

ILLEGAL, UNREPORTED, AND UNREGULATED FISHING

Empowering Effective and Efficient Interventions

Spring 2024




Ashley Cooper, Sydney Mayes, Isabella Rothenberg, Chloe Swick, Eleanor Thomas

Faculty Advisor: Dr. Christopher Free

Client: Allen Institute for Artificial Intelligence - [Skylight](#)

IUU FISHING CRISIS & PROJECT BACKGROUND

Illegal, unreported, and unregulated (IUU) fishing poses a significant threat to ocean health, geopolitical stability, and global food security. As the ocean faces increasing levels of exploitation and resource depletion, IUU fishing has become a leading maritime security risk. This project, in partnership with the Allen Institute for AI (AI2), seeks to promote effective IUU fishing interventions through:

-  Ensuring that investments in monitoring and enforcement result in quantifiable protection and marine resource restoration.
-  Empowering ocean conservation stakeholders to invest in effective and efficient technology solutions.
-  Identifying strategic engagements to guide philanthropic investment in IUU fishing prevention.



**1 IN 5
WILD
FISH ARE
ILLEGALLY
CAUGHT**

RESULTS AND CONTRIBUTIONS

Bioeconomic Model

Evaluated how enhanced IUU fishing enforcement impacts harvest, profits, and the conservation status of Indian Ocean yellowfin tuna.

Results demonstrate that investments in monitoring and enforcement lead to better long-term stock outcomes, reduced illegal fishing harvest, and higher overall harvest.

IUU Fishing Dashboard

Created an interactive, accessible web app to provide asset investment guidance for sustainable fisheries management stakeholders.

The app recommends monitoring strategies for different types of IUU fishing events based on user-defined parameters, including cost, jurisdiction, and data requirements.

Skylight Adoption Analysis

Analyzed the characteristics of countries that have adopted Skylight, a tool developed by AI2 to support IUU fishing monitoring efforts.

Our analysis identified three key indicators of Skylight adoption and 13 'likely adopter' countries, enabling Skylight to target their engagement efforts and maximize philanthropic impact.

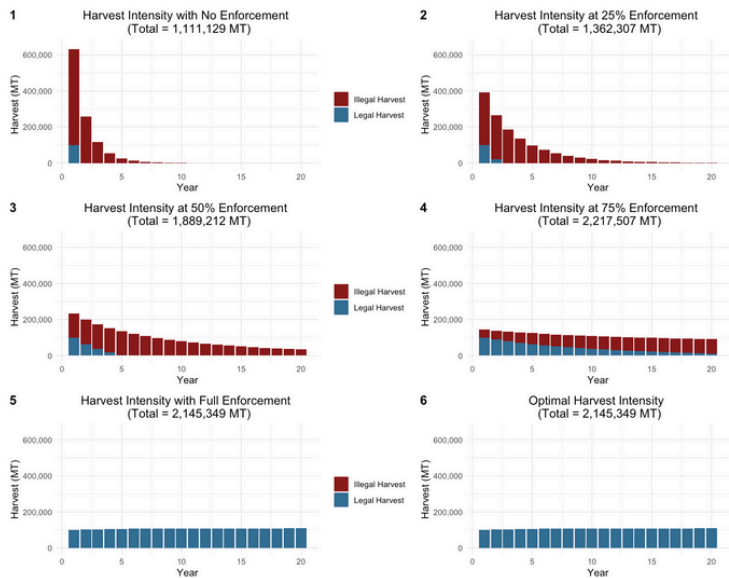


FIGURE 1: (LEFT)
 Indian Ocean yellowfin tuna harvest (MT) over time, under different levels of enforcement. Illegal fishing (red) decreases with increased enforcement while cumulative total harvest increases.



PROJECT IMPACT

The bioeconomic model, IUU fishing dashboard, and Skylight adoption analysis represent a multifaceted approach to address IUU fishing monitoring and enforcement challenges. The bioeconomic model examines management decisions in a complex system where agencies set science-driven quotas while fishers make profit-driven choices. The dashboard is an innovative tool that helps fisheries management stakeholders make decisions about technology investments that will fit their specific monitoring needs. The adoption analysis supports AI2's outreach and engagement efforts by identifying likely candidates for expanding IUU fishing monitoring efforts. These results can also assist other philanthropic partners invest their resources more effectively. Together, these findings support agencies, nonprofits, and other ocean conservation stakeholders looking to tailor their respective strategies to better address IUU fishing and promote sustainable global marine resources management.

Future Work

The IUU fishing dashboard has garnered interest from multiple ocean conservation stakeholders, including affiliates from the United Nations Environment Programme, the U.S. Coast Guard, and the U.S. State Department.

Feedback from stakeholders and discussions with potential partner organizations will inform how the dashboard evolves, with the potential for it to be adapted to better fit specific needs within the IUU fishing deterrence space.

Continued partnership with AI2 and other interested parties aligns with the goal for the dashboard to be a useful resource in the effort to end IUU fishing.

