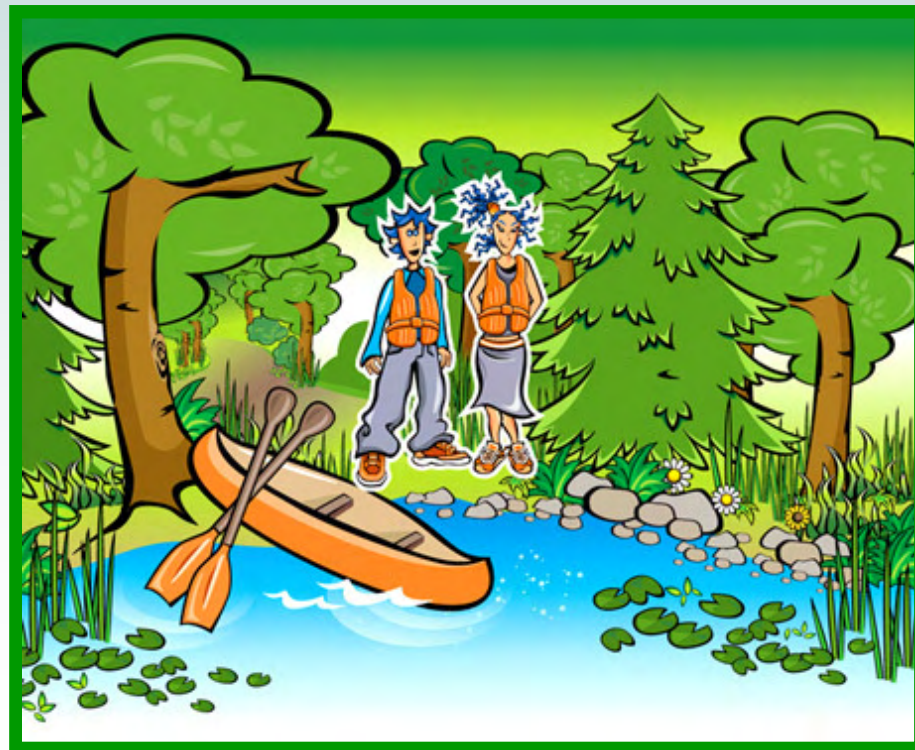


Image: MDDEP

Section 2

Physical
aspect of a
river

Water in a river... (continued)

The volume of water transported by a river varies considerably throughout seasons...

- Spring: melting of snow + spring rainfalls = flood



Image: MDDEP

Section 2

Physical
aspect of a
river

Water in a river... (continued)

The volume of water transported by a river varies considerably throughout seasons...

- Summer: period when the water is generally at its lower level



Image: MDDEP

Section 2

Physical
aspect of a
river

Water in a river... (continued)

The volume of water transported by a river varies considerably throughout seasons...

- Falls: Heavy rains increase flows



Image: MDDEP

Section 2

Physical
aspect of a
river

Water in a river... (continued)

The volume of water transported by a river varies considerably throughout seasons...

- **Hiver:** under the ice, there is low flow conditions, but it can increase when temperatures are moderate.



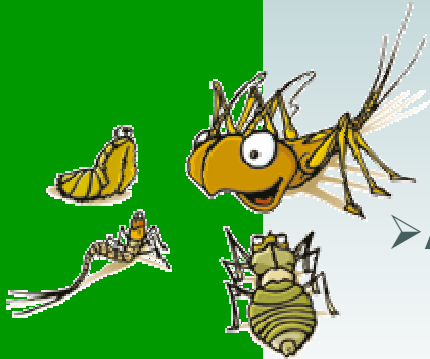
Image: MDDEP

Section 3: Aquatic life in a river



Section 3
Aquatic life in
a river

Aquatic life in a river...



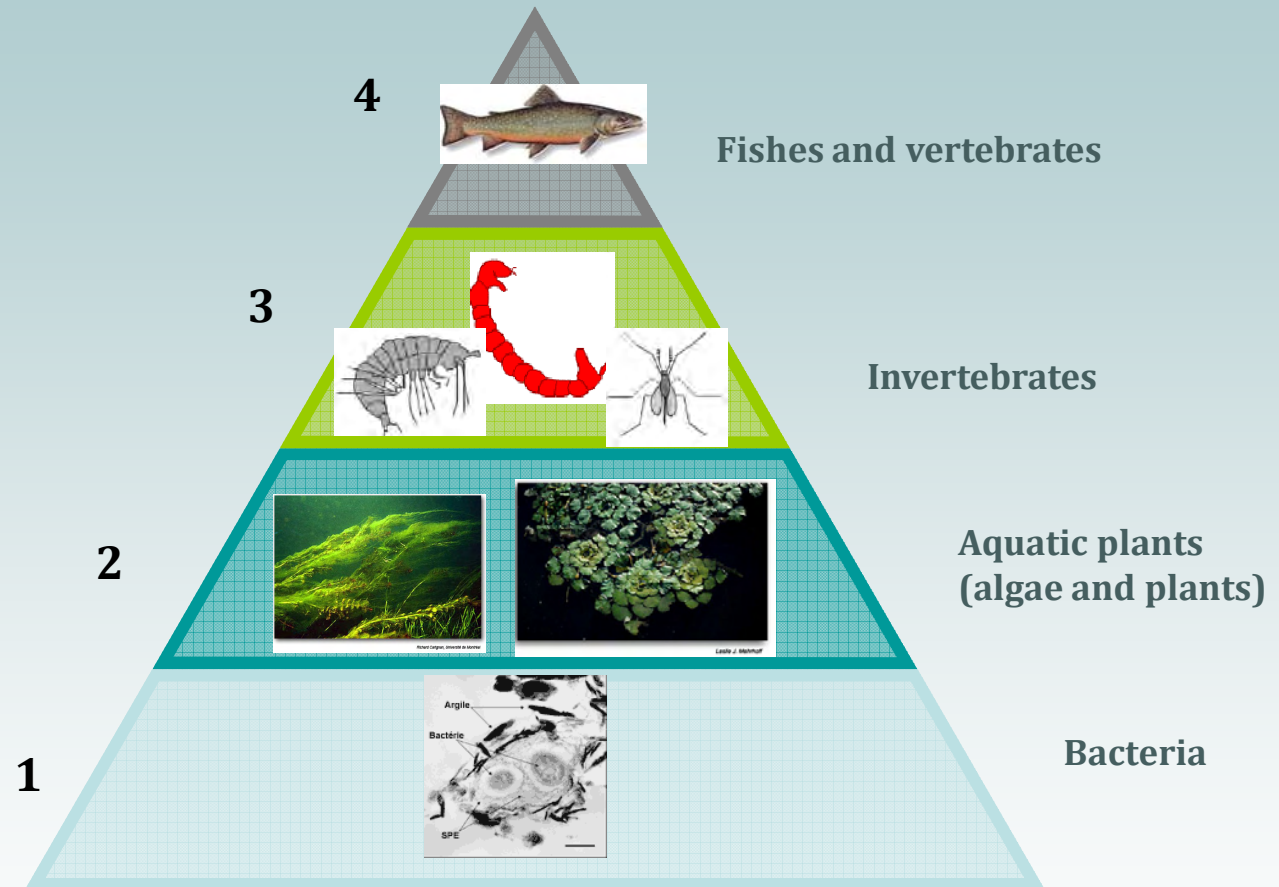
➤ A river is a biological corridor where live and feed numerous plants and animal species.

➤ We can find fishes and several invertebrate, more precisely insects.



Section 3
Aquatic life in
a river

Organisms living in aquatic environment



Section 3
Aquatic life in
a river

Organisms living in aquatic environment... (continued)

1. Bacteria

- They have an important role in the decomposition of leaves, branches and animal debris and ensure a good quality of water.

- By their action, they recycle nutrients to benefit living organisms in rivers.



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Section 3
Aquatic life in
a river

Organisms living in aquatic environment... (continued)



2. Plants (algae and flowers)

- They are at the base of any food chain.
- They are the only producers in the food chain, others are more consumers.
- Come first microscopic algae (vegetable plankton), which grows easily where the temperature is warm and in slow-flowing rivers.
- After, there are algae and aquatic plants which can float, take root in the ground or anchor to rocks.

Section 3
Aquatic life in
a river

Organisms living in aquatic environment... (continued)

3. Invertebrates



Johan.lemarchand.free.fr

- Most of invertebrates are insects of any shape depending on the habitat where they live.
- Strength of water flow determines the type of species living in some part of the river. For example: heavy stream = flattened organisms.
- We can find also small **crustacea**, mollusca and aquatic worms.

Section 3
Aquatic life in
a river

Organisms living in aquatic environment... (continued)

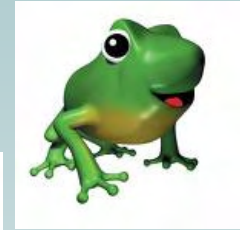
4. Fishes and vertebrates



Source: Leligueur citoyen parent



Source: Ec-weiss_magny.ac



Source: Loisir du berger
Les saules

- We find different types of fishes in rivers.
- Species of fish that live in The Gaspé's Rivers are more commonly Atlantic salmon and brook trout.
- Among vertebrates that we can find in rivers, there are beavers, Muskrats, river otters, frogs and salamanders.

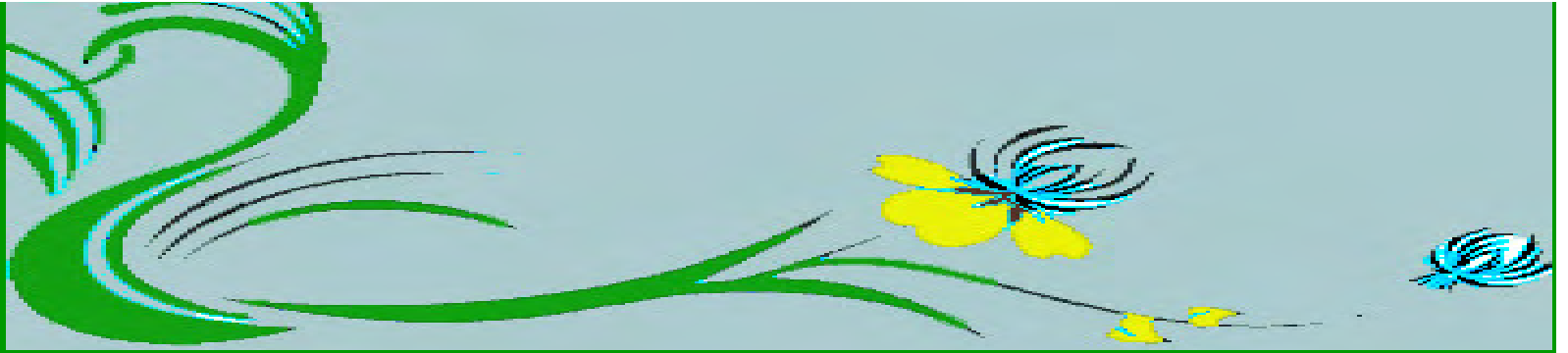
Conclusion



The association of all these elements make a river a living environment, a nice place to discover and where many activities can be practiced.

Despite its strength and beauty, a river remains a fragile environment.

Because human actions have direct impacts on its quality and preservation, we must work all together to keep it kind and healthy by adopting responsible behaviours towards our environment.



Thanks !

Any questions?