Recycllux

Climate-Smart Plastic Offsets

Through Transparent, Data-Driven Marine Plastic Cleanup

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The Challenge

12 million tons/year **marine plastic leakage**

- ✗ NO scalable method
- ✗ NO traceable plastic offset
- ✗ Multi-million € fines
- ✗ Consumer distrust
- ✗ Reputational damage

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Turning Compliance into Action

Corporate Clients

- **EPR Compliance**
- **Sustainability Reporting**

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AI-Powered Satellite Detection

Locally Orchestrated Interventions
(Uber-like)

Blockchain-Based Traceability

Verified Impact Metrics

Existing Cleanup Partners

Local Fishing Vessels

NGOs

Recycling/ Repurposing Partners

Marine Plastic Cleanup-as-a-Service

1.Detection

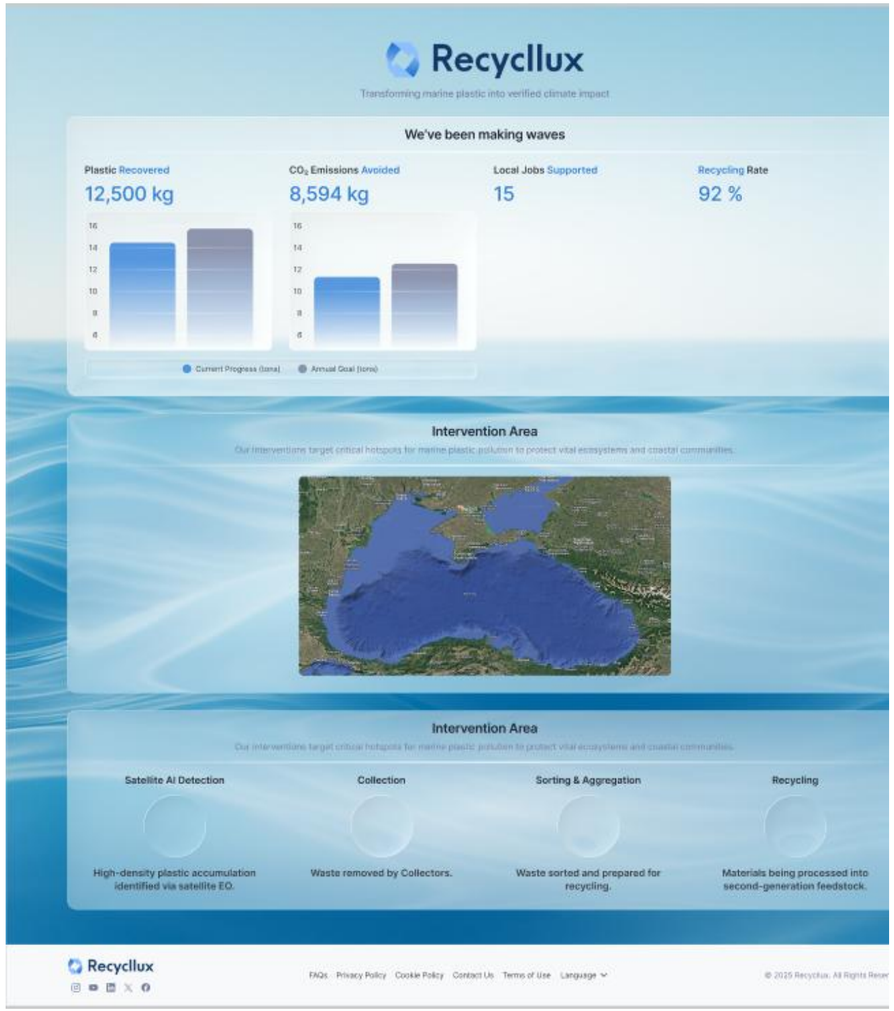
- Proprietary AI models applied to satellite data
- Detect plastic accumulation zones
- On demand detection reports

2.Intervention

- Intervention portal where we match pollution spots with local cleanup capacity
- Uber-like logic via our portal
- Blockchain-based traceability

3.Impact Reporting

- Visual dashboards to showcase performance
- Access to real time KPIs
- Ocean bound plastic offset credits / carbon credits

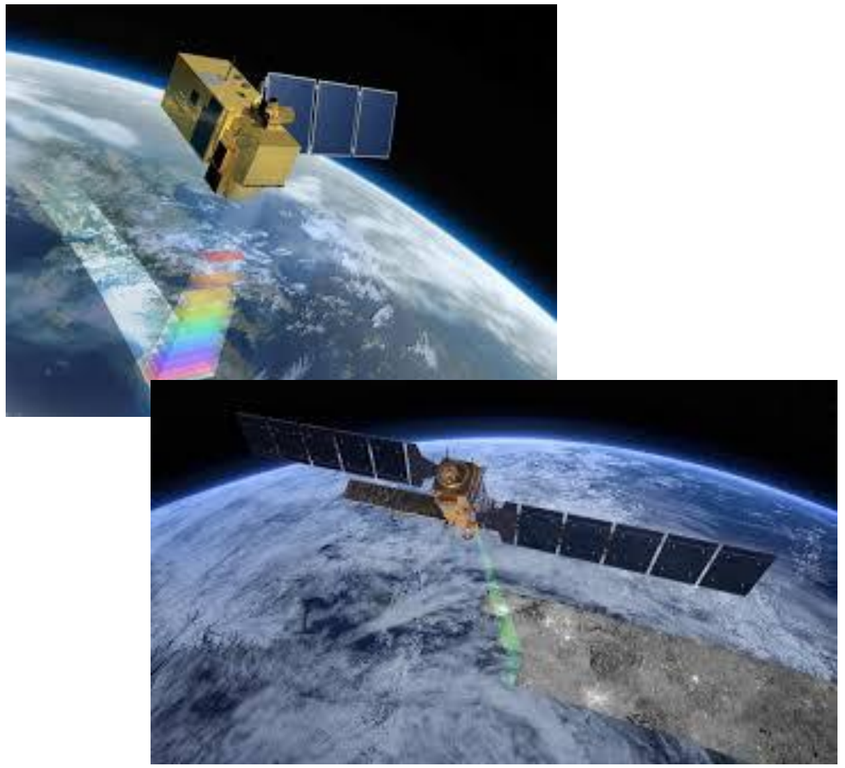


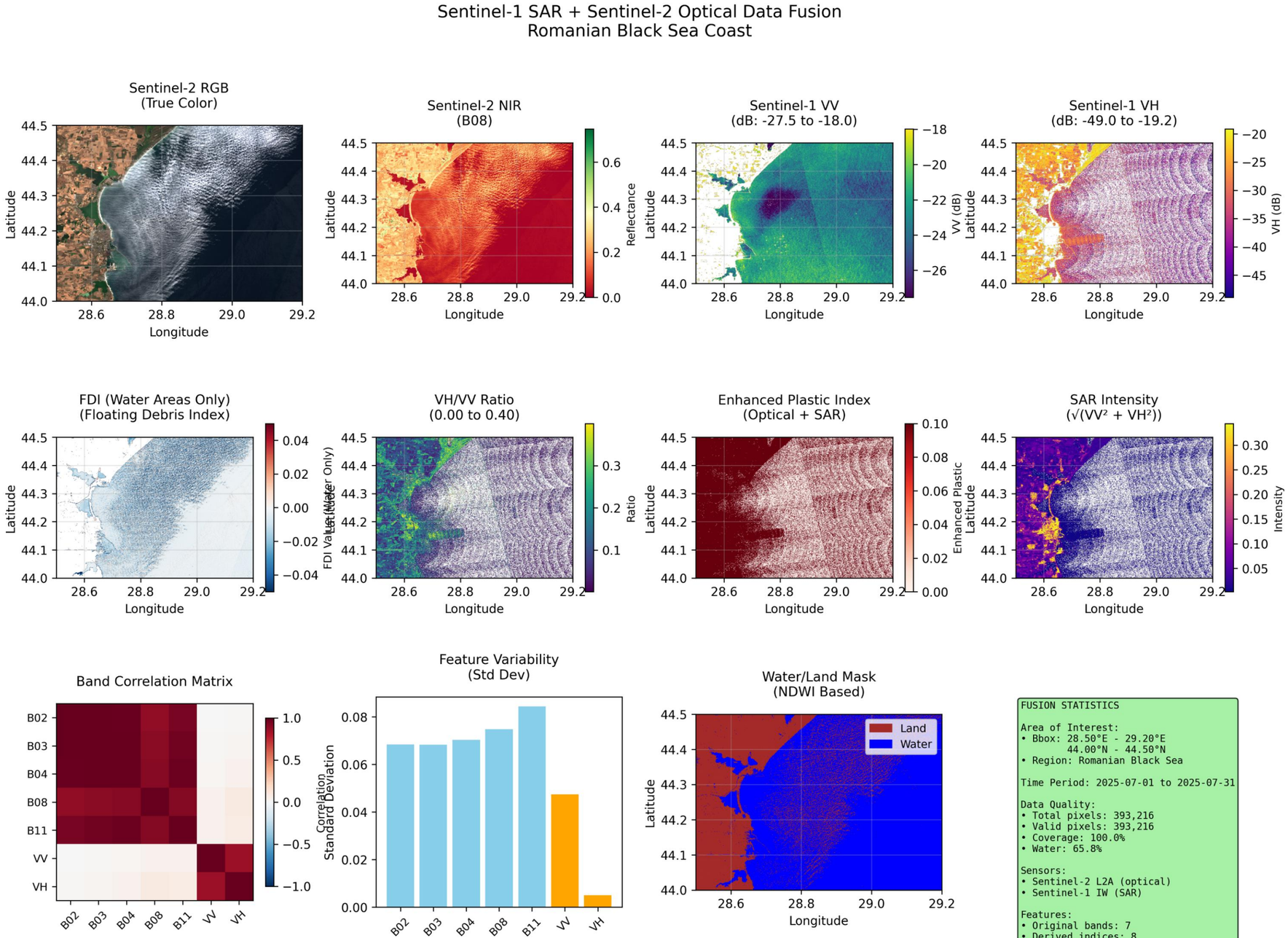
How We Detect Plastic

Sentinel-2 (Optical): measures sunlight in 13 bands
→ plastics reflect strongly in NIR & SWIR making it look bright compared to the dark background of water

Sentinel-1 (Radar): detects surface roughness
→ floating objects shows as bright spots

Fusion: cross-check optical & radar signals → fewer false positives, higher accuracy



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FUSION STATISTICS

Area of Interest:
• Bbox: 28.50°E - 29.20°E
        44.00°N - 44.50°N
• Region: Romanian Black Sea

Time Period: 2025-07-01 to 2025-07-31

Data Quality:
• Total pixels: 393,216
• Valid pixels: 393,216
• Coverage: 100.0%
• Water: 65.8%

Sensors:
• Sentinel-2 L2A (optical)
• Sentinel-1 IW (SAR)

Features:
• Original bands: 7
• Derived indices: 8
• Total features: 15

Applications:
• Plastic debris detection
• Water quality monitoring
• Marine pollution assessment
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What you see here is how we combine **optical and radar satellite data** to detect plastic in the Black Sea.

On the **top row**, the left images come from Sentinel-2 optical sensors - true color and near-infrared bands. On the right, Sentinel-1 radar captures surface roughness.

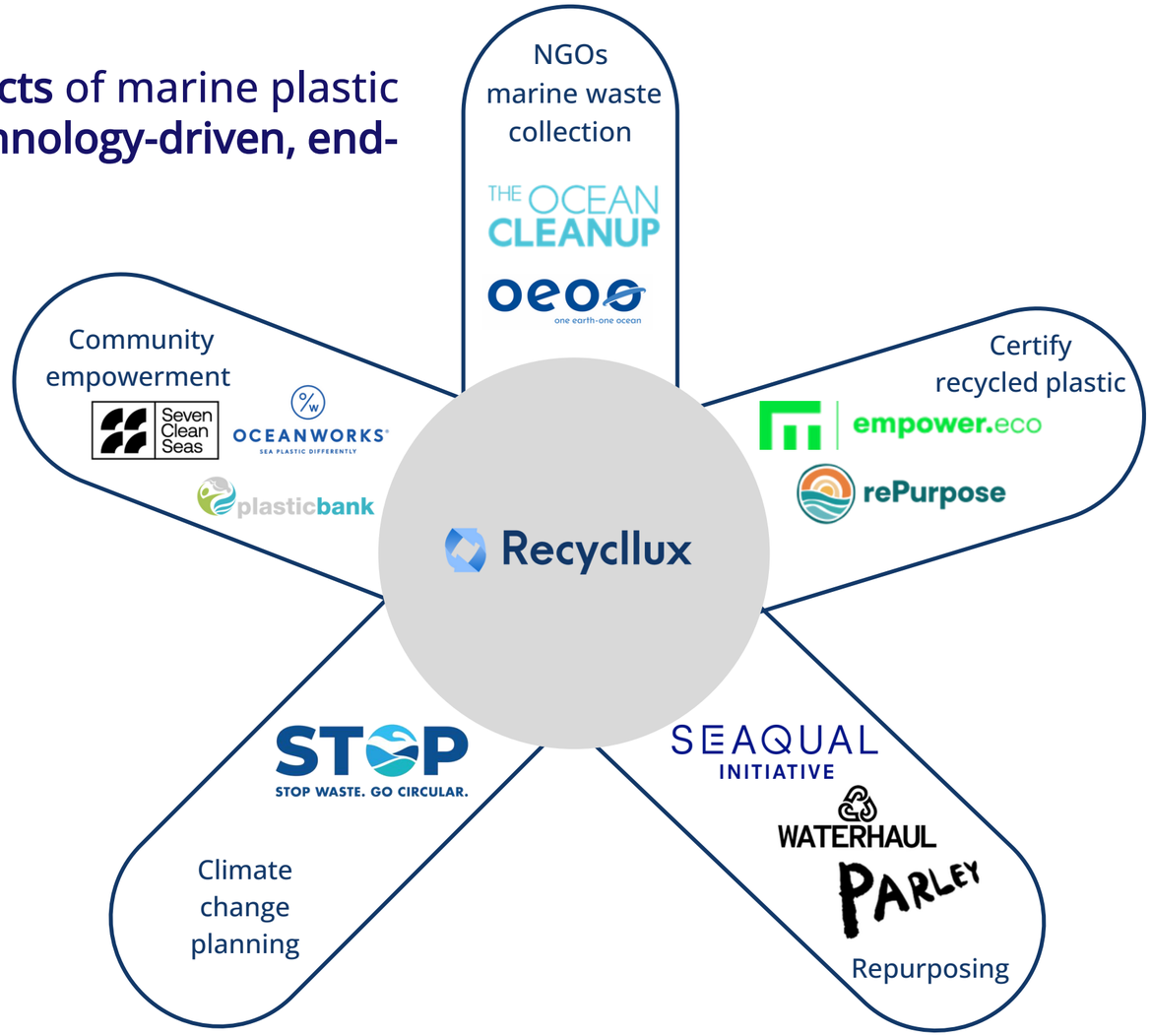
On the **middle row**, we apply specialized indices such as the Floating Debris Index and the Enhanced Plastic Index, and combine radar channels (VV, VH) with optical bands, to create a clearer signature of plastics.

On the **bottom row**, we run correlations and masks - removing land pixels, and checking feature variability - to refine the detections.

Our differentiation

Fragmented market where players address **different aspects** of marine plastic waste management, but none offer a **fully integrated, technology-driven, end-to-end solution**

Holistic approach	End-to-end solution - from detection and collection to recycling and impact reporting
Real-time data driven	EO AI to automatically identify plastic litter spots
Transparency and trust	Blockchain trusted traceability (full chain of custody)



KPIs & Impact in 5 Years

Environmental

Successfully divert **5,000 tons** of marine plastic waste from the environment *(SDG 14)*

Prevent **200,000 tons of CO2 equivalent emissions annually** through waste removal *(SDG 13)*

Increase the **number of companies** transparently reporting on plastic reduction efforts *(SDG 12)*

Interventions made with **- 46x Lower Carbon Footprint** through decentralized local value chains *(SDG 7)*

KPIs & Impact in 5 Years

Social

Create **5,000+ direct jobs** for fishing vessel operators, waste sorters, and recycling workers *(SDG 8)*

Support **100+ coastal administrations** in meeting environmental targets *(SDG 11)*

Directly **impact 2–5 million coastal** residents through cleaner environments *(SDG 11)*

Engage **1,000+ students** in waste-to-art initiatives *(SDG 4)*

THANK YOU!

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Recycllux

www.recycllux.com

Backup Slides

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Traction

Confirmed technology and product-market alignment

PARSEC ACCELERATOR
INNOVATION LABS
ClimAccelerator
BLACK SEA ACCELERATOR FOR A SUSTAINABLE BLUE ECONOMY
Facilitated by BRIDGE-BS and DOORS Projects
IMPACT CREATORS IDEAS THAT CAN CHANGE THE WORLD
Interreg Danube Region
Co-funded by the European Union
CapTTict

Supported by:

eit Climate-KIC
Common Maritime Agenda for the Black Sea
European Commission
EU MISSIONS RESTORE OUR OCEAN & WATERS
BLUE INVEST
HORIZON RESULTS BOOSTER
SOCIAL tides
With funding from Google.org
INNO-NEXT The Next Generation Innovation Talents' Initiative

Paying Pilot Customers:

TECHIR
NNPHS

Intellectual Property:

EUIPO EUROPEAN UNION INTELLECTUAL PROPERTY OFFICE
TM
TRADE SECRETS

Recognitions and awards:

SCFG GLOBAL SUPER CONNECT FOR GOOD | 2023
CENTRAL EUROPEAN STARTUP AWARDS
ROMANIAN STARTUP AWARDS
CHANGE 100 The top sustainability startups to watch in 2025

Impact Roadmap

2025 Romanian Black Sea

1 ton | 40 tons | 1 school | 15–20 students (waste-to-art)

2026 Mediterranean

€150K | 15 tons | 600 tons

2027 Mediterranean

€690K | 55 tons |2,200 tons | 100+ | 4 schools | 80–100 students

300,000–500,000 coastal residents

2028 Rest of Europe

€2.9M | 230 tons | 9,200 tons

2029 Southeast Asia

€9 M | 785 tons | 31,400 tons

2030 Global Expansion

€20.5M | 1800 tons | 72,000 tons

2031

€55M | 5,000 tons |200,000 tons |5,000+ | 1,000+ students |5+ million people

Recycllux

Decentralized Local Value Chains - 46x Lower Carbon Footprint

🛰️ Identification
- 0 metric tons CO_2 vs. 1.603 metric tons CO_2
- ✅ 100% emissions reduction

🚢 Collection
- 1.8 metric tons CO_2 vs. 81.65 metric tons CO_2
- ✅ 45x lower emissions

🔄 Transformation
- 0.0057 metric tons CO_2 vs. 0.25 metric tons CO_2
- ✅ 44x lower emissions

🌍 Total CO_2 Impact
- 1.8057 metric tons CO_2 vs. 83.5 metric tons CO_2
- ✅ 46x lower emissions overall

*compared to the large-scale ship owning ocean cleanup initiatives