Fantastic Fishy Fun

#1. Science Experiment: Meltdown! See how melting ice helps out fish every spring.

Fun Fact: Water is most dense at 4°C . This means that the same amount of water weighs more than surrounding water.

1. In advance, prepare coloured water and freeze it in an ice cube tray. Food colouring works well or you can try using juice.
2. Fill a tall container or glass with clear water and refrigerate it.
3. Ensure the coloured water is frozen solid. Remove the cold water from the refrigerator and place two or three ice cubes in the water.
4. Watch the coloured ice cubes closely. It may help to place white paper behind the container. What do you see happening?
5. At first the ice cubes float at the surface, but before long the *temperature* increases and the water becomes *more dense*.
6. When the coloured water reaches 4°C it is denser than the water around it, and therefore sinks. It can be seen sinking to the bottom in thin strands as it melts.
7. When the strands of coloured water reach the bottom, they swirl and form a layer. The water from the ice cube appears 'heavier' than the water in the container; because of its temperature, not the colouring.
8. As all the water in the container reaches the same temperature, the colouring becomes evenly dispersed.
9. How do you think the melting ice give fish a boost?

When the ice on Georgian Bay and inland lakes melts, the denser water from the ice sinks to the bottom, bringing with it oxygen that was trapped in the ice over the winter! The mixing process also stirs the sediments on the bottom and forces the nutrients which have settled there over the winter back into the water. This mixing is important for fish survival.

Smallmouth bass

Bluegill

Yellow perch

Alewife

#2. Fishing Within the Lines

1. Find the Fish Measuring Tape sticker in your Kids in the Biosphere Activity Kit.
2. Find a boat without this sticker on board, check with your friends and family first, and ask permission to put up this sticker.
3. Send us a picture of it in the boat! Or upload it to the Kids in the Biosphere online photo album.

Bonus: Sturgeon Hurdle Challenge

Challenge your friends and family to a round of *Sturgeon Hurdle!* The only materials are two long pieces of rope. Visit gbbr.ca and find the activity under *Lessons in a Backpack.* Email kids@gbbr.ca with the highlights of your game!

In late May and early June, male Smallmouth bass gather by rocky shorelines, looking for gravel areas to build nests. Water temperature between 13-20°C is required to begin nest-building and *spawning* behavior. The male creates a nest by cleaning sediment away from gravel with his tail. Smallmouth bass usually build their nests beside a large object called an *initiator;* often a large rock, rock face or a large log. Nest depth is one metre of water or less and on a gravel bottom. Males entice two or three females into the nest before mating is complete, increasing *genetic diversity* of the brood.

The male protects the nest during construction, but especially once spawning is complete. Eggs hatch in 7-10 days and form black *larval schools* which are vulnerable to predators. At about 14 days, the larvae go through *metamorphosis* and become *fry;* this means their body shape changes, coloring turns light brown to near colorless, and the head enlarges. At this stage, broods become aware of their surroundings, scurrying for cover when a predator approaches. As fry mature, they wander further from the nest becoming harder for the male to protect. Eventually, protection is impossible, the male swims to deep water and fry are left to fend for themselves.

#3. Build A Bass Nest

1. Select a shoreline site in approximately 1.0 metre or less deep on a rocky or gravel bottom. Ideally, an *initiator* (boulder, dock cribbing) will be present. In the absence of a natural *initiator*, begin your nest structure with a large boulder.

2. Make sure your shoreline is sheltered from strong winds, this will help ensure nests are not destroyed by waves. Also ensure the nest is not located where it will be subject to a lot of boat traffic. (If your shoreline doesn't meet these criteria, then bass nest construction is not suitable).

3. In one metre of water depth or less, add or move existing stones to create a open sided ring (horseshoe shaped, see photo) with approximately 60–70 cm (2ft) diameter. If possible, move existing rock to create a shallow depression within the horseshoe.

4. Add clean, pea sized gravel to a depth of 6-10cm (2-4") in the centre of the horseshoe. The pea gravel is ideal for bass spawning, egg incubation and fry rearing. A low row of stones across the open side of the nest will help to keep the gravel in. Arrange the rocks to be as stable as possible. (Pea gravel comes in 50 lb. bags, 1-2 nests can be made per bag.)

5. Tell the *Eastern Georgian Bay Stewardship Council* about your project, visit georgianbaystewardship.ca. Enjoy your accomplishment and know your efforts help make a difference in protecting the fisheries for many years to come!

Remember, it is illegal to fish for bass on a catch-and-release basis **prior to season opening**. Large male bass are vital for spawning success. Catch-and-release angling for large bass **during the open season** will contribute to reproductive success.