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# What Fish Think About

JAN 31, 2013 12:00 PM ET // BY [JENNIFER VIEGAS \(HTTP://NEWS.DISCOVERY.COM/JENNIFER-VIEGAS.HTM\)](http://news.discovery.com/human/psychology/spirituality-brain-function-mediums-121116.htm)



Scientists have just observed a thought swimming through the brain of a live fish, and that thought concerned getting something good to eat.

Fish and other wild animals appear to think a lot about food: how to obtain it and what to consume.

## [NEWS: Piranha Crowned Biting Champ of Fish World](http://news.discovery.com/earth/piranha-crowned-biting-champ-121221.htm)

The finding, published in the journal *Current Biology* (<http://www.cell.com/current-biology/>), also reminds that thoughts can be isolated and monitored.

“Our work is the first to show brain activities in real time in an intact animal during that animal’s natural behavior,” co-author Koichi Kawakami of Japan’s [National Institute of Genetics](http://www.nig.ac.jp/english/index.html) (<http://www.nig.ac.jp/english/index.html>) said in a press release. “We can make the invisible visible; that’s what is most important.”

You can see some of the fish thought happening in the following video (just click on the link; credit for the vid goes to *Current Biology*, Muto et al.): [Fish Thinking](http://ext-cms.dp.discovery.com/dnews/files/2013/01/Fish-Thinking.mov) (<http://ext-cms.dp.discovery.com/dnews/files/2013/01/Fish-Thinking.mov>)

## [NEWS: ‘Channeling Spirits’ Shuts Down Parts Of Brain](http://news.discovery.com/human/psychology/spirituality-brain-function-mediums-121116.htm)

The footage and analysis were made possible with a very sensitive fluorescent probe that detects the activity of neurons. Kawakami and colleagues also devised a genetic method for inserting the probe right into the neurons of interest. The two-part approach allowed the researchers to detect neuronal activity at single-cell resolution in the zebrafish brain.

## DNEWSvideo



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In this case, the zebrafish was pondering how to capture and eat a swimming **paramecium** (<http://www.fcps.edu/islandcreekes/ecology/paramecium.htm>).

While that's not what we would consider to be a deep thought, the basic process of analysis could be used to study any number of complex behaviors, from perception to movement to decision making. The zebrafish brain has a fair amount in common with the human brain, so the methods in future could help us, according to the researchers.

Kawakami said, "In the future, we can interpret an animal's behavior, including learning and memory, fear, joy, or anger, based on the activity of particular combinations of neurons. This has the potential to shorten the long processes for the development of new psychiatric medications," he said.

I'm reminded of the old commercial that showed a frying egg, with the announcer saying, "This is your brain on drugs." In future, we really will see what a brain on drugs-legal and otherwise- looks like.

(Image: SEFSC Pascagoula Laboratory; Collection of Brandi Noble, NOAA/NMFS/SEFSC)

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