UNNATURAL selection

By Tony Wu

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One and a half centuries ago, Charles Darwin was thinking about broccoli. Well, perhaps not specifically about broccoli, but certainly about the problem of how things like broccoli, cabernet sauvignon grapes, golden retrievers and Clydesdale horses come to be.

Think about it for a second. Why would Mother Nature develop an odd, clumpy vegetable that's supposed to be good for you, but doesn't seem to serve any other useful purpose? Or come up with a grape that's just right for making red wine? Or create a breed of dog that's irresistibly cute, but can't hunt to save its life? Or develop powerful horses that get a lot of work done, but can't run terribly well?

In all likelihood, Charles wasn't thinking about these specific examples, but he did write quite a bit about man-made species and breeds in his 1859 landmark book "The Origin of Species by Natural Selection".

By now, the world is well acquainted with the theory of natural selection, or survival of the fittest, which sets out the fundamental mechanism for biological evolution. But in the mid-19th century, trying to demonstrate that life on earth evolves was difficult and considered by many to be sacrilege.

So one of the approaches that Darwin took in his book was to show that people have used the power of selection for thousands of years to modify and adapt life on earth for our own advantage, hence things like yucky, but nutritious broccoli, and adorable but completely un-canine retrievers.

In his own words, man "adapts animals and plants for his own benefit or pleasure. He may do this methodically, or he may do it unconsciously…(this) process of selection has been the great agency in the formation of the most distinct and useful domestic breeds".

Essentially, what he was saying is that mankind has actively participated in the process of evolution for many species, especially with plants and animals that are useful to us.

Many years ago, when I first studied this text, everything made perfect sense. Darwin constructed his arguments upon the foundation of previous work by many other prominent researchers and writers, and it all seemed very logical. When I recently went back to reread parts of "Origins" though, something made me uncomfortable.

I've been getting a lot of reports lately about decreasing fish size. From subsistence fishermen in the Philippines to large, international fishing fleets plying open waters, everyone's complaining of a decrease in average fish size. Sport fishermen too regularly lament that the "big ones" don't seem to be around anymore. Worldwide statistics on average fish size, to the extent that they are available, seem to reinforce such observations.

So my mind started putting two and two together, and the result was troubling. You see, the point of Darwin's theory was that selection, both natural and human influenced, reinforces positive characteristics, and thus continuously improves life on earth, making it stronger, faster, smarter, more productive. In the ocean, there's no reason this should be any different. Strong fish should catch and eat weaker ones, so that the most highly adapted fish continue to pass on their genes, and bigger, better fish continue to evolve. Simple, right?

But hang on a moment. When people harvest the ocean, we don't go for the weak, the sick, the ill adapted. We go for the strong ones, the champions of the lot. Who wants to come back from a fishing trip and say, "Look, I caught another runt!". Heck no, we all compete for bragging rights. We want the biggest and strongest. And which store or restaurant wants to offer tiny, anaemic, tired fish in place of virile, sleek and shiny ones? Not a chance.

So if we step back a moment to consider the evidence before us, what's happening is quite clear… and worrying. People are actively participating in the process of evolutionary selection in the ocean, now more than ever as the volume of global fishing increases. But unlike in Darwin's world view, we "select" out the most powerful and highly evolved fish, leaving the more feeble and less desirable ones to reproduce.

Fish get smaller, remaining populations weaken. Yet evolution continues. The unanswered question, of course, is what will happen as such genetic selection takes its course?

Perhaps, if we look hard enough, Darwin already gave us a clue. In the conclusion of his book, Darwin observed that, "Man, though acting on external characters alone and often capriciously, can produce within a short period a great result". That's certainly ominous, and something to think twice about.