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**U.S. COAST GUARD**



# United States Coast Guard Spectrum Management & Telecommunications Policy



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# Agenda

- **Duty to Country**
- **Establishment of the United States Coast Guard**
- **Statutory Missions**
- **Homeland & Non-Homeland Security Missions**
- **Governing Spectrum Radio Regulations**
- **Maritime Frequency Allocations**
- **Spectrum Certification & Frequency Requirements**
- **National & International Spectrum Committees**
- **USCG Spectrum Assets**
- **Safety of Life at Sea (SOLAS) International Maritime Treaty**
- **Rescue 21 System and Operations**
- **Emergency Position Indicating Radio Beacon (EPIRB)**
- **Digital Selective Calling (DSC)**
- **RADAR Beacons (RACON)**
- **Automatic Identification System (AIS)**



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## **Duty to Country**

The mission of the United States Coast Guard is to ensure our Nation's Maritime safety, security and stewardship

## **Vision – Service to Nation**

We will serve our Nation through the selfless performance of our missions.

## **Duty to People**

We will honor our duty to protect those we serve and those who serve with us

## **Commitment to Excellence**

We commit ourselves to excellence by supporting and executing our operations in a proficient and professional manner

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## *Establishment of the Coast Guard*

- Founding Father - Secretary of the Treasury Alexander Hamilton
- On 4 AUG 1790, President George Washington signed the Tariff Act creating the Revenue Cutter Service
- In 1915, “Revenue Cutter Service” and “U.S. Lifesaving Service” were combined and officially creating the “United States Coast Guard” (USCG)
- In 1939, U.S. Lighthouse services were merged into USCG
- From 1967 to 2003, assigned to the Department of Transportation (DoT)
- On 1 MAR 2003, USCG transition from DoT to the Department of Homeland Security.

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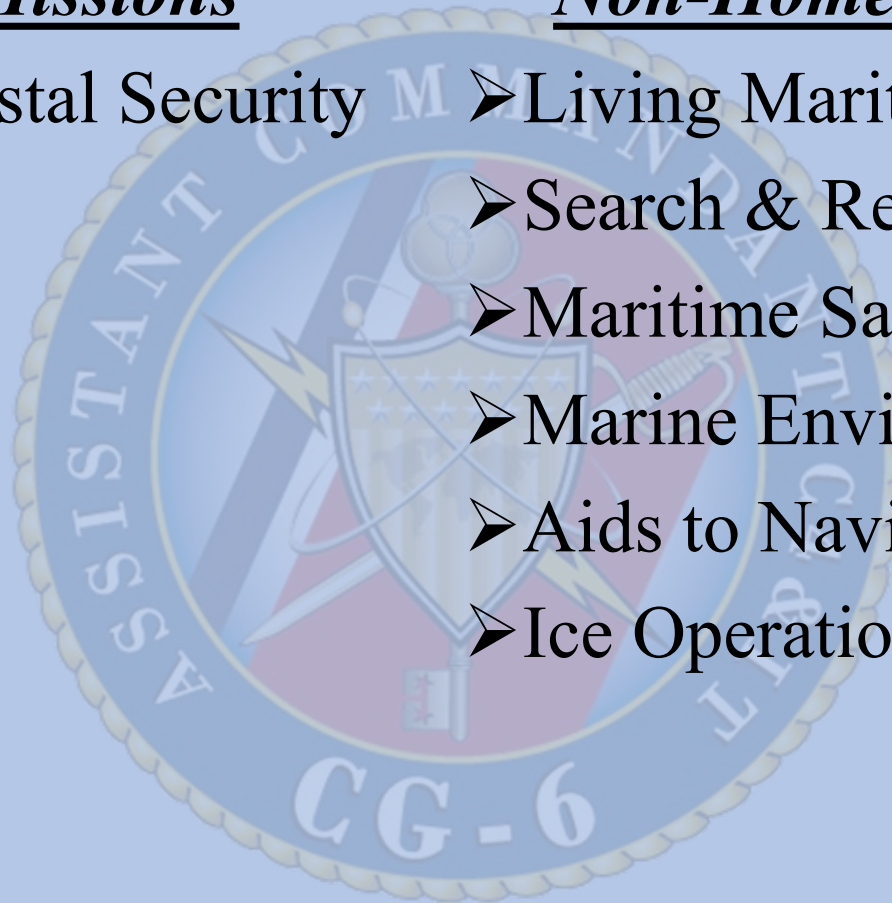
## ***Statutory Missions***

### ***Homeland Security Missions***

- Ports, Waterways, & Coastal Security
- Drugs Interdiction
- Migrant Interdiction
- Defense Readiness
- Other Law Enforcement

### ***Non-Homeland Security Missions***

- Living Maritime Resources
- Search & Rescue
- Maritime Safety
- Marine Environmental Protection
- Aids to Navigations
- Ice Operations



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## *Homeland Security Missions*



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# *Non-Homeland Security Missions*





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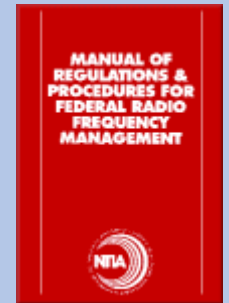
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# *Governing Spectrum Radio Regulations*

- Radio Regulations, United Nations International Telecommunications Union (ITU)
- Manual of Regulations for Procedures for Federal Radio Frequency Management (Red Book), National Telecommunications & Information Administration (NTIA)
- 47 United States Code (U.S.C.) § 151, et seq. Communications Act of 1934
- 47 Code of Federal Regulations (CFR), Federal Communications Commission (FCC) Rules and Regulations



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# *Spectrum Certification & Frequency Requirements*

- Spectrum certification for spectrum dependent (S-D) systems/equipment & frequency assignments is the operational process that grants USCG the authority to radiate S-D systems/equipment in an approved frequency band which complies with national & international tables of allocation.

***“Authorization grants USCG to execute maneuvering through the electromagnetic spectrum (EMS) without causing electromagnetic interference”***

- NTIA is the authority to grant the use of frequency proposals for USCG to test, train, operate, or exercise within the United States & its Possessions (US&P).
  - Types of authorized frequency assignments:
    - Permanent assignments
    - Special Temporary Authorization (STA)
    - Temporary Assignments

***“Before an approved S-D systems/equipment can radiate in the EMS, a frequency proposal is required”***

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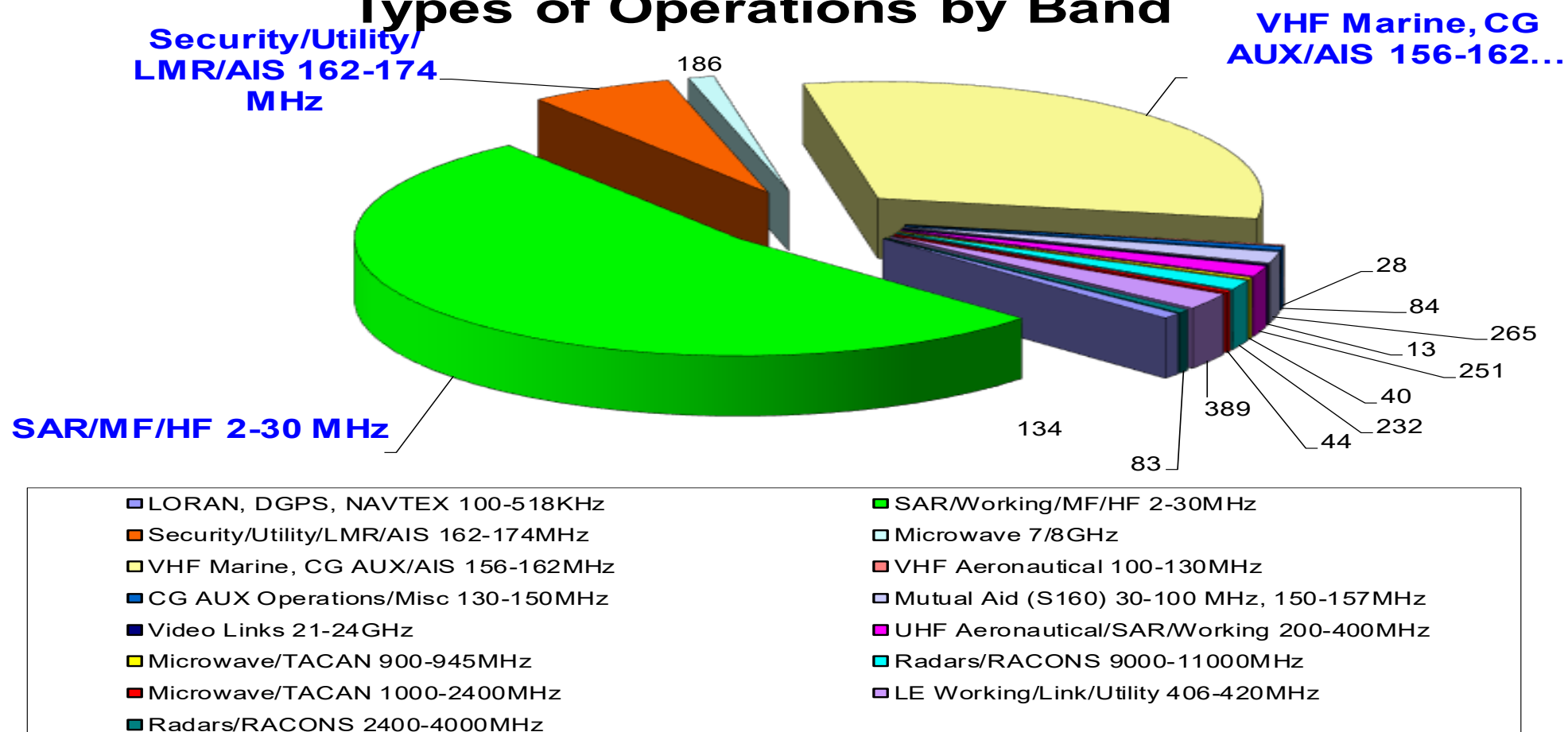
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# Maritime Frequency Allocations

## Types of Operations by Band



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# *National & International Spectrum Committees*

- State Department
  - Head of U.S. Delegation
- NTIA Interdepartment Radio Advisory Committee (IRAC) & subcommittees & Ad hoc working groups
- FCC
  - World Radio Conference Advisory Committee (WAC)
- International Telecommunications Union (ITU)
  - WP5B – USCG supports the Maritime subcommittee
  - Conference Preparatory Meeting (CPM)
  - World Radiocommunication Conference (WRC)
- Inter-American Telecommunications Commission (CITEL)
  - Develops & supports WRC agenda items for Region 2
- Department of Defense subcommittees & Ad hoc working groups
- International Maritime Organization (IMO)
  - Endorses recommendation to ITU WP5B
- International Association of Marine Aids to Navigation & Lighthouse Authorities (IALA)
- Navigation, Communications, Search & Rescue (NCSR)
  - Technical Working Group
  - Develops recommendations & standards
  - Global Maritime Distress & Safety System (GMDSS)
  - Polar Communications
- Joint Experts Group (JEG)
  - Establish IMO & WRC positions
  - GMDSS modernization
  - NCSR support

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## *USCG Spectrum Assets*

### Maritime Assets

- Surface Search Radar
- SAR Sea Search Radar
- Close-in-Weapons System (CIWS)
- Various VHF, UHF & EHF Radiocommunication Systems



### Airborne Assets

- Search & Weather Radar
- Air Search Radar
- NAVSTAR GPS
- Radiocommunications suite



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# *Safety of Life at Sea (SOLAS) International Maritime Treaty*

- Chapter IV – Radiocommunications
  - Digital Selective Calling (DSC)
  - Emergency Position Indicating Radio Beacon (EPIRB)
  - Global Maritime Distress Safety System (GMDSS)
- Chapter V – Safety of navigation
  - Navigation safety services (Radar Beacons)
  - Automatic Identification Systems (AIS)

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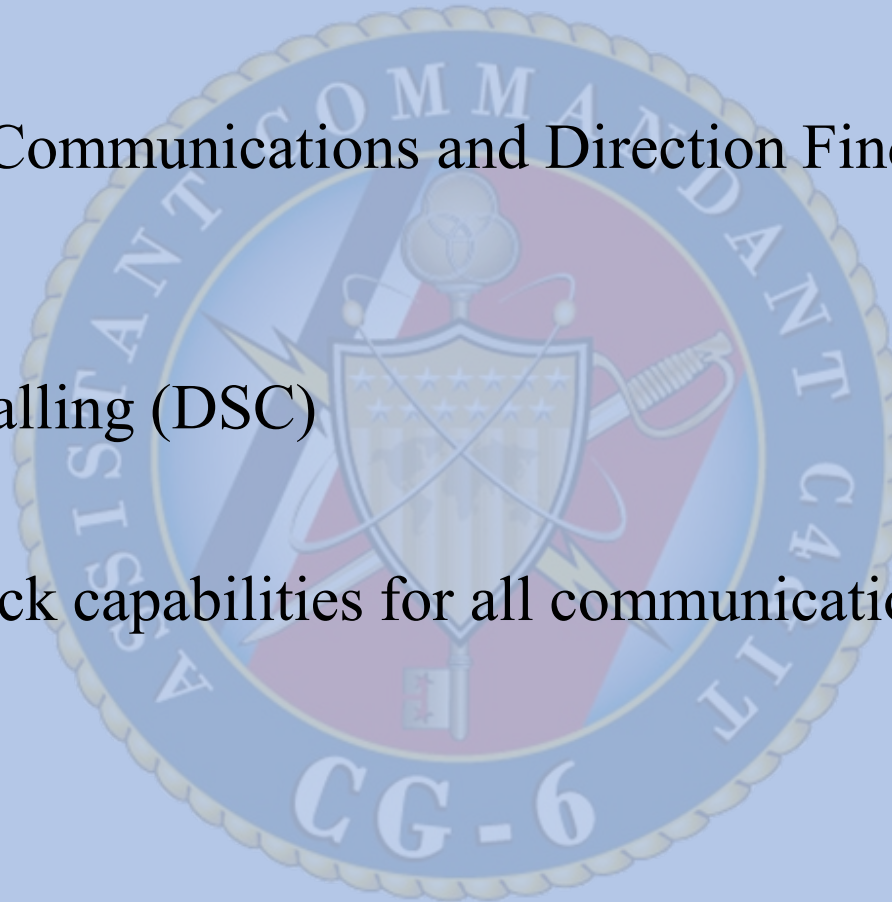
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## *Rescue 21 System*

- An advanced maritime Communication system
- Provides modern VHF- FM Communications and Direction Finding for the USCG National Distress & Response System
- Supports Digital Selective Calling (DSC)
- Provides recording & playback capabilities for all communications.



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Signal is also immediately picked up by Rescue 21 towers on land, which determine bearing to the distressed vessel.

Information about the boat in distress, and its exact position, is rapidly relayed to the Coast Guard, which makes contact with the crew of the boat and launches rescue operations.

Coast Guard station

## *Rescue 21 System Operations*

2

The emergency signal is instantly received, displayed, and repeated by all DSC radios within range - allowing nearby vessels to become first responders.

1

Distress signal is sent out to multiple receivers from sinking boat via their DSC-enabled VHF radio.

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## *Digital Selective Calling (DSC)*

- Maritime Mobile Service Identities (MMSI) numbers uniquely identify your vessel.
- MMSI must be obtained for each register vessel through Boat US [www.boatus.com](http://www.boatus.com) and FCC for private and commercial vessels.
- MMSI for Federal agency vessel(s) will coordinate through NTIA.
- The DSC radio must also be installed with a GPS receiver.

***“Don’t leave port without your DSC and a register MMSI!”***



DSC Distress button

Channel 16 (156.8 MHz) auto preset  
The “911” of the Sea

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# Emergency Position Indicating Radio Beacon (EPIRB)

- EPIRB operate on 406 MHz VHF Frequency band for all marine vessels, commercial ships, and pleasure crafts

***“Don’t leave port without your EPIRB!”***

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# ***RADAR Beacons (RACON)***

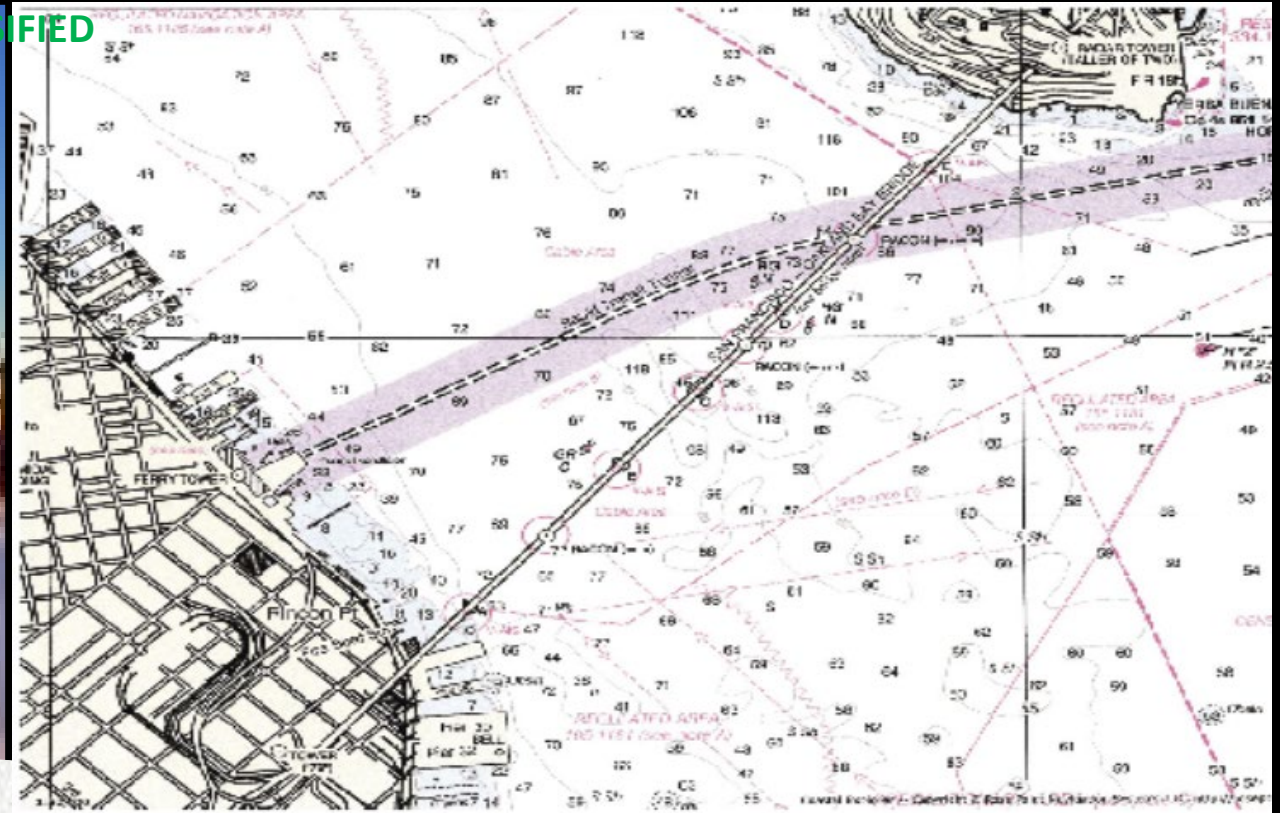
**Triggered by S-Band or X-Band  
Radar systems**



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# San Francisco to Oakland Bay Bridge RACON Placement

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*Example:  
Ship radar display for RACONs at San Francisco to  
Oakland Bay Bridge*

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## *Automatic Identification System (AIS) on VHF Marine Channels*

- A shipboard radar or an electronic chart display that includes a symbol for every significant ship within radio range, each with a velocity vector (indicating speed and heading).
- By hovering over an AIS icon, you can learn the ship name, course and speed, classification, call sign, registration number, MMSI, and other information.
- The International Maritime Organization's International Convention for the SOLAS requires AIS to be fitted aboard international voyaging ships with 300 or more gross tonnage, and all passenger ships regardless of size.

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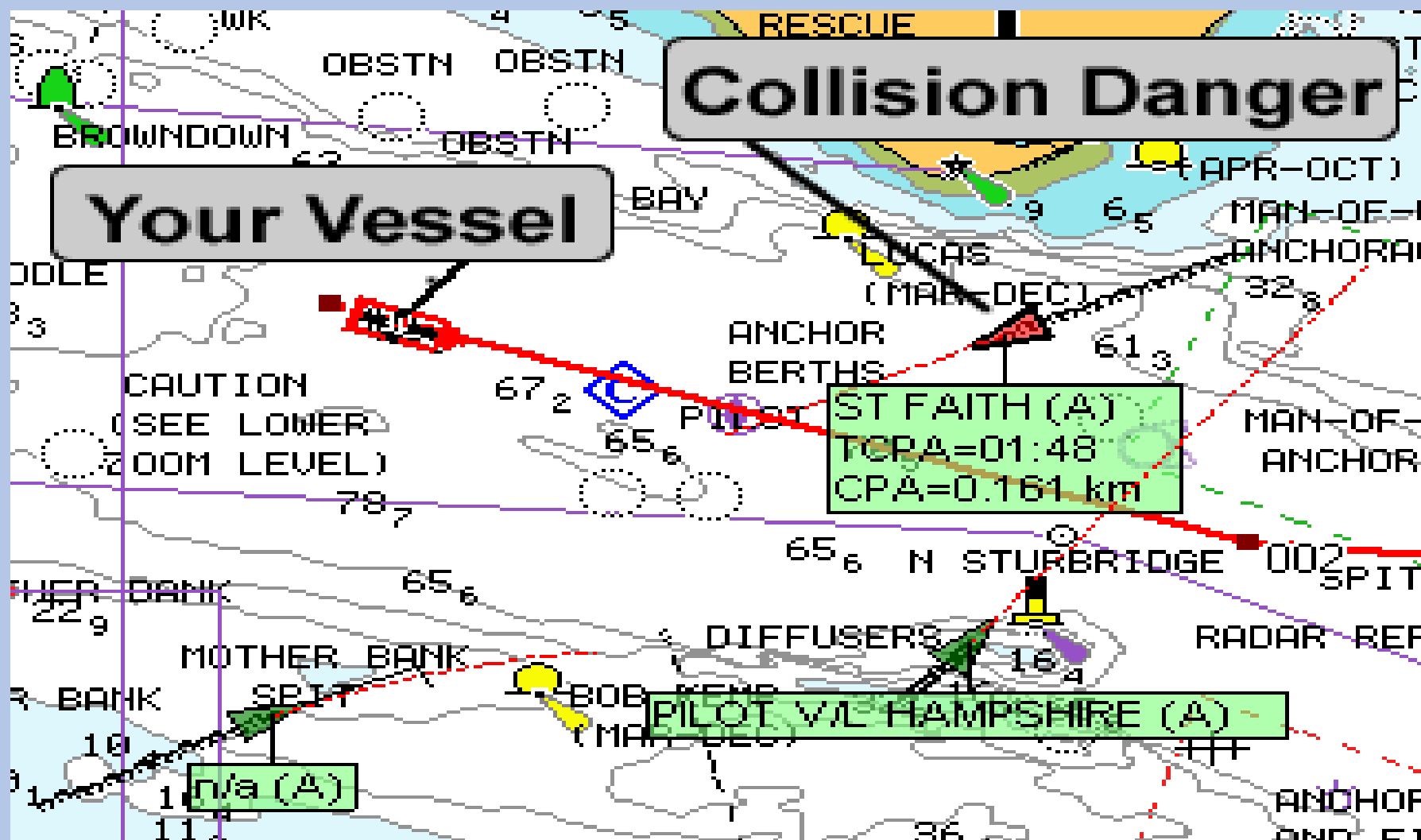
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*AIS Overlay*



***“Adhere to the Rules of the Road!”***

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*Questions?*

*“Thank you for inviting USCG”*

*“SEMPER PARATUS – Always Ready!”*



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