

An aerial photograph of a coastline, showing a large body of water on the left and a narrow strip of land on the right. The water is a deep blue-green color, and the land is a lighter, sandy or brownish color. The image is used as a background for the text.

# UNODC GMCP & Skylight: Partnering on MDA Technology & Capacity Building

## Case Study: Countering Illegal Transshipments in African Small Island Developing States

*Global Fisheries Enforcement Training Workshop*

**Ai2**

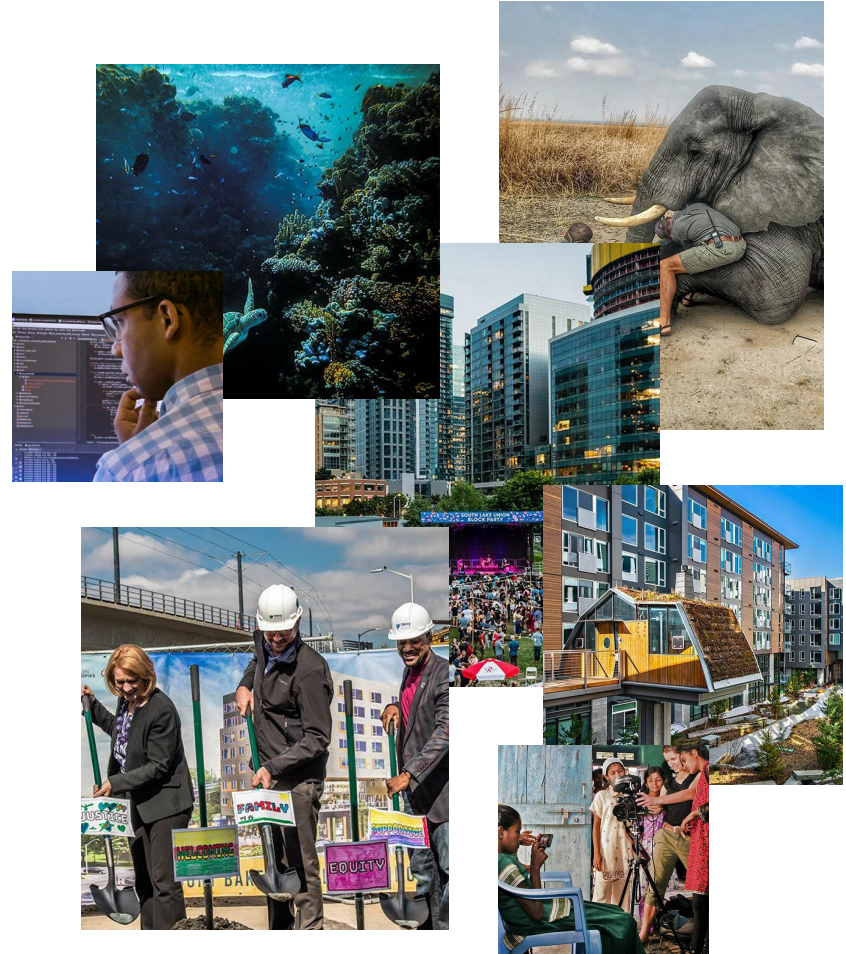
Allen Institute for AI

# OUR HOME

Currently at VULCAN INC. in Seattle, USA.

Moving to **ALLEN INSTITUTE FOR ARTIFICIAL INTELLIGENCE (AI2)**, also in Seattle, in September 2021.

- Founded by the late Paul G. Allen, Microsoft Co-Founder, Investor and Philanthropist
- Allen family is passionate about reducing illegal fishing and improving ocean health.
- Skylight is one of Vulcan/AI2's major philanthropic investments in Ocean Health



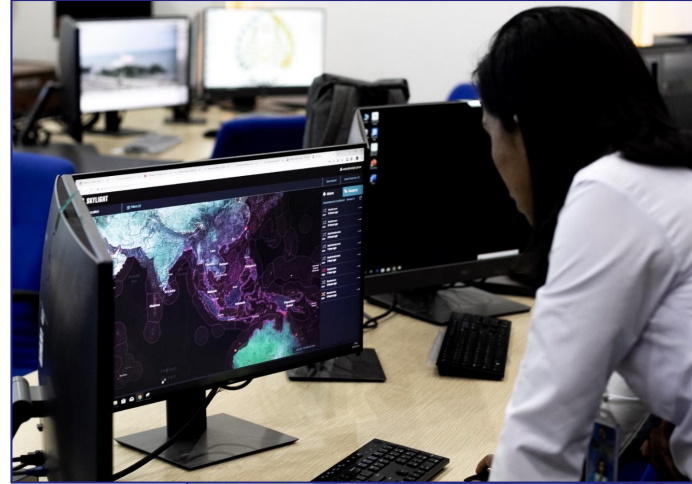
# SKYLIGHT

## WHAT IS SKYLIGHT?

A maritime analyst tool for identifying suspicious behavior that may be illegal or non-compliant with fisheries and other maritime regulations.

## KEY ELEMENTS

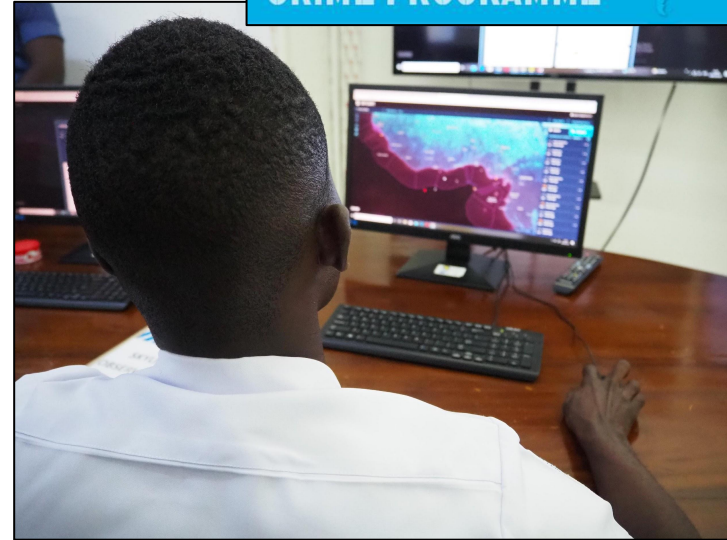
- We work through **partnerships** to scale deployments and impact.
- Skylight is offered at **no cost**.
- Web platform is **easy to access**.
- Analytic outputs have **little-to-no sharing restrictions**.
- Focus on application of **advanced technologies, including AI**, to surface anomalous activity



# SKYLIGHT - UNODC PARTNERSHIP

## MAIN POINTS OF COOPERATION

- UNODC GMCP = UN Office of Drugs and Crime, Global Maritime Crime Programme.
- Skylight is and always will be **free** to agencies UNODC identifies as potential beneficiaries and introduces Skylight to.
- Our primary mission is focused on countering **fisheries crime** and securing **marine protected areas** (MPAs), though Skylight can be used for **other maritime security threats**.
- We asks for **regular feedback** to evaluate how useful the tool is and inform future enhancements



# ACTIVE GLOBAL ENGAGEMENTS

## Latin America

- National Centers: Royal Bahamas Defense Force (RBDF)
- Parks: Mexican National Parks Commission, Revillagigedo staff
- Active exploration in Uruguay, Costa Rica, Argentina, Chile, Columbia

## West and Central Africa

- Regional Centers: CRESMAO, MMCC Zone E, MMCC Zone F
- National Centers: Cabo Verde Coast Guard, Sao Tome and Principe Coast Guard and Fisheries, Ghana Navy, Côte d'Ivoire Navy, Gabon Navy
- Parks: Gabonese Agency for National Parks

## Indian Ocean

- Regional Centers: Operations and Information Fusion Centers (RCOC, RMIFC)
- National Centers: Seychelles National Information Sharing and Coordination Center (NISCC), Maldives Coast Guard and Fisheries
- Parks: Bazaruto National Park (managed by African Parks)

## Southeast Asia

- National Centers: Indonesian Maritime Security Agency (BAKAMLA), Philippines National Coast Watch Center, Vietnam Search & Rescue Coordination Centre

## Pacific

- Regional Centers: Pacific Islands Forum Fisheries Agency (FFA)
- National Centers: Cook Islands Police, Fiji Maritime Search and Rescue Coordination Center (FMSRCC), Kiribati Police, Palau Marine Law Enforcement, Pitcairn Islands Administrator, Samoa Police, Tonga Navy, Tuvalu Police
- Parks: Phoenix Islands Protected Area Implementation Office

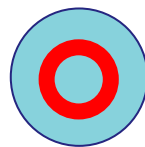
## 26 Active Country Engagements

## 6 Regional Organizations

# CASE STUDY: Countering Illegal Transshipments in Sao Tome

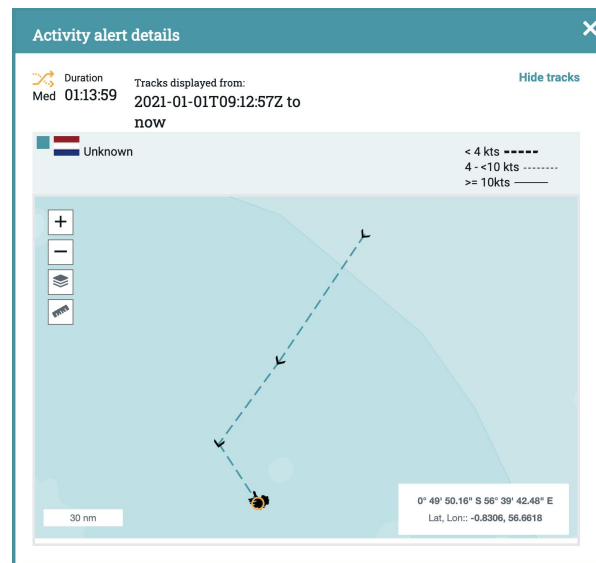
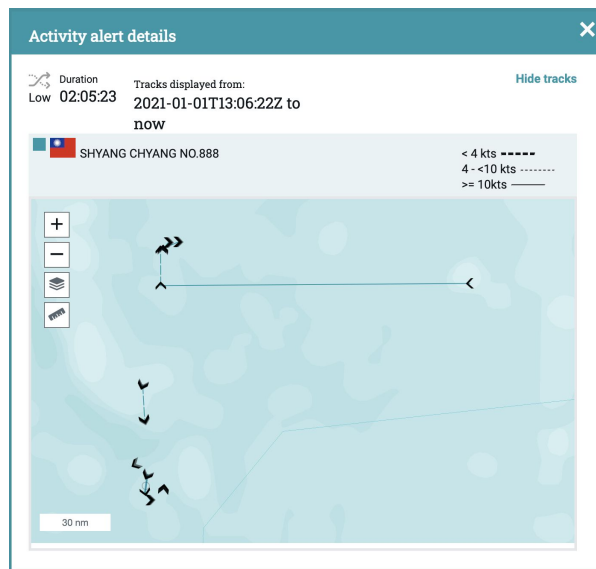
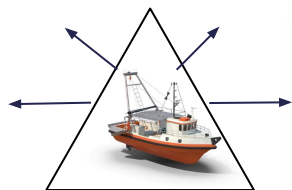
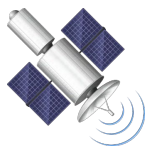


# DARK RENDEZVOUS EVENTS



# DARK RENDEZVOUS

AN EVENT WHERE ONE VESSEL IS TRANSMITTING AIS AND HAS TRACKS INDICATING A MEETING WITH A DARK (NON-AIS) VESSEL.

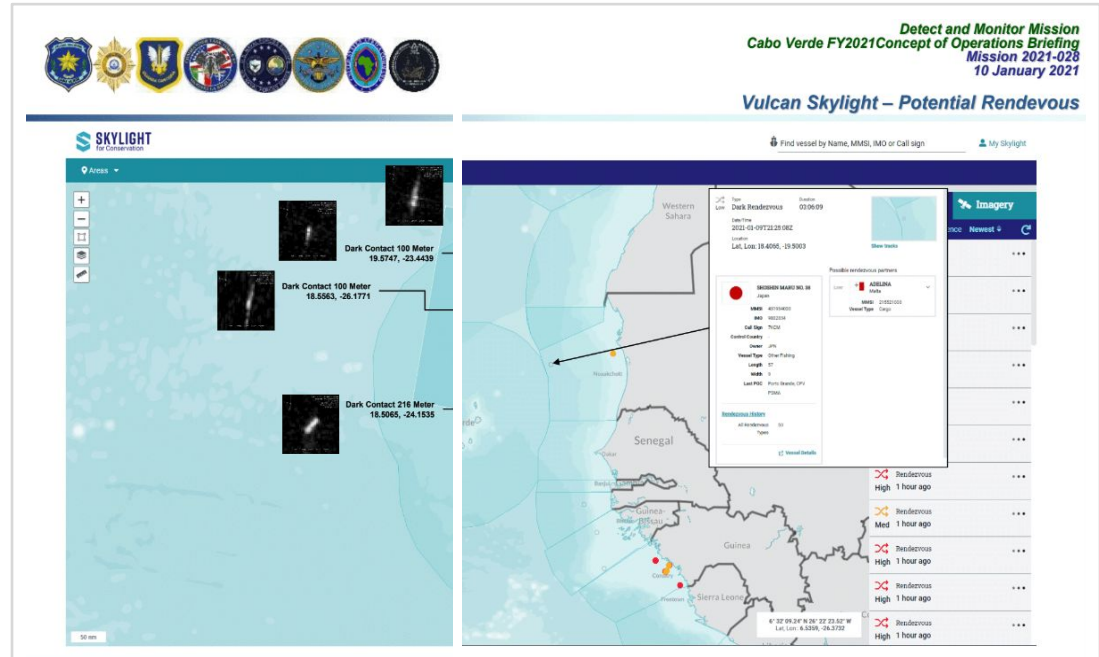


Skylight uses a **machine learning model** based on a database of expert-annotated examples to look for rendezvous behavior in incoming AIS tracks. A Dark Rendezvous event does not guarantee that a rendezvous with a non-AIS transmitting vessel occurred. It just means that the tracks are **exhibiting** characteristic behavior (e.g. slow speeds).

# CASE STUDY: CABO VERDE

## Guiding air patrol towards suspicious maneuvers and loitering // Dec – Apr 2021

- Skylight collected satellite radar (SAR) and gave the Cabo Verde Coast Guard and US Navy access to Skylight during the anti-narcotics and anti-IUUF operation
- When preparing weekly pre-flight briefs, the agencies first checked Skylight for dark rendezvous events and dark detections because of their low density
- Those events were double checked on SeaVision and then made into ‘contacts of interest’ for the flight.



**US Navy Africa:** “[Dark Rendezvous] events have helped detect subtle changes in the environment, pattern-of-life, and focus... I may know that a contact was idle because I have a view set up in for less than 5 knots, but I don’t necessarily have the indication like what the AI pulls out for me... I’ve found fishing vessels slowing down and picking up their lines, three reefers that were loitering in the area potentially transshipping.. the activity is not always illegal but it interesting and I can make them contacts of interest for the flight.”

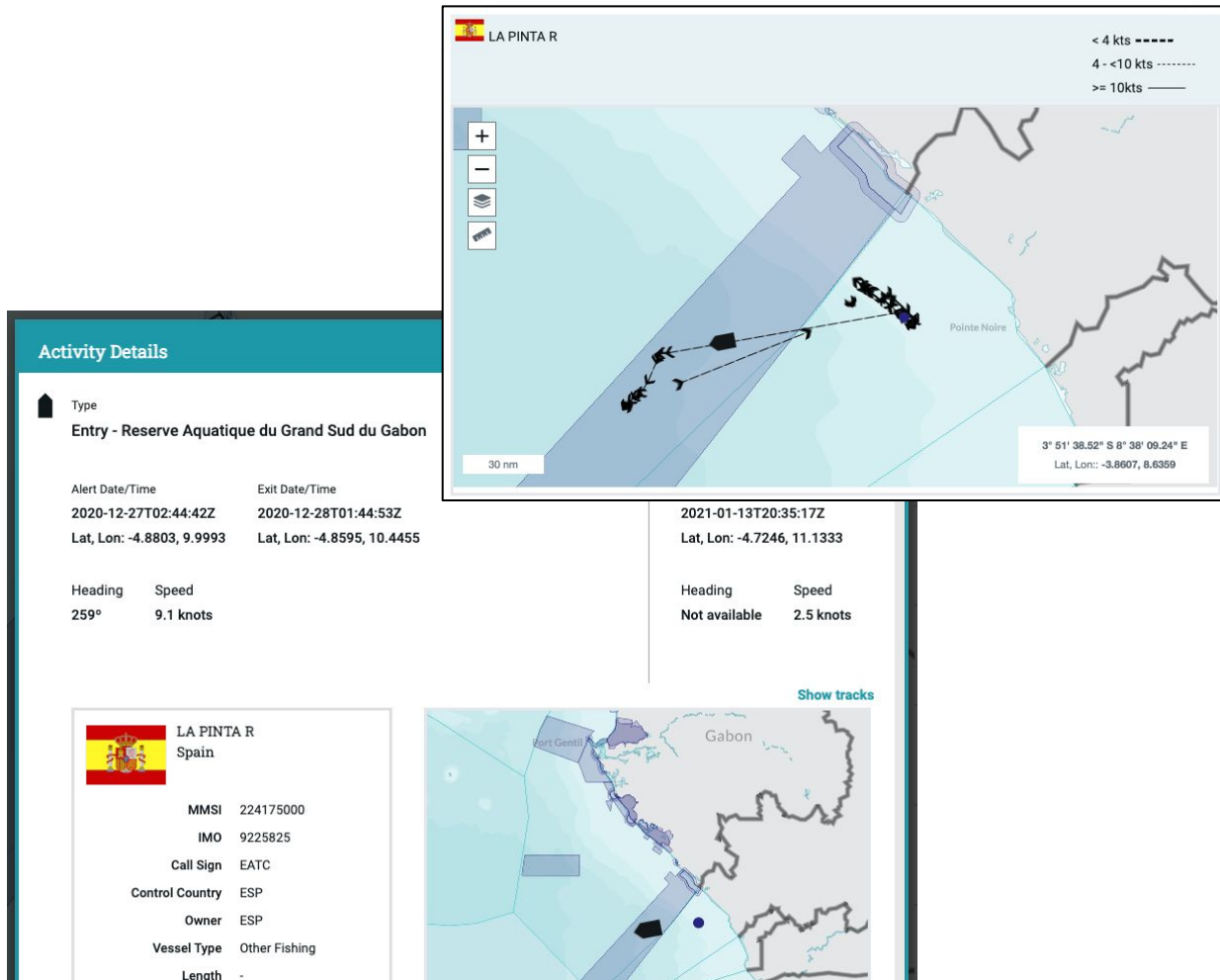


# ENTRY EVENTS

Skylight can monitor vessels on AIS encroaching into various areas of interest.

Basic functionality for monitoring general activities around areas of interest (AOIs).

AOIs are customizable by users.



# CASE STUDY: THE MALDIVES

## Combining Skylight and other tracking systems to seize illegal foreign vessels potentially illegally fishing

// May 2021

- The Maldives Coast Guard monitors dozens of vessels entering and exiting their EEZ on a monthly basis. There is a regulation that foreign fishing vessels must notify the Fisheries Ministry before they enter the EEZ.
- Skylight was used with other vessel tracking systems to identify transit paths and general areas where there seemed to be lots of illegal fishing potentially happening.
- Specifically, with Skylight's entry events into a custom area drawn around the EEZ and other systems to corroborate, the Maldives MDA team identified a Sri Lankan fishing vessel who may have entered the area without a prior announcement.
- The Coast Guard had the capacity for increased IUU patrols and contacted the Maldives MDA team for direction. At the recommend area they identified 5 vessels illegally fishing in the Maldives EEZ, of which 1 had used its AIS briefly and was visible on Skylight and other systems.
- The vessels are contained in Maldives and lost 40+ days for fishing.

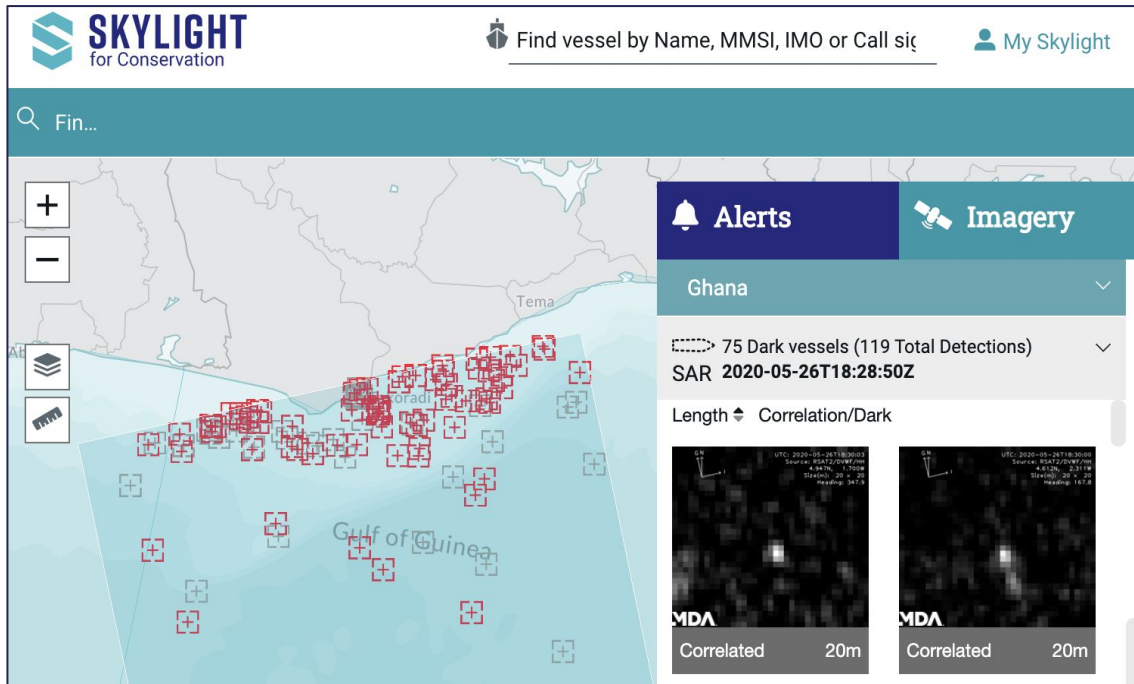


# DARK DETECTION DETECTIONS

Vessels conducting illegal activity often turn their AIS off or do not carry AIS.

Skylight uses Synthetic Aperture Radar (“SAR” or “Satellite Radar”) to look for vessels that are not transmitting AIS.

Skylight pays for SAR collections on behalf of agencies to support intelligence-gathering and operations.

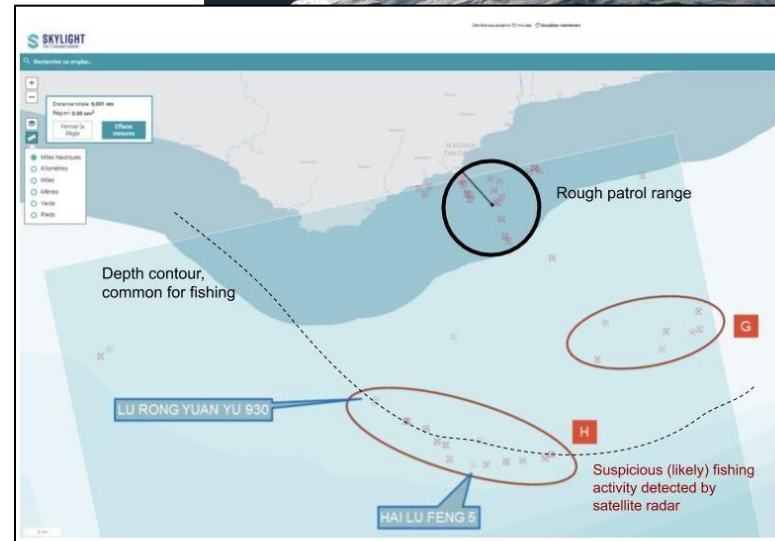


# CASE STUDY: GHANA



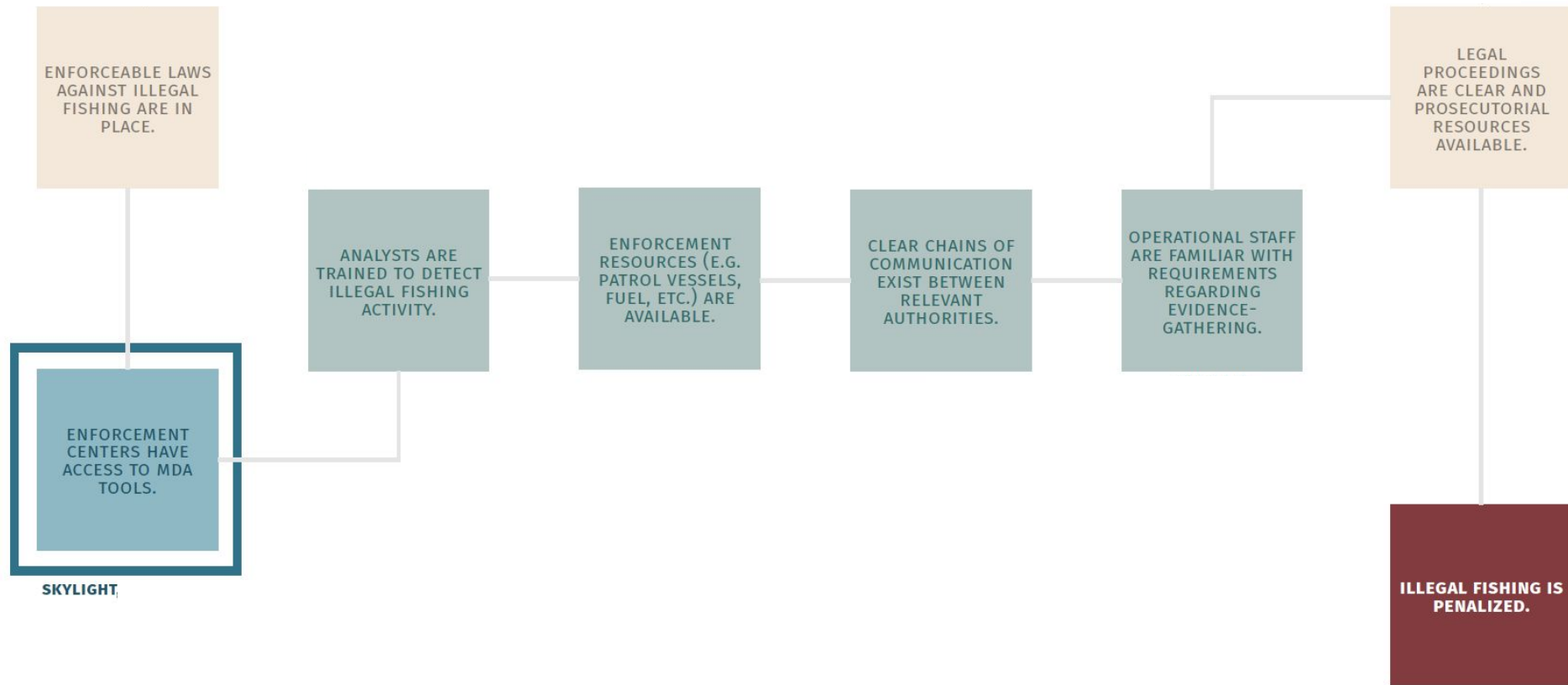
## Guiding a Surface Patrol Toward Illegal Trawling // Aug – Oct 2020

- Skylight collected satellite radar (SAR) data before the anti-IUUF operation to inform the Navy on hotspots of dark activity.
- SAR was also collected in the middle and at the end of the operation to support near-term decision making.
- One collection discovered vessel patterns suggestive of trawling and more dark potential fishing vessels than the list of licensed trawlers in Ghana.
- Discovery prompted the Navy to enter the general area (H, in diagram to the right) and find at least five vessels with varying levels of infractions.



Skylight cannot deliver value in a vacuum. But, by partnering with other organizations in this area, we can provide a more complete intervention.

# PATH TO DETERRENCE



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## DISCUSSION QUESTIONS

1. Who are key partners to your current activities and programs? Particularly critical to Monitoring, Control and Surveillance?
2. Are there particular relationships between organizations that you believe should exist and do not already?
3. Are there any connections we or UNODC can make on your behalf?

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