



**FINAL WINNER.** Japan's Tomomi Tanaka crosses the finish line to win the Yokohama International Women's Marathon in Yokohama, near Tokyo. Tanaka pulled ahead of Kenya's Philes Ongori, background, with 50 meters left to claim victory in the last running of the race. (AP Photo/Kyodo News)

## Tanaka wins Yokohama women's marathon

YOKOHAMA, Japan (AP) — Tomomi Tanaka of Japan won the Yokohama International Women's Marathon in a time of 2 hours, 26 minutes, and 57 seconds.

Tanaka pulled ahead of Kenya's Philes Ongori with 50 meters left to claim victory in the last running of the race. Ongori finished two seconds back.

Japan's Reia Iwade, appearing in her first marathon at the age of 19, was third with a time of 2:27:21.

The race, which originally started in Tokyo in 1979 and was moved to Yokohama in 2009 following the launch of the mass participation Tokyo Marathon, will be discontinued after this year, reportedly for financial reasons.

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## Putin's tiger kills 15 goats in China

BEIJING (AP) — A rare Siberian tiger released into the wild by Russian President Vladimir Putin is keeping farmers in northeastern China on the edge.

The official Xinhua News Agency said the beast named Ustin bit and killed at least 15 goats in Heilongjiang province's Fuyuan county. Xinhua said the farm owner, Guo Yulin, was stressed about the tiger.

Ustin is one of three Siberian tigers released by Putin in a remote part of the Amur region in May. Two of them have entered China. Fitted with tracking devices, they are monitored by Chinese wildlife workers.

The other tiger, Kuzya, was believed to have raided a farm and eaten five chickens in October in another Heilongjiang county.

# Surrogate sushi: Japan biotech for bluefin tuna

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reproductive stem cells from the discarded guts of tuna shipped by cold delivery from fish farms and inserting them into mackerel fry so tiny they are barely visible.

The baby fish are put in an anesthetic solution and then transferred by dropper onto a slide under the microscope. Researcher Ryosuke Yazawa deftly inserts a minute glass needle into one's body cavity to demonstrate.

Under the right conditions, the tuna stem cells migrate into the ovaries and testes of the mackerel. The team is now waiting to see if the mackerel, when mature, will spawn tuna, and if the tuna will survive. Following that, they could be released into the sea or farmed.

The research team has already succeeded in using surrogate technology to produce tiger puffer fish, the poisonous *fugu* used in sashimi and hotpot, using smaller grass puffer fish. It has produced trout spawned by salmon. Companies that import rare and tropical fish also are interested in the technology.

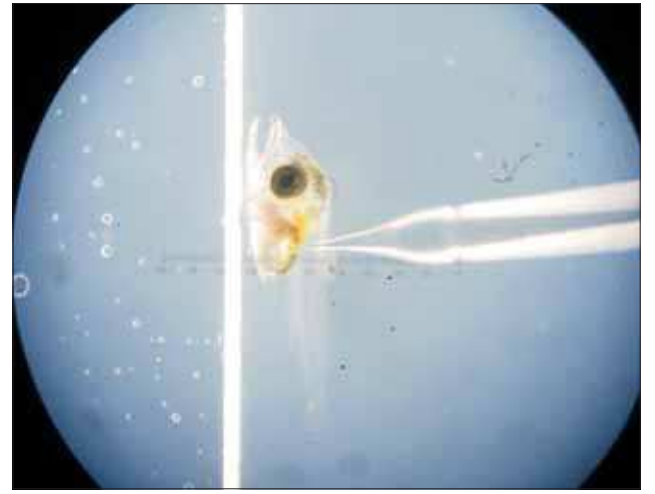
The method could help reduce pressure on wild populations, Yamazaki hopes, and also help ensure the greater genetic diversity needed to preserve various species.

Though he started out working in the field of genetic modification (GM), Yamazaki emphasizes that his techniques involve only surrogate reproduction, not GM.

The main "tricks," as he calls them, are using baby fish as future surrogates, because their immature immune systems will not reject the tuna cells, and relying on the natural tendency of the reproductive stem cells to mature and produce viable offspring. To simplify matters, the lab is using triploid, or sterile hybrid fish commonly bred at fish farms, that will not develop eggs or sperm of their own species.

Yamazaki expects his research to be useful for commercial purposes. Though researchers elsewhere have succeeded in breeding tuna in captivity, the process is costly and survival rates are low. Mackerel, less than a foot long when caught, are much easier to handle and keep in land-based tanks than tuna, which can grow to nearly the size of a small car and require far more food per fish. The mackerel also mature more quickly and spawn more frequently, if they are well fed and kept at the right temperature.

Not all experts favor such high-tech solutions for the



**SMALL FRY.** A minute needle is used to insert reproductive cells from a bluefin tuna into a mackerel fry, under a microscope, that will produce tuna when it matures. Researcher Goro Yamazaki's technique involves extracting reproductive stem cells from the discarded guts of tuna shipped by cold delivery from fish farms and inserting them into mackerel fry so tiny they are barely visible. (AP Photo/Tokyo University of Marine Science and Technology, Goro Yamazaki)

bluefin.

Amanda Nickson, director of global tuna conservation for The Pew Charitable Trusts, said the partial recovery of Atlantic bluefin stocks shows that enforcement of catch limits, backed by threats of trade bans, can work.

Earlier this year, the multi-nation fisheries body that monitors most of the Pacific Ocean recommended limiting the catch of juvenile bluefin tuna to half the average level of 2002-2004. Scientists found that stocks of the species had dwindled to less than four percent of their original size. It also found that most fish caught were juveniles less than three years old, before they reach reproductive maturity.

The group set a 10-year target of rebuilding the population to eight percent of its original size.

"As long as you don't take too many, those populations can rebuild and rebuild fairly effectively," she said.

Perhaps so, said Yamazaki, but over the centuries, humans have repeatedly over-consumed resources, sometimes past the point of no return.

"Japanese people eat tuna from all over the world. We have to do something. That is the motivation for my research," said Yamazaki.

## Oil plunge is threat and boon to global economies

(AP) A renewed plunge in oil prices is a worrying sign of weakness in the global economy that could shake governments dependent on oil revenues. Yet it is also a bonus for consumers as prices fall at the pump, giving individuals more spending money and lowering costs for many businesses.

The latest slide follows OPEC's decision to leave its production target at 30 million barrels a day. Member nations of the cartel are worried they'll lose market share if they lower production.

Partly because of the shale oil boom in the U.S., the world is awash in oil at a time when demand from major economies is weak — so prices are falling. Citibank analysts wrote in a report last month that global supplies exceed demand by about 700,000 barrels a day now.

The price of U.S. crude oil dropped \$7.54 per barrel, or 10 percent, to \$66.15 on November 28, and is down 38 percent since hitting \$107 in June. Brent crude, an international benchmark, fell three percent to \$70.15 a barrel.

Tom Kloza, chief oil analyst at the Oil Price Information Service, expects the price to fall by another \$5 or \$10 per barrel before stopping. "It's that kind of route," he said.

Overall, the slide is a boon for consumers in oil-importing regions like Asia, Europe, and



**PLUNGING PRICES.** A man fills his car with gas at a filling station in Tokyo. The sign shows the cost of regular gas as 148 yen, or \$1.25, per liter (\$4.69 per gallon). A renewed plunge in oil prices is a worrying sign of weakness in the global economy that could shake governments dependent on oil revenues. Yet it is also a bonus for consumers as prices fall at the pump, giving individuals more spending money. (AP Photo/Koji Sasahara)

declining to cut its own production.

### Western Europe

Many of Europe's economies are net importers of oil, so lower prices are likely to give a welcome, if small, boost to growth. Cheaper energy reduces costs for industry and puts more money in consumers' pockets. That will be particularly useful in the 18-nation eurozone, where unemployment is high.

In Germany, the price of Super E10 fuel has fallen from 1.53 euros per liter (\$7.16 per gallon) at the start of September to 1.42 euros per liter (\$6.69 per gallon) in late November, according to the ADAC motoring association.

Declining fuel prices also, however, add to one of the eurozone's biggest headaches: low inflation. Weak inflation makes it harder for troubled economies such as Greece to reduce debt. It is also a problem for the European Central Bank, which wants to boost inflation from just 0.3 percent currently to around two percent.

The few European producing

countries — mainly Britain and Norway in the North Sea — face a drop in revenues that could balance out the positives of cheaper fuel.

### Russia

Russia gets about 50 percent of its state revenue from oil exports, so the government's concerns are clear. The national economy is already sliding into recession under the impact of western sanctions and investors are pulling money out.

For Russian consumers, the outlook is mixed. Prices at the pump have actually gone up because a drop in the national currency, the ruble, has increased inflation. In local money, 95-octane gasoline costs 35.99 rubles per liter (\$2.80 per gallon) in Moscow, up from 35.53 per liter two months ago.

### Venezuela

Venezuela pushed for an OPEC cut because it badly needs high oil prices to fund its government. The country's oil production has been steadily declining for years so the combination of lower output and lower prices is already squeezing the nation's finances.

Venezuelan drivers won't see a difference in price soon, though, because gasoline is heavily subsidized. Drivers pay the equivalent of five cents per gallon.

### Japan

In Japan, which is a net importer of oil, cheaper crude

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North America. But there are also some possible negatives.

### North America

The U.S. economy will receive an outsized benefit from lower oil prices because the U.S. is the world's largest oil consumer.

U.S. consumers have been surprised and delighted at the lowest gasoline prices since 2010. Drivers in some low-cost states such as South Carolina, Missouri, Oklahoma, and Texas could see prices below \$2, according to Kloza.

The U.S. national average on November 28 was \$2.79. Kloza expects gas to eventually be a full \$1 per gallon below its June peak of about \$3.70 per gallon. That would save typical households \$60 a month for those that burn 60 gallons of fuel.

"It's a nice easy, calculation," Kloza says. "These are numbers

that we would have regarded three or four months ago as something from the lunatic fringe."

The bottom should come between \$2.50 and \$2.70 per gallon, Kloza says.

Canadian consumers are also catching a break. In some regions, such as southern Ontario, gasoline could fall below the important psychological barrier of \$1 per liter.

The oil companies propelling a production boom in Canada and the U.S. won't be so happy. Crude produced in Canadian oil sands, deep offshore in the Gulf of Mexico, and in some U.S. onshore shale formations is some of the most expensive oil to produce in the world.

Drillers will have to cut back at least some activity. Forcing this kind of slowdown may have been part of OPEC's motivation for