

keyword

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# Identifying the cause of green tide focusing on seawater nutrition





1. Motive & Purpose

2. Significance

3. Pre-expt.1

4. Expt.1

5. Expt.2

6. Conclusion

7. Future prospects





[https://www.irasutoya.com/2014/06/blog-post\\_941.html](https://www.irasutoya.com/2014/06/blog-post_941.html)



<https://www.scmp.com/news/china/article/1284156/cause-qingdaos-green-tide-algae-mystery>





**Green Tide!!!**



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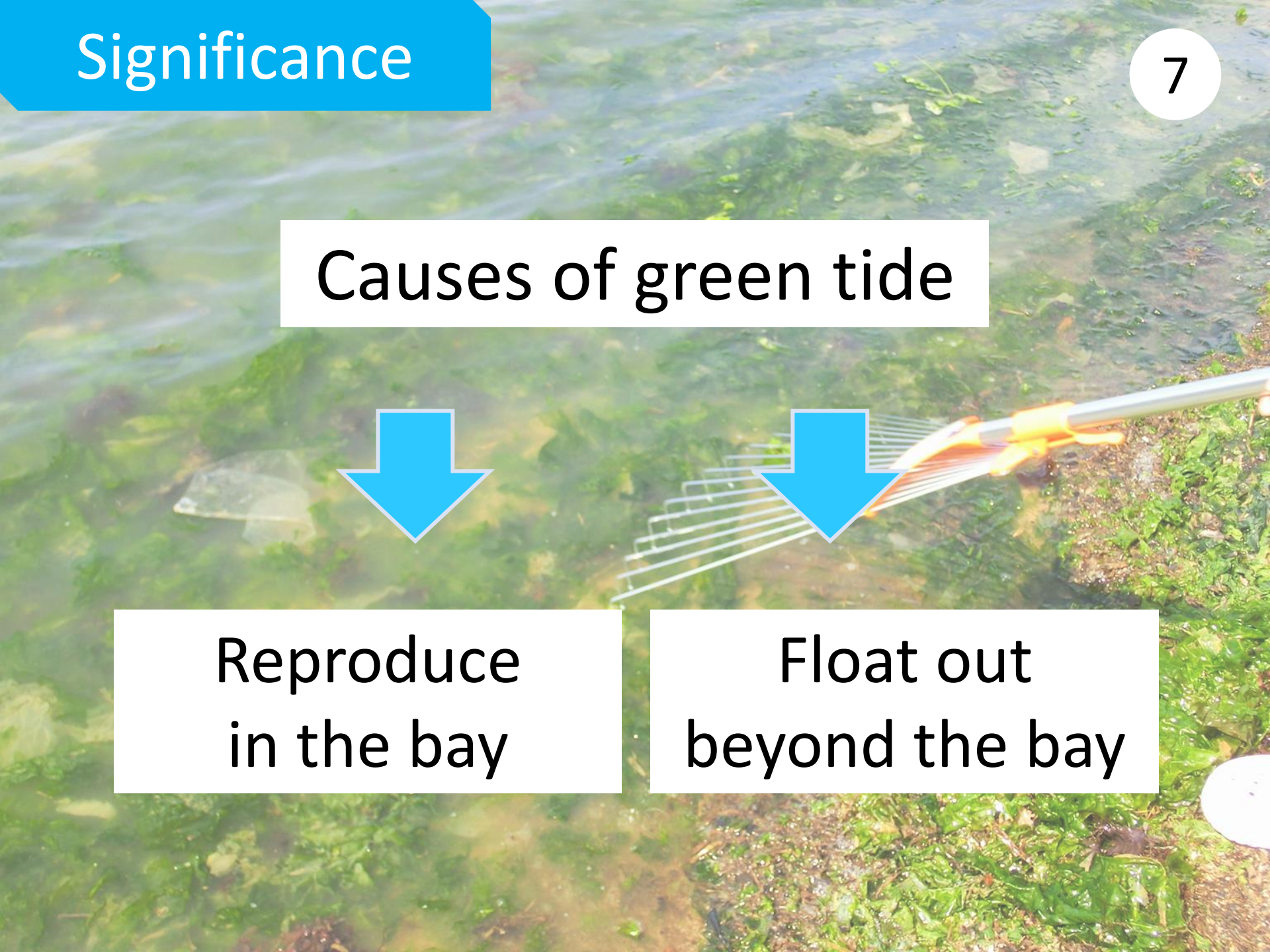
## Causes of green tide



Reproduce  
in the bay



Float out  
beyond the bay





Reproduce  
in the bay



N

P

Nutrition of seawater



How about other elements??



1. Motive & Purpose

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4. Expt.1

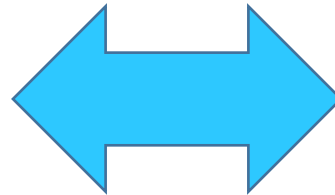
5. Expt.2

6. Conclusion

7. Future prospects

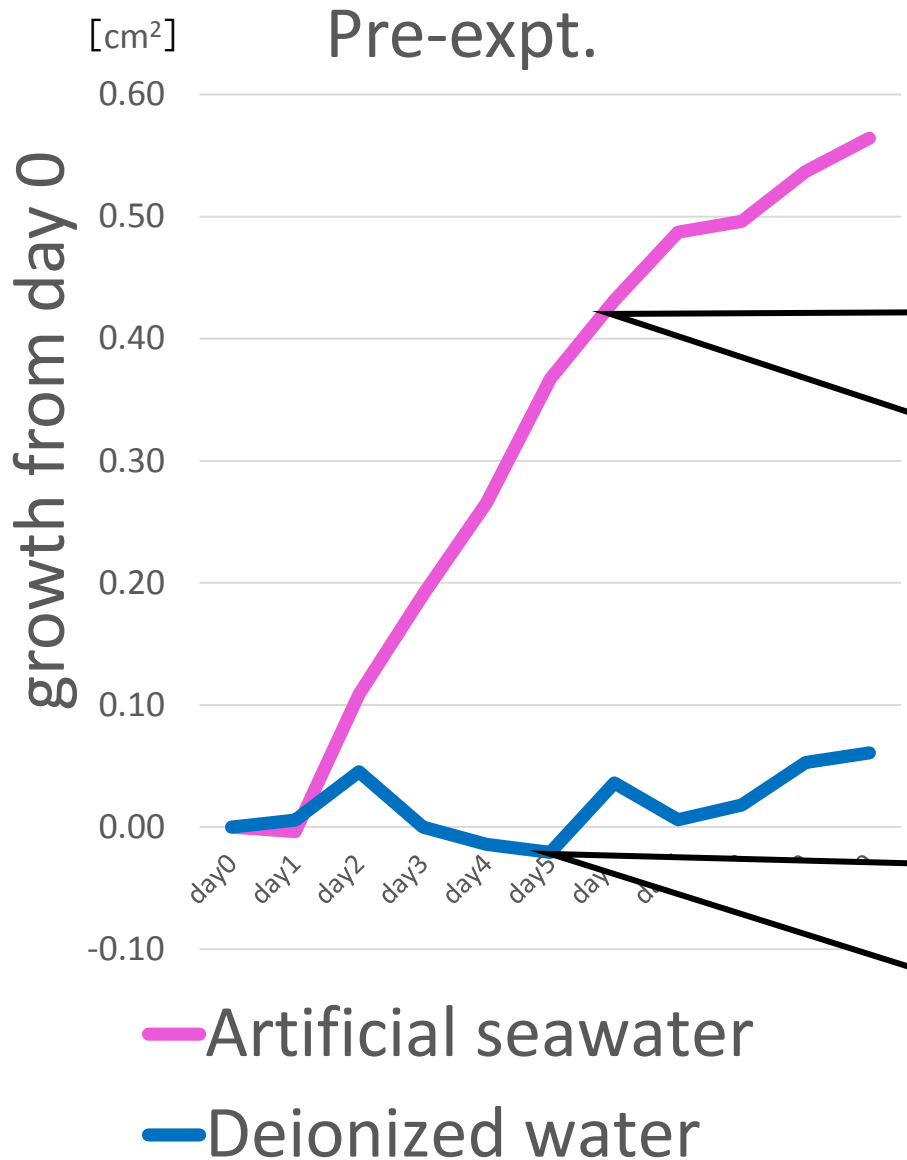


Artificial  
seawater



Deionized  
water





Artificial sea water



grew well

Deionized water



didn't grow



Artificial  
seawater



Mg

K

S

Ca

Fe

N

Growth of sea lettuce?





1. Motive & Purpose

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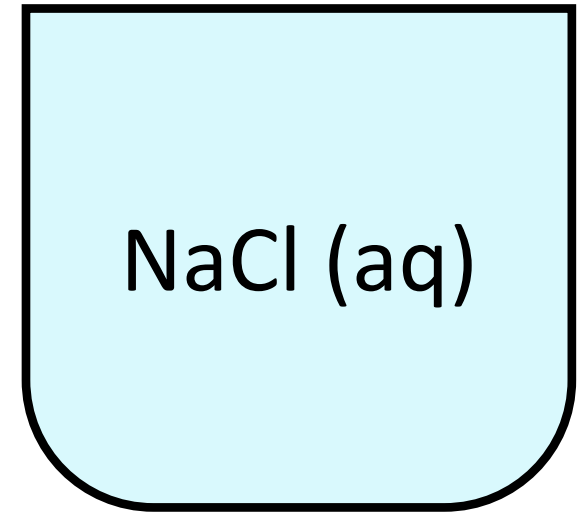
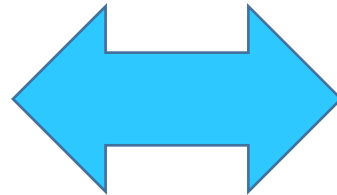
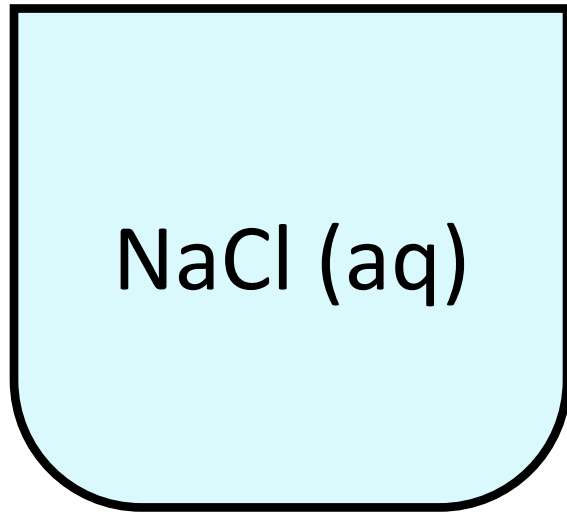
4. Expt.1

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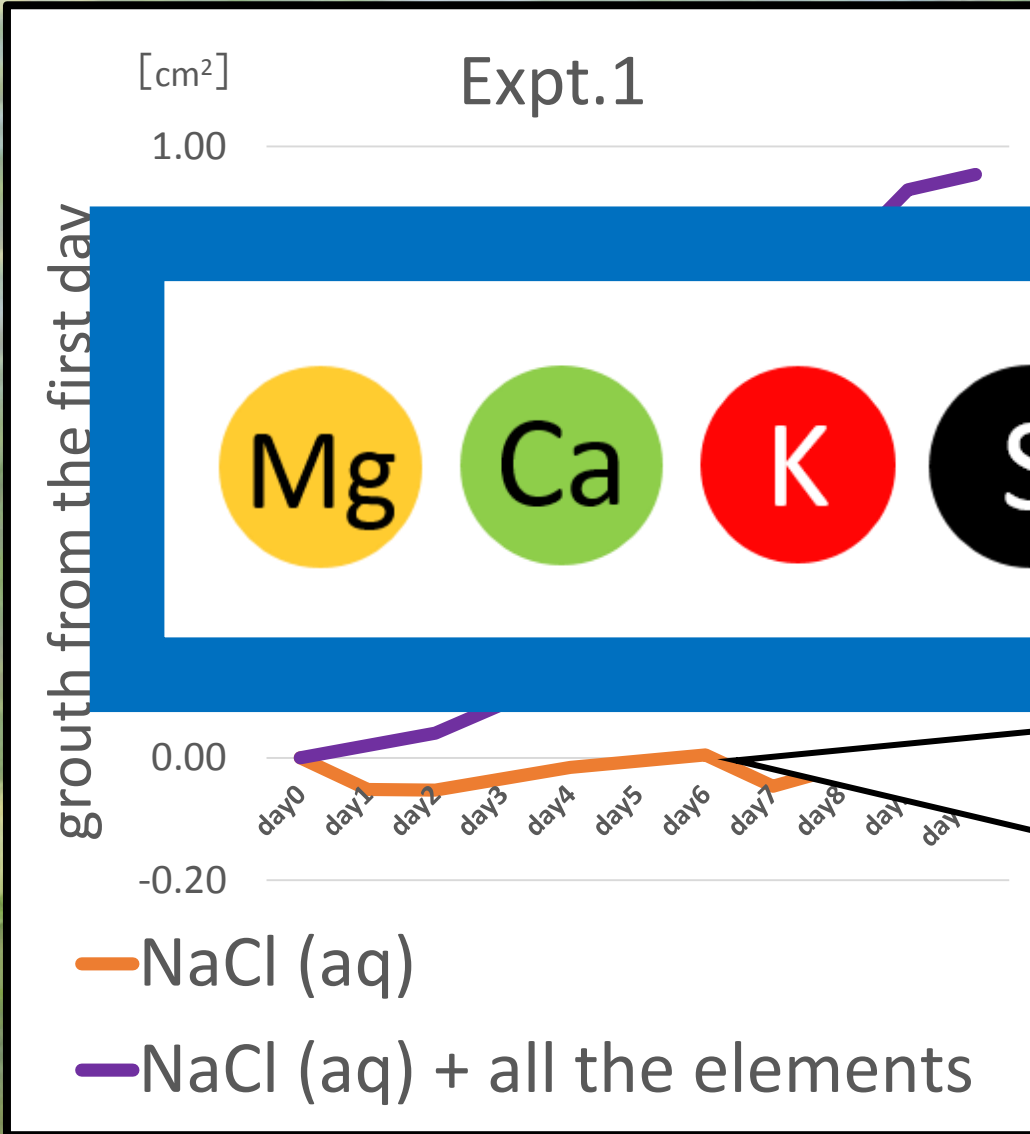


Mg	Ca	K
S	N	Fe



# Result

15



NaCl (aq)  
+

ts

NaCl (aq)  
↓  
didn't grow



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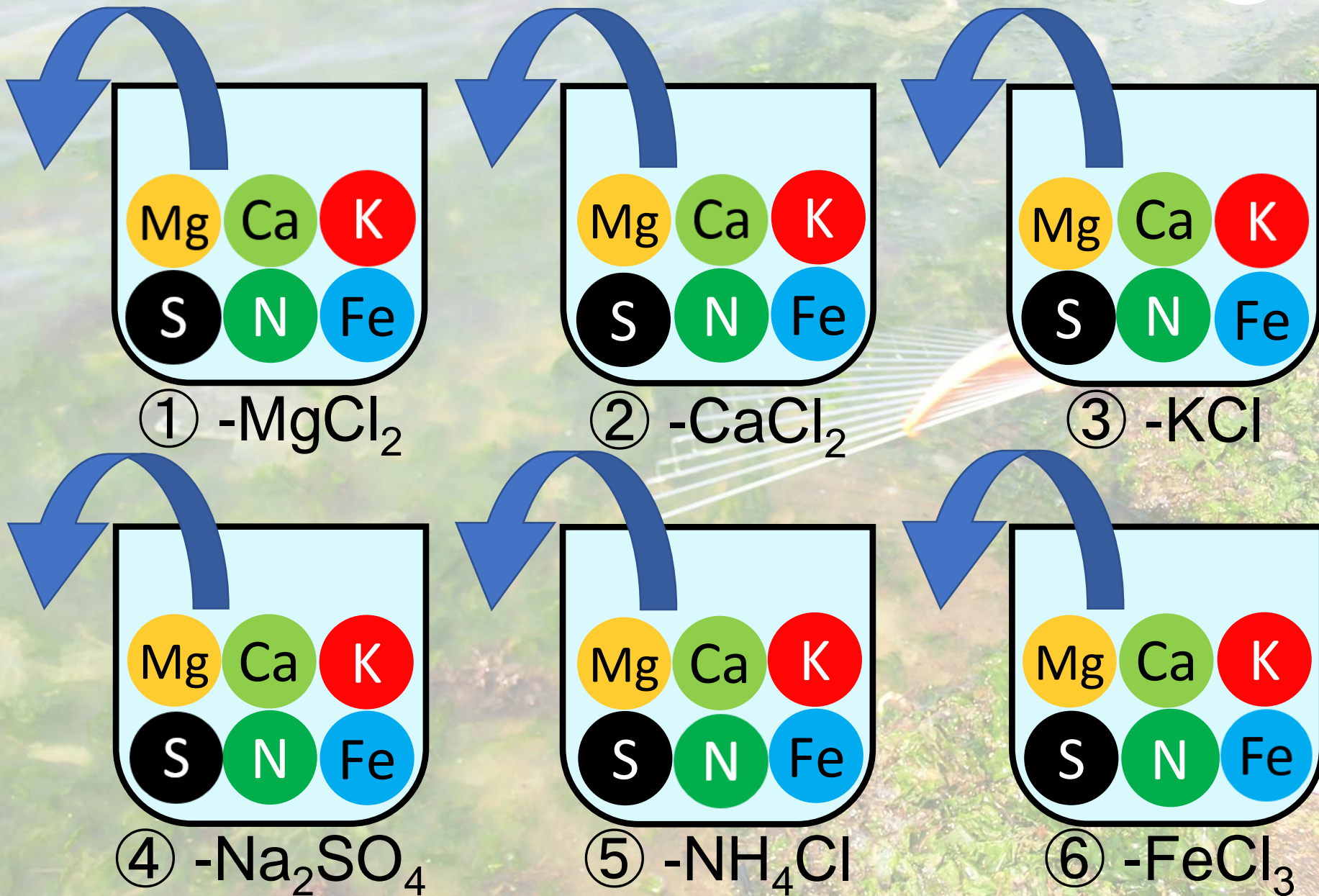
4. Expt.1

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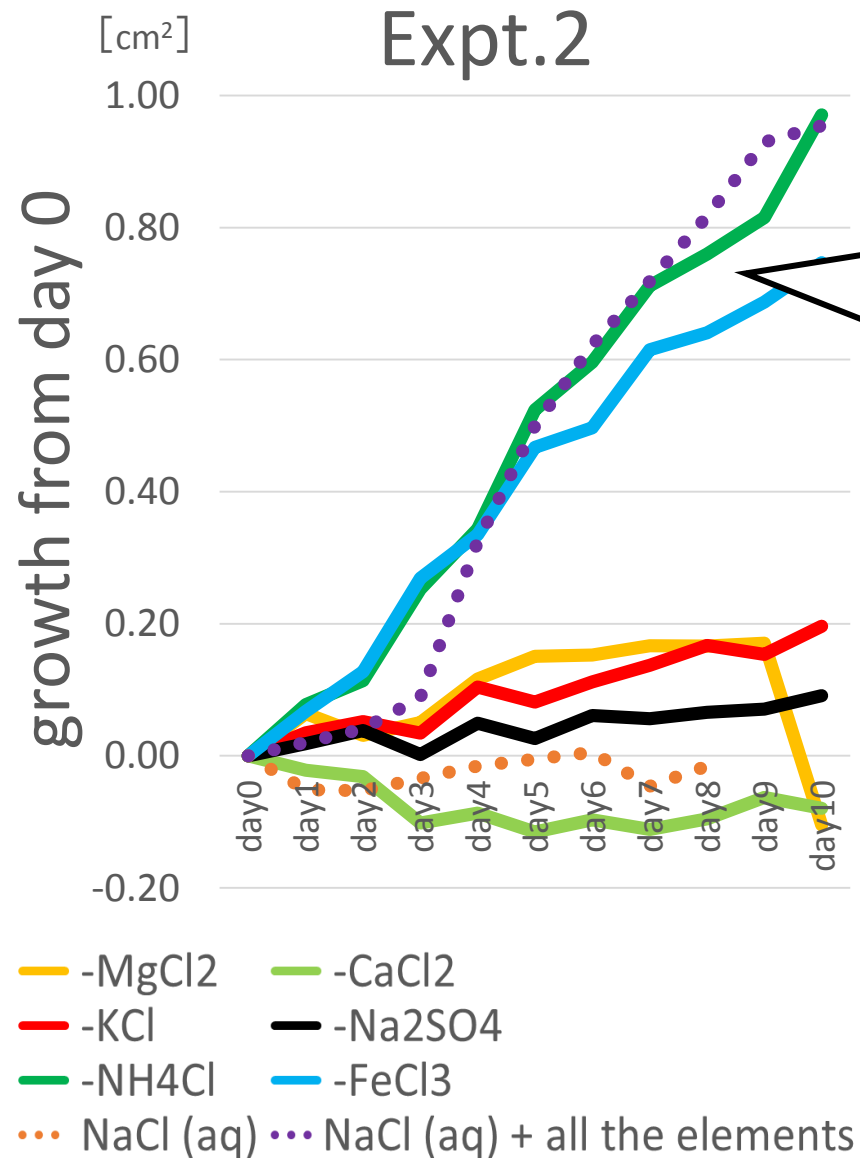






# Result

18



-NH<sub>4</sub>Cl, -FeCl<sub>3</sub>



grew well



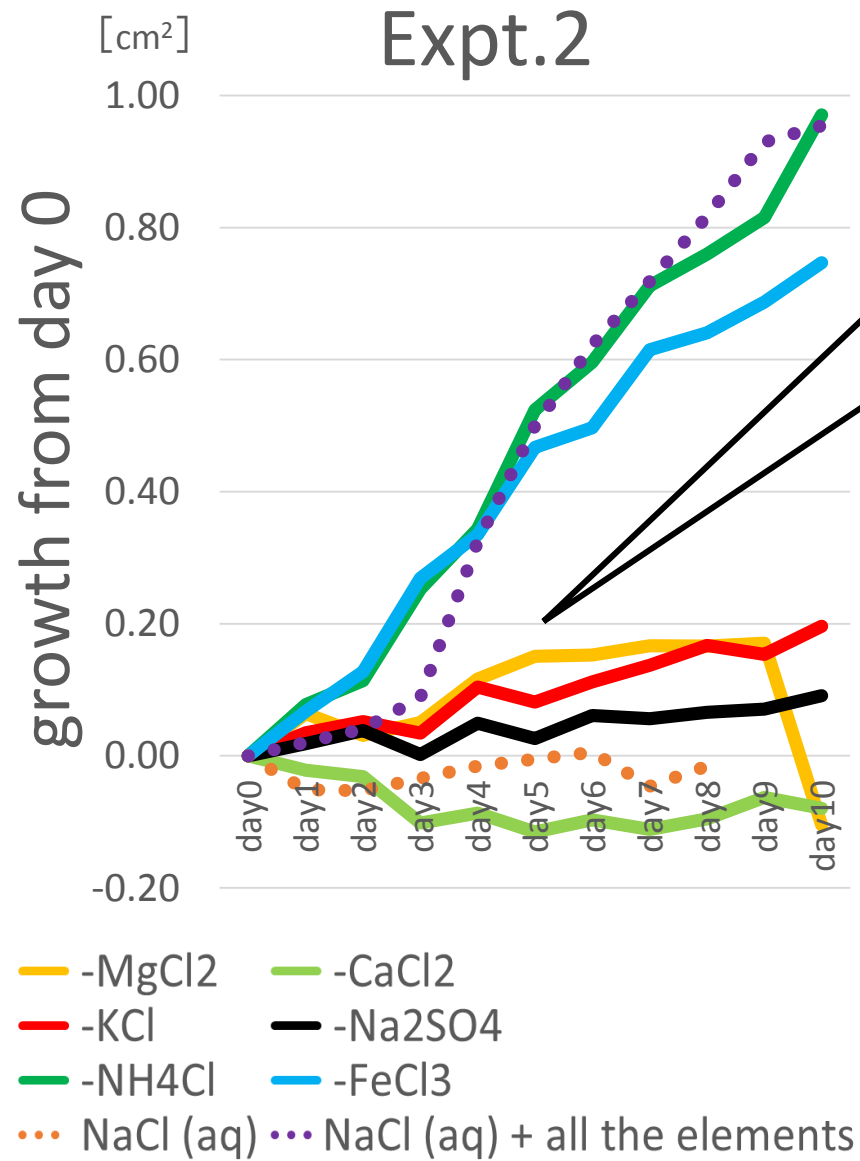
N & Fe

→ not important



# Result

19



-MgCl<sub>2</sub>, -CaCl<sub>2</sub>,  
-KCl, -Na<sub>2</sub>SO<sub>4</sub>



didn't grow



Mg Ca K S

→ **important!**



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Mg

Ca

K

S

→ **important!**

We should focus on...



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## Solve green tide!!



Apply in the sea



What concentration?

What elements?



## Acknowledgements

We deeply appreciate  
Mr.Hanyuda  
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- Ishii Yuichi. National Research and Development Institute of the National Institute for Environmental Studies: Seaweed environmental problems bring about - the generation of green tide and the constituent species of features. (海藻がもたらす環境問題-グリーンタイドの発生と構成種の特徴-) National Institute for Environmental Studies News. 2010, Vol.29, No.23, p465-470.
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Thank you for  
listening!



... **Q & A** ...