DARK FISHING: THE WILD, WILD WEST OF WILD CAUGHT

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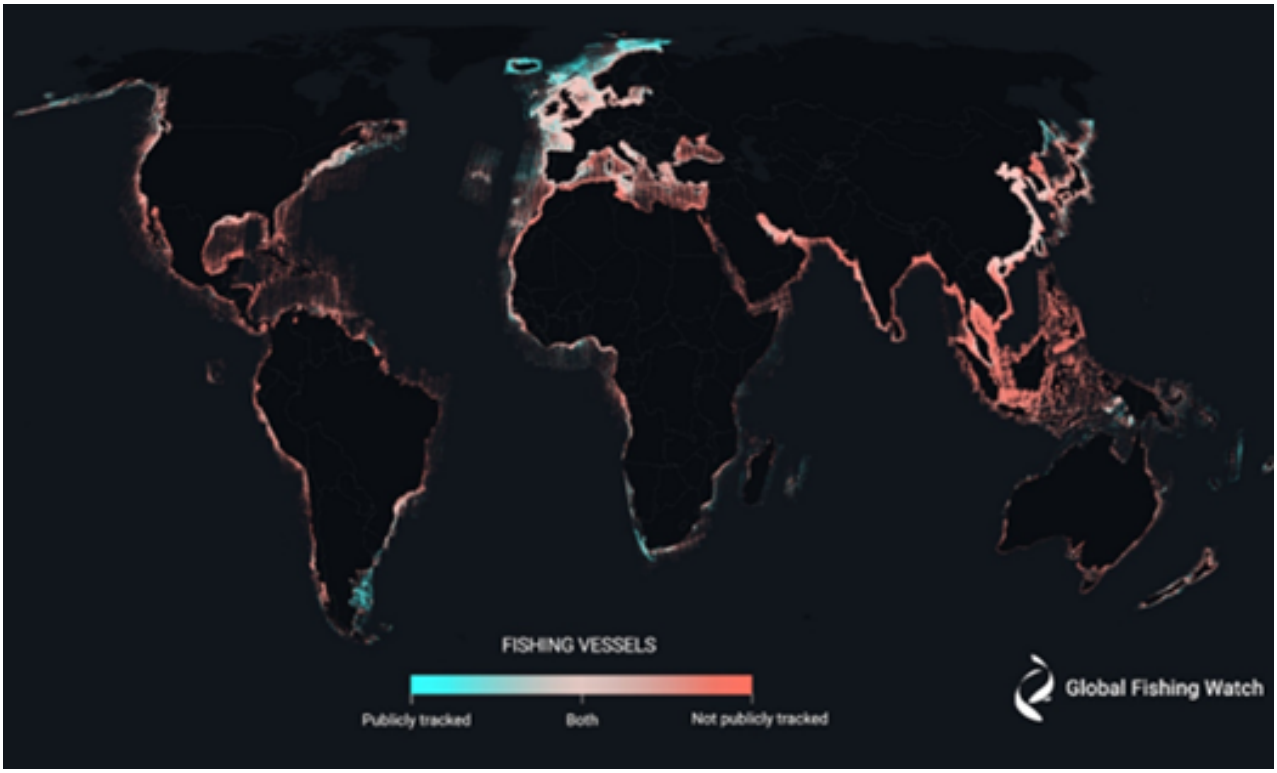
8 MIN READ

Artificial Intelligence's (AI) growing presence in society has sparked discussions about its potential impacts on various industries, however many are unaware of its growing role in fisheries management. While AI cannot physically cast a net or reel in a line, Deep Learning Models are offering promising and attainable solutions to combat "dark fishing"— illegal, unreported, and unregulated fishing activities (IUU) within a global seafood market valued at US$338.47 billion.

On January 3, researchers published a far more precise look at the global maritime industry that cast new light on the number and activities of commercial fishing ships at sea. By utilizing machine learning to process satellite imagery they revealed that dark fishing is far more prevalent than public data would suggest. According to Global Fishing Watch, analysis reveals that about 75 percent of the world's industrial fishing vessels are not publicly tracked., pointing out that our understanding of the scale of the global fishing industry is far from comprehensive.

AI Tools and Their Role

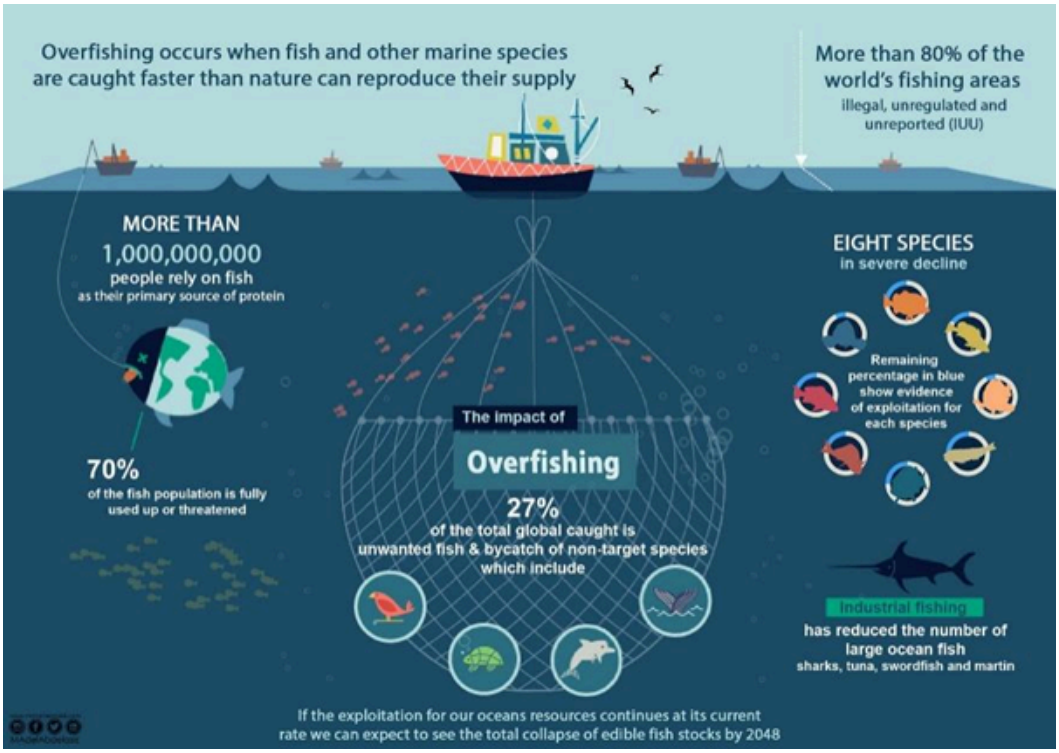
AI tools now offer unprecedented approaches to combating illegal fishing practices. For decades, the floating world has relied on the Automatic Identification System (AIS) that transmits a ship's position. The International Maritime Organization and other management bodies necessitate large ships, including commercial fishing vessels, to broadcast their position with AIS. However, according to AIS data, about 36 percent of fishing activity was in European waters and 44 percent in Asia.



New satellite data completely contradicts this, showing that only 10 percent of fishing vessels are in European waters and, in fact, a staggeringly underreported 71 percent operate in Asian waters. Ultimately, this new data highlights the dramatic discrepancies in publicly available data versus the actual scale of fishing activities, especially in regions like Southeast Asia. Moreover, this disparity underscores an urgent need to share technology and data across borders to enable accurate responses to illegal fishing and its consequences. In short, without accurate information, corresponding legislation and enforcement will remain fundamentally ineffective.

Dark Fishing's Economic and Environmental Impact

Why should illegal fishing operations take center stage in our global priorities? Quantifying the extent of dark fishing across oceans is arduous, but experts estimate its annual cost to the global economy at up to US$23 billion, accounting for approximately 20 percent of the world's seafood catch. Thus, the economic repercussions are profound, leading to lost tax revenue for governments and diminished incomes for legal fishers. Additionally, the vicious cycle of overfishing exacerbates economic and environmental challenges by diminishing stocks while simultaneously increasing the remaining catch's value which only further incentivizes illegal activities and overfishing.



Environmentally, overfishing is ecologically severe by contributing to habitat disruption, food chain alterations, and carbon emissions from disturbed ocean ecosystems. According to the UN Food and Agriculture Organization (FAO), two-thirds of known fish stocks are fully exploited, with one-third over-exploited. This has led to drastic declines in species like tuna and mackerel over the past 10 years which threaten marine biodiversity. Furthermore, overfishing exacerbates food insecurity issues that disproportionately affects vulnerable fishing communities who are reliant on these diminishing aquatic resources.

The Challenges in Stopping Dark Fishing

Dark fishing is intertwined with critical issues such as economic inequality, environmental degradation, geopolitical disputes, and human rights violations. However, a deficiency of resource allocation hampers adequate monitoring of restricted fishing zones which span hundreds of kilometers and vast unrestricted international waters. Furthermore, regions like the Mediterranean and South China Seas are home to contested territorial fishing boundaries and overlapping national jurisdictions which make legality and corresponding enforcement unclear.

Developed countries such as Norway and New Zealand manage to patrol a significant portion of their waters, whereas less developed nations like Mozambique, Chile, and Myanmar struggle due to financial constraints. A 2021 report from Oceania revealed extensive fishing hours by Chinese vessels along Argentina's Exclusive Economic Zone waters, highlighting the challenges posed by unregulated fishing practices. Some even liken the modern fishing industry to colonial practices of resource extraction where advanced nations reallocate natural resources by invading less developed geographies. This disparity underscores a global imbalance where stronger nations or companies exploit weaker counterparts, which in turn, amplifies the prevalence of dark fishing in less economically developed regions.

The Rise of Aquaculture: A Sustainable Solution

As illegal fishing continues to threaten fish populations and exhaust natural stocks, the fishing industry faces significant risks, of changing how they operate, including economic losses and unemployment for industry workers. In parallel to the challenges posed by dark fishing and illegal fishing operations, there's a notable rise in investment in aquaculture and fisheries. Adopting aquaculture can help maintain employment in the fishing sector while ensuring a stable food supply and averting food shortage crises. Furthermore, as the global community grapples with the multifaceted challenges of dark fishing, integrating AI into fisheries management strategies presents an promising avenue for sustainable and equitably utilizing marine resources.

Overall, the rise of aquaculture underscores a positive shift towards more sustainable and regulated seafood production methods. According to the Food and Agriculture Organization of the United Nations (FAO), over 50 percent of the world's seafood now comes from aquaculture which highlights its reliability and potential to sustainably meet global demand. By embracing these practices, we can collectively transition to a future where demand for seafood is met through environmentally sustainable means while reducing the incentives to maintain illegal fishing operations and their far-reaching global consequences.

The Road Ahead: Equitable Collaboration

To meaningfully address dark fishing practices, it becomes ever-clearer that embracing technology and fostering open-source sharing are crucial steps toward effective change.

Technological innovations are now providing the world unprecedented capabilities to police illegal fishing activities effectively, but these tools are not evenly distributed globally due to economic and governmental differences. The current imbalance in enforcement capabilities perpetuates a cycle where powerful nations protect their interests while the vulnerable states suffer from the consequences of unchecked illegal fishing. These disparities leave many nations without the proper means to combat these practices independently.

Collaborative efforts through shared technologies could pave the way forward, creating a more transparent and regulated fishing industry that benefits both marine ecosystems and vulnerable communities who rely on fishing for survival. Global cooperation, knowledge sharing, and equitable access to key technologies are required to truly address the challenges posed by dark fishing practices.

Only collective action can curb illegal fishing damages and safeguard the oceans for future generations.