**Aquatic Environments Investigation**

**NAME­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**TASK:**

**Compare 4 different aquatic environments; stream, river, inlet ocean and man-made fish tank. Discuss how humans have impacted on each.**

This will consist of several components

1. Based on your knowledge of the aquatic environments above, write a **hypothesis** that relates to how they may be similar or different.
2. Go on excursion to collect data about the above ecosystems. This involves collecting samples of the **biotic environment** such as plants and animals living in and around the water. It also involves collecting physical data such as temperature, and samples of the **soil and the water. What else???**
3. Back in the **laboratory**, identify plants and animals, **identify** components of soil and water and the biotic environment such as plants animals and macroinvertebrates.
4. Analyse the collated data and use it to discuss how the physical environment has impacted on the type of biotic of each environment. Relate this back to your hypothesis.

EXCURSION

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1) |  | Describe the job **you** did in collecting information, samples or data when on the excursion and then back in the laboratory. | 4 |  |
| 2 |  | Complete the sections in your Field Workbook about the possible food webs. Complete sections you did and any definitions or other questions in the book. | 4 |  |
| 3 |  | At each site and comparing sites as you go down the river, use the collated data to discuss the river under the following headings |  |  |
| A |  | **Plants;** | 5 |  |
|  | 1 | How many plants are at each site, |  |  |
|  | 2 | What the dominant plant is (ie biggest plant) and any other common plants found at the site. |  |  |
|  | 3 | Ratio of weeds to indigenous (local native) plants |  |  |
|  | 4 | What plants found commonly at each site |  |  |
|  | 5 | How humans have changed the vegetation. |  |  |
| B |  | **Animals;** | 5 |  |
|  | 1 | How many species of animals were found at each site |  |  |
|  | 2 | What macro-invertebrates were found. What do these indicate about water quality? |  |  |
|  | 3 | Were there more animals found at some sites than others/ Why? |  |  |
|  | 4 | Complete food webs in the field book |  |  |
|  | 5 | Discuss how the animals rely on the river and plants etc around the river. |  |  |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| C |  | **Water Quality;** | 5 |  |
|  | 1 | Discus in trends in the nutrient levels as the river flows down to the inlet. Discuss, ammonia, nitrites, phosphates, pH, dissolved oxygen, salinity. |  |  |
|  | 2 | Discuss why the results occurred. Where did the nutrients, oxygen and salt come from? |  |  |
|  | 3 | How have humans and other organisms eg birds contributed to the rivers water quality at each site. |  |  |
|  | 4 | Discuss how the water quality can affect the organisms that can live in or around it. |  |  |
| D |  | **Soil;** | 4 |  |
|  | 1 | Look at the soil profiles and discuss what the soil is like according to its components. Is it sandy, gravelly, muddy, etc. Give details. |  |  |
|  | 2 | How has the soil changed as the distance goes away from the river and down river? Look at the stacked graphs and compare the proportions. |  |  |
|  | 3 | Why is soil quality important? What depends on the soil? |  |  |
| E |  | **Temperature;** |  |  |
|  |  | Soil |  |  |
|  |  | Air |  |  |
|  |  | Water |  |  |
|  |  | **CONCLUSION** | 3 |  |
|  |  | Overall summary about how humans have had an impact on the Denmark River. Give examples from the data to back up your answer. |  |  |
|  |  | **TOTAL** | **30** |  |



EXCURSION Results

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2 Complete the sections in your Field Workbook about the possible food webs. Complete sections you did and any definitions or other questions in the book. 4

3 At each site and comparing sites as you go down the river, use the collated data to discuss the river under the following headings

A Plants; 5

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2 What the dominant plant is (ie biggest plant) and any other common plants found at the site.

3 Ratio of weeds to indigenous (local native) plants

4 What plants found commonly at each site

5 How humans have changed the vegetation.

B Animals; 5

1 How many species of animals were found at each site

2 What macro-invertebrates were found. What do these indicate about water quality?

3 Were there more animals found at some sites than others/ Why?

4 Complete food webs in the field book

5 Discuss how the animals rely on the river and plants etc around the river.

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2 Discuss why the results occurred. Where did the nutrients, oxygen and salt come from?

3 How have humans and other organisms eg birds contributed to the rivers water quality at each site.

4 Discuss how the water quality can affect the organisms that can live in or around it.

D Soil; 4

1 Look at the soil profiles and discuss what the soil is like according to its components. Is it sandy, gravelly, muddy, etc. Give details.

2 How has the soil changed as the distance goes away from the river and down river? Look at the stacked graphs and compare the proportions.

3 Why is soil quality important? What depends on the soil?

E Temperature;

Soil

Air

Water

CONCLUSION 3

Overall summary about how humans have had an impact on the Denmark River. Give examples from the data to back up your answer.

TOTAL 30