

## Group Foraging Lesson Three



*Group Foraging by Jacqui Stanley 2010*

**Grade level: 3-6**

**Time Frame:** One class period

### **Materials:**

Painting:

Paint/crayons/colored pencils (yellow, grey, black, white)  
Construction paper

### **Key Words:**

#### **Science:**

Group Foraging  
Co-operation  
Goatfish  
Bar Jacks  
Substrate  
Dorsal Fins

#### **Art:**

Organic shapes  
Light

Acrylic Paint  
Balance  
Color – primary and secondary  
Composition – lines, colors and forms

## **Activity Summary**

In this lesson, students will create their own interpretation of Group Foraging amongst fish. Group foraging refers to behavior where one species of fish will create a feeding opportunity for another species of fish. In this lesson, students are introduced to the goatfish that stirs up the ocean bottom with its barbells (whiskers) as it feeds. Some creatures move away from the goatfish and this creates a feeding opportunity for the bar jacks that are following along behind the goatfish. The bar jacks can feed without expending too much energy.

## **Learning Objectives**

### **Art**

Students will be able to

- Glean information from the environment using the five senses
- Identify colors, textures, forms, and subjects in the environment
- Create artworks, using a variety of colors, forms and lines
- Learn to coordinate their hands and minds in explorations of the visual world
- Learn to make choices that enhance communication of their ideas
- Make connections between visual arts and other disciplines

### **Science**

- Communicate observations and provide reasons for Explanations

### **Ocean Literacy Principles**

- The Ocean supports a great diversity of life and ecosystems

### **Background Information**

The Aquarius aquanauts will help monitor the behavior of fish in the ocean around the Aquarius habitat. One of the behaviors they may

see is Group Foraging. This is when one group of fish, the goatfish, provides food for another group of fish, the bar jacks, as it stirs up the sea floor while foraging for food. This is important behavior, as it is a winning situation for the bar jacks and there is not a losing outcome. The goatfishes are doing what they do normally, and the bar jacks benefit. Marine biologists have studied other species of fish exhibiting this same type of behavior.

This type of behavior is important because it allows the group to enjoy the benefits of feeding without having to use energy to search for food themselves. Imagine seeing a line of people with lunch trays in their hand – where are you going to get food? Follow the people with the lunch trays!

### **Activity:**

The image at the beginning of this lesson is not complete - you can see the difference between how the fish looks complete and what you need to do.

Group foraging is a way for fish to benefit from each other. Imagine you are a goatfish. You swim along the sandy sea bottom moving the rubble and rocks with your barbells searching for food. Above you, bar jacks are watching. They see where you are going to feed and they follow. They wait for you to stir up the sea bottom and they are ready to feed on the creatures that have been stirred up.

If you were diving, you might not realize what was happening on the ocean bottom beneath you.

Before you begin, decide where you are going to place your fish. Try not to place them all in one area. This will give your work more balance.

Look carefully at the goatfish. Draw the body – it is an oval shape with a v-shaped tail.

Remember that we will draw an organic shape, meaning that it is a natural shape. The yellow goatfish has a light colored body. Pick up some yellow and white on your brush and paint even brushstrokes along the fish's body.

The goatfish at the front of my painting is closer to us, so you will paint this fish with brighter, lighter colors. The fish behind is further away and so it does not have the same amount of light.

Look at the mouth of the fish. It is turned slightly down, so draw or paint the mouth in white or cream. You can outline the mouth and the body of the fish in a dark brown. The goatfish has two dorsal fins at the top of the body and two fins beneath the body. There is also a pectoral fin at the side of the body near the gills.

When you paint or draw the fins, use thick, even strokes to suggest spines on the fish.

The body is covered in scales and you can paint or draw scales with rows of the letter “v” across the top of the body.

Now you can paint or draw the long yellow stripe along the fish’s body.

Finally, draw or paint two curved barbels from the mouth of the fish into the sea floor.

### **Evaluation**

Students create their own version of the yellow goatfish clearly showing that they understand that this fish is intent on foraging through the sea bottom. They can show this by portraying the colors, the lines and the shape of the yellow goatfish.

### **Extension**

Students use the internet to find fish that benefit from Group Foraging and they can add these fish to their picture.

### **Resources**

[http://graysreef.noaa.gov/science/research/fish\\_behavior/welcome.html](http://graysreef.noaa.gov/science/research/fish_behavior/welcome.html)

### **Acknowledgements**

This lesson was developed for NOAA National Marine Sanctuary Programs by Jacqui Stanley from Young Audiences Arts for Learning.

