

Name _____ Fish Species _____ Fish Preferred Temperatures _____

Shifting Fishes Simulation Activity Worksheet

Instructions:

- (1) **Outline** *all* of the cells (habitat) that your fish could occupy in 1980 based on temperature.
- (2) Place your one fish in one of those cells, and **record** the year in the cell on the map
- (3) **Record** in the table below:
 - a. latitude of the cell your one fish occupies
 - b. total amount of cells (habitat) you could occupy
 - c. whether it was Easy, OK, or Hard to find cells (habitat) to occupy
- (4) After 20 years, **find** a new cell, which is a temperature habitat your fish could occupy, to move one step:
 - a. has to be next to your current cell, so either up/down OR right/left
 - b. you can go back to a previous cell
- (5) Repeat Steps 2-4 for 2000, 2020, 2040, 2060, 2080, and 2100.
- (6) Fill in *all* of the cells that you could occupy in 2100, based on temperature, with **hash** marks.

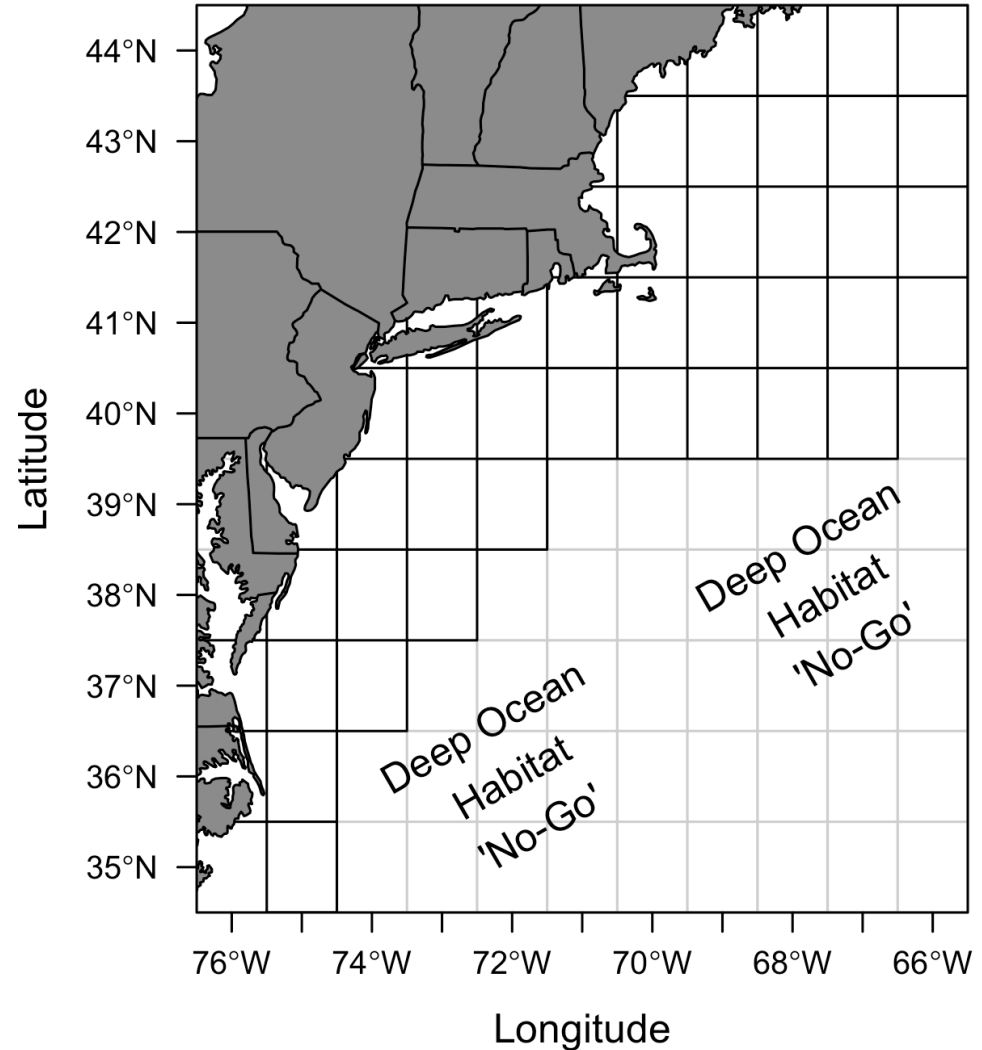
Questions:

What temperatures were preferred by your fish?

Colder Intermediate Warmer

Describe the range size of temperatures preferred by your fish.

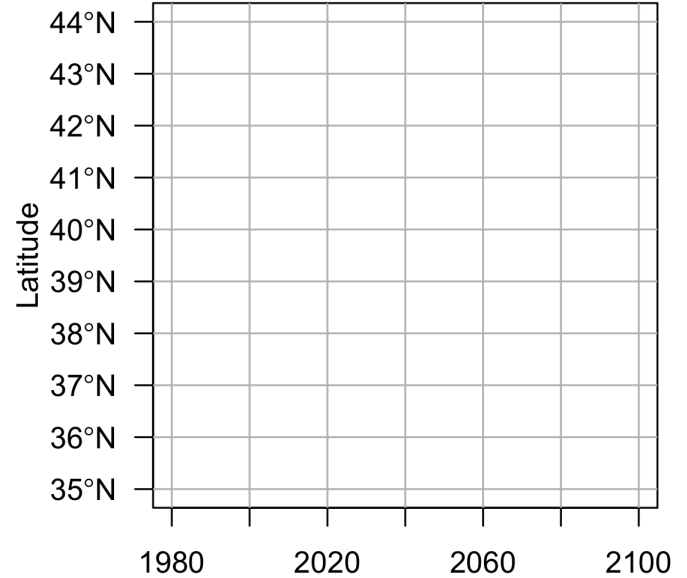
Broad Intermediate Narrow



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Year	Fish Latitude (°N)	Total Habitat (# Cells)	How easy* was it to find habitat?
1980			
2000			
2020			
2040			
2060			
2080			
2100			

Plot the trends over time:



*Ease of Finding Habitat:

Easy= >20 cells

OK= 10-20 cells

Hard= <10 cells

Questions to Consider: *Circle the appropriate response*

How did the distribution of your one fish change with warming along the coast?	<i>Move North</i>	<i>Stay the same</i>	<i>Move South</i>
How did total habitat suitable for your fish species change with warming?	<i>Increase</i>	<i>Stay the same</i>	<i>Decrease</i>

Check for Understanding:

Make a claim about the relationship between the distribution of your fish species and temperature over time.

What is your evidence from your simulation data and reasoning for your claim?

