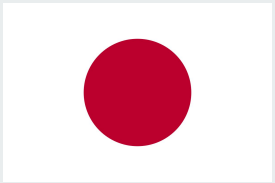
Difference of pH and Salinity in Australian and Japanese Coastal Waters



Group 1

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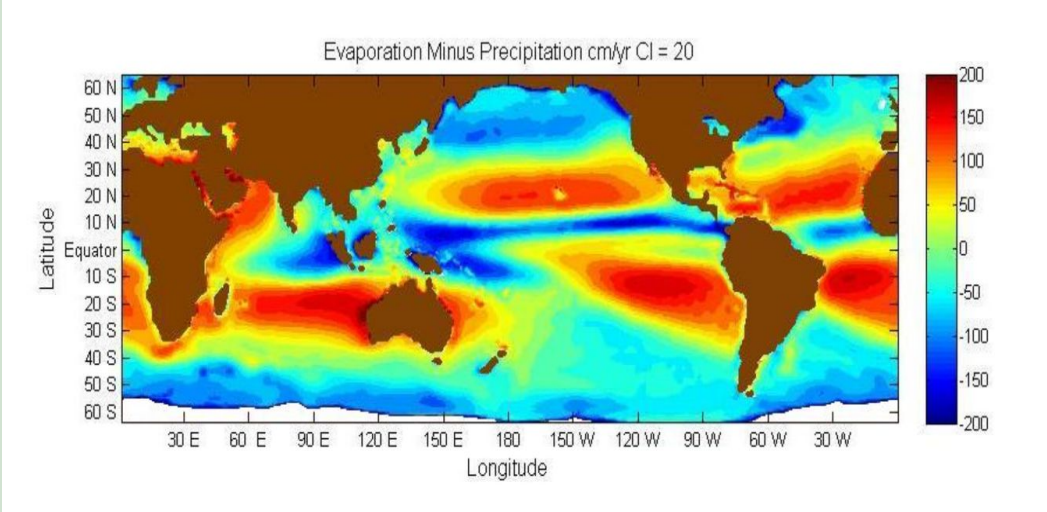
Background

Water Cycle

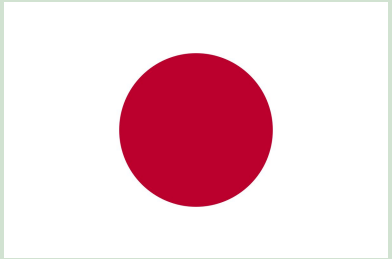
pH

Ocean Acidification

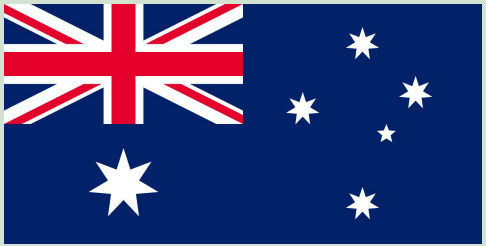
Salinity



Objective



The purpose of this study is to examine the state of the oceans by comparing the pH and salinity of seawater in Australia and Japan.



Methodology

Measure the pH and conductivity of seawater and calculate the salinity from the conductivity results.

pH

(1) Rinse the pH probe.

(2) Dip the tip of the probe into the sample and wait until the measured value stabilizes.

Repeat (1) and (2) for each sample.

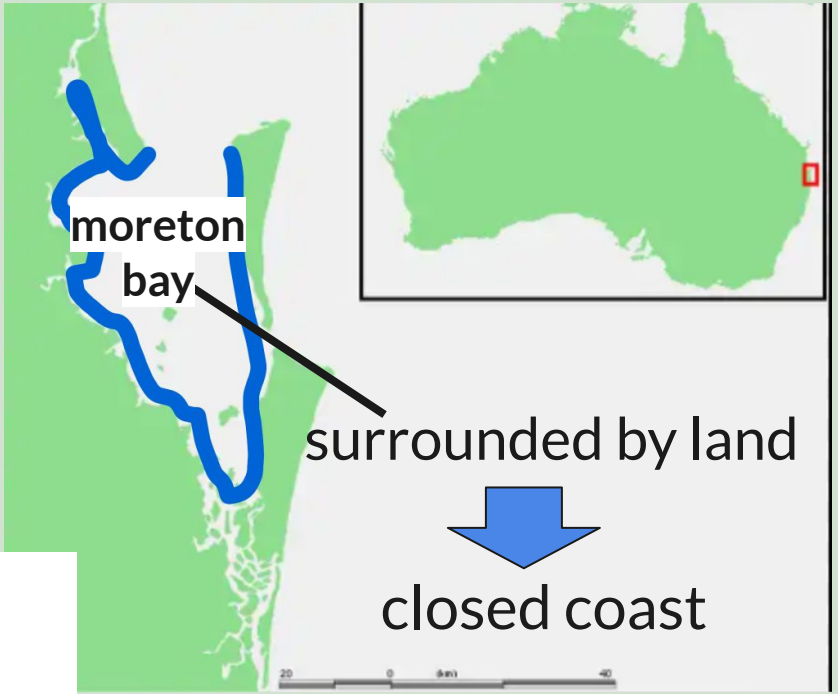
Salinity by conductivity

1. Prepare saline solutions with NaCl concentrations of 10%, 5%, and 1%, respectively.
2. Wash the conductivity meter and stirring rod with distilled water.
3. Calibrate the conductivity meter with the three solutions and record the conductivity of all three while stirring the solutions.
4. Rinse the conductivity meter again and immerse the sample in the sample while stirring.
5. Record the results.
6. Repeat steps 4 and 5 for each sample and compare with the readings recorded in step 3.

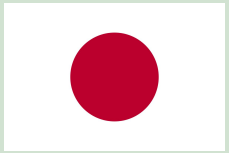
About Open coast,Closed coast

directly connected
to the Pacific Ocean

open coast



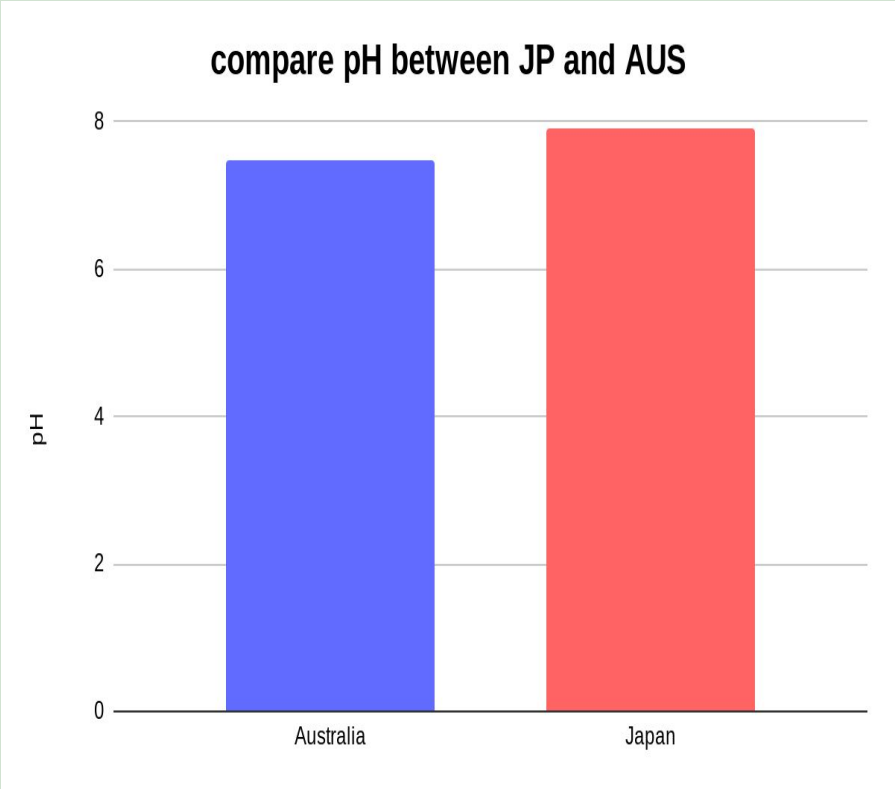
Results

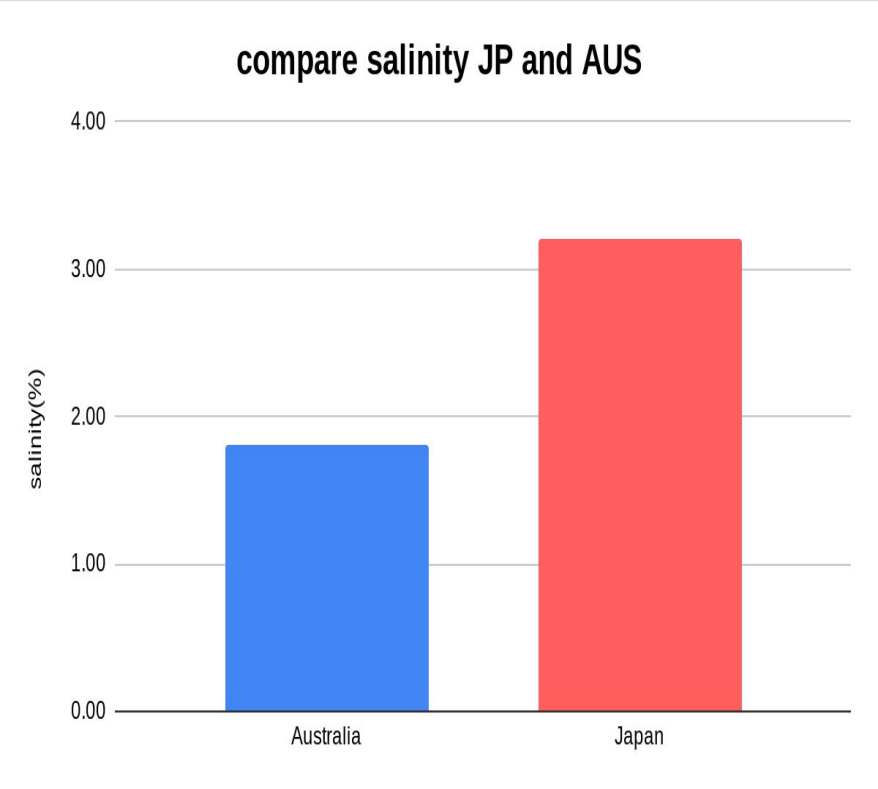


JP	point1	point2	point3	point4	point5	average
pH	7.77	7.98	7.95	7.96	7.89	**7.91**
salinity(%)	2.58	3.33	3.38	3.39	3.36	**3.21**

AUS	point1	point2	point3	point4	point5	average
pH	7.39	7.74	7.96	7.29	7.08	**7.49**
salinity (%)	2.04	2.04	0.90	2.03	2.03	**1.81**

- Australian pH is more acidic than Japanese pH.
- Australian salinity is lower than Japanese salinity.


compare pH between JP and AUS
pH
8
6
4
2
0
Australia
Japan


compare salinity JP and AUS
salinity(%)
4.00
3.00
2.00
1.00
0.00
Australia
Japan

Discussion①

- Australian pH is more acidic than Japanese pH.

Closed coasts have more micro plant creatures than open coasts.
And other creatures that eat them gather at the coast.
Therefore closed coasts' CO2 concentration is higher.

For this reason we believe that Australian pH is more acidic than Japanese pH.

Discussion②

- Australian salinity is lower than Japanese salinity.

All Australian coast water was taken from closed coasts

→Closed coasts have lower salinity than open coasts due to river water going into the sea and staying there especially in Moreton bay in Australia.

For this reason we consider Australian salinity is more low than Japanese salinity.

Future Studies

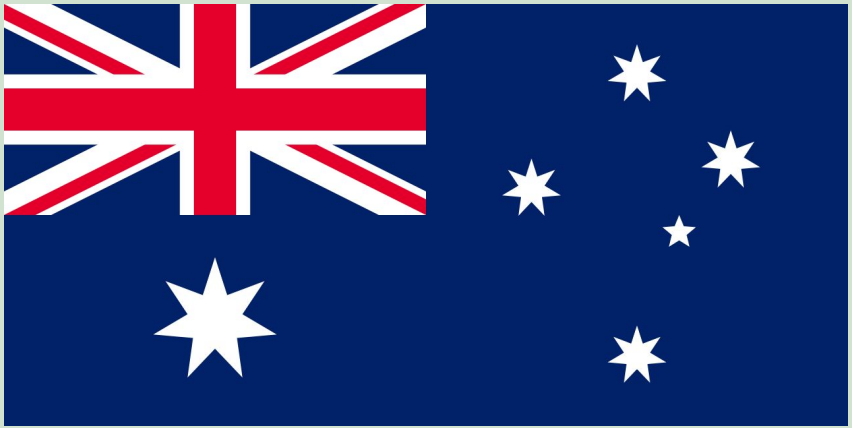
We surveyed seawater nearby land this time .

We found thorough this research that **we should survey seawater farther away from land if we were to understand global water flows.**

What we achieved through ICRF (From Japanese Students)

- English skills from discussing with others
- Cultural tolerance and awareness of diversity
- Broader view towards research

What we achieved through ICRF (From Australian Students)



・Overcoming cultural differences

・International collaboration regarding research

・Tolerance of the language barrier

Thank you for listening!!