



# US Coast Guard HF Weather Broadcasting

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**How useful to the  
mariner?**

*Capt Len Ritter, US Coast Guard*



# What we'll cover

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- **History: Why we do it**
- **What we are doing now**
- **The problem**
- **The business case**
- **Where we go from here**



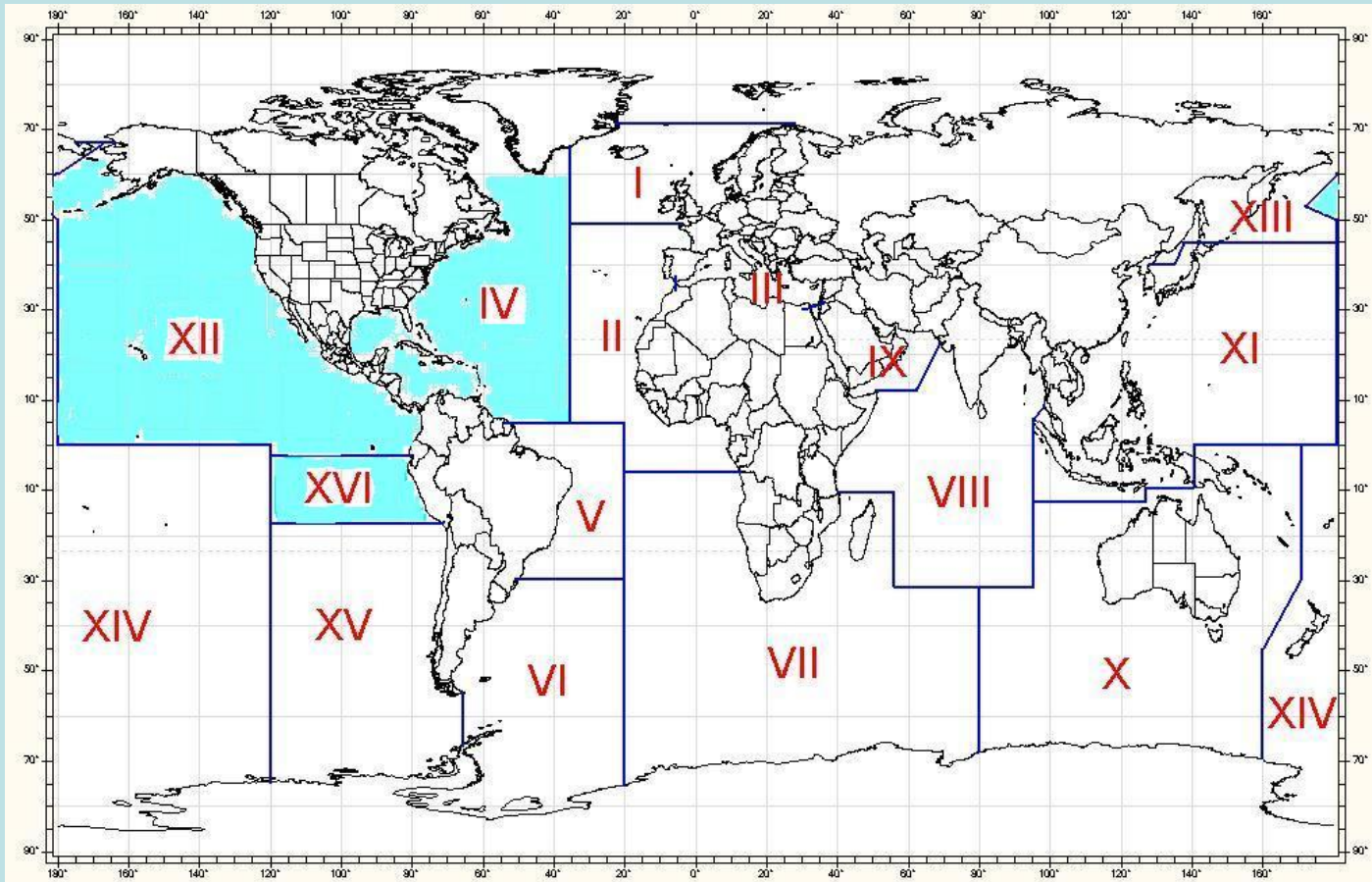
# Why we broadcast weather on HF

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- **Lessons learned from the Titanic lead to US Statutes and international regulations requiring known warnings to be broadcast**
- **Communications Act of 1934**
  - *“..authorities of the U.S. shall promptly bring the (information concerning safety if at sea, including weather) received by them to the knowledge of those concerned..” “at no charge” (47 USC 357)*
- **SOLAS Convention**
  - *“..Governments undertake to co-operate in carrying out... twice daily, by terrestrial and space radiocommunication services, weather information suitable for shipping... in text and, as far as practicable, graphic form including...charts transmitted by facsimile or in digital form”. (SOLAS V/5)*
  - *[“the transmission of these weather observations is free of charge to the ships concerned.”]*



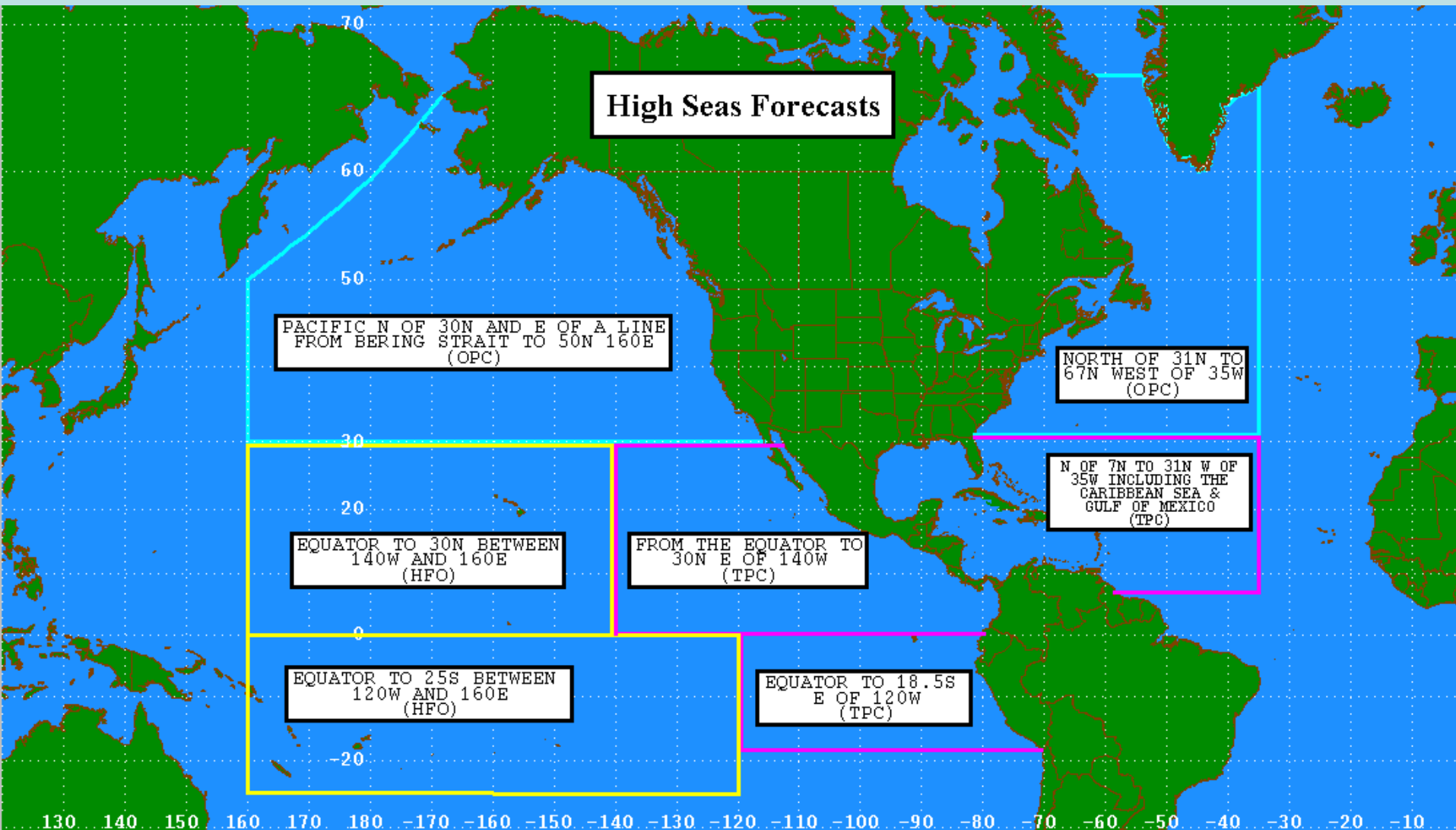
# WMO / IMO METAREA US Areas of Responsibility



US Meteorological Area responsibility extends well beyond VHF and domestic satellite coverage



# US High Seas Forecasts Areas Covered





# Whose responsibility is it?

- **National Weather Service responsible for meeting US meteorological requirements of International Maritime Organization (SOLAS Convention), World Meteorological Organization, and US Statute**
- **NWS funds to broadcast marine weather over Inmarsat-C / SafetyNET and NOAA Weather Radio**
- **USCG, not NOAA, broadcasts marine weather over HF because NOAA has no HF stations nor is authorized to operate them**
  - USCG authorized to operate radio stations (14 USC 93 (16))
- **Consequently, Congress authorized USCG to cooperate with NOAA**
  - *“In order to promote the safety of life and property on and over the high seas and waters over which the United States has jurisdiction,...the Commandant may cooperate with the (NOAA) by procuring, maintaining, and making available, facilities and assistance for ...communicating weather phenomena and for disseminating weather data, forecasts and warnings.” (14 USC 147)*



# Broadcast position at CAMSLANT, Chesapeake VA





# What we broadcast

- **Voice**

- *High seas and offshore weather forecasts and hurricane advisories*
- *Synthesized “Mighty Mike”*

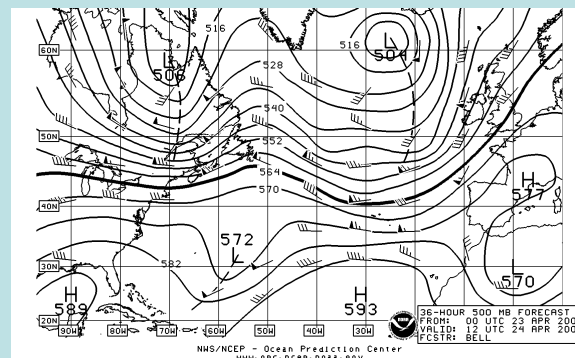


- **Weather facsimile (WEFAX)**

- *Recognized by SOLAS*
- *Includes ice charts*

- **HF SITOR (e.g. HF NAVTEX)**

- *Element of GMDSS*
- *Includes worldwide navigation warnings*



FZNT01 KWBC 230947

HSFAT1

CCODE/1:31:04:01:00/AOW/NWS/CCODE

HIGH SEAS FORECAST FOR METAREA IV

NWS OCEAN PREDICTION CENTER

WASHINGTON DC

1030 UTC APR 23 2007

SUPERSEDED BY NEXT ISSUANCE IN 6 HOURS

SECURITE

NORTH ATLANTIC NORTH OF 31N TO 67N AND  
WEST OF 35W.

SYNOPSIS VALID 0600 UTC APR 23.





# HF assets dedicated to broadcast

- **METAREA IV**
- **Boston / NMF**
  - *SITOR 3 Transmitters*
  - *WEFAX 3 Transmitters*
- **Chesapeake VA / NMN**
  - *Voice 3 transmitters*
- **New Orleans LA / NMG**
  - *Voice 3 transmitters*
  - *WEFAX 4 transmitters*
- **METAREA XII**
- **Pt Reyes CA / NMC**
  - *Voice 3 transmitters*
  - *WEFAX 4 transmitters*
  - *SITOR 2 transmitters*
- **Honolulu HI / NMO**
  - *Voice 2 transmitters*
  - *SITOR 3 transmitters*
- **Kodiak AK / NOJ**
  - *Voice 1 transmitter*
  - *WEFAX 3 transmitters*
- **Guam / NRV**
  - *Voice 1 transmitter*
  - *SITOR 3 transmitters*

Total number of HF transmitters used for weather broadcasts:

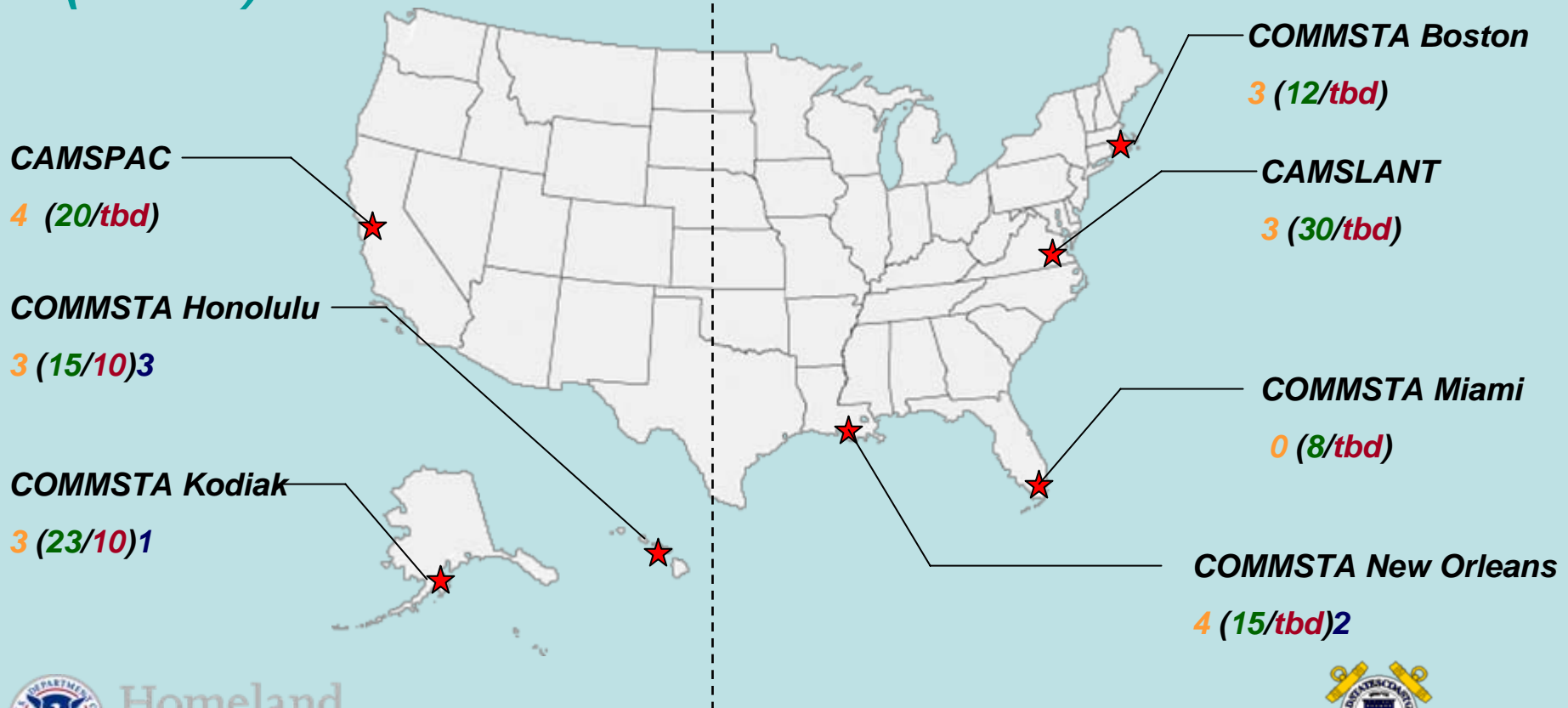
**23**



# HF Recap -HF Transmitter Population used for wx (current #/planned #)priority

**Pacific Area**  
**(58/tbd)**

**Atlantic Area**  
**(65/tbd)**





# The problem

- **Coast Guard HF infrastructure 123 10KW transmitters no longer supportable**
  - *Rockwell Collins HF-80*
  - *Harris RF-755*
- **Congress funding replacement of only a small fraction of legacy transmitters**
  - *Only 18 of 123 replaced so far*
  - *Replacement transmitter is 4KW RT-2200*
  - *Cost is ~\$200K with installation (\$20M total)*
- **Absent new funding to recap transmitters, must significantly cut services**



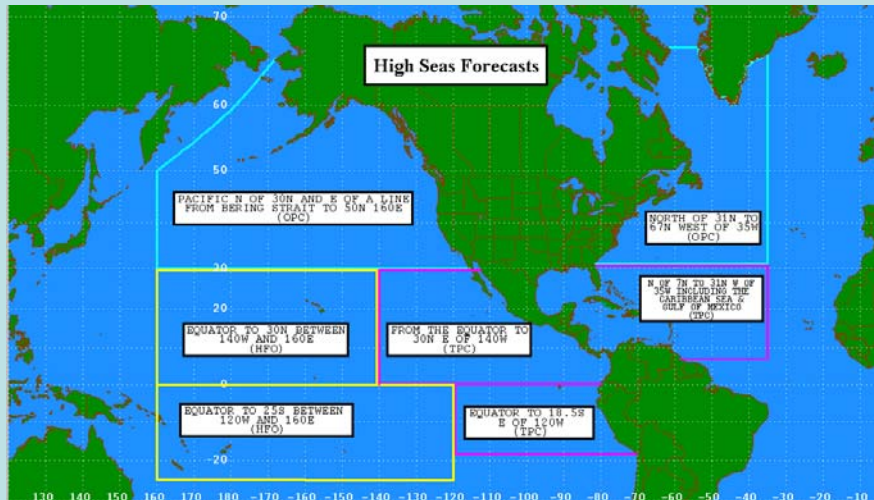
*Rockwell Collins  
10KW HF80 transmitter -  
at end of useful life*



# Commercial satellite marine weather services slow to fill gap

NWS high seas forecast coverage areas

XM Radio marine weather services satellite footprint



*Other commercial satellite weather service providers have similar coverage*



# Business Case Study

- **ABS Consulting contracted to perform business case study of need for Coast Guard to broadcast high seas weather over HF:**
  - *Voice*
  - *Facsimile*
  - *SITOR (e.g. HF NAVTEX)*
- **Business case study will include Coast Guard legal review**
- **Federal Register Notice just now published asking for public comment on the need for such broadcasts.**
  - *Comment period open until **24 August 2007***
  - *Submit comments to <http://dms.dot.gov>*
  - *Comments should be responsive to questions asked*
  - *RTCM comments invited too*
  - *Will be discussed at SC124 HF Users Interest Group, which meets Friday morning*
- **Not affected**
  - *International NAVTEX (518 kHz)*
  - *HF distress watchkeeping*
- **ARQ (on-call) SITOR will be terminated as early as JAN 08**
  - *Used primarily for AMVER reports and weather observations*



# Where do we go from here?

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- **Comment period ends 24 August 2007**
- **Business case study completed by end of 2007**
- **No services will be terminated until formal notice is issued**
- **Until a decision is made, care will be taken to ensure broadcast quality**
  - *Coast Guard Auxiliary has begun monitoring existing broadcasts to ensure quality*
- **Weather facsimile will likely end once low cost, high speed internet becomes generally available throughout ocean areas**
- **Even if business case for continuing broadcasts is supported, broadcasts **must be terminated anyway unless funds become available****
  - *To either replace transmitters, or*
  - *To contract out services*



# The End



*US Coast Guard  
Communications  
Station Kodiak, AK /  
NOJ*