

A photograph of a sunset over the ocean. The sun is a bright, glowing orb in the upper center, casting a shimmering path of light across the water's surface. The sky is a gradient of warm colors from yellow to orange. The ocean is dark blue with white-capped waves breaking in the foreground. The overall mood is peaceful and serene.

Ocean Home

Swimming Fish

Activity created by Jason Turnure and Jason Werrell

To START...

Winter Flounder

Pseudopleuronectes americanus

Start: 8D




Find the start block on your card...

Stand on that block.

Look at the colors on the right side of your card... these are the ocean temperatures you can survive in.

Temperature Key

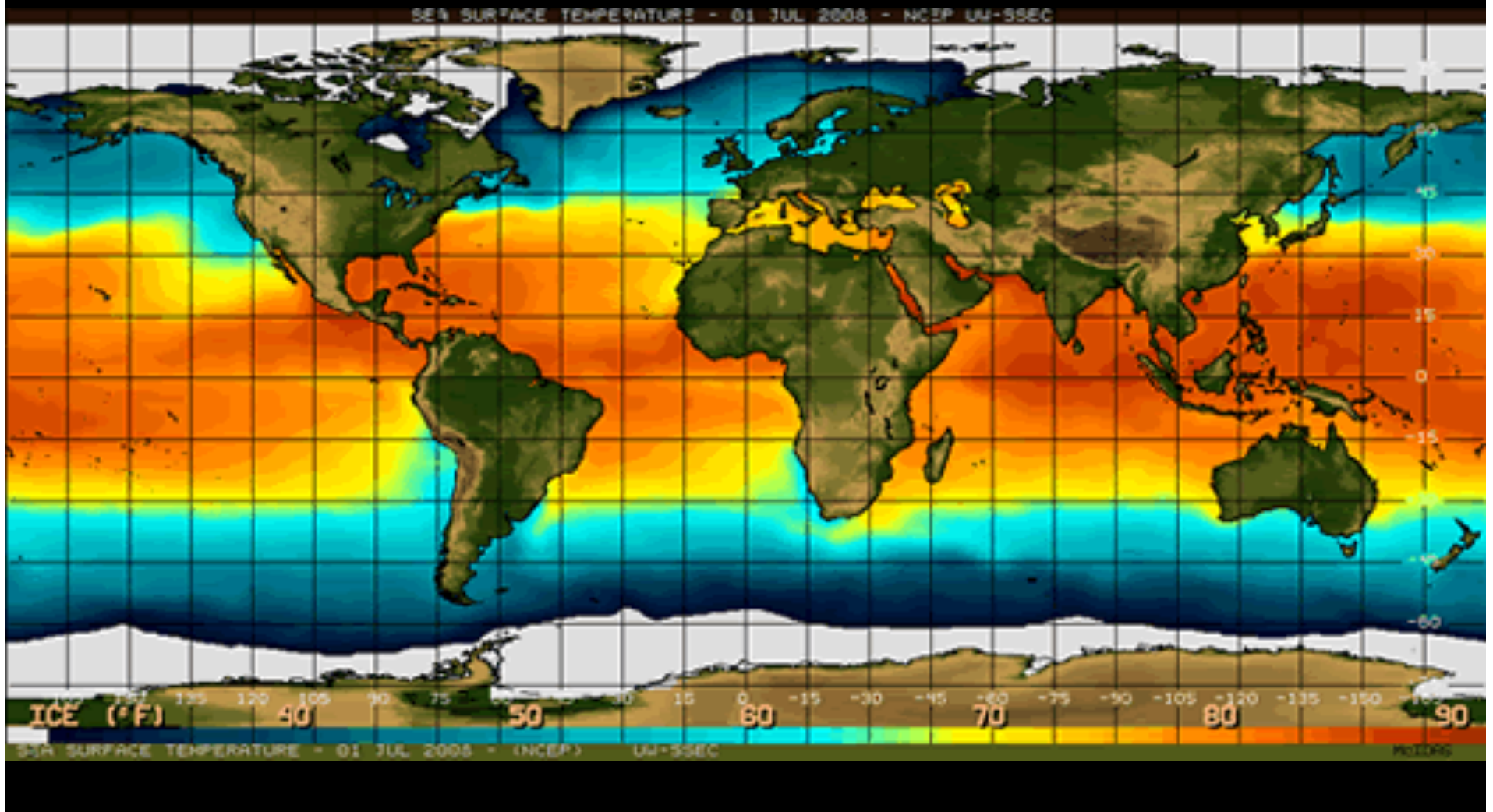
Do you live in warmer water or colder water?


colder

warmer


	Purple
	Blue
	Green
	Yellow
	Orange
	Red
	Brown

Ocean temperatures vary by season and often by major geologic events.



Start ... Year 2000

9	Purple	Purple
8	Blue	Blue
7	Blue	Blue
6	Green	Green
5	Yellow	Yellow
4	Orange	Orange
3	Red	Red
2	Red	Red
1	Brown	Brown

There will be 10 rounds to equal the passage of 100 years.

An individual fish doesn't usually live to be 100 years old, so each person is representing many generations of that species of fish rather than an individual fish.

Rules:

only 1 fish (person) per square

***You can only stay 2 times in a row ~
after that you HAVE to move***

Start ... Year 2000

9	Purple	Purple
8	Blue	Blue
7	Blue	Blue
6	Green	Green
5	Yellow	Yellow
4	Orange	Orange
3	Red	Red
2	Red	Red
1	Brown	Brown

Do you think the ocean temperature become warmer or cooler in the next 10 years?

**Now,
a decision...**

Move forward
(higher in number)

or

Move back
(lower in number)

or

Stay where you are

Year 2010

9	Purple	Purple
8	Blue	Blue
7	Green	Green
6	Yellow	Yellow
5	Yellow	Yellow
4	Orange	Orange
3	Orange	Orange
2	Red	Red
1	Brown	Brown

It's now 2010 and the ocean temperature has changed... can you survive where you are?

Does the row you're standing in have the temperature color on your fish card?

If not, then step off the board....

Decision time again...

Move forward

or

Move backward

or

Stay



Year 2020

9	Blue	Blue
8	Green	Green
7	Green	Green
6	Yellow	Yellow
5	Yellow	Yellow
4	Orange	Orange
3	Orange	Orange
2	Red	Red
1	Brown	Brown

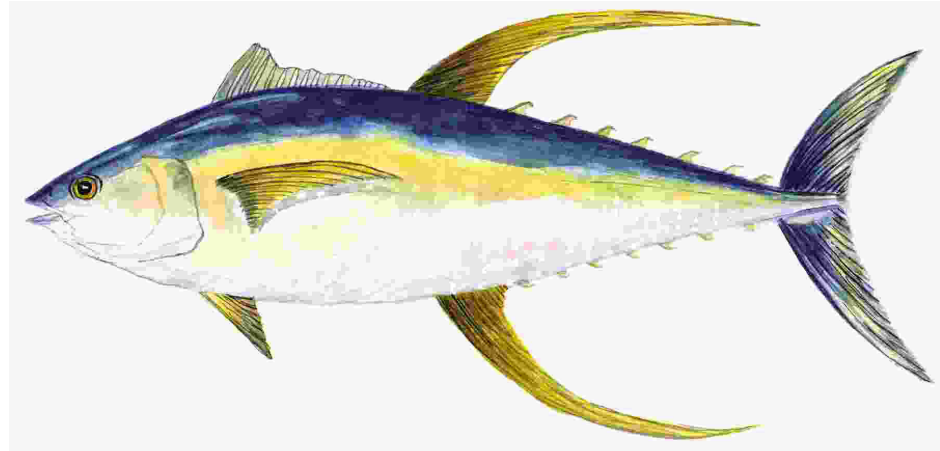
Can you survive
where you are?

If not, please step off the board.

Decision time again...

Move forward

or



Move backward

or

Stay

If you haven't moved at all yet,
you **MUST** move at this time!

Year 2030

9	Blue	Blue
8	Green	Green
7	Yellow	Yellow
6	Yellow	Yellow
5	Yellow	Yellow
4	Orange	Orange
3	Orange	Orange
2	Red	Red
1	Brown	Brown

Do you have any observations about the last 30 years?

Can you survive where you are?

If not, please step off the board.

Decision time again...

Move forward

or

Move backward

or

Stay



There was a volcanic eruption in
Alaska!



Year 2040

9	Blue	Blue
8	Blue	Blue
7	Green	Green
6	Green	Green
5	Yellow	Yellow
4	Yellow	Yellow
3	Yellow	Yellow
2	Orange	Orange
1	Red	Red

What overall effect did the volcanic eruption have the ocean temperatures?

Can you survive where you are?

If not, please step off the board.

Decision time again...

Move forward

or

Move backward

or

Stay



Year 2050

9	Blue	Blue
8	Green	Green
7	Yellow	Yellow
6	Yellow	Yellow
5	Yellow	Yellow
4	Orange	Orange
3	Orange	Orange
2	Orange	Orange
1	Red	Red

Can you survive
where you are?

If not, please step off the board.

Decision time again...

Move forward

or

Move backward

or

Stay



Year 2060

9	Blue	Blue
8	Green	Green
7	Yellow	Yellow
6	Yellow	Yellow
5	Orange	Orange
4	Orange	Orange
3	Orange	Orange
2	Red	Red
1	Red	Red

Can you survive
where you are?

If not, please step off the board.

We're a little more than
half-way through our
100 years...

How are the fish
doing?

Decision time again...

Move forward

or

Move backward

or

Stay



Year 2070

9	Blue	Blue
8	Green	Green
7	Yellow	Yellow
6	Orange	Orange
5	Orange	Orange
4	Orange	Orange
3	Orange	Orange
2	Red	Red
1	Brown	Brown

Can you survive
where you are?

If not, please step off the board.

Only 3 rounds left!

Decision time again...

Move forward

or

Move backward

or

Stay



Year 2080

9	Blue	Blue
8	Green	Green
7	Yellow	Yellow
6	Orange	Orange
5	Orange	Orange
4	Orange	Orange
3	Red	Red
2	Red	Red
1	Brown	Brown

Can you survive
where you are?

If not, please step off the board.

Decision time again...

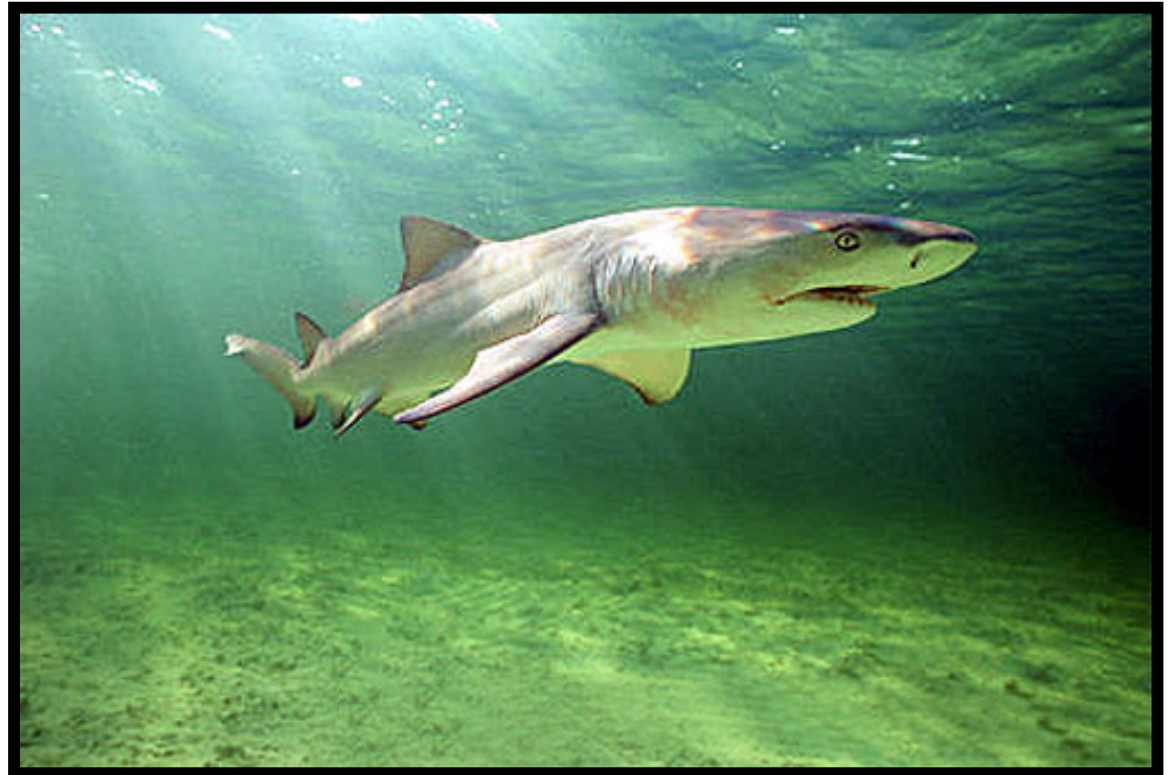
Move forward

or

Move backward

or

Stay



Year 2090

9		Green
8		Green
7		Yellow
6		Orange
5		Orange
4		Orange
3		Red
2		Red
1		Brown

Can you survive
where you are?

If not, please step off the board.

Decision ~ for the last time...

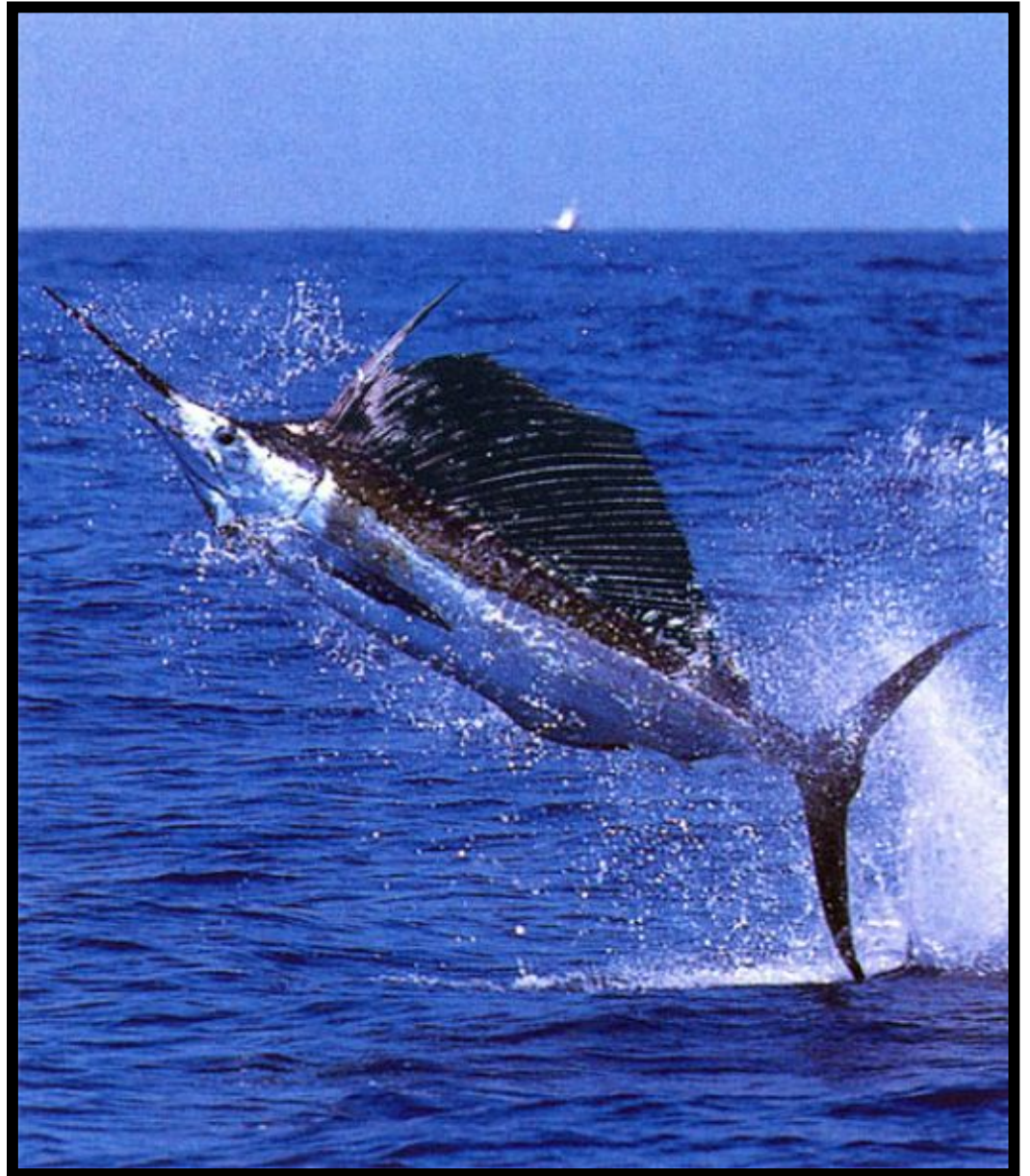
Move forward

or

Move backward

or

Stay



Year 2100

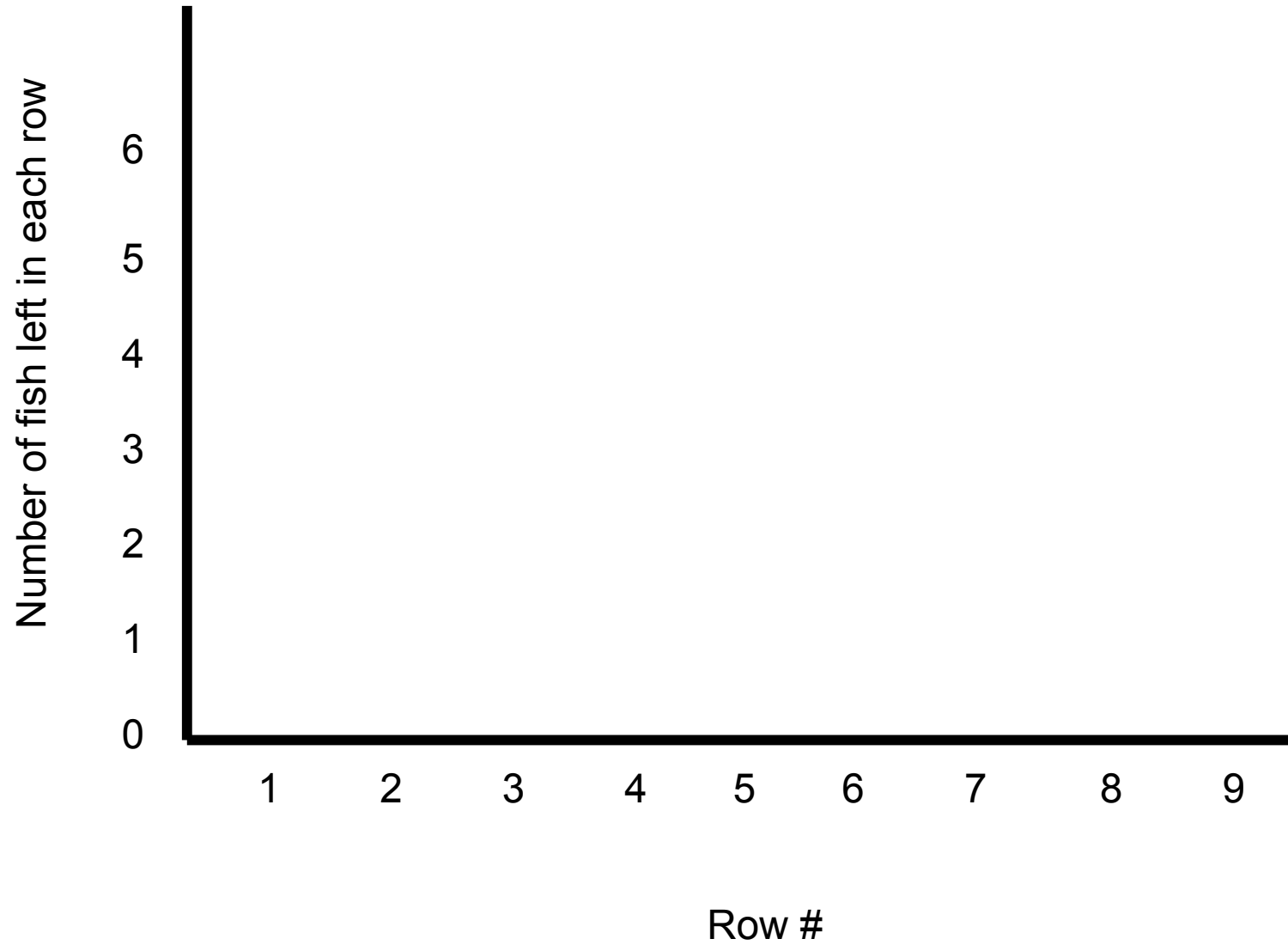
9	Green	Green
8	Yellow	Yellow
7	Yellow	Yellow
6	Orange	Orange
5	Orange	Orange
4	Red	Red
3	Red	Red
2	Brown	Brown
1	Brown	Brown

Can you survive
where you are?

If not, please step off the board.

Who still survives?

Year 2100



Sea Surface Temperature (SST)

- Current SST map

http://marine.rutgers.edu/cool/sat_data/?product=sst¬humbs=0

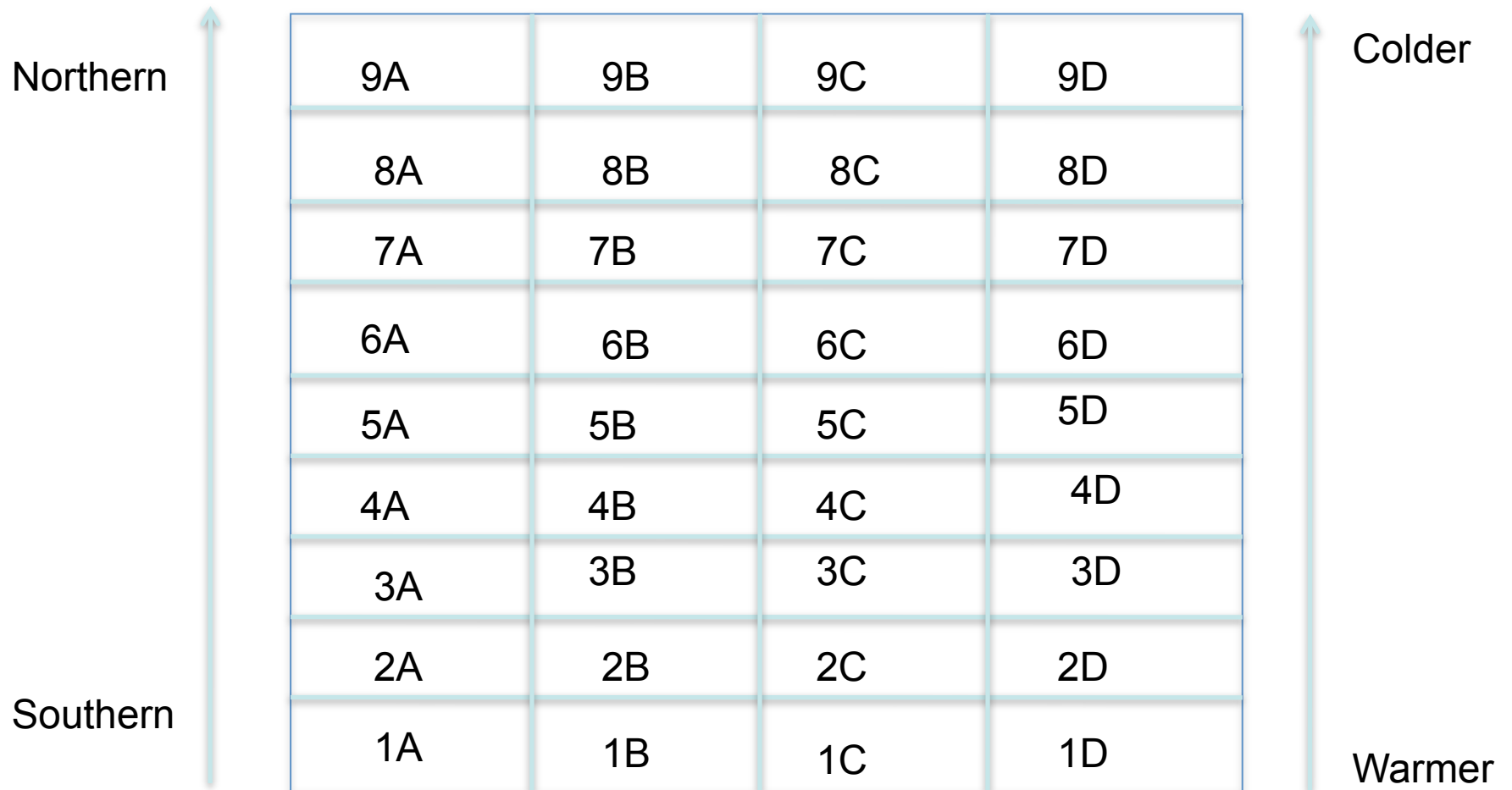
- How to read an SST map

http://new.coolclassroom.org/img/adventures/plume/popup_sst_tutorial.htm

- Detailed explanation for SST map

<http://rucool.marine.rutgers.edu/index.php/COOL-Data/How-to-read-Sea-Surface-Temperature-Map.html>

Figure 2. Schematic of “Warming Oceans, Swimming Fishes” Game Board



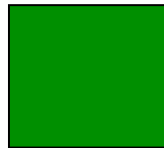
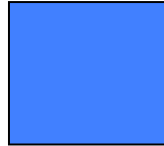
Playing Cards

- This activity works best with no more than 12 players. To include all students, you can pair them in teams, with just one person of the team standing on the board.
- The next 3 slides have the playing cards for this activity. If you print them, cut them out, then laminate ~ you can reuse them every year.

Ocean Pout

*Macrozoarces
americanus*

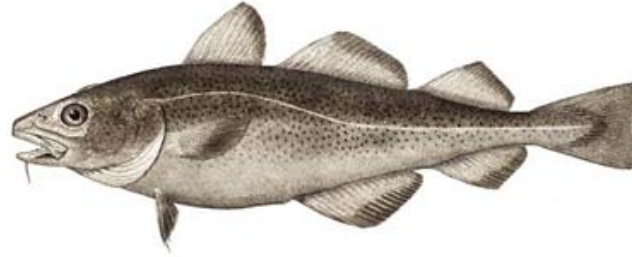
Start: 8A



Atlantic Cod

Gadus morhua

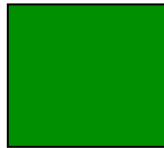
Start: 8B



Atlantic Herring

Clupea harengus

Start: 8C



Winter Flounder

Pseudopleuronectes americanus

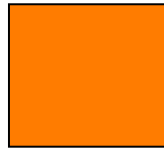
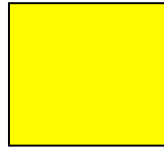
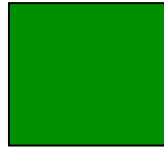
Start: 8D



Striped Bass

Morone saxatilis

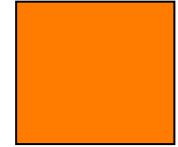
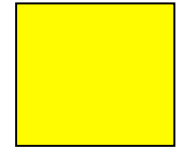
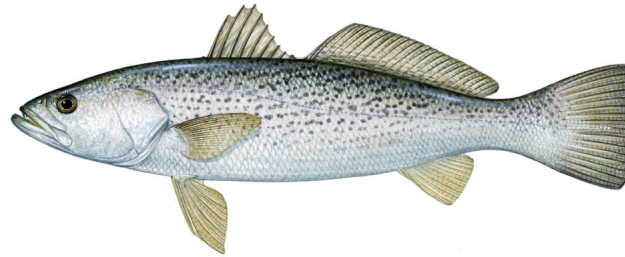
Start: 5A



Weakfish

Cynoscion regalis

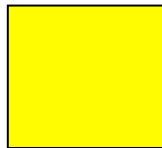
Start: 5B



Summer Flounder

Paralichthys dentatus

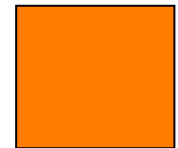
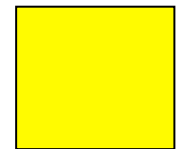
Start: 5C



Atlantic Menhaden

Brevoortia tyrannus

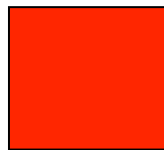
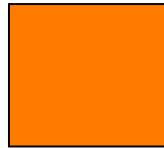
Start: 5D



Southern Stingray

Dasyatis americana

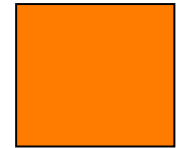
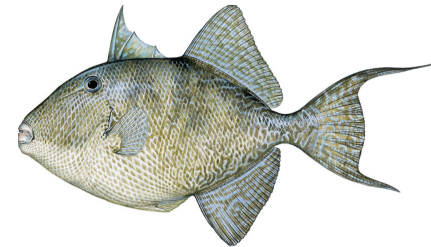
Start: 2A



Gray Triggerfish

Balistes capriscus

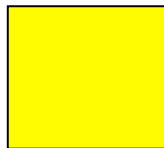
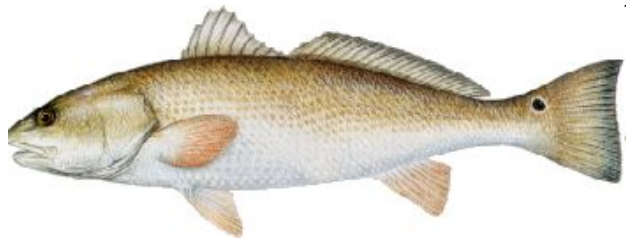
Start: 2B



Red Drum

Sciaenops ocellatus

Start: 2C



Lemon shark

Negaprion brevirostris

Start: 2D

