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## Brine Rejection Activity


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# STEM Polar Connections



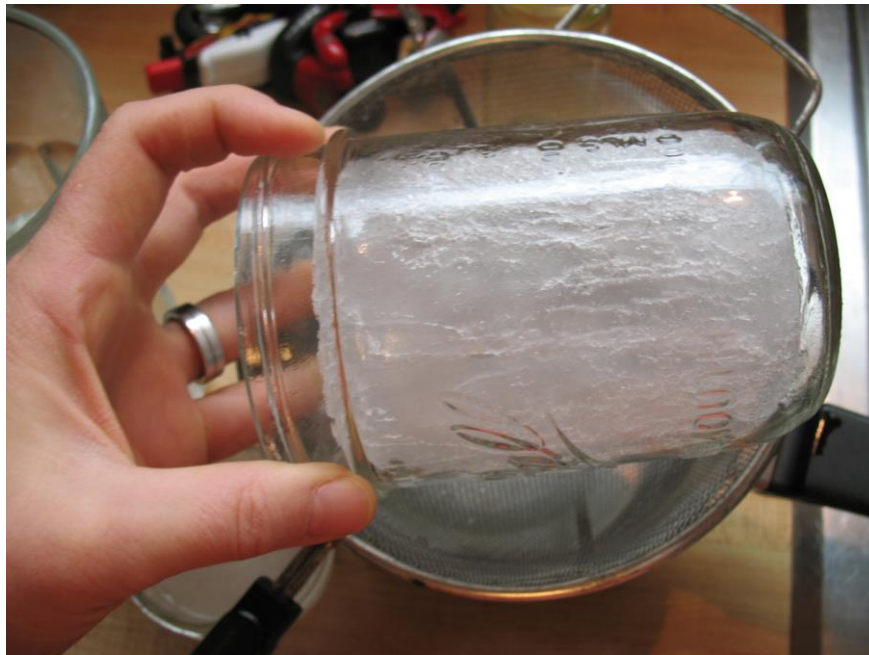
## Brine Rejection

### Introduction

As salt water freezes, the salt is pushed out of solution through channels in the ice. This process is called brine rejection or brine exclusion. These channels are often used as microhabitats by ice algae, zooplankton, and even tiny fish. You can easily demonstrate what these channels look like.

### Procedure

- Fill 2 clear containers with tap water (this works equally well with transparent glass or plastic containers). Add a tablespoon of salt to one of them and stir well.
  - Students could experiment by varying the amount of salt they add to the water. Typical sea water contains 35 ppm of salt. You could ask students to calculate the salinity of the water they freeze, or vary salinities and test the salinity at which brine channels clearly begin to form.
- Put both containers in the freezer for 3 hours. It's important not to leave them in for too long because there needs to be some water left to view the brine channels and if you're using glass, you're likely to come back to a broken container!
- Remove from the freezer and carefully pour out the remaining water to see the channels in the salty water.



### Helpful Web Resources

[http://www.met.ed.ucar.edu/oceans/currents/brine\\_exclusion.htm](http://www.met.ed.ucar.edu/oceans/currents/brine_exclusion.htm) (you'll need to create a free account to access this animation)

[www.umass12.net/ipyear](http://www.umass12.net/ipyear)

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