

## **Sungai Way Biodiversity Survey**

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### **Invertebrate Biodiversity Survey**

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Date: 10<sup>th</sup> March 2008 (Invertebrate Survey)

Time: 10.00am to 12.45pm

Weather condition: Sunny

Location: This biodiversity study was conducted along Sg Way from upstream to downstream. Three sampling sites were selected for this study and invertebrate and fish biodiversity was studied.

The sampling points are as follows:

1. W1: Upstream of Sg. Way before the Federal Highway.
2. W2: Midstream after the Federal highway in-between Petronas and Esso Petrol Station.
3. W3: Downstream next to the IWK sewage treatment pond.

### **Methods**

The 2 methods used for the biodiversity study were observation and in-situ sampling. As part of our observations, all related information about the surrounding area were recorded and studied. This included the identification of abundant flora and fauna species in the study site. Other significant factors which might have indirect or direct impact on the biodiversity of the Sg Way were also studied.

At each of the 3 sampling points, other sub-sampling points were made by randomly selecting points within the main sampling sites.

### Invertebrate sampling

At all locations, we looked for invertebrates using three different methods:

1. If there were rocks present in the river, we picked them up gently and looked on the underside of the rocks to see if there was any living organisms on it. Worms and larvae usually use rocks as their habitats.
2. Nets were used to filter out water samples to look for any living organisms in the water.
3. A common method of looking for bottom-dwelling organisms is to disturb the river bed by moving your feet along the bed to stir up any organisms that may be living there and using a net to filter through it.

We spent 20 minutes at each location randomly searching for invertebrates. The tools used were small scoop nets and sifters. Any samples caught were kept in a small aquarium tank for identification.

### **Fish Biodiversity Survey**

By using the scoop net and weaving method the following species is recorded by total count per sample.

Date: 12<sup>th</sup> March 2008 (Fish Survey)

Time: 9.30am to 12.30

Weather condition: Cloudy

#### W1:

Observation and scoop nets were used to sample fish here. It was difficult to cast a net here as it was quite shallow and risked getting the net stuck.

#### W2:

The cast net was used based on the river's physical conditions. To sample the fish at this stretch, the net was casted three times at 3 different locations within the sampling site.

Schools of small fish were observed swimming in this area. The stretch here is relatively shallow and has less obstacles in the river bed compared to W1. At 5 different locations some small fishes were caught. A giant African catfish was spotted at a collapsed river bank concrete, but we were unable to catch it.

#### W3:

The fish net was cast 3 times at different locations within W3. A school of small fish was spotted swimming along the concreted river bank and hiding under aquatic plants and river vegetation. The fish was sampled using the scoop net method.

## **Observation findings**

The sampling points are represented in 3 different sections of the Sg Way namely as W1, W2 and W3. The origin of Sg Way starts from within the residential area in SS 9 and SS 9A. Here Sg. Way passes through several places from residential to commercial and light industrial areas in the form of or part of the drainage system for the area. Therefore the river receives all kinds of pollution from different sources found along the stretch. Below is the detailed findings observed and the description of the site gathered during the survey.

### Observation Point 1 (W1):

The first site is labeled as W1 which is located across the Federal Highway before the GAB building. There are two streams coming from the opposite directions to form the main river. The river then flows through the culvert underneath the Federal Highway. At both sides of Sg Way there were no natural vegetation and the river bank and its base have been made concrete and channelized. However a ditch can be observed in the middle of the channelized river. The sampling of biodiversity was carried out at this location to identify the living invertebrate in the river ecosystem. About 5 sub sampling points was picked for the biodiversity study at this site.

Observation made on the surrounding area revealed that this river is badly polluted mainly from residential and commercial discharge. There is an IWK sewage treatment plant next to the drainage system in the area. Investigations made on the IWK plant clearly showed that the overflow from the treatment pond is channeled through the drain and directly discharged into Sg. Way. In addition to this, the stretch also seems polluted with lots of solid waste. During the day of sampling a very strong odor was coming from the river.

### Observation Point 2 (W2):

Sampling point 2 is located in between 2 petrol stations (Petronas and Esso). The sampling point section started from one of the deep pools found next to Esso petrol station until the bridge between the two apartments of Desa Mentari. This area is not much different from W1 where discharge can be observed from various sources. There were several factories operating in this area and the drainage system is connected to each other. At this section the clarity of the water is slightly murky and cloudy. An unpleasant smell could be detected everywhere along the stretch. At one of the sections in between the two petrol stations the river's concrete channel has broken and collapsed. As a result some deep pools have formed. It is anticipated that these deep pools provides suitable habitat for aquatic animals such as fish. There are some trees and weeds that provides some shade. Further down in-between the two Desa Mentari apartments, lots of rubbish can be observed stuck and piled up as a result of the broken pavement and steel bars. At this section the river bed is very shallow and it is fully covered by algae.

### Observation Point 3 (W3):

This is the last sampling point for the biodiversity study of Sg Way. Observation made in this area clearly showed that the river has ample shade from the trees surrounding the river. Compared with the W1 and W2, the environment in W3 has more natural vegetation on both sides. Although the stretch is still a concrete and channelized river, this section of Sg. Way probably provides suitable habitat for some reptiles, amphibians, mammals, birds as well as aquatic animals.

There were deep pools in the river just next to the IWK retention pond. The pool is slightly bigger than observed at W1 and W2. There is an outlet for discharge coming from the IWK treatment pond directly into Sg. Way. There are housing and low cost apartment areas nearby. Further down, Sg. Way finally joins Sg. Pencala.

## Biodiversity Results:

Table 1: Species Observation Record

Site	Species Description	Total Count	Remarks
W1	Bloodworm	0	
	Flatworm	0	
	Long worm	1	Unknown species
	Snails	5	Unknown species
	Fish	31	Gambussia spp
	Others/Unidentified	0	
W2	Bloodworm	8	Unknown species
	Flatworm	1	Platyhelminthes
	Long worm	3	Unknown species
	Snails	15	Unknown species
	Fish	13	Gambussia spp and African catfish
	Others/Unidentified	1	Unknown worm
W3	Bloodworm	2	Unknown species
	Flatworm	0	
	Long worm	3	Unknown species
	Snails	6	Unknown species
	Fish	5	Gambussia spp
	Others/Unidentified	0	

As can be seen from the results, the river does support some biodiversity, but it is extremely limited. The kinds of animals recorded here can be found anywhere, but are mostly an indication that the water is polluted as they are considered highly tolerant types of animals.

At W1, we found a long worm and 5 snails. There were also small schools of Mosquito fish (*Gambussia sp.*). At W2, we found 4 different types of worms, snails and fish. At W3, we found bloodworms, long worms, snails and fish. All organisms found at the 3 sites were the same types of species, although we were unable to identify them.

The presence of highly tolerant invertebrate in great numbers indicate that the river is polluted. Invertebrates such as snails, bloodworms and flat worms can be found within W1, W2 and W3 indicating that these species have adapted well to live and survive in the river system. Other aquatic organisms such as fish are very difficult to find. Even alien fish species such as Tilapia, that are considered extremely tolerant were not present in Sungai Way. Only one type of hardy fish species were caught and indicates that the river is not able to support other types of fish.



Platyhelminthes



Unidentified long worm



*Gambusia sp.*

## Conclusion

The biodiversity study was important in order to understand the status of the flora and fauna of Sungai Way.

W1, W2 and W3 are about 1.5km from each other and the surrounding environment changes from upstream to downstream. Sg. Way is a river that has been channelised and made concrete and is not in its natural state. As such Sg. Way is no longer able to support many types of aquatic wildlife. The findings from the biodiversity study on invertebrate and fish indicate that Sg. Way is already in bad shape and its aquatic wildlife carrying capacity is limited.

The 3 days biodiversity survey which has been carried out is probably inadequate to tell us the actual biodiversity status of Sg. Way. The method used also perhaps need to be customized accordingly so that the sampling could be done in more effective manner. More frequent sampling and monitoring at different times is recommended for more accurate results. More studies will be conducted at a later stage. However, this preliminary study indicates that there is very limited life in Sungai Way and that the water quality may not be good enough to support any other species.