



THE UPDATE

Captain's Blog



This week's Update is republished with permission from the Sustainable Fisheries website from the University of Washington in Seattle, USA. Author, Max Mossler, is an important voice in addressing reportage of fisheries globally and follows in the footsteps of his pioneering colleague, Ray Hilborn.

Whilst an opinion from the US, this column is important to New Zealand in that it reflects what we see universally in the misreporting of good science around fisheries. It is a longer than usual blog, but we hope you find the time to read it.

From fishery science to fake news: how misinformation about the ocean evolves

The childhood game of telephone, where a statement is whispered in someone's ear then passed around from person to person, is an analogue to science communication. In telephone, the further the original statement goes (i.e., more players), the more absurd it becomes. Science communication is similar—the farther from the source a piece of information is presented, the farther it is from the truth.

In science, the origin of information starts with data. The first players are the scientists who interpret the data then choose how to present it in a paper. The second players are reviewers and editors who accept, reject, or alter the paper. Then, the information is made public in a scientific publication. Next in line is the university or organization the data was collected under. Most have a public relations department whose job is to spread the

information far and wide. The PR staff craft and distribute a press release aimed at journalists explaining the information and offering quotes from the original scientists. Then the journalists interpret the press release and create a story for everyday readers to consume.

Fueling all this is money. Scientists and researchers need funding, universities and organizations need donations, and journalists need clicks and pageviews. I could go into a long missive about the pros and cons of information being tied to money, but that's the way it is and always has been—I'll leave it at that for the purposes of this piece.

So, not only are there many opportunities for information to be misconstrued, but there is also a financial incentive to do so. More "interesting" results beget more funding, more "troubles" beget donations, and more hyperbole begets pageviews. Nuance, a crucial part of science, is cast aside.

Brandolini's Law in ocean conservation

We have seen this cycle play out in fisheries with the [headline](#) that there won't be any fish in the ocean by the year 2048. It started in 2006 when a group of scientists published a paper with the fun fact that at the rate of fisheries decline from decades ago, there would be no fish by 2048. It was a small part of the paper, meant to highlight a broader point that past fisheries management had been poor. However, the press release that accompanied the paper touted it as a significant finding leading to context-lacking news stories, hyperbolic headlines, and a pervasive notion that there won't be any fish in the ocean by 2048. The paper's original authors have stated that their findings are misconstrued and have worked to publish papers correcting them.

[Brandolini's law](#) states that, "The amount of energy needed to refute bullshit is an order of magnitude larger than to produce it." Fifteen years later, the 2048 myth continues to appear in articles across the internet.

The evolution of a bycatch myth

Now a new myth is rising to prominence: that global bycatch rates are as high as 40 percent.

Some background: The global authority on world fisheries, the United Nations Food and Agriculture Organization (FAO), defines bycatch as, "the total catch of non-target animals." This is the widely accepted definition.

Bycatch can be a useful indicator of fishery impacts on the broader ecosystem and provides important data that fishermen and fishery managers use to improve sustainability. Different fisheries have different rates of bycatch with varying degrees of impact. However, an important nuance is that bycatch is used or discarded. Used bycatch is generally accepted as sustainable so long as the non-target species isn't a threatened species. Discards are wasteful and an unfortunate reality of food production. The most recent research showed that [about 10 percent](#) of fish have been discarded at sea over the past decade.

So how did 10 percent get inflated to 40 percent?

In 2009, three people working for NGOs (World Wildlife Fund & Dorset Wildlife Trust) and one unaffiliated person decided to write a [paper](#) arguing that the definition of “bycatch” needed to be redefined to include ALL catch from unmanaged fisheries. From their paper:

“The new bycatch definition is therefore defined in its simplest form as: Bycatch is catch that is either unused or unmanaged.”

The authors define “unmanaged” as catch that “does not have specific management to ensure the take is sustainable;” in contrast, a managed fishery will have “clearly defined measures specifically intended to ensure the sustainable capture of any species or groups of species within any fishing operation.” An example they gave in the paper is that, because a 1993 study showed that members of the Indian bottom trawling fleet used nets with illegal mesh, “such a fishery cannot be considered managed, as defined in this paper, [thus] the entire catch of the Indian bottom trawl fleet is considered bycatch.” By their definition, they calculated 56.3 percent of India’s total catch as bycatch.

Adding up all this calculation for each country brought them to declare 40.4 percent of the world’s catch as bycatch.

Researchers making arguments in the scientific literature is nothing new. Still, it is surprising to see peer-reviewers and editors accept a paper arguing for redefining a widely accepted and common term that would necessitate a paradigm shift in fishery management. Especially with assumptions that a 1993 finding applied to a 2009 definition.

Regardless, their new definition has not been adopted. FAO still uses the widely accepted definition of bycatch, and I could not find a single authoritative body that uses the WWF & Dorset definition.

However, if you thought the redefined, inflated numbers would lose the nuance of “unused or unmanaged” and would be used as a call to action by advocacy groups, you are correct.

[From WWF:](#)

About 40 percent of fish catch worldwide is unintentionally caught and is partly thrown back into the sea, either dead or dying.

[From Oceana:](#)

According to some estimates, global bycatch may amount to 40 percent of the world’s catch, totaling 63 billion pounds per year.

That passage from Oceana came from a major [2014 report](#) titled, *Wasted Catch: Unsolved Problems in U.S. Fisheries*. However, the first thing you see after the title page is a 2-page photo with the above passage inserted as a graphic tidbit. Then come the table of contents and the rest of the report.

The opening line of the report literally starts with the widely accepted definition of bycatch:

“What is bycatch? Bycatch is the catch of non-target fish and ocean wildlife, including what is brought to port and what is discarded at sea.”

Oceana used the widely accepted definition of bycatch in their writing but framed the entire issue and highlighted a “statistic” from a completely different definition. [This is not the first time we have criticized Oceana’s science communication practices](#), by the way.

To give Oceana a bit of credit, on the [download page](#), but not in the report itself*, they issued a correction indicating that the 40 percent figure is wrong and the updated 10 percent number should be used.

If I were to tell you that Outside Magazine cited the Oceana report in a recent [major story](#), what part do you think they cherrypicked?

From Outside:

“Then there’s bycatch—other animals unintentionally caught and killed in nets. About [40 percent](#) of the fishing industry’s combined haul is bycatch, a total of 63 billion pounds per year. That carnage includes...”

That in-text hyperlink goes to the Oceana report, not to the download page with the correction.

And now you know how fisheries misinformation spreads.

Solutions to the science communication telephone game

Several steps can be taken to improve science communication. Here are a few ideas starting from the origin of the information and working outwards:

The systemic solution is to give lots of scientists lots of money, so they aren’t all competing for a limited funding pool and limited jobs that incentivize novel and headline-making research. Science is a pillar of society and humanity should fund more of it. Again, this article’s scope does not get into the global financial system and the incentives it creates, so I will leave it at that.

Another solution is to publish in scientific journals without paywalls, so journalists and others have access to original sources. This solution also requires more money as paywalls exist for many different reasons.

The Outside Magazine journalist probably didn’t have free access to the original paper and instead relied on Oceana acting as a middleman between science and journalists/the public. The problem here is that Oceana is not a neutral middleman—they need donations to support their employees and the work they do. Relying on philanthropy is a [difficult position](#) to be in; the whims of billionaires can dictate how time is spent and whether or not there are jobs. If non-profits were run entirely on endowments or government grants, rather than donations, it would create some separation between donors and output, giving non-profits more freedom and autonomy.

This website is also meant to be a middleman between science and the public. We rely on donors too, but our funding model is different. We get money from a big pot that funds various research and projects. We are small (just one full-time employee) and have no “direct” donors, giving us autonomy to say what we want. Our goal is to “explain” scientific papers in neutral ways so journalists and members of the public grasp the nuance and caveats that come with understanding.

But we aren't perfect either. For example, a paper from Ray Hilborn (our founder) went out with a press release that touted a seafood diet as less impactful than a vegan or vegetarian diet. It required a [follow-up post](#) explaining the nuance in that statement.

We are working on being [more receptive](#) to criticism and have actively [worked to evolve](#) into a more informative vs. opinionated project. We hope to continue being a reliable bridge between science and the public.

Journalism, consumers, and social media

After the middlemen in the science communication telephone game are journalists. Like scientists and NGOs, journalists are also beholden to money. Most journalism outlets are for-profit which incentivizes getting as many eyeballs as possible on content. Eyeballs respond to hyperbole and threat so that's what you find on cable news and online articles. The internet and social media amplify the hyperbole and threats, quickly forming a frothy soup of Urgent misinformation leading to conspiracy theories and violence.

Ocean conservation is not exempt from this. Misinformation and poor media coverage have absolutely radicalized would-be conservationists into harmful dipshits. Sea Shepherd, one of the world's largest ocean advocacy organizations, has a long history of racism and violence. Just last month, one of their boats [killed a fisherman](#) in Mexico.

Fixing this end of the information consumption telephone line requires a lot of political thought of which I will only suggest that more non-profit journalism is good and regulating social media to prevent the spread of harmful misinformation is probably necessary.

In the meantime, we will continue to do our part in the middle. We will call out and correct misinformation and try to [work with journalists](#) and the public to make sure good, complete information is out there.

*Editor's note: after this post was written, Oceana updated the official report to also include the correction. They included a disclaimer on every page of the report in which the 40 percent statistic appeared, a commendable, good-faith effort to correct the record.



World Fisheries Congress 2021

One of the world's largest fisheries conferences, the World Fisheries Congress, is to be held in Adelaide, Australia this year, from 20-24 September 2021.

Delegates can participate in this year's event online or in person.

WFC2021 will discuss the latest technological advances in global marine and freshwater fisheries, and deliver a dynamic, engaging program under the theme of '*Sharing our oceans and rivers - a vision for the world's fisheries*'.

The International Program Committee is welcoming abstract submissions in all areas related to global fisheries issue and key developments needed to ensure a sustainable future for our oceans, lakes, estuaries and rivers.

Abstracts must be submitted via the [abstract submission portal](#) by 1 March 2021.

For more information visit the [WFC2021 website](#).

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