

# Civil GPS Service Interface Committee (CGSIC)



## ICG-14

**UN International Committee  
on GNSS**

09 December, 2019

Bengaluru, India



Rick Hamilton  
CGSIC Executive Secretariat



An aerial photograph of Miami, Florida, showing a dense urban skyline with several prominent high-rise buildings. In the foreground, a wide, sandy beach stretches along the coast, with turquoise ocean waves breaking onto the shore. The sky is bright blue with scattered white clouds. The text is overlaid on the right side of the image.

# **CGSIC 2019**

**September 16-17, 2019**

**Hyatt Regency Miami**

**Miami, Florida**

**All meeting material is posted to  
[www.gps.gov/cgsic/meetings/2019](http://www.gps.gov/cgsic/meetings/2019)**



# GPS Week Number Rollover

- Extensive public outreach
  - CGSIC Bulletins
  - Broadcast Notice to Mariners
  - US Air Force guidance/recommendations
  - DHS guidance/recommendations
- Government coordinated testing to test equipment readiness for WNRO
  - US Air Force
  - DHS
  - Equipment manufacturers



## NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD



[Home](#) | [LNMs](#) | [Nav Rules](#) | [AIS](#) | [AIS Data Request](#) | [MSI Data Downloads](#) | [GPS Constellation Status](#) | [GPS Testing](#) | [Almanacs](#) | [USCG Int'l Ice Patrol](#) | [Contact Us](#) | [Search](#)

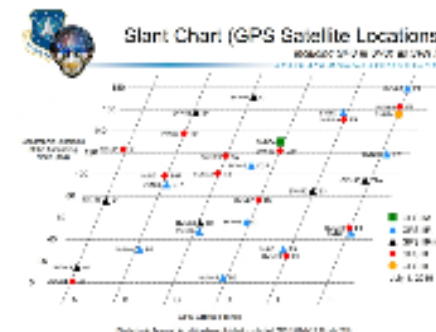
### GPS

- Report a GPS Problem
- GPS Problem Report Status
- NANUs, Almanacs, & OPS Advisories
- GPS Service Interruptions
- GPS Technical References
- CGSIC Information
- Email Message Subscriptions (Free)
- [Space Wx & Precise Ephemeris Data](#)
- GPS Policy and References
  - More Information on GPS.gov:
    - Civil Navigation Message (CNAV)
    - General GPS Overview
    - GPS Augmentation Systems
    - GPS Mapping Problems
    - GPS Modernization
    - Frequently Asked Questions (FAQ)

**NOTE:** The Global Positioning System Directorate has approved a change to the Navstar GPS Control Segment to User Support Community Interfaces (ICD-GPS-240 and ICD-GPS-870) which will remove GPS satellite plane/slot and clock information from the Operational Advisory message. This change proposal was approved by the GPS Interface Control Working Group in December of 2018. SVN/PRN, Block Type, and NANU details will continue to be included.

A depiction of the GPS constellation of satellites with slot and plane designations is provided here as an easy to read graphic for use by the GPS user community.

[Print-friendly](#)



[Click image for full size page.](#)

### GPS CONSTELLATION STATUS FOR 09/03/2019

Plane	Slot	SVN	PRN	Block-Type	Clock	Outage Date	Nanu-Type	Nanu-Subject
A	1	65	24	IIF	CS			
A	2	52	31	IIR-M	RB			
A	3	64	30	IIF	RB			

### Mission Areas

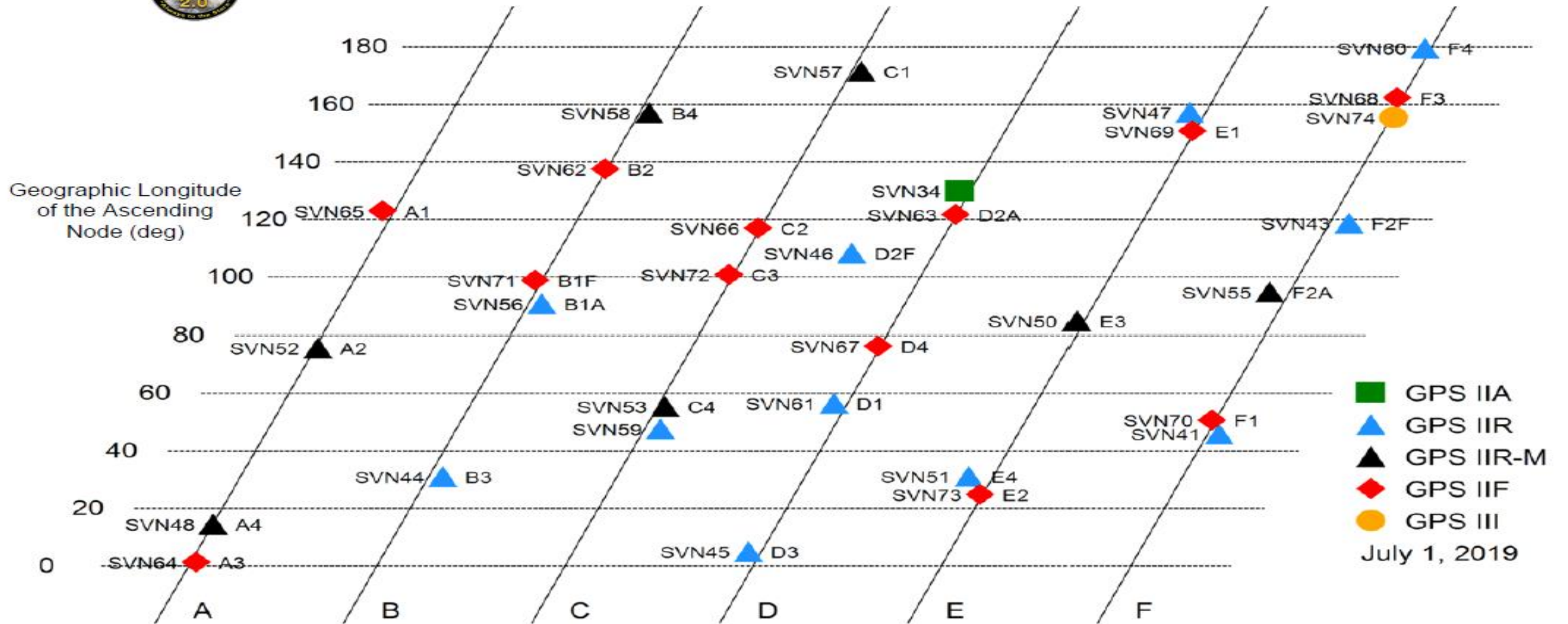
- AIS - Are You In Compliance?
- AIS Data Request
- AIS - Types, Messages, Etc.



# Slant Chart (GPS Satellite Locations)

Including GPS III SV01 as SVN 74

SPACE AND MISSILE SYSTEMS CENTER

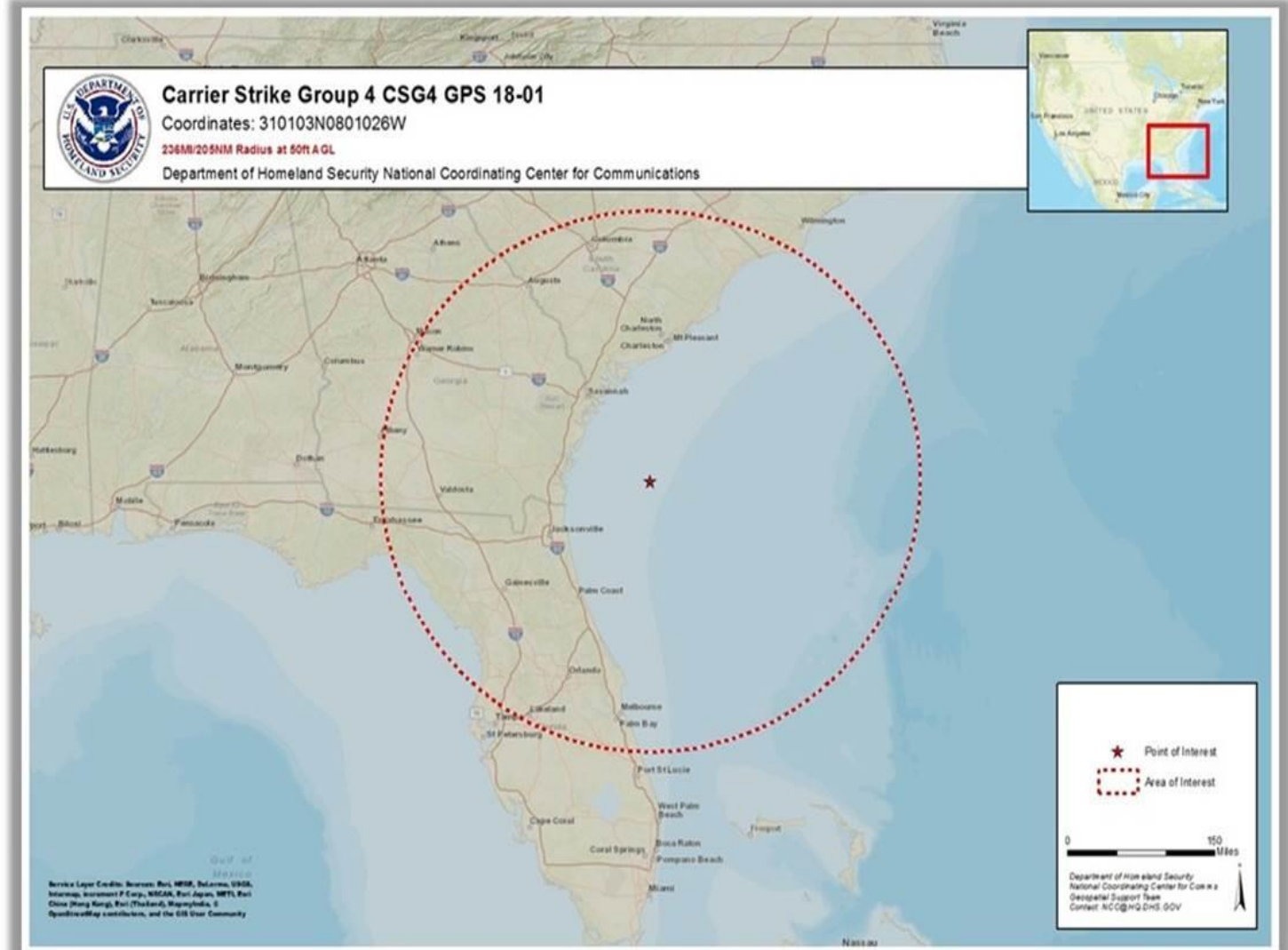


- GPS IIA
  - ▲ GPS IIR
  - ▲ GPS IIR-M
  - ◆ GPS IIF
  - GPS III
- July 1, 2019

Navigation toolbar with icons for pan, zoom, and other chart controls.

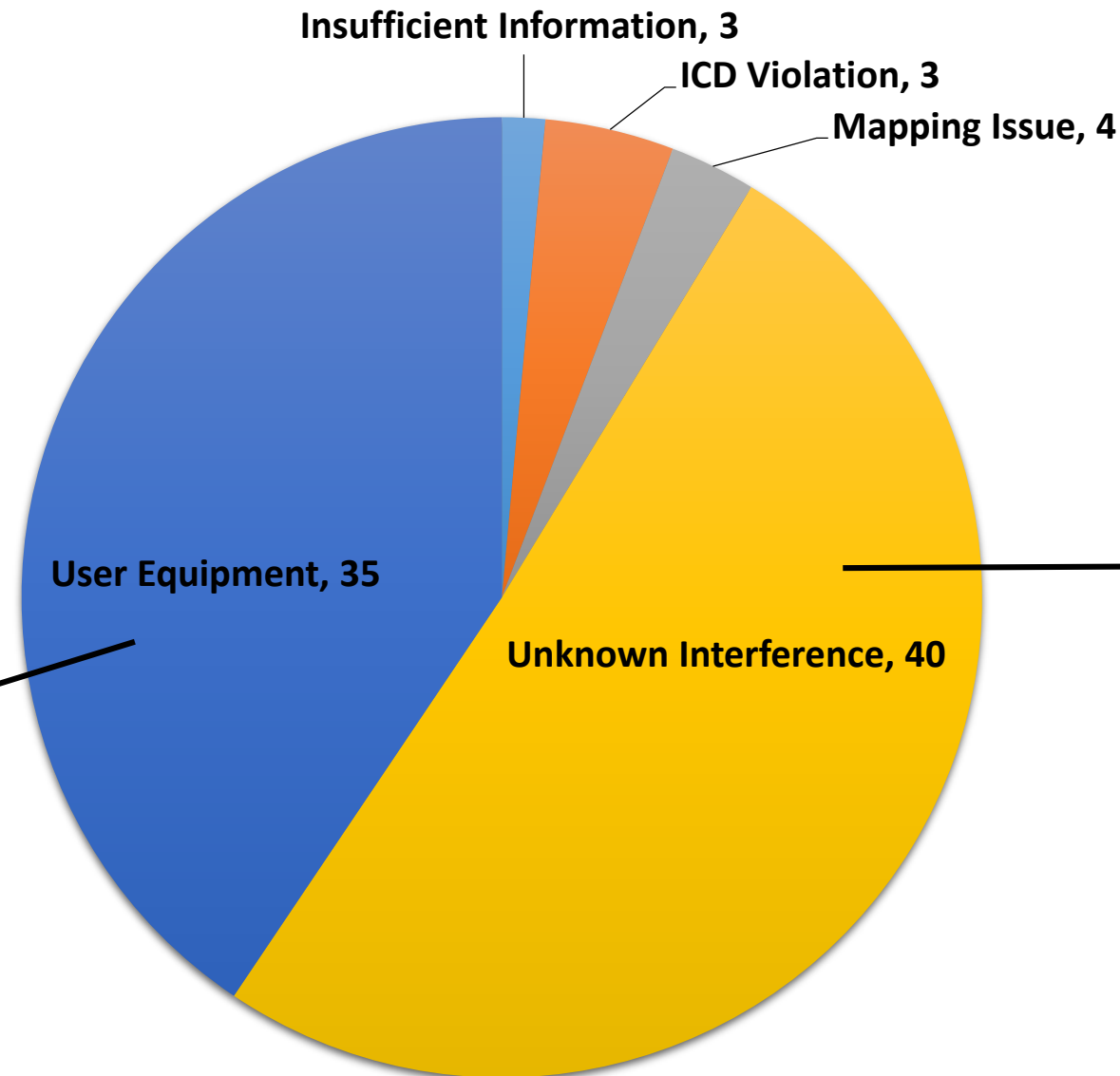
# Authorized GPS Testing

- Planned, authorized government GPS testing has seen:
  - 32% annual increase since 2015
  - More diverse locations nationwide
  - Extended testing periods
- Continue to coordinate approvals and publicize authorized testing





# 2019 GPS Problem Reports



17 appeared related to Week Number Rollover

## OCONUS (32)

- Maritime (28)
  - Egypt (9)
  - Malta/Libya (9)
  - China (5)
  - Yemen
  - Lebanon
  - Ukraine
  - Cyprus
  - Greece
- Land (4)
  - Germany
  - Spain
  - India
  - Brazil

## CONUS (8)

- Maritime (5)
  - Mobile, AL (4)
  - Pensacola, FL
- Land (3)
  - Abilene, TX
  - Carson City, NV
  - Puerto Rico

# Problem Report Status <https://navcen.uscg.gov/?Do=GPSReportStatus>

## GPS

### Report a GPS Problem

#### GPS Problem Report Status

- NANUS, Almanacs, & OPS Advisories
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- Email Message Subscriptions (Free)
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  - General GPS Overview
  - GPS Augmentation Systems
  - GPS Mapping Problems
  - GPS Modernization
  - Frequently Asked Questions (FAQ)

## Maritime Safety Data

- Broadcast Notice to Mariners
- Daily LNM Discrep & Temp CH File
  - Daily LNM File Description
- N. American Iceberg KML File
- DGPS Site Configurations
- Weekly Light Lists (XML and PDF)

## Mission Areas

- AIS - Are You In Compliance?
- AIS Data Request
- Global Positioning System (Civil Support)
- AIS - Types, Messages, Etc.
- CGSIC Information
- Long Range Identification and Tracking
- Nationwide DGPS
- LORAN C (archive)

## Maritime Safety Information

- Local Notices to Mariners
- Light List Volumes
- Navigation Rules - Amalgamated

## GPS Problem Reports Status

Civil GPS Users are encouraged to submit reports of GPS problems to NAVCEN. A form to submit reports can be found on our [GPS Problem Reporting](#) webpage. Some information from those reports is shared here along with input from interagency partners and the most likely cause of the report.

Descriptions for each of the fields is at the [bottom of the page](#).

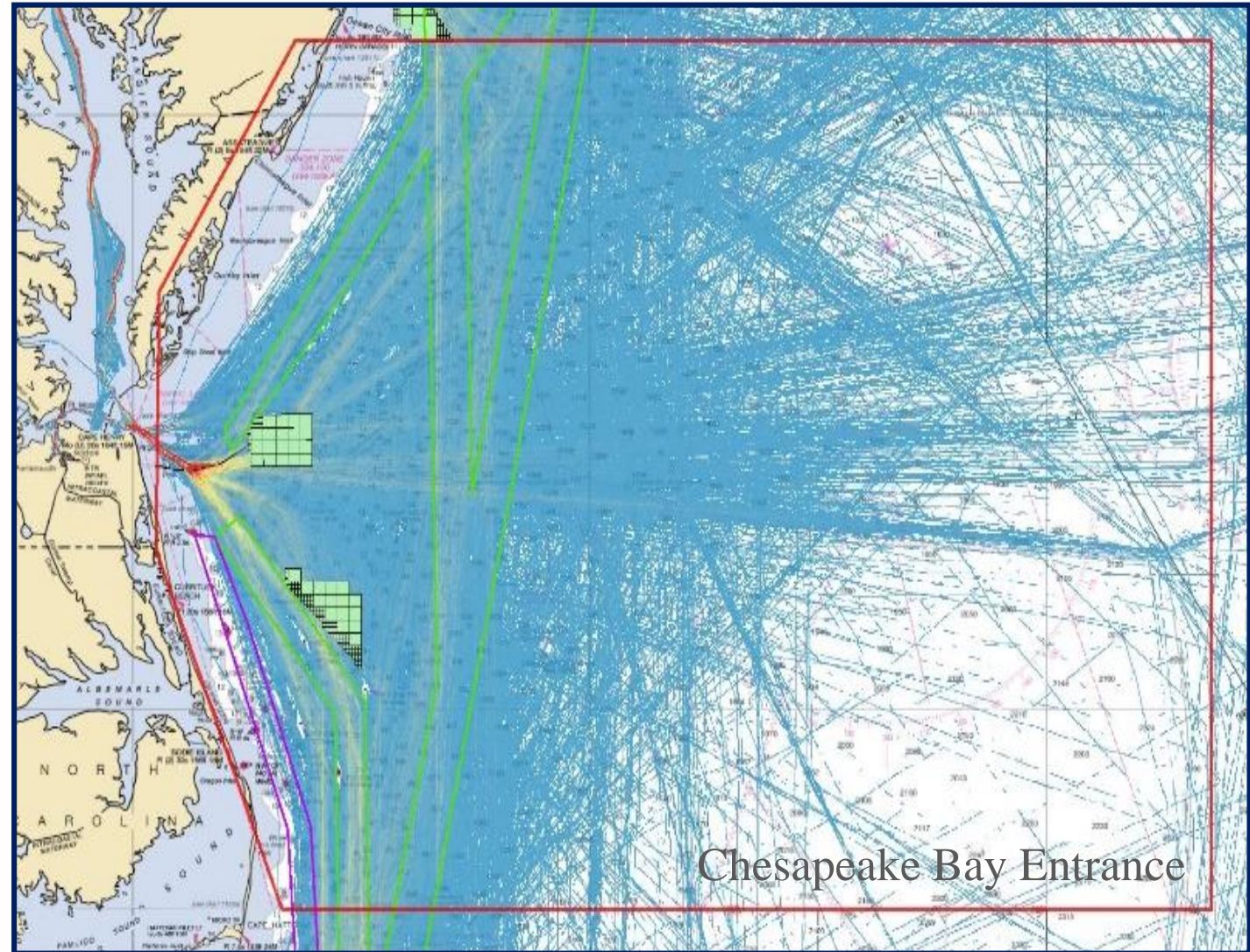
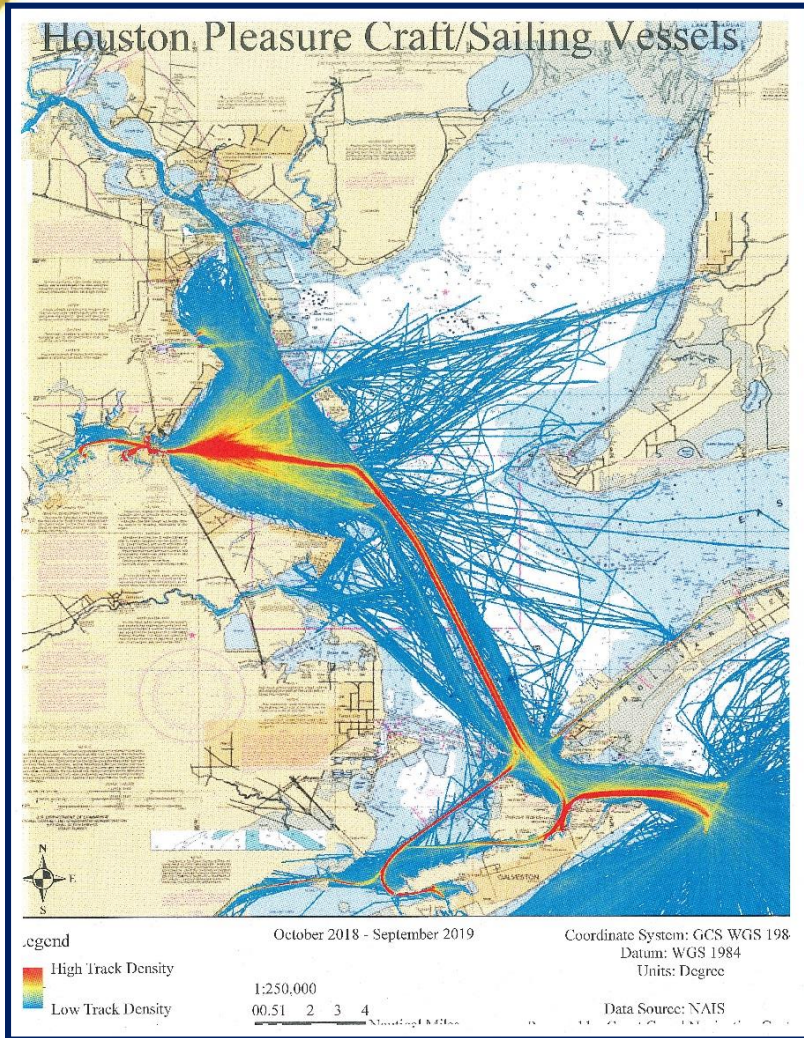
\* Fields are as provided by the reporting source and are unedited.

*Date/Time of Disruption	Date Submitted	Location	*Type	Description	Cause	NAVCEN Date Closed
11/04/2019 12:00am Mountain Standard Time	11/21/2019	Mesa	Transportation	<p>USER: I have had a disruption to all of my mail service. I do not know if there was a recent update to the GPS system. I have ordered packages from 4 different sources 2 of which I previously ordered from and had no issues. For some reason the Unit number sometimes shown in forms as Apartment is not coming up correctly and all of my packages are being returned. One of the companies I ordered from told me that the Unit number is showing as part of the street address. Was there a recent update that is causing this. I have had no problems with delivery up until the first of November.</p> <p>NAVCEN: User provided information on how to contact mapping software providers to update their location details</p>	Mapping Issue	11/27/2019
10/22/2019 10:00 CST	11/12/2019	many US locations	Transportation	<p>USER: Provides telematics devices to the Transportation industry. We use GPS to provide location data for commercial vehicles and leverage this to enable Electronic Logging Devices for them to work correctly and record drivers hours of service information to ensure they are compliant. We had many devices working correctly, then suddenly on October 22 2019 we started losing GPS position data and this has been sporadic ever since. Logs showed that there were 13 SAT in view. But the data said zero satellites tracked. This has not been seen before. What event occurred that</p>	User Equipment	11/27/2019





# Use of AIS for Marine Investigations



Homeland Security

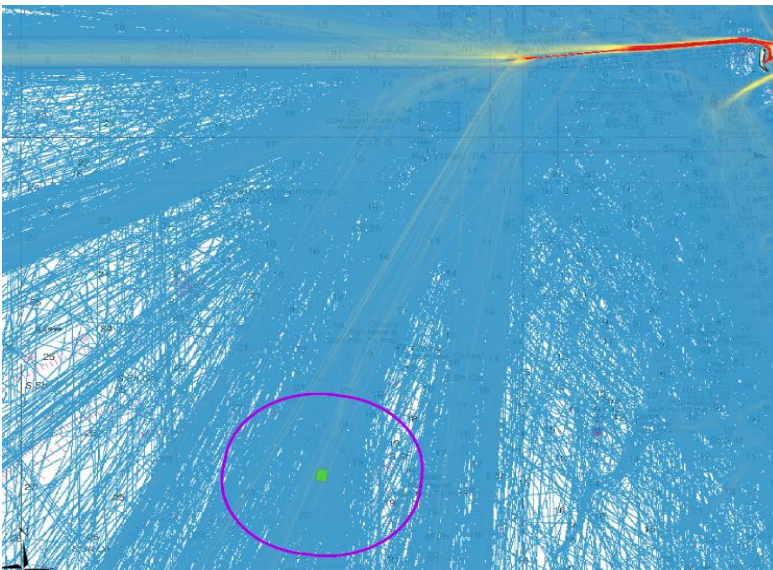
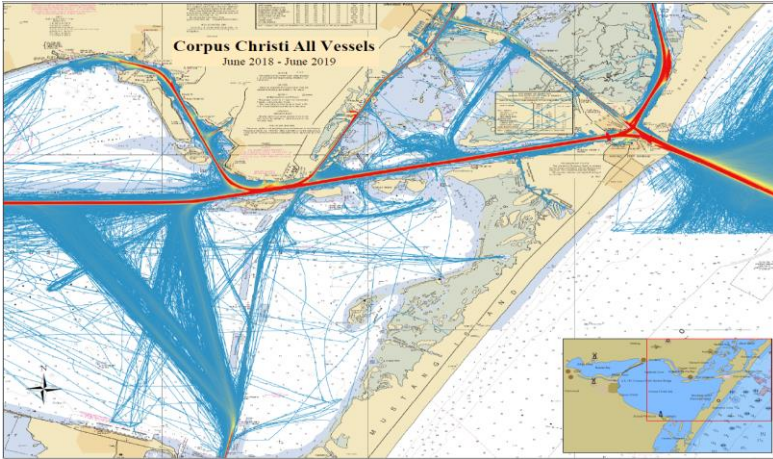
U.S. Department of  
Homeland Security  
**United States  
Coast Guard**



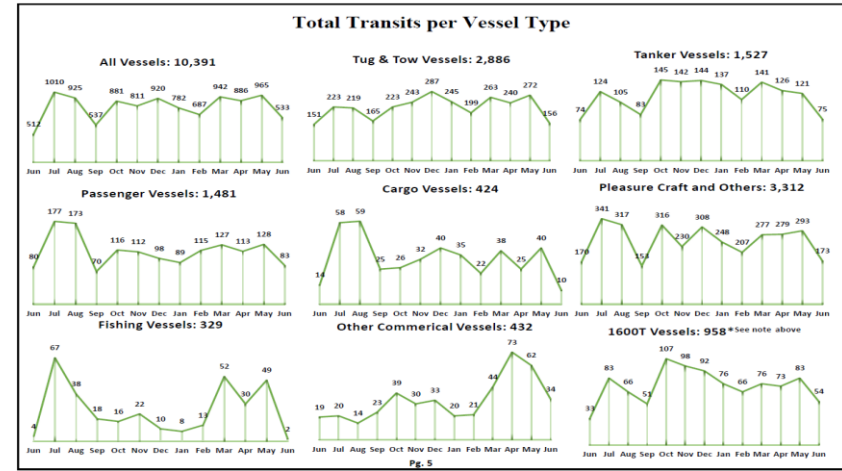




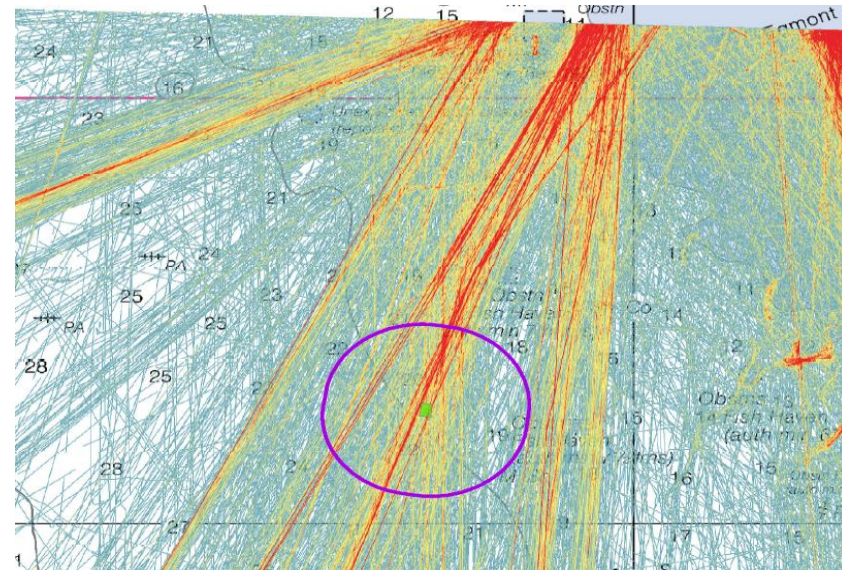
# Waterways Risk Assessment and Support Division



- Traffic Statistics for PAWSA



- General GIS Support for Waterways issues.



Homeland Security

U.S. Department of Homeland Security  
United States Coast Guard

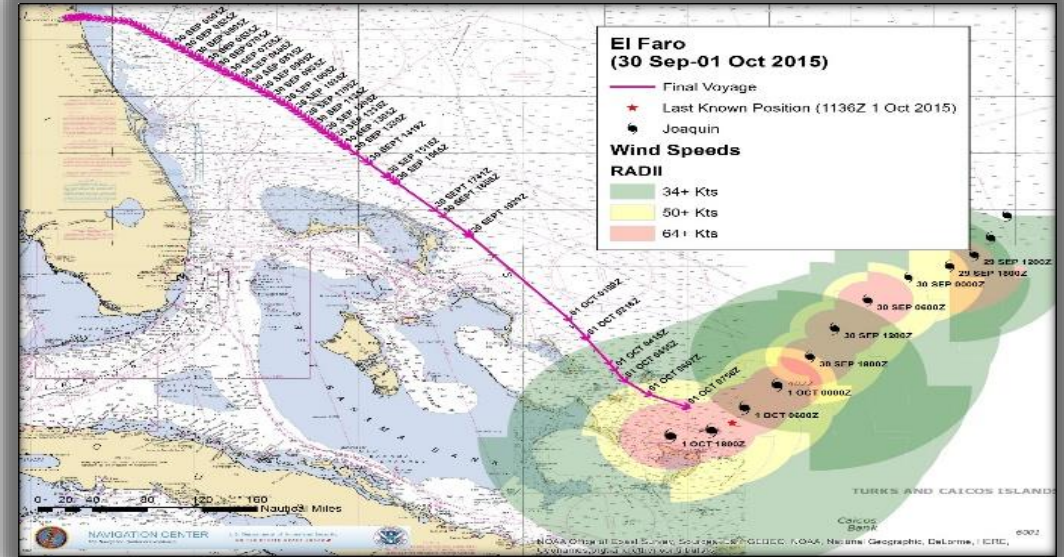
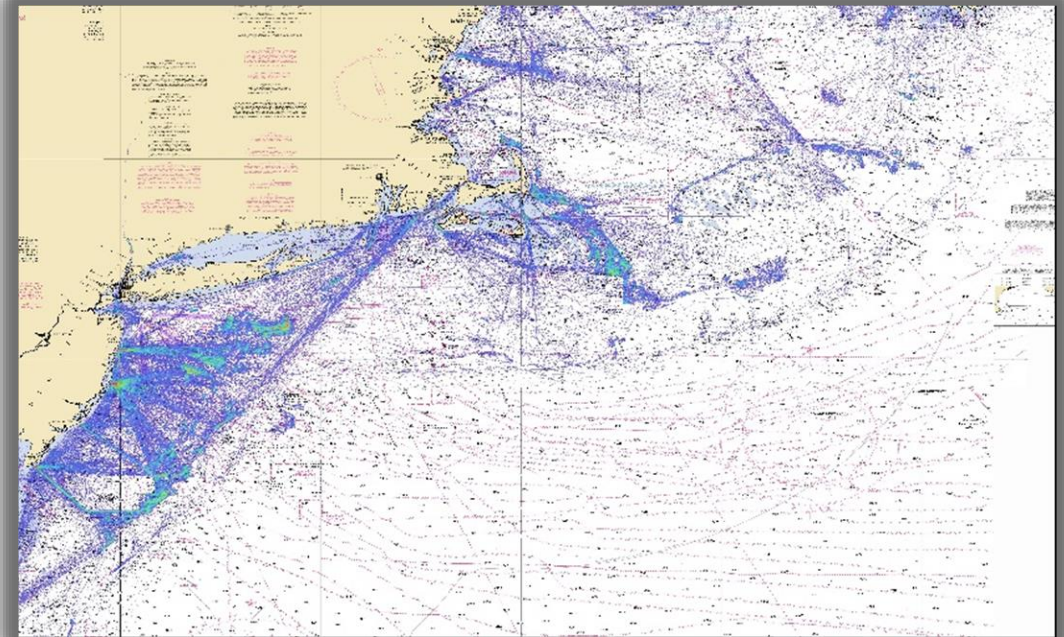






# Maritime Traffic and Tracking Analysis Division

- Our team are maritime geographic information system (GIS) experts and information analysts
- We turn the data in the NAIS database into useful information for the CG and maritime community
  - Create tailored reports of archived AIS traffic data
  - Support everything from academic studies to casualty investigations to legal claims
- We ensure the data integrity of the NAIS database
  - Help the maritime public to report accurately and we aid in compliance efforts
  - Systematically comb and correct the data as it becomes part of the historical public record
- We approve interagency and public requests for NAIS information
  - Handle the FOIA requests
  - Screen agencies' request to establish AIS live feeds



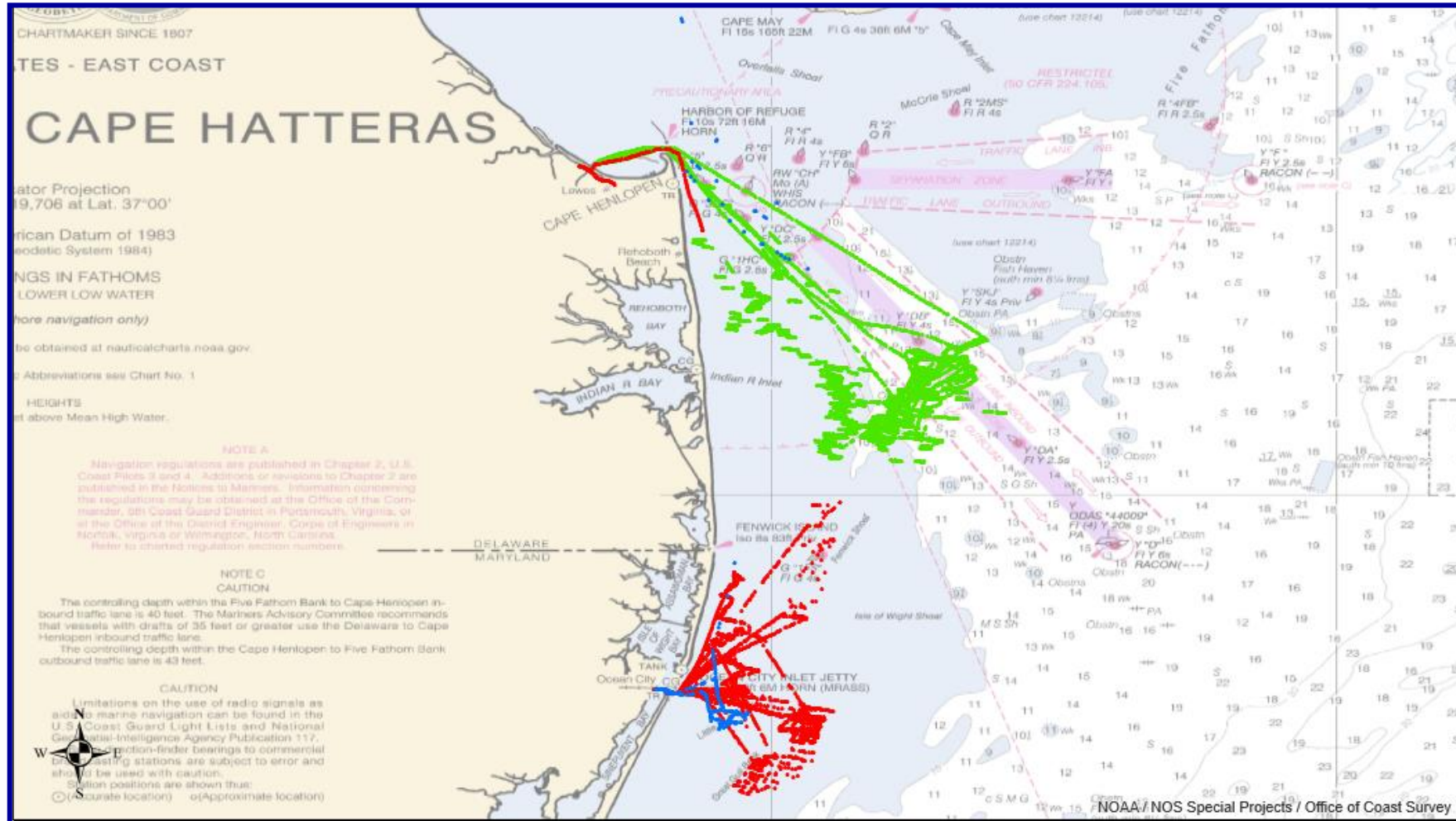
U.S. Department of  
**Homeland  
Security**

U.S. Department of  
*Homeland Security*  
**United States  
Coast Guard**





# CG Sector Delaware Bay HDR 2019-325



Coordinate System: GCS WGS 1984  
Datum: WGS 1984  
Units: Nautical Miles  
Date Created: 22NOV2019



## Vessel Position Reports (01NOV2017 - 21NOV2019)

- Vessel of interest 2017
- Vessel of interest 2018
- Vessel of interest 2019





# Maritime Traffic and Tracking Analysis Division

AIS for Marine Pollution Surveillance applications

## Marine Pollution Surveillance Report (MPSR)

**MARINE POLLUTION SURVEILLANCE REPORT**  
 Analysis by: The National Oceanic and Atmospheric Administration, Satellite and Information Service (NOAA/NESDIS)

REPORT DATE/TIME:  
 DATA SOURCE: SENTINEL1A  
 MODE: Interferometric Wide (IW) VV  
 RESOLUTION: 20 meter  
 IMAGE DATE/TIME:

**Possible Oil**  
**Possible Thicker Oil**  
 Suspected Point Source:  
 [26°01'21" N/79°32'05" W]  
 4.26 km<sup>2</sup> Total Area of Possible Oil

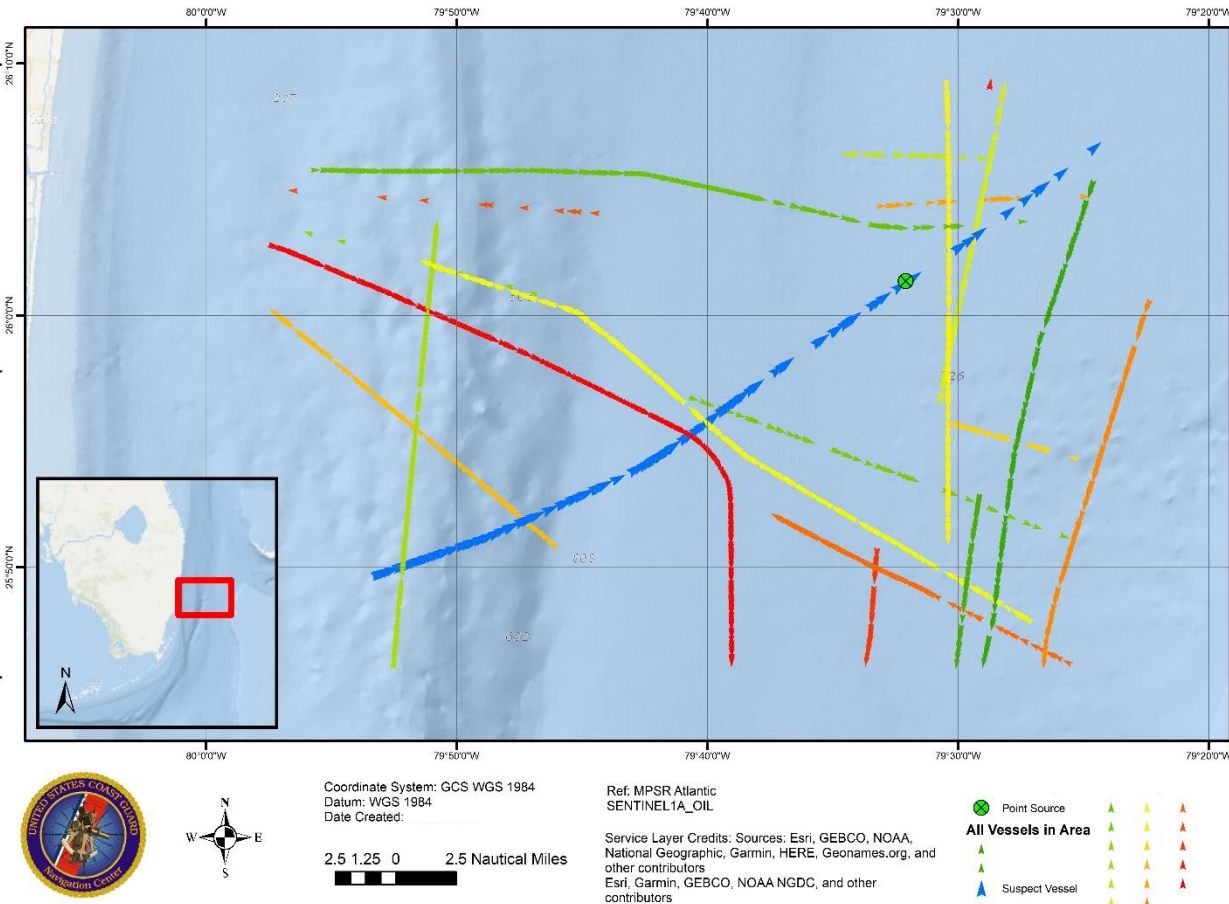
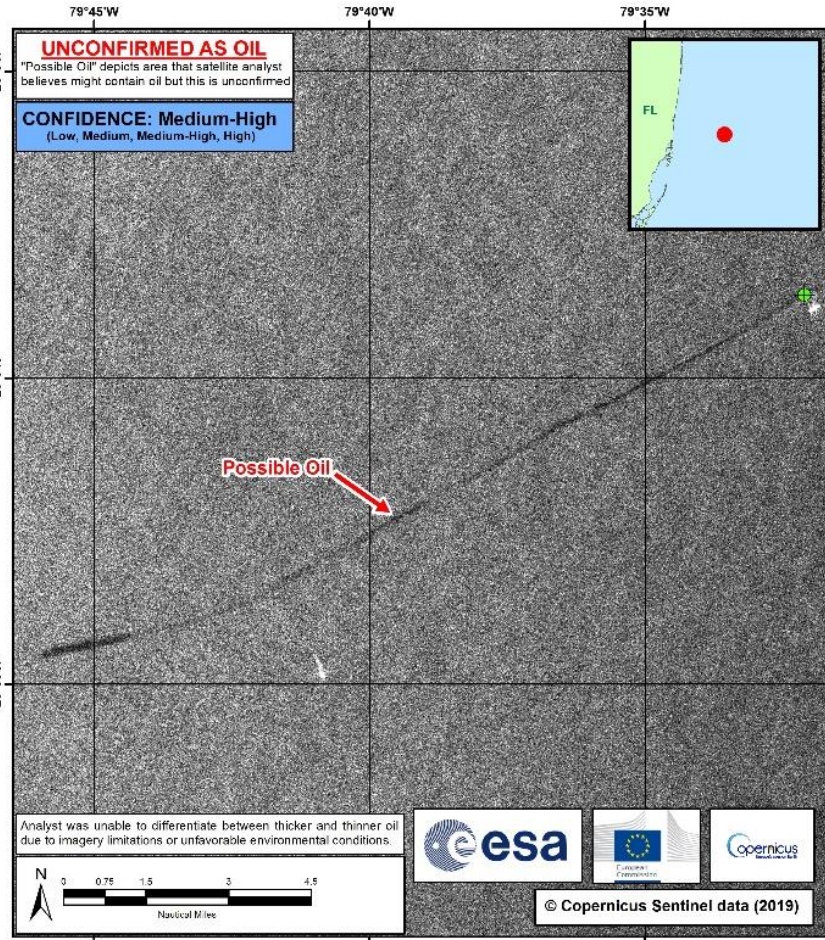
AREA/BLOCK: N/A

REMARKS:  
 Possible oil was observed in satellite imagery. This anomaly is unconfirmed as oil. The anomaly was segmented, measured 14.4 nmi in the SW-NE direction, and appeared to be attached to a moving point source. The anomaly also crossed over the international water boundary. Measured winds at the time of observation were 15 kts and from the E. Confidence was determined to be Medium-High given the anomaly's association with a point source while also possessing a contrast to its background surroundings.

UNCERTAINTIES:  
 Unsure of the material producing the signature in the satellite image. The anomaly did not possess sharp edges and may be a result of weathering or strong ocean currents in the area.

ANALYST: BOLL

For further information on oil spill response and assessment go to:  
<https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills>





# (FedRamp = Federal Risk and Authorization Management Program)



The image shows a screenshot of the US Coast Guard Navigation Center website. The header includes the US Coast Guard logo, the text "NAVIGATION CENTER The Navigation Center of Excellence", and "U.S. Department of Homeland Security UNITED STATES COAST GUARD". A navigation bar contains links like Home, LNMs, Nav Rules, AIS, AIS Data Request, MSI Data Downloads, GPS Constellation Status, GPS Testing, Almanacs, USCG Int'l Ice Patrol, Contact Us, and Search. The main content area features a blue graphic with a cloud and Wi-Fi symbol connected to three laptops. A large black arrow points from this graphic to a white box on the right containing the "FR" logo and the text "FedRAMP" with a "CONTINUE" button. Below this, a red bullet point discusses modernizing the GPS constellation.

NAVIGATION CENTER  
The Navigation Center of Excellence

U.S. Department of Homeland Security  
UNITED STATES COAST GUARD

Home | LNMs | Nav Rules | AIS | AIS Data Request | MSI Data Downloads | GPS Constellation Status | GPS Testing | Almanacs | USCG Int'l Ice Patrol | Contact Us | Search

MISSION CENTER

FR  
FedRAMP

CONTINUE

- In an effort to modernize the GPS constellation, modifications are being made to the GPS space and ground control segment. These changes should be transparent to IS-GPS-200 compliant receivers, however, commercial and



**CGSIC 2019**

**September 21-22, 2020**

**Union Station Hotel**

**St Louis, Missouri**





# NAVCEN Contact Information

## Navigation Information Service

<http://www.navcen.uscg.gov>

E-mail: [nisws@navcen.uscg.mil](mailto:nisws@navcen.uscg.mil)

Phone: +1 703 313 5900

Fax: +1 703 313 5920

Civil GPS Service Interface Committee Secretariat

E-mail: [rick.hamilton@uscg.mil](mailto:rick.hamilton@uscg.mil)