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**Film Discussion Questions**

**Nature of the River**

How long is the St. Johns River?

Describe the drop elevation of the St. Johns River. Why is the drop in elevation an important characteristic of the river?

Where does the river begin? Where does the river end?

Why is the river divided into three basins?

What basin do you live in?

Who uses the St. Johns River? How do they use the river?

**River in Danger and Salinity**

What are some of the major threats facing the St Johns River?

What is the cause of these threats?

Can these problems be solved? Explain.

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**Salinity**: What is salinity?

Does the St. Johns have a wide range of salinity levels?

What would happen if there was a drastic change in salinity in your area? What might plants and animals do?

**Salinity Extension Questions** For a hint take a look at the map of the St. Johns River and use the virtual tour <http://www.stjohnsriverkeeper.org/the-river>

Does salinity affect what plants and animals live in the basin in which you live? Do you see animals or plants on the river that are not found in other basins? Explain.

What could cause the salinity levels of the river fluctuate in your area? Explain.

**pH Health**

What is pH?

What is an acid?

What is a base?

A normal pH range for the St. Johns is 6 to 8.5. Is the river acidic, basic, or neutral?

**Nitrogen Nutrition**

What is nitrogen?

What happens to plants when there is too little nitrogen?

What problems are caused by excessive nitrogen?

What are the possible harmful effects of algal blooms in the St. Johns River?

**Nitrogen Extension Questions.** For a hint check out these websites <http://www.sjrwmd.com/lowerstjohnsriver/> , <http://www.stjohnsriverkeeper.org/issues#nutrients> and <http://www.stjohnsriverkeeper.org/river-friendly/fertilizing/>

What are the manmade sources of nitrogen entering the St. Johns River?

How can our local community slow nitrogen input into the St. Johns River?

**Dissolved Oxygen**

What is dissolved oxygen?

Where does dissolved oxygen come from?

Why is dissolved oxygen important for the health of the St. Johns?

What are “poor” dissolved oxygen levels?

**Dissolved Oxygen Extension Question**.For a hint check out <http://ga.water.usgs.gov/edu/dissolvedoxygen.html>

What effect does temperature have on dissolved oxygen?

**Turbidity (not mentioned in the film)** The following passage on turbidity is from the EPA <http://water.epa.gov/type/rsl/monitoring/vms55.cfm>

### Turbidity is a measure of water clarity how much the material suspended in water decreases the passage of light through the water. Suspended materials include soil particles (clay, silt, and sand), algae, plankton, microbes, and other substances. These materials are typically in the size range of 0.004 mm (clay) to 1.0 mm (sand). Turbidity can affect the color of the water.

Higher turbidity increases water temperatures because suspended particles absorb more heat. This, in turn, reduces the concentration of dissolved oxygen (DO) because warm water holds less DO than cold. Higher turbidity also reduces the amount of light penetrating the water, which reduces photosynthesis and the production of DO. Suspended materials can clog fish gills, reducing resistance to disease in fish, lowering growth rates, and affecting egg and larval development. As the particles settle, they can blanket the stream bottom, especially in slower waters, and smother fish eggs and benthic macroinvertebrates. Sources of turbidity include:

* Soil erosion
* Waste discharge
* Urban runoff
* Eroding stream banks
* Large numbers of bottom feeders (such as carp), which stir up bottom sediments
* Excessive algal growth.

What is turbidity?

How can turbidity affect plants in the river?

How can turbidity affect animals in the river?

What could cause the turbidity levels of the river fluctuate in your area? Explain.

**Extension Question** For a hint read Dr. Quinton White’s article <http://mayportmirror.jacksonville.com/news/premium-news/2013-01-28/story/river-life-st-johns-our-own-sweet-water>

Why is the St. Johns River water brown?