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This is a preface to **When it comes to fish and fishing Huffington Post is all wet** which went to half of the regular subscribers yesterday. On August 29 blogger Dana Ellis Hunnes posted another blog, **Cherry Picking Science**, in which she attempted to explain comments that her original blog generated, which she dramatically referred to as attacks "*by lobbyists from groups who are threatened by my message.*" In her follow-up post she wrote in explanation of how she developed her "*thoughtful argument*" (her words again) "*I read the literature. I watch the TED conferences.*" For those not in the know, TED stands for Technology, **Entertainment** (my emphasis) and Design. (For some balance see Megan Hustad's op-ed column **The Church of TED** in the NY Times [http://www.nytimes.com/2015/03/15/opinion/sunday/the-church-of-ted.html?\\_r=0](http://www.nytimes.com/2015/03/15/opinion/sunday/the-church-of-ted.html?_r=0). The following is excerpted from Ms. Hustad's column.)

*"I grew up among Christian evangelicals and I recognize the cadences of missionary zeal when I hear them. TED, with its airy promises, sounds a lot like a secular religion. And while it's not exactly fair to say that the conference series and web video function like an organized church, understanding the parallel structures is useful for conversations about faith — and how susceptible we humans remain. The TED style, with its promise of progress, is as manipulative as the orthodoxies it is intended to upset.*

*A great TED talk is reminiscent of a tent revival sermon. There's the gathering of the curious and the hungry. Then a persistent human problem is introduced, one that, as the speaker gently explains, has deeper roots and wider implications than most listeners are prepared to admit. Once everyone has been confronted with this evidence of entropy, contemplated life's fragility and the elusiveness of inner peace, a decision is called for: Will you remain complacent, or change? Jesus said to the crowds, "Whoever has ears, let him hear." A skilled tent revivalist can twist those words to suggest that simply showing up to listen makes you part of the solution."*

Ms. Hunnes' blog is the first instance I am aware of where a credentialed scientist used as justification for her or his arguments whatever she or he had gleaned from TED. TED talks seem to be closer to entertainment than to real science, but watching them is a lot easier and unquestionably a lot more entertaining than getting into the actual scientific literature, dry and informative as it is.

Ms. Hunnes ended her blog with the words "*I promise to evaluate the facts and disseminate what I perceive as a scientific truth.*"

I've always thought it was preferable to expose readers to the "state of the art" of relevant research from referenced sources (as I did below) and assume that they are capable of evaluating themselves what they read. Evidently Ms. Hunnes doesn't agree with me. And I must admit that all of those sometimes conflicting ideas can be somewhat confusing. But is that a reason for anyone to take her, the TED talkers' or my word for what's actually going on? I hope not.

As far as Ms. Hunnes, or anyone else, perceiving "*scientific truth,*" that's a level of hubris that I can't relate to, let alone comment on.

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### **When it comes to fish and fishing Huffington Post is all wet**

Nils E. Stolpe/FishNet USA  
August 14, 2016

Last week Dana Ellis Hunnes, a Huffington Post blogger, managed to package in just 700 words more false, misleading, distorted and just plain wrong information about fish and seafood production than I've ever seen in works with far more words by professional anti-fishing activists. Addressing her inaccuracies on a point by point basis:

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- *Sustainable Fish Do Not Exist*

Starting out with her title, the Merriam-Webster definition of sustainable is "*able to be used without being completely used up or destroyed, involving methods that do not completely use up or destroy natural resources, able to last or continue for a long time.*" The concept of renewable resources revolves around the sustainable utilization of those resources.

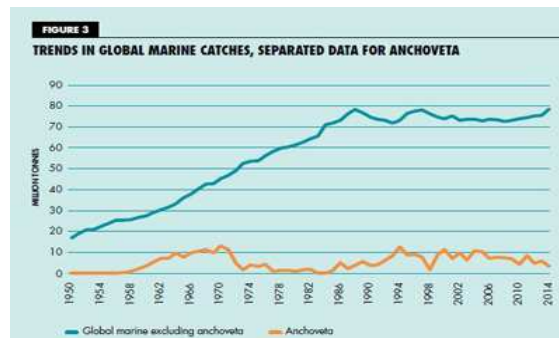
In 2014, according to the United Nation’s Food and Agriculture Organization, the United States was ranked number three in the production of its capture fisheries in the world (behind China and Indonesia). The federal fisheries management system, as set forth in the Magnuson-Stevens Fishery Conservation and Management Act, has sustainability as its primary focus. Overfished fish stocks are those that are harvested at an unsustainable level and the Act demands that fishing effort on overfished stocks be reduced to the level of sustainability (also known as the maximum sustainable yield or MSY). In 2015 only nine percent of U.S. fish stocks were being fished at an unsustainable level - [http://www.nmfs.noaa.gov/sfa/fisheries\\_eco/status\\_of\\_fisheries/](http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/).

Note that as defined in the Magnuson Act “overfished” does not necessarily mean that there has been too much fishing on a stock of fish, it means that it's been determined that, regardless of the cause, there are not enough fish in the stock to yield MSY.

By any definition of sustainability that is used (except for Ms. Hunnes’), nine out of ten of our fisheries, and more than 90% of the fish that we harvest, are inarguably sustainable.

- *In fact, the United Nations Environmental Programme and Food and Agriculture Organization, report that we are running out of fish. We have overfished or overexploited more than 80% of our fish stocks.*

The Food and Agriculture Organization of the United Nations (FAO) in its 2016 **The State of World Fisheries and Aquaculture** reported “fully fished stocks accounted for 58.1 percent (of the world’s capture fisheries) and underfished stocks 10.5 percent.” (<http://www.fao.org/3/a-i5555e.pdf> on Pg. 5). Fully fished stocks are those that are being harvested at their MSY. So, in spite of what Ms. Hunnes wrote in the Huffington Post, almost 70% of the fish stocks in the world are being harvested sustainably. That is a far cry from “running out of fish.” As the graph below (from Pg. 13 of the same FAO report cited above) demonstrates, the production of the world’s capture fisheries has been level since the late 1980s. I could find nothing on the FAO website that even hinted that there was any indication that we were “running out of fish.”



- *In fact, a number of the species have been declared as critically endangered and threatened with extinction by the International Union on the Conservation of Nature (IUCN).*

In spite of IUCN declarations, in the U.S. Fish and Wildlife Service **Environmental Conservation Online System**, listing animal species that are Endangered or Threatened in the U.S. and abroad (<http://preview.tinyurl.com/zl3qgk3>), the only fish listed that support commercial fisheries are geographically distinct groups of salmon (threatened or endangered because of anthropogenic impacts on their spawning grounds, not fishing – see note above). None of those salmon species are considered endangered or threatened throughout their range. Some species of sturgeon are listed throughout their range as are some distinct population segments of others, but no commercial sturgeon fisheries are permitted in the U.S. The same for sawfish. The rest of the listed threatened or endangered species are species of no commercial interest.

- *And, while we may believe that consuming farmed fish is a more sustainable and ecological choice....*

Any definition of “sustainable” that I’m aware of indicates that it’s an all or nothing term. Something is either utilized sustainably or it isn’t. Ms. Hunnes’ use of “more sustainable” is linguistically puzzling. “Ecological” relates to or is con-

cerned with the study of organisms in relation to each other and to their living and non-living environment. The idea of applying the term to a dietary choice is even more linguistically puzzling than “more sustainable.”

But, the niceties of effective communications aside, there are numerous ways to grow fish and to catch fish. Some are – or should be – unacceptable because of the damage they do to the environment. It’s the role of government to insure that these are not permitted, and in the U.S. they aren’t. Other methods of fish production in the U.S. and in much of the rest of the world are environmentally acceptable and are permitted, though highly regulated.

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- *It takes approximately five pounds of wild small fish such as herring, menhaden, or anchovies to create one pound of salmon, a predatory fish. The proportion of the healthy omega-3 fatty acids found in salmon is lower pound-for-pound than it would be simply in the smaller fish.*

This is a generalization that, like many generalizations, doesn’t hold up under scrutiny. The DHA and EPA (respectively docosahexaenoic acid and eicosapentaenoic acid, fish-derived omega 3 fatty acids) content of the flesh of particular fish as determined by the US Departments of Agriculture and Health and Human Services are below.

Fish, salmon, Atlantic, farmed, cooked, dry heat	2.147 grams DHA and EPA/100 grams
Fish, anchovy, European, raw	1.449 g/100g
Fish, anchovy, European, canned in oil, drained solids	2.055 g/100g
Fish, herring, Atlantic, cooked, dry heat	2.014 g/100 g

[https://health.gov/dietaryguidelines/dga2005/report/html/table\\_g2\\_adda2.htm](https://health.gov/dietaryguidelines/dga2005/report/html/table_g2_adda2.htm)

I couldn’t find equivalent data for menhaden, and I sincerely hope that anyone reading this never has to dine on them, but because of similar diets their fatty acid content is almost certainly in line with that of Atlantic herring.

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- *Current statistical analyses and estimates indicate that in a “business as usual” world, we will run out of the fish we eat by 2048*

In 2006 Canadian fisheries researcher Boris Worm and a group of scientists published a paper in the journal Science predicting that the continuation of present trends would mean that all of the big fish in the oceans would be gone by 2048. Needless to say, this prediction generated a media storm and much scientific controversy, which the media ignored. Unfortunately, a casual web search will provide links to the dire prediction that Ms. Hunnes focused on.

But she was off by at least a decade with what she refers to as “*current statistical analyses.*” In fact, in 2009 Worm and University of Washington Fisheries Professor Ray Hilborn and a group of other researchers published a follow-up paper that soundly rejected the 2006 prediction of the imminent destruction of the world’s fisheries.

<http://www.nature.com/news/2009/090730/full/news.2009.751.html>

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- *But the fact of the matter is, it’s near impossible to grow or to take a fish in a sustainable way. In a way, nearly every fish humans eat is threatened with extinction.*

It’s hard to imagine in exactly what way that would be, and unfortunately Ms. Hunnes didn’t share her insights on this with her readers. She could have just as easily written *in a way, nearly every cow* (or pig or goat or string bean or ear of corn) *humans eat is threatened with extinction.* The whole point of sustainable food production is to not eat more than is being produced. That covers a very large proportion of our seafood and that proportion increases every year.

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- *Never order bluefin tuna. It would be akin to eating a rhinoceros.*

According to the USFWS bluefin tuna are not classified as endangered or threatened – in spite of an ongoing campaign by anti-fishing zealots to have them listed as such. Accordingly, if it’s legally caught and legally sold, ordering bluefin tuna is akin to ordering a beef steak, though the tuna is much healthier. But in keeping with the old adage “even a blind squirrel finds the occasional acorn,” Ms Hunnes was right about rhinoceroses. They definitely shouldn’t be eaten.

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- *If you are going to eat fish, consume the small ones. The anchovies, the herring; the bottom of the food chain.*

The bottom of the ocean food chain is composed of plants, almost exclusively algae and almost exclusively planktonic. The “*small ones*” Ms. Hunnes is referring to are a couple of steps up the food chain from there.

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- *Skip that fish oil. You don't need it, there's no real benefit, and you can get those healthy oils from other foods including algal oils, flaxseed, seeds and nuts.*

The pros and cons of dietary fish oil, or more precisely of omega 3 fatty acids, and of the relative health benefits of omega 3s produced by oceanic algae and found in oceanic fish vs the health benefits of omega 3s produced by terrestrial plants, has been going on for more than a decade. There's nothing approaching a scientific consensus as yet, except perhaps in Ms. Hunnes' mind. For the other side of the argument take a look at **The Best Omega-3 Supplement: Flaxseed Oil vs. Fish Oil** on the University Health News website at <http://universityhealthnews.com/daily/nutrition/the-best-omega-3-supplement-flaxseed-oil-vs-fish-oil/>.

And from the Tufts University Health and Nutrition Newsletter (January 2012 Issue)

**Question:** *As a vegetarian, can I get enough omega-3 from walnuts, flax seed, canola oil and trace amounts in other foods?*

**Answer:** *The omega-3 fatty acids found in plant foods (ALA) have their own health benefits, but they are not the same as the omega-3s found in fish (DHA and EPA) that have been associated with heart-health benefits. According to Alice H. Lichtenstein, DSc, director of Tufts' HNRCA Cardiovascular Nutrition Laboratory, while your body does convert ALA into DHA/EPA, studies have found that this conversion is very inefficient. Only between 3% and 5% of the ALA gets converted into EPA and as little as 0.5% to 9% into DHA. If you're concerned about getting enough of the omega-3s found in fish, it is possible to buy vegetarian supplements that derive DHA from algae. ([http://www.nutritionletter.tufts.edu/issues/8\\_1/ask-experts/ask-tufts-experts\\_1173-1.html](http://www.nutritionletter.tufts.edu/issues/8_1/ask-experts/ask-tufts-experts_1173-1.html))*

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- *Confirm that it is not an endangered species simply renamed for marketing purposes.*

The federal Food and Drug Administration has a list of common and scientific names of fish and shellfish called the **Seafood List**, which is regularly updated. More properly the **Guide to Acceptable Market Names for Seafood**, it's available at <http://preview.tinyurl.com/jaffa33>, it's quite extensive, and reputable seafood dealers and restaurateurs adhere to its content. But above and beyond the **Seafood List**, the probability of an endangered – or a threatened – species making its way to any retail markets or restaurants which don't follow federal and state laws is remote. The probability of buying an endangered species of fish or shellfish from a fish market would be approaching the probability of buying a rhinoceros roast from a butcher.

There has been a problem with misidentified species, but this involves either mislabeling a less expensive product as a more expensive one or concealing where the seafood originated to circumvent import restrictions. Curtailing this misidentification was recently made a federal priority (see <http://www.iuufishing.noaa.gov/>).

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In sum it appears as if Ms. Hunnes is not a fan of seafood in the human diet. And she appears to have fully embraced every doom and gloom report she stumbled upon in researching this blog, selecting the worst of the worst. But by looking just the slightest bit behind the headlines she would have found that much of the worst that she has embraced is not justified. I would think that her readers deserve better.

With a world population of over seven billion no one who wasn't suffering from some level of misanthropy could have a problem with 60 percent of our fisheries being fully and sustainably exploited (though they might not look with favor at the 10 percent that aren't), but somehow Ms. Hunnes insists that there's no such thing as a sustainable fishery. Perhaps in another blog she'll explain how she arrived at that conclusion and set the world of fishing and fishery management straight, because an awful lot of people believe in, an awful lot more people depend on and even more people than that both enjoy and benefit from sustainably grown and sustainably harvested fish and shellfish.

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***“This significant growth in fish consumption has enhanced people’s diets around the world through diversified and nutritious food. In 2013, fish accounted for about 17 percent of the global population’s intake of animal protein and 6.7 percent of all protein consumed”*** (Pg. 4 of the FAO report cited above). This might be inconsequential to Ms Hunnes and the Huffington Post, but rest assured that to the people who depend on catching, processing, transporting, marketing and consuming these fish it surely isn’t, and no alternative animal protein sources are very likely. Maybe Ms. Hunnes’ and Huffington Post’s plan, like Marie Antoinette’s, is to let them eat cake instead.