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MARITIME INTELLIGENCE DOSSIER

Area of Interest Report — GULF OF KUTCH



FIGURE 1 — Full-scene SAR false-colour composite. R=VV · G=VH · B=Depol ratio. Circles mark all SAR detections.

MISSION ID	MISSION_GULF_OF_KUTCH_20260526T175222
AOI	GULF OF KUTCH
SCENE TIME	2026-05-26 17:52 UTC
TOTAL DETECTIONS	4
DARK VESSELS	0
UNCERTAIN	4
AIS MATCHED	0

PRODUCED

2026-05-26T16:21:04Z

SECTION 01

Detection Summary

Scene acquired over **GULF OF KUTCH** on **2026-05-26 at 17:52 UTC**. Sentinel-1A IW GRD processed through the Dark Ships 5-phase calibration and YOLO detection pipeline. 4 vessel(s) resolved above confidence threshold.

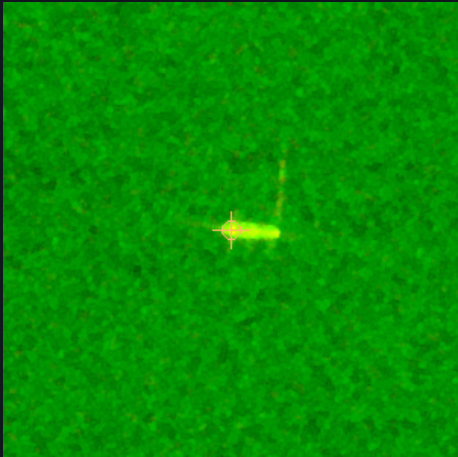
ID	LAT	LON	CONF	STATUS	MMSI
DET-2026052617-GULF-000	22.0996	68.5848	68%	UNCERTAIN (AIS DATA GAP)	—
DET-2026052617-GULF-001	21.9770	68.2615	53%	UNCERTAIN (AIS DATA GAP)	—
DET-2026052617-GULF-002	22.1731	68.5728	39%	UNCERTAIN (AIS DATA GAP)	—
DET-2026052617-GULF-003	21.9975	68.2163	29%	UNCERTAIN (AIS DATA GAP)	—

SECTION 02

Per-Vessel Intelligence

Each vessel card below shows the SAR chip, AIS status, and fused confidence score.

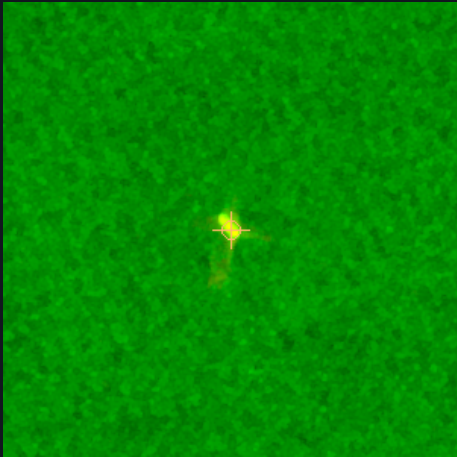
Vessel #1 · UNCERTAIN (AIS DATA GAP) · DET-2026052617-GULF-000



SAR false-colour chip

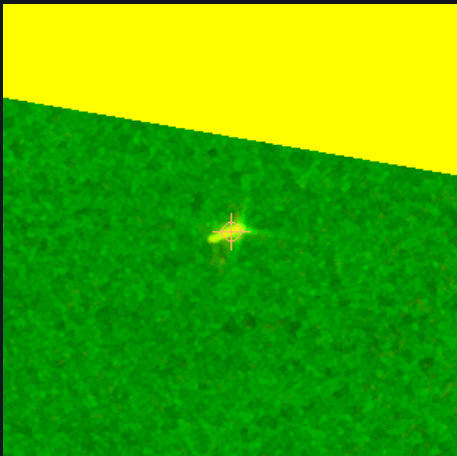
Lat: 22.0996°N
Lon: 68.5848°E
Conf: 68%
MMSI: —
Det ID:
DET-2026052617-GULF-000

Vessel #2 · UNCERTAIN (AIS DATA GAP) · DET-2026052617-GULF-001



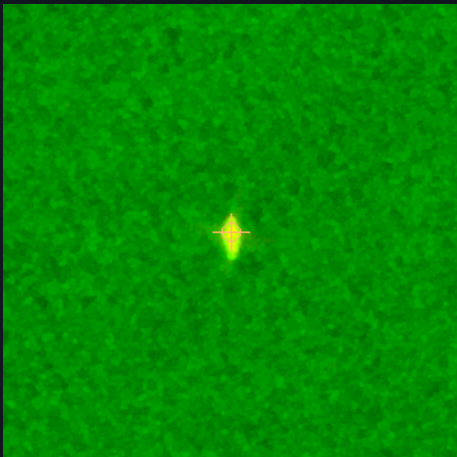
Lat: 21.9770°N
Lon: 68.2615°E
Conf: 53%
MMSI: —
Det ID:
DET-2026052617-GULF-001

SAR false-colour chip

Vessel #3 · UNCERTAIN (AIS DATA GAP) · DET-2026052617-GULF-002

Lat: 22.1731°N
Lon: 68.5728°E
Conf: 39%
MMSI: —
Det ID:
DET-2026052617-GULF-002

SAR false-colour chip

Vessel #4 · UNCERTAIN (AIS DATA GAP) · DET-2026052617-GULF-003

Lat: 21.9975°N
Lon: 68.2163°E
Conf: 29%
MMSI: —
Det ID:
DET-2026052617-GULF-003

SAR false-colour chip

SECTION 03

Technical Methodology & Chain of Custody

ACQUISITION

Sentinel-1A IW GRD downloaded from Copernicus Data Space Ecosystem (CDSE).

CALIBRATION

ESA SNAP GPT 6-step chain: orbit → thermal noise removal → radiometric calibration → multilook → terrain correction (SRTM 1Sec) → dB conversion. Output: Sigma-0 dB GeoTIFF, 10 m GSD.

DETECTION

YOLOv8 ship detector (xView3-SAR + SARFish training set). Conf threshold 0.35. CFAR secondary validation (128×128 guard, 5 dB above local mean).

AIS FUSION

Cross-reference within 2 km / ±30 min of scene midpoint. Dark = no AIS. Uncertain = AIS gap at acquisition time. Matched = confirmed transponder.

FALSE COLOUR

Chip extraction: VV→R, VH→G, (VV–VH)→B, 300×300 px per vessel, 10 m native resolution.

MISSION ID	MISSION_GULF_OF_KUTCH_20260526T175222
REPORT PRODUCED	2026-05-26T16:21:04Z
PIPELINE	Dark Ships v1.0 · Phase 3 Validated (2026-04-13)
VESSELS IN REPORT	4
CLASSIFICATION	SENSITIVE — INTELLIGENCE PRODUCT