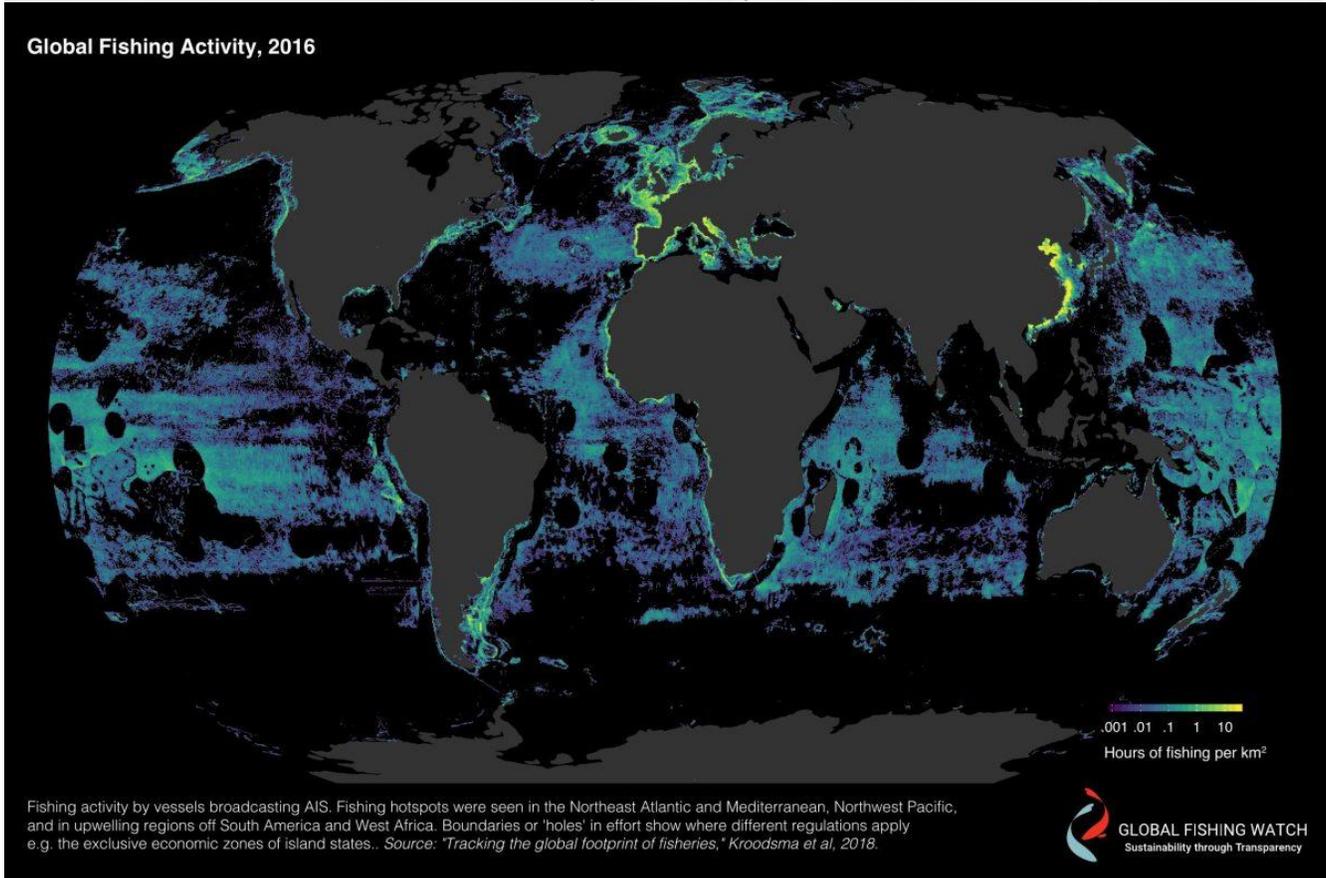




the weekly anthropocene

dispatches from the wild, weird world of humanity and its biosphere

by Sam Matey



Fishing. A new study published in *Science* has shed new light on the world's industrial fishing industry (pictured in the map above). The researchers tracked 77,000 industrial fishing ships using the Automatic Identification System (AIS) used to prevent ship collisions. "It was an immense effort to organize and process the AIS data, and then build complex machine learning algorithms," said the lead author, David Kroodsma of Global Fishing Watch. "Global Fishing Watch and our partners have been working on this for several years." The researchers found that no less than 55% of the ocean is used for industrial fishing—for comparison, only 34% of world land area is used for agriculture. The researchers were also able to gain data on the ships' fishing method and national origin. They found that five nations (China, Spain, Taiwan, Japan, and South Korea) accounted for 85% of observed fishing in the high seas (international waters). They also found that longline fishing was the most common fishing method, observed in 45% of the ocean, followed by purse seine fishing at 17% and trawlers at 9%. The researchers also noticed massive dips in fishing activity around holidays, such as Christmas, New Year's, and Chinese New Year's. In sum, this groundbreaking study has, for the first time, revealed the true impact of humanity's fishers on the ocean. Thanks to Global Fishing Watch for the awesome map. For more information, check out goo.gl/kFzvzD.



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Seychelles. In an inspiring action, the Indian Ocean nation of the Seychelles has created two vast new marine protected areas. Together, the new reserves will cover over 81,000 square miles and 16% of the country's territory—an area larger than the Great Britain. The area is home to dugongs, sea turtles, and an abundance of fish and sharks, and could serve as a vital refuge for coral reefs threatened by warming and acidifying seas. "The Seychelles waters really are some of the finest on Earth and it's a complete delight



that the government has protected them," said Paul Rose, National Geographic explorer and former leader of an expedition to the Seychelles. This is a farsighted and noble action by the Seychelles. For more information, check out goo.gl/ne2de2. Thanks to National Geographic for the awesome picture of a diver and a potato cod in a Seychelles reef!

Poland. The Białowieża Forest in Poland is one of Europe's last remaining wildernesses, home to wolves, bison, and a plethora of birds. For years, environmental groups and the Polish government have been fighting over the degree of logging allowed in the forest. Now, the European Court of Justice has declared that the Polish government's pro-logging policy is illegal, as the logging would harm the breeding sites of protected species and Poland had not properly assessed the impact of the logging. The new Polish environment minister has already issued a statement confirming that Poland will comply with the ECJ judgment. Great news!

Russia. Lake Baikal (pictured), in Russia, is the deepest, oldest, and largest lake in the world, holding one-fifth of the world's unfrozen fresh water. For years, it has been under threat from pollution, but as that threat is waning, uncontrolled tourism is putting new strains on the lake ecosystem. Fortunately, a new generation of Russian environmental activists are springing up, ready to work to protect the lake. In a time of great conflict between Russia and America, it is encouraging to see the common thread of care for the biosphere. For more information, check out goo.gl/9TqrZm.





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USA: California. On February 22nd, California Attorney General Xavier Becerra (pictured) created the California Bureau of Environmental Justice, a new four-lawyer team devoted to protecting the poor and nonwhite communities who suffer disproportionately from environmental degradation. This is an excellent and sorely needed action. On the same day, a new study was published in the *American Journal of Public Health* that added even more evidence that poor and nonwhite people suffer more from pollution (check it out at <https://goo.gl/WRdYWQ>). Becerra's move shows that even while the national government is mired in ignorance and greed, states can take action to protect their citizens. Great news!



USA: Alaska. Kotzebue, Alaska, is the most toxic town in America. The remote majority-Inuit village is an unlikely pollution hub, but recently topped the EPA's Toxics Release Inventory due to emissions from the nearby Red Dog Mine. The zinc and lead mine released 756 million pounds of toxic chemicals into the environment in 2016, including lead, cadmium, and mercury. "I think these lands are going to be contaminated for the foreseeable future," said Pamela Miller, director of Alaska Community Action on Toxics. "It's a big concern, because many people in that area depend on subsistence food." For more information on this seemingly intractable situation, check out goo.gl/sK8ABB.

USA: Florida. A new study has found that American flamingos (*Phoenicopterus ruber*, pictured) appear to be returning to Florida, years after being eradicated for the plume trade. The researchers collected 500 flamingo observations since 1950 and found that flock size and frequency of observations were increasing over time, with the flamingos possibly coming in from Mexico and the Caribbean. For more information, check out goo.gl/8PHQCy. Excellent news!



USA: New Mexico. A new study conducted in northern New Mexico has found that some birds are so stressed by industrial noise pollution that they are displaying symptoms similar to post-traumatic stress disorder. The study monitored and sampled the blood of birds from 240 nesting sites near natural gas plants and found that noise pollution from the plants was clearly associated with higher levels of stress hormones and lower survival rates. "Noise is causing birds to be in a situation where they're chronically stressed...and that has really huge health consequences for birds and their offspring," said Dr. Rob Guralnick, coauthor of the study. "Habitat degradation is always conceived of as clear cutting, or, you know, changing the environment in a physical way. But this is an acoustic degradation of the environment," he continued. This is new evidence of another way humans are altering the natural world. For more info, see goo.gl/uiRa2T.



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Brazil (1). DNA analysis has found that the pygmy marmoset (pictured), the world's smallest monkey, is not one species but two. Researchers from the University of Salford found that the pygmy marmoset actually consisted of two genetically distinct populations, one found north of and one found south of the Amazon River. For more information, check out goo.gl/Kw6yw4. Fascinating news!



Brazil (2). Norwegian bauxite and aluminum mining company Norsk Hydro has admitted to running a clandestine pipeline near the mouth of the Amazon river that is discharging untreated effluent into local waterways. This issue came to the Brazilian government's attention when they were investigating high levels of toxins in drinking water in the area. Norsk Hydro still denies responsibility for the spill, but it has a track record of bad corporate citizenship. The company still has not paid fines from an incident in 2009 where a toxic spill put the nearby town of Barcarena at risk. For more information on this true-crime saga, copy and paste goo.gl/K5HAbF.

Japan. As longtime readers of this newsletter will know, the oil tanker *SANCHI* sank in the East China Sea on January 14th, 2018, creating a massive, mostly underwater oil spill. Now, oil from that disaster is being found on beaches in Japan. Over 100 tons of oil have been cleaned up so far from beaches on 21 separate Japanese islands. The full impact of the spill is still unclear. More news as it develops.

UK. Researchers at the University of York have discovered a strange group of enzymes in the digestive system of the firebrat, an ancient type of insect that eats cellulose (a natural wood fiber). These enzymes, known as lytic polysaccharide monooxygenases (LPMOs), are excellent at breaking down cellulose, making them an excellent candidate for use in biofuel production. This is a fascinating discovery with wide potential application. For more info, check out goo.gl/74NvNf. Great news!

Australia/Forests. Normally, poor countries have more trouble with deforestation, and rich countries have learned the value of protecting their forests. However, due to unusually permissive forestry laws, the Australian state of Queensland (pictured) is currently losing trees twice as fast than Brazil, with over 395,000 hectares of forest destroyed between 2015 and 2016. This disturbing news comes on the heels of a new study underlining forests' value. New research from the Wildlife Conservation Society highlighted the extraordinary importance of Earth's remaining forests: they offer vital resources to wildlife and local communities as well as collectively absorbing around 25% of humans' carbon emissions, preventing even more rapid climate change. This study is available at goo.gl/V7Pmo8. More news as it develops.

