

AGE SUITABILITY

Key stage 2

LITERACY OBJECTIVES

- Non-fiction reading comprehension
- Improving oral skills

CROSS-CURRICULAR LINKS

Geography/science/music

Topic

Seed dispersal, water cycle, overfishing;

NUMBER OF LESSONS

2-3 lessons

OVERFISHING, WATER CYCLE, LIFE IN THE RAINFOREST: EVERYTHING IS CONNECTED IN NATURE.

Below is a set of 4 activities about the importance of fish, preserving the trees, the water cycle and how the elements of an ecosystem depend on each other to survive.

Teacher Background

Overfishing hurts the forest

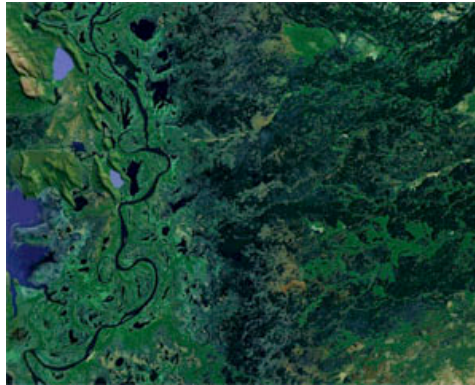
Overfishing is reducing the effectiveness of seed dispersal by fish in the Brazilian Pantanal, reports Nature. The research suggests that fishing practices affect forest health.

In the Pantanal, a great wetland bordering the Amazon rainforest, many fish species feed on fallen fruit during the flood season. As waters recede and fish return to their low water habitats, seeds are dispersed over a large area.

While scientists have long known that fish disperse seeds in the Amazon, the new research examined the importance of seed dispersal by pacu (*Piaractus mesopotamicus*), a common freshwater fish, for the tucum palm. The study, led by Mauro Galetti of São Paulo State University in Brazil, found that the tucum palm relies almost entirely on pacu services for seed dispersal.

“[It is] amazing that for some plant species, pacu appear to be the main dispersers,” Galetti told Nature.

Larger fish appear to disperse more seeds than smaller fish.



Satellite view of a section of the Pantanal. Image courtesy of DigitalGlobe

The findings hold ecological significance because populations of large pacu are declining in the Pantanal due to a fisheries policy that protects pacu less than 40 centimeters, but allows fishing of larger individuals.

“Fishery management like this is probably detrimental to forest health. Large fruit-eating fish are the best dispersers,” Galetti told Nature. “I think the Amazon and African jungles need to be extensively studied for ecosystems like this. Fish seed distributions are probably a lot more common than we realize.”

The research is published in the journal *Biotropica*.

Galetti, M., Donatti, C. I., Aurélio Pizo, M., & Giacomin, H. C. *Biotropica* doi:10.1111/j.1365-3113.2007.00378.x (2008).

Korlan, M. *Nature* | doi:10.1038/news.2008.555 (2008)

SOURCE: <http://news.mongabay.com/2008/0205-pacu.html> news.2008.555 (2008)

CHILDREN'S TASK

ACTIVITY 1

The bullet points below summarize the text above. Divide your class in small groups, copy the bullet points in slips of paper and give them to each group. Pupils try to put them in order, explain the statements to each other and then to the whole class. Teacher mediates the discussion. Tell the class some bullet points may make sense in a different order, but the first and last ones have to be kept in the correct order.

- Overfishing is reducing seed dispersal

by fish in the Brazilian Forests.

- Many fish species feed on fallen fruit during the flood season.

- A study from a Brazilian University found that a tree named the tucum palm needs a fish called pacu for seed dispersal.

- For some plant species, pacu (a type of fish) appears to be the main seed disperser.

- Larger fishes appear to disperse more seeds than smaller fishes.

- There are some rules that protect small pacu (fishes) less than 40cm.

However, there are also rules that allow fishing of big fish.

- The fishing rules that allow fishing big fish is causing pacu (a big rodent that lives in the forest) to disappear.

- Large fruit-eating fish are the best seed dispersers. If big fish are not protected, the seeds are not dispersed, and there are fewer trees.

- Consequently, it affects the whole ecosystem, including animals from the forest, such as pacu (a big rodent that lives in the forest).

- What can we do as a class to prevent overfishing? What can we do to help protect our ecosystem?

EXTRA ICT TASK

Ask pupils to prepare a power point presentation to illustrate the ecosystem above.