



Unregulated Fishing, Seasonal Closures and MPAs – How are they Connected?

Audience: Middle School Students (~ 20 students)
Instructor is needed to lead and supervise the activity

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Introduction

Marine protected areas (MPAs) are usually small regions in the ocean where fishing and other activities are highly regulated or often restricted. For example, in a No-Take MPA (also referred to as a marine reserve), fishing is not allowed at any time. This means all fish that live within that MPA are protected from fishing.

Seasonal closures are another option that protect fish from overexploitation. A seasonal closure is often implemented in places that are not protected by a permanent MPA. This closure places a temporary ban on fishing during certain times of the year.

Both of these scenarios require two main components: enforcement and compliance. Enforcement means that the natural resource managers patrol these areas and make sure that no one is disobeying the rules. Compliance means that the fishers are respecting the laws and are not trying to take fish illegally. We need both enforcement and compliance for MPAs and seasonal closures to work.

When MPAs and seasonal closures work properly, then we can produce a sustainable fishing scenario where there are enough fish for our consumption, and also enough fish left in the ocean to keep that population alive and thriving. This is a win-win scenario for all stakeholders.

More on MPAs: <https://oceanservice.noaa.gov/facts/mpa.html>

More on seasonal closures (Caribbean example): <https://www.fisheries.noaa.gov/southeast/rules-and-regulations/seasonal-and-area-fishing-closures-us-caribbean>

Materials

5 dowel rods to serve as fishing poles
Yarn, fishing line, or other string
35 Small round magnetics ~.5 inch diameter
Colored poster board
60 google eyes
Fish stencils (see examples at the end)
Pencil
Scissors
Strong glue
Strong tape
Enough candy so that some students get more than one piece, but every student at least gets one in the end (based on your class size)

Alternatively, you can purchase [this magnetic fishing set](#) to achieve the same results, but you may need to make more fishing poles.

Before the Activity



Use the fish stencils to outline approximately 60 fish. You are creating a quasi-3D fish (two stencils glued together), so in total you will end up with 30 fish. Cut out the 60 fish shapes. Take two fish shapes and set them aside. Glue one small magnetic close to the top (dorsal) fin of one of the fish, then glue the other stencil to that fish so that you have a quasi-3D fish with a magnet between both stencils. Allow the glue to dry, then glue one google eye to each side of the fish. Repeat those steps with the other shapes so that you have a total of 30 fish. Ideally the magnets should not be visible.

To make the fishing pole, cut the string to the desired length, wrap it tightly around the top of the dowel rod and secure it with strong tape. Note that students may yank with the poles so be sure that the tape will hold (i.e. **do NOT** use scotch tape). At the other end of the string (side not attached to the pole), secure one magnet. You should now have five fishing poles with string and magnets attached. Test that the magnetic can grab and hold the fish to confirm that it works and that the glue/tape you chose is sufficient.

Activity

There are two scenarios for this activity. The first scenario defines a fishing situation where no MPA exists. The second scenario defines a situation with an MPA in place and fishing regulations implemented (seasonal closure).

1) No MPA Scenario – Every Fish is Caught

Have your students form a circle and randomly pass out the fishing poles. Place all 30 fish within the middle of their circle. The students with fishing poles will have a specified amount of time to catch as many fish as possible (by lowering the magnet down into the group of fish and picking up one fish at a time with the magnet), this should be about 30-45 seconds. Once the time is up, the fishing poles must be passed off to new students and the others will rejoin the circle, holding onto their catch. Allow the new set of fishers to catch as many fish as possible in another 30-45 seconds. Repeat this process until all fish are caught. There SHOULD be some students who did not get to fish or were not able to catch any fish. Ask the students with fish to tell you how many they caught, and then return their fish back to the circle in exchange for pieces of candy representing the number of fish they caught. *You can play music in those time intervals while they are fishing if you feel that to be appropriate.*

The Message: This type of fishing scenario is unsustainable. It's not fair when some fishers are able to catch a lot of fish, taking more than they need, which in turn leaves other fishers without anything at all. In the end, the resource (fish) is completely depleted which means NO ONE gets to fish anymore. This is what happens in our oceans if we don't protect our fishing grounds when regulations are not in place, or when we do not obey the regulations. Sooner or later, all the fish in that area are gone and then we are out of the resource completely.



2) MPA & Seasonal Closure Scenario – Responsible Fishing

There are two parts to this scenario. The first will define a seasonal closure, and the second will illustrate the purpose of an MPA.

Pass out the poles to five new students. Choose a small subset of students to join hands and form the boundaries (circle) of an MPA. The rest of the students who are not fishing or not serving as MPA boundaries will observe. You will place some fish within the MPA (~ 5 fish), and place about 15 fish outside of the MPA. You will now start the timer (30-45 seconds), and students are allowed to fish outside of the MPA **only**, switching poles with new students as the timer ends. Observe the fishing until you notice about 5 fish left outside the MPA – at this point you will yell “**STOP**” and implement a seasonal closure. You will use this time to define the seasonal closure (see Introduction). *It is important to stress that the seasonal closure means no one can fish, and the purpose is to protect the fish that remain.* While you are explaining this, you will start to add some of your reserved fish back into the MPA. You will then define the purpose of the MPA (see Introduction), making sure to state that when fish in the MPA are allowed to grow and reproduce (i.e. you are adding more to represent that action), they start to move outside of the MPA and become available to fish. As you mention this, you can physically move some of the MPA fish outside of the boundaries and back into the fishing area that is currently under seasonal closure. Once you have explained the purpose of the seasonal closure and the MPA, you can allow any last remaining students to fish outside the MPA (“seasonal closure is lifted!”). *Pass out candy to every student at the end, as you see fit.*

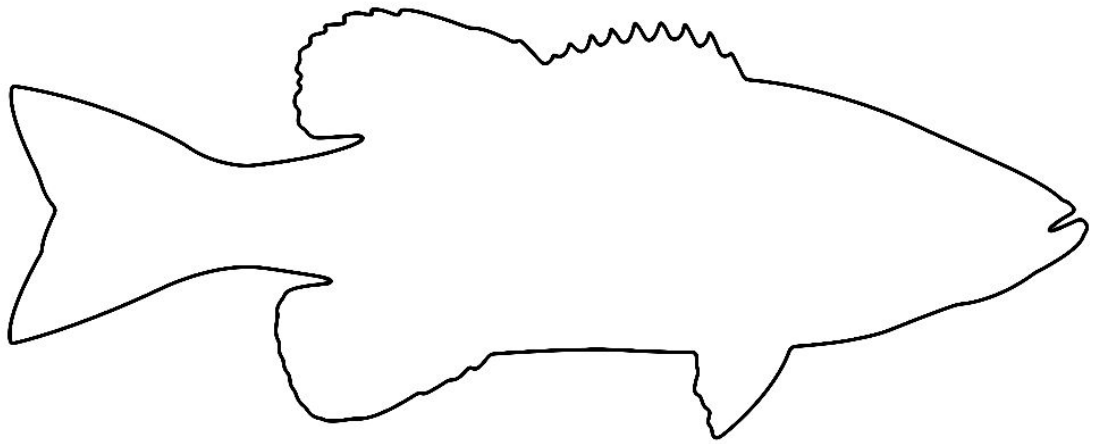
The Message: MPAs known as marine reserves protect fish from being fished at any time, these are called No-Take MPAs and fishing is not allowed inside these boundaries. When fish are allowed to grow and mature within the MPA, they will start to move outside of those boundaries (called a Spillover Effect) as they search for food or more space to live. Those fish then become available to be fished outside the MPA. A seasonal closure is a temporary ban on fishing for a specified amount of time, which protects fish from fishing only during that time. The only way that an MPA or seasonal closure can work is if we have cooperation (compliance) from fishers and enforcement from our natural resource managers.

Final Thoughts

After the activity, ask for volunteers to explain what happens when we don’t have regulations (the first scenario) and then have volunteers explain what happens when we have seasonal closures and MPAs.



For questions about this activity, feel free to email islamarexp@gmail.com or contact us on our website www.islamarexp.com



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