

# Purification of river by Bio-Cord



Now, 50%~70% of water pollution in the ocean and river is caused by domestic sewage.

Especially, domestic sewage has been so serious problem that fish can't inhabit there.

As the factor, two reasons are pointed:

One: increasing pollution load, cause of centering of population.

The other: the decreasing of self-purification of the river, which is all (bottom and both sides) covered with concrete.

As the river is above situation, to improve this, we fix Bio-Cord on the bottom of the river. That makes much bacteria inhabit inside of Bio-Cord in the river and as the result it increases the capacity of self-purification of the river.

## Installation

Once Bio-Cord is fixed on the bottom of the river directly, many bacteria adhere on it

However, river is many types, shallow or deep, we have many ways of installation to suit each situation.

## **Flat type**

These are two types, which is suitable for shallow sewage.

## Steel construction

It is the way that many pieces of 10m length of Bio-Cord are fixed to the iron pole by its top and end at 10cm interval.

Then, this flame is fixed on the bottom of the river by anchor bolt.

This way has much merit.

The cost is low. As detachment is easy, it is easy to install and maintain.



### I-bolt construction

Different from steel construction, Bio-Cord is fixed on the bottom of the river directly. It recovers the problem on the case of steel construction that much garbage is apt to gather to its steel poles.

As there is no obstacle on the side way, garbage and sand is hard to pile on the facility.

That's why it is easy to maintain.



### AMAMO type

It is suitable for the river, which is deep and its water level is changeable.

At the end of Bio-Cord, high-density float is fixed and then the other side of it is fixed to the iron lattice frame. After that we settle the frame on the bottom of the river.

Each Bio-Cord stands up by its float and contacts with the water swinging in the river.

When the water level is low, Bio-Cord streams in the water because of its float.

When that is high, Bio-Cord stands up straightly.

At the deep point in the water, it is observed that fish pick the bacteria inside of Bio-Cord.

By this point, it can hope to use it as fish nest.



## Effect of purifying

Table No.1 flat type

Date of Investigation	May 20 <sup>th</sup> 1992			August 20 <sup>th</sup> 1992			February 25 <sup>th</sup> 1993		
Point	Up the river	Down the river	Removal rate(%)	Up the river	Down the river	Removal rate(%)	Up the river	Down the river	Removal rate(%)
BOD(mg/l)	52	28	46	64	36	43	54	48	11
SS(mg/l)	30	18	40	50	38	24	46	42	8

Table No.2 AMAMO type

Date of Investigation	April 6 <sup>th</sup> 1996			July 2 <sup>th</sup> 1996			September 11 <sup>th</sup> 1996		
Point	Up the river	Down the river	Removal rate(%)	Up the river	Down the river	Removal rate(%)	Up the river	Down the river	Removal rate(%)
BOD(mg/l)	10	6.4	36	5.3	4.8	9.4	2.0	1.95	2.5
SS(mg/l)	9.0	6.0	33	12	13	----	11.9	10.5	11.8
Current of water (cm/s)	4			30			32		
Retention time	About 40 min			About 6 min			About 5.5 min		