The effect of feeding pressure that occurs around us.

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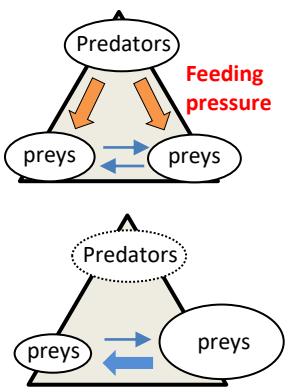
Team 01

【Introduction】

The prey's diversity is kept by predators eating them.

➜ "Feeding Pressure" is important for keeping the balance of ecosystem.

To investigate an example of feeding pressure, we have observed how algae are affected by water snails.



【Hypothesis】

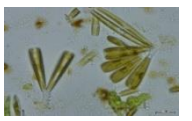
Competitive relationship between algae and diatom is influenced by water snail's feeding pressure.

【Purpose】

To understand the effect of feeding pressure of giant snail on the competitive relationship between diatom and green algae.

[difference of diatom and green algae]

Diatom is unicellular organism with a brown glassy shell.



※Leukosphenia diatom

Green algae has chlorophyll.
There are unicellular, colony, and multicellular.

※Spirogyra

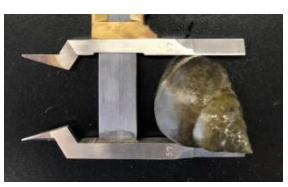
There are two types of algae
: floating type and attached type.
In this study, we focused on attached type

【Experiment】

(Material)

: algae

: water snail (*Cipangopaludina japonica*)



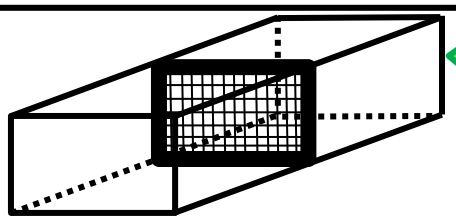


Fig #1 : Overall view of the aquarium

(Aquarium size)
Length : 29.2cm
Width : 59.6cm
Height : 22.6cm

Observe by using microscope

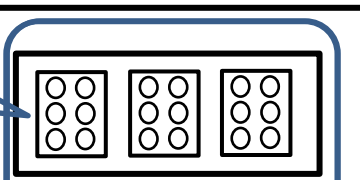


Fig #5

3 weeks later

↑Fig #3

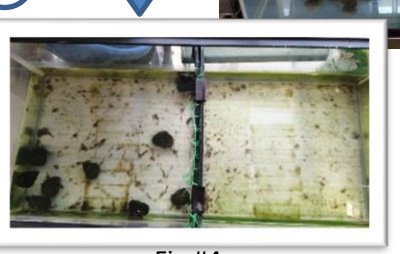
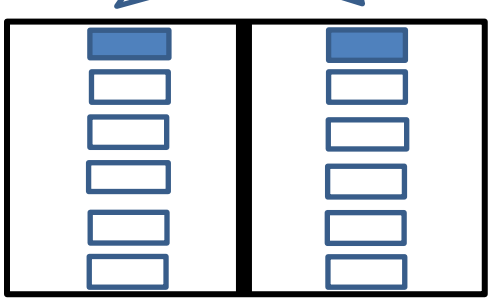


Fig #4

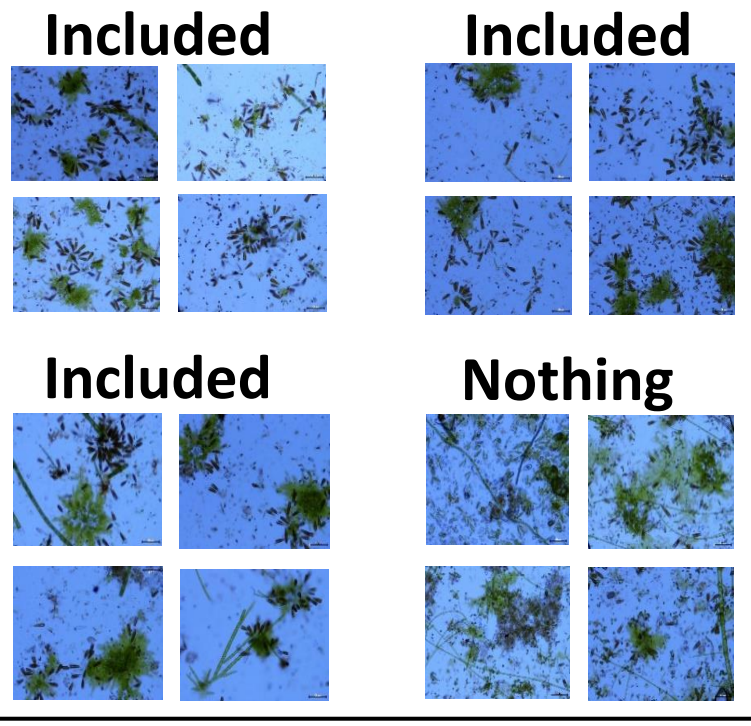


↑Fig #2

(Method)

① Set the water tank has a net (←to separate the water) (Fig #1)
② Placed slide glasses on the bottom of the tank (Fig #2)
③ Put water snail into tank(←each side) (Fig #3)
④ 3 weeks later, right side snails moved to the other side (Fig #4)
⑤ A week later, took out only one slide glass from each side
⑥ Observed a total of 18 places on those picked 2 glasses (Fig #5)

【Result】

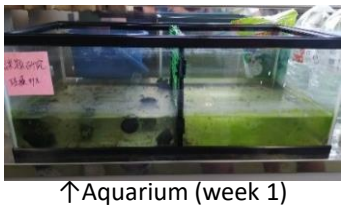


※ The side with or without water snail is labeled "included" or "nothing", respectively.

As you can see from the figure on the left, there is no difference between left and right side at week 0.

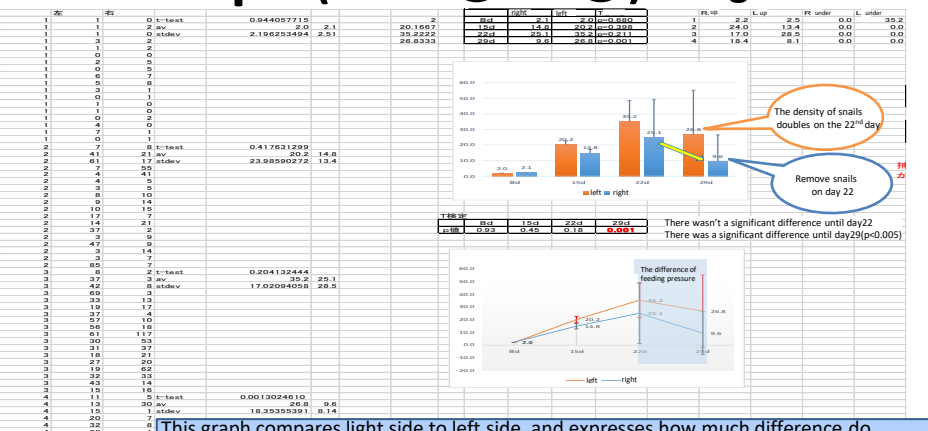
〔Week 0 v.s Week 1〕

On 1 week, the side with no water snail has more green algae and break diatom shells.



↑Aquarium (week 1)

Graph (from ③ to ⑤) using T test [1)]



This graph compares light side to left side, and expresses how much difference do light side and left side have by using numbers.

1) T test expresses how much difference data.

⇒ We observed and counted the number of diatom and algae.(Fig #5) And compare light side and left side. ⇒ We can understand what is happening in the aquarium.

【Conclusion】

Diatom's shells get broken. ⇒ We assume diatoms die because of lack of light nutrition, which they need for survival.

Green algae grow faster than diatom, but they are eaten by water snail.

Competitive Relationship Between Algae and Diatom Is Influenced by Water Snail's FEEDING PRESSURE.

【Outlook】

We will express the data in numbers by controlling the preys, we will research characteristics of the water snails feeding.

【References】

1）http://library.jsce.or.jp/jsce/open/00035/2005/60-7/60-7-0219.pdf

2）http://aquakoke.com/snail.type/