

# Early response to water quality problems using 『Natural Mineral Flocculants』

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Environmental Science Center**

**(新しい水環境保全事業連携体)**

# Co-researchers and technologies registered

## Collaborating research institutes

- Kyushu University
- River Environment Technology Research Institute (Korea)
- Fukuoka Foundation for Sound Health Environmental Science Center

## Conducted collaborated studies by Japan/Korea researchers on turbid dam reservoir situations. Currently in practical use in Japan, Korea, and China

## Patents registered

- Patent No. 4822369
- Title of invention: water quality improvement formula and its production method

## MLIT new technology (NETIS) registered

- Registered No. QS-070011-A
- Title of technology Pond and Lake purification treatment using natural mineral zeolites

# Fukuoka Foundation for Sound of Health Environmental Science Center

1969 established as body of St. Maria Hospital

1971 established Kyushu Industry Sanitation Association Foundation

2009 changed name to Fukuoka Foundation for Sound Health

## Major licenses/registrations

計量証明事業所登録(濃度・騒音・振動)

作業環境測定登録

土壤汚染対策法指定調査機関

水道法20条に基づく登録水質検査機関

ISO 9001:2008 認証

## Main lines of work

Chemical analysis、atmospheric surveys、water quality surveys、soil surveys、  
noise and vibration surveys

Asbestos surveys, biological surveys

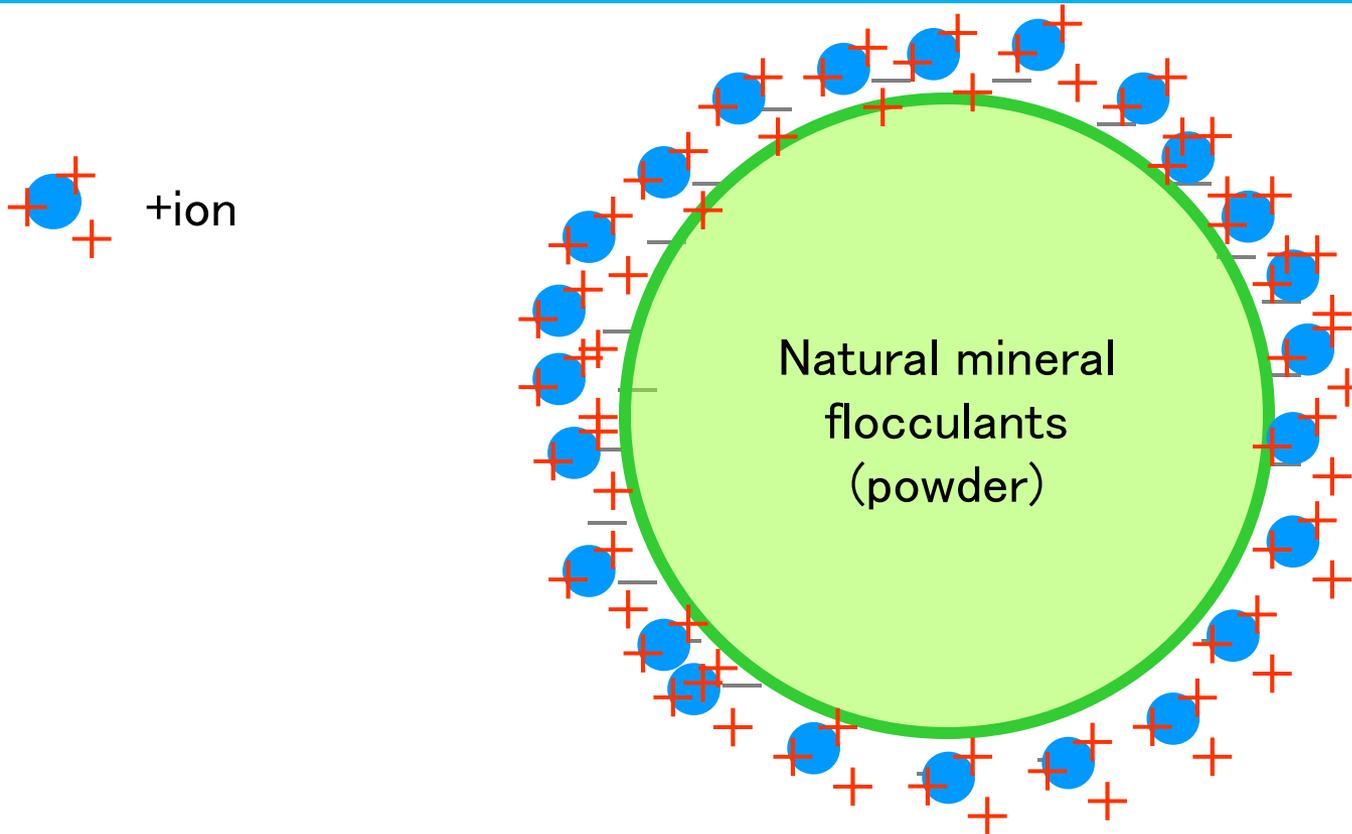
# Natural Mineral Flocculants

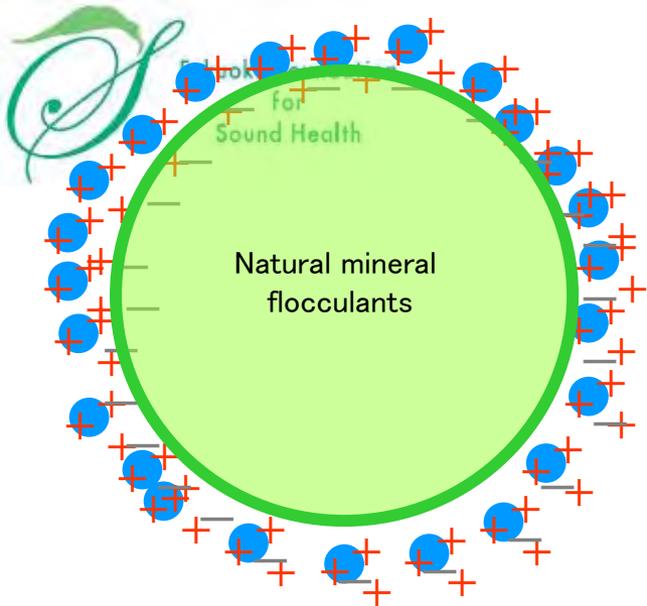
## Natural Mineral Zeolite Powder& Ion Substitutes



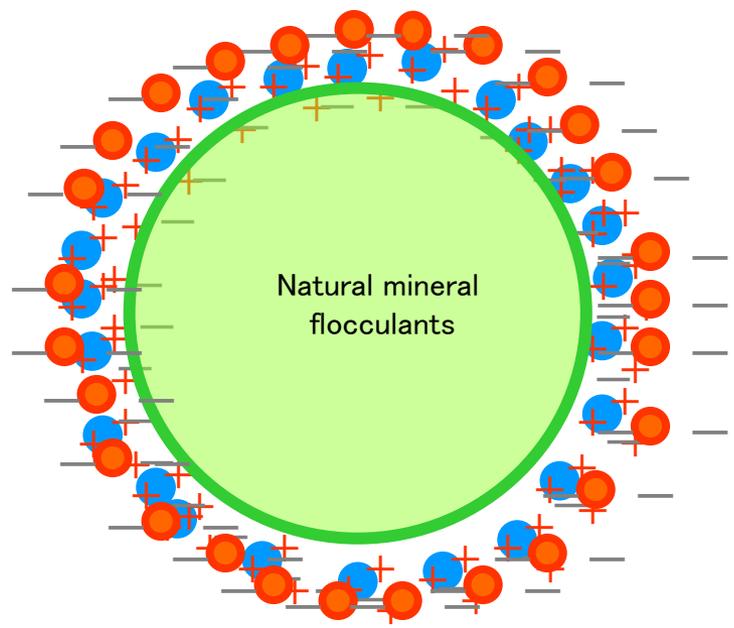
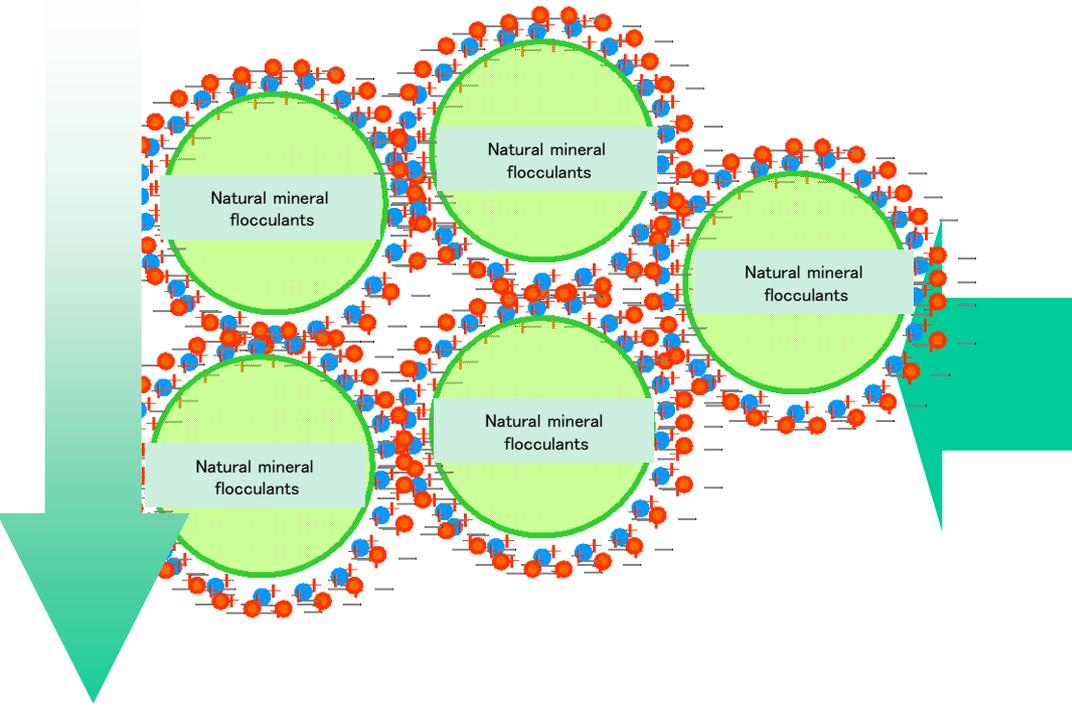
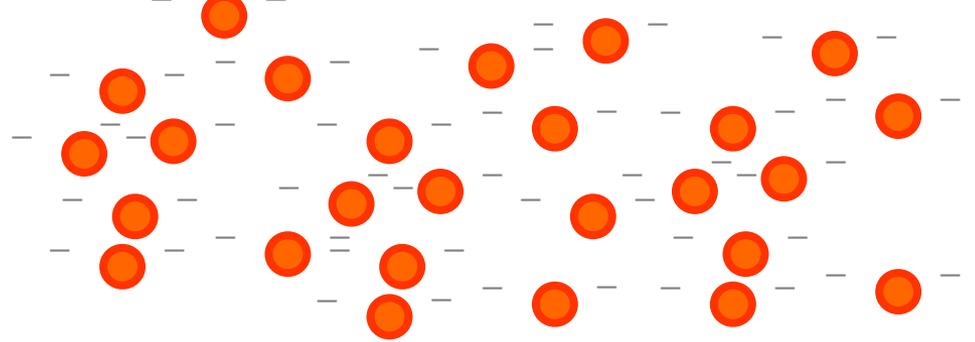
## Features: utilization of permanent charges

Using permanent charges generated when  $\text{Si}^{4+}$  is substituted for  $\text{Al}^{3+}$



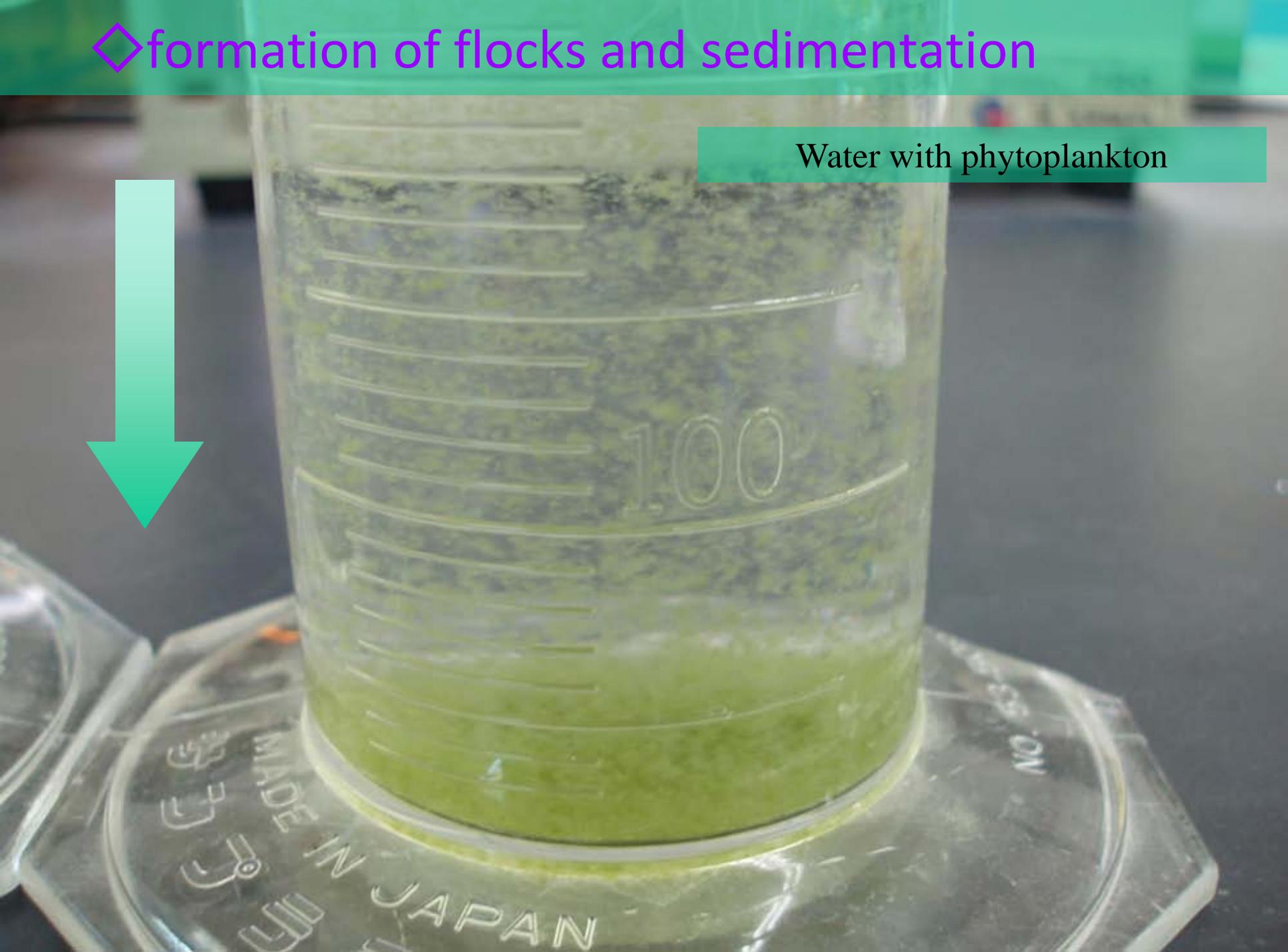
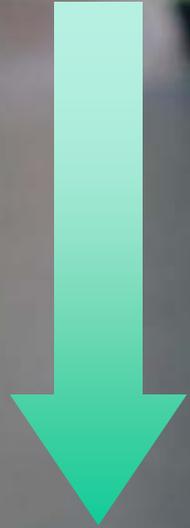


# Suspends and phytoplankton



◇ formation of flocks and sedimentation

Water with phytoplankton



# Proven Safety

Safety has been confirmed by conducting various tests  
and by actual implementation

- **Tests related to soil contamination (passed all 27 items)**
- **Tests related to chemicals suitable for water (passed 41 tests)**
- **Ecological Safety Tests**

**Fish (guppies) – np**

**Daphnias - np**

**Algae - np**

# ◇Ability to treat mud water

沈砂池の規模が小さいため、高濃度の濁水が流下し問題となっていました。本凝集材処理により工事沈砂池の濁度を改善し放流に問題のないレベルとしました。



処理前 濁度630度

処理17時間後 濁度12度

# ◇ Ability to treat Algae (reservoir)

藍藻類マイクロキスティスのアオコ処理は非常に難しい処理の一つです。本凝集材処理はマイクロキスティスに対して98%以上の削減効果を実現しました。



Before treatment

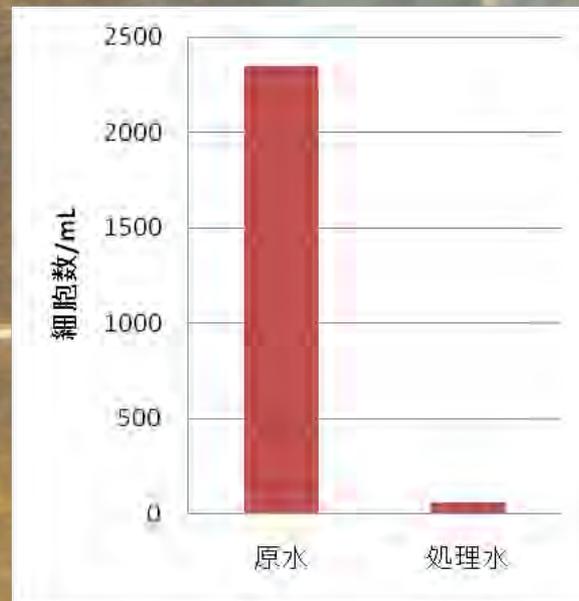
2 days after treatment

# ◇Ability to treat red water

ダム貯水池等では渦鞭毛藻類(ペリジニウム)による淡水赤潮により景観に大きな影響を与える場合があります。本凝集材処理はペリジニウムに対しての処理効果を確認しています。(現在室内試験のみ。)



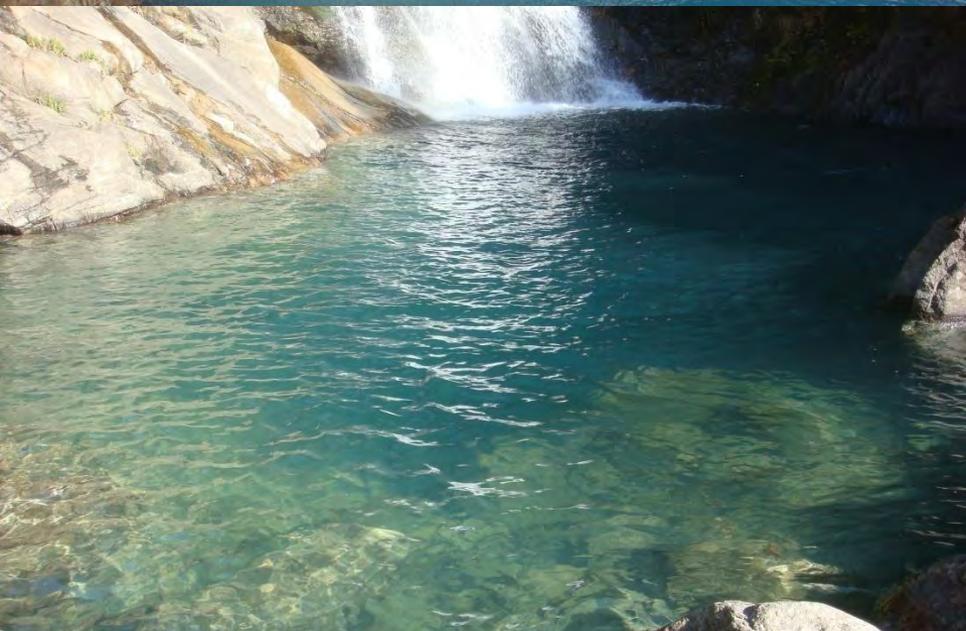
光に集積したペリディニウム



光条件下で95%以上の処理効果

# ◇ Ability to treat colored water (in dam lakes)

水の着色はフミン質や鉄等によるものです。本凝集材処理では着色要因を水中から除去し、清涼な状態を復元します。その効果は1年以上を確認しています(平成20年2月現在)。



Before treatment

3 weeks after treatment

# Thank you for your attention

Fukuoka Foundation for Sound Health  
Environmental Science Center  
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