

CarbonFiber artificial seaweed bed

Purifying water and increasing fish and seaweed

# MiraCarbon Kombu

Sea forest by MiraCarbon Kombu



MiraKombu

A lot of food !

Water is clean !

MiarKombu hides us,  
so we dont have to worry

Seaweed and kelp  
take root



Increase  
in fish

Water  
purification

Seaweed  
grows

**SO-EN CO., LTD**

URL <http://so-en.net/index-e.htm>  
e-mail [soen.net@gmail.com](mailto:soen.net@gmail.com)

# CarbonFiber artificial kelp coast ● Sea forest by MiraCarbon Kombu ●



## Water Purification

- Pollutants in water are adsorbed on the large surface area of CarbonFiber. At the same time, microorganisms in the water are fixed to CarbonFiber. These microorganisms decompose pollutants. CarbonFiber sways in the water, capturing and decomposing pollutants, which develops natural water purification system.
- The effect of water purification increases because seaweeds, which increase by CarbonFiber, absorb nutrient salts.
- Since CarbonFiber neither deteriorates nor decomposes, its effect persists.

## Increase in fish

- CarbonFiber has a positive effect on living organisms, and bacteria and microorganisms, which leads healthy ecosystem. In water-purified environment where microorganisms increase, there is proliferation of planktons and small living organisms. Since these organisms serve as prey for fish, it is expected an increase in the number of fish.
- Fish lays eggs on carbon fibers due to its high biocompatibility, and hiding places made from CarbonFiber and seaweed become habitat for young fish.

## Seaweeds grow

- Plants enable to photosynthesize, In the water area purified by CarbonFiber. As a result, seaweeds grow proliferously. In addition, because CarbonFiber can be seaweed beds due to its high biocompatibility, it is expected to solve shore-burning and to produce a synergistic effect of water purification with seaweeds.
- Because any seaweed can establish, it's easy to cultivate brown seaweeds and kelps (e.g. brown seaweeds, kelps, kurome, kajime, sargassum, and common eelgrass)

## Installation: just throw carbon fibers into the sea

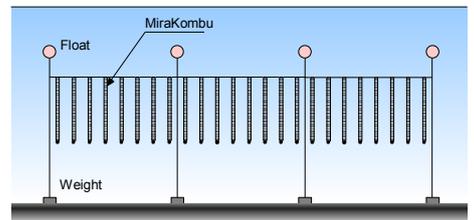
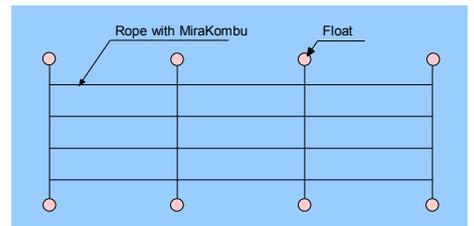
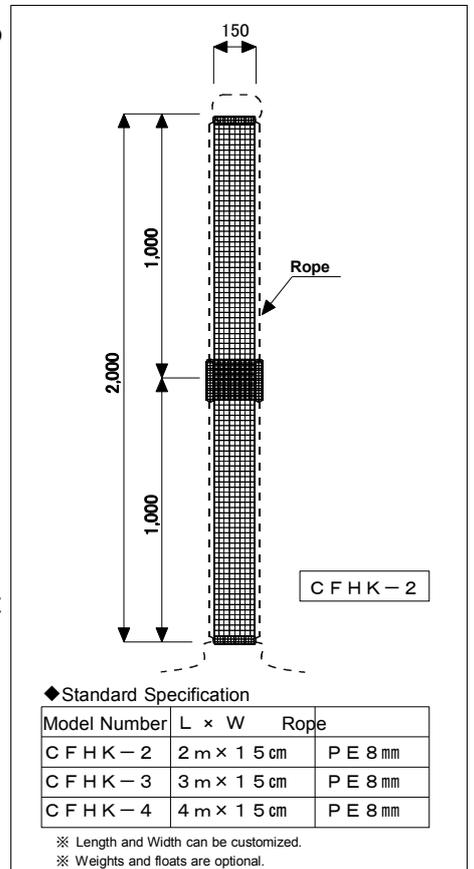
- "MiraCarbon Kombu" with floats and weights is thrown into the sea.
- Installing MiraCarbon Kombu over a wide area makes sea forest more effectively (more than 100 MiraCarbon kombu recommended).
- Installation can be conducted by 2 - 3 people in small craft in a short time.
- MiraCarbon Kombu can be installed anywhere (e.g. rocky area/ sand area)

### ■ Maintenance

- Normally, you just need to make a quick inspection.
- Please make a regular check the condition of CarbonFiber and seaweed. (It is effective to go under the water when you make a inspection)
- If CarbonFiber becomes less effective due to the absorption of gross pollutants, removing these materials from them recover its effect.
- In the case of cultivation, caring is required like farming.

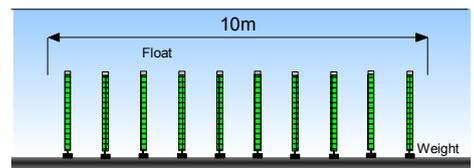
### ■ Application consideration

- Please install carbon fiber in a location where they are not influenced by ocean waves.  
Recommended: The height of a float Less than "sea level of surface - 1m"
- Please add extra weights If there is a possibility that carbon fiber is flown by ocean current.  
Standard: weight 1 kg/ m, Strong current: weight 5kg/m
- Please replace with bigger floats in the case of cultivation.  
Standard: 1kg/m cultivation: 2kg/m



MiraCarbon hanging method

- ◆ Example of Recommended Installation (100 pieces)  
A piece of MiraCarbon Kombu is installed in every direction at 1m intervals within 10m square.



Installation of MiraCarbon floating method

◇Please note that specification, size, and appearance of the CarbonFibers artificial seaweed may change to improve the quality without prior notice.

### ■ Manufacturer

## SO-EN CO.,LTD

1665-1 Shinbo-machi Takasaki Gunma JAPAN  
TEL +81-27-352-4857 FAX +81-27-352-4875  
e-mail: soen.net@gmail.com  
URL <http://so-en.net/index-e.html>